

*University of Delaware  
College of Agriculture and Natural Resources  
Agricultural Experiment Station  
Cooperative Extension  
Research & Education Center  
Georgetown, DE 19947*



**DELAWARE  
WEED CONTROL  
RESULTS - 2013**

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## WEED CONTROL RESULTS

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The purpose of this report is to present results and details of many of the 2013 weed control field trials conducted by Cooperative Extension at the University of Delaware. Results are summarized from data obtained at the Georgetown Research and Education Center and other test locations throughout the state. These results, as well as results from previous years back to 2002, are available at the UD Weed Science web site; <http://extension.udel.edu/ag/weed-science/>.

The results obtained and any conclusions stated are not published herein as recommended practices. The data in this report are especially intended for use by cooperators, commercial field workers, county agents, agricultural teachers, and researchers. They will also be of value to growers who are interested in following closely the development of new herbicides and weed control systems.

Treatments are listed by trade names to facilitate reading by non-technical people. No discrimination is intended and no endorsement is implied by the University of Delaware. Chemical index is cross-referenced by common and trade names.

Many of the chemicals listed are actually a combination of two or more herbicides. Where this is the case, the name of the combination is usually followed by the word "Premix". The common names of the herbicides in that premix are listed in the Index of Chemicals at the front of this document.

When analyzing the information in this report, we strongly urge you to read carefully the site description section of each study. We trust you will find the information in this report useful and accurate.

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Baker Farms	McDowell Farms
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Dow-AgriSciences	PictSweet
E.I. DuPont de Nemours & Co.	Pleasanton Farm
Fairhill Farms	Roger's Seed
FMC Corp.	Seabrook Brothers & Sons
Freo	Seminis Seeds
Glenville Hollow Farms	Sudeep Mathews
Gowan	Syngenta
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## WEED INDEX

<u>Common Name</u>	<u>WSSA Code</u>	<u>Scientific Name</u>	<u>Trial</u>
Amaranth, Palmer	AMAPA	Amaranthus palmeri S.Wats.	Corn1, 7, 9a, 10a, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23; SCR1, 3; Bean2, 6; Cuke1, 2; Milo2; Pmkn1; DSB1a, 2, 3, 6, 7; Soy1, 4, 5, 6, 9, 10, 11, 14, 15, 17, 18, 20, 21, 24
Bluegrass, Annual	POAAN	Poa annua L.	SG7, 16a; Soy20
Broadleaves, Annual	ANNBR		DSB2; Soy1
Carpetweed	MOLVE	Mollugo verticillata L.	MELN1
Chamomil Species	ANTSP	Anthemis ssp.	SG4
Chickweed, Common	STEME	Stellaria media (L.) Vill./cyr.	SG3, 6, 7, 8, 12, 16a; Brndwn1, 3; Soy1
Chickweed, Jagged	HLOUM	Holosteum umbellatum L.	SG1, 3, 6, 10, 14
Chickweed, Mouseear	CERVU	Cerastium vulgatum L.	SG3, 4, 12; DSB2, 3; Soy1
Crabgrass, Large	DIGSA	Digitaria sanguinalis (L.) Scop.	Corn1, 9a, 9b, 10a, 10b, 13, 15, 18, 20, 21; SCR3; Bean2; Milo2; DSB1a, 2, 3; Soy1, 4, 6, 9, 15, 17, 20, 21
E.primrose, Cutleaf	OEOLA	Oenothera laciniata Hill	Corn19, SG4, 6, 12; DSB2, 3; Soy9, 20
Filaree, Redstem	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.	DSB2
Foxtail, Giant	SETFA	Setaria faberi Herm.	Corn7, 19, 22; Milo1; Soy4, 19
Garlic, Wild	ALLVI	Allium vineale L.	DSB2
Goosegrass	ELEIN	Eleusine indica (L.) Gaertn.	Soy4
Grass, Annual	GGGAN		SCR1; Pmkn1; DSB2, 7; Soy1, 24

<u>Common Name</u>	<u>WSSA Code</u>	<u>Scientific Name</u>	<u>Trial</u>
Henbit	LAMAM	Lamium amplexicaule L.	SG1, 3, 4, 7, 10, 12, 14; Brndwn1, 3; DSB3; Soy1
Horsenettle, Carolina	SOLCA	Solanum carolinense L.	Bean3, 3b
Horseweed	ERICA	Erigeron canadensis L.	Corn19, 22; SG6; DSB2; Soy9, 23, 24
Knawel	SCRAN	Scleranthus annuus L.	SG4, 6; Soy20
Lambsquarters, Cmn.	CHEAL	Chenopodium album L.	Corn1, 9b, 10a, 10b, 18, 20, 21; MELN2; Soy17
Morningglory, Ivyleaf	IPOHE	Ipomoea hederacea (L.) Jacq.	Soy4
Morningglory Pitted	IPOLA	Ipomoea lacunose L.	Soy4
Morningglory Species	IPOSS	Ipomoea ssp.	Corn1, 8, 9a, 10a, 13, 16, 18, 20, 21; SCRAN1, 3; Bean2, 3; Cuke1, 2; MELN1, 2; Milo1, 2; Pmkn1; Veg2; DSB1a, 2, 6; Soy4, 5, 6, 9, 10, 11, 13, 14, 17, 18, 19, 20, 21, 22
Nutsedge, Yellow	CYPES	Cyperus esculentus L.	MELN1
Oatgrass, Bulbous	ARREB	Arrhenatherum elatius var. bulbosa	SG17; Brndwn4
Panicum, Fall	PANDI	Panicum dichotomiflorum (L.) Michx.	MELN1, 2; Veg2
Pansy, Field	VIORA	Viola rafinesquii Greene	Corn2, 19, 22; SG3, 4; DSB2, 3; Soy1, 9, 20
Purselane, Common	POROL	Portulaca oleracea L.	MELN1
Ragweed, Common	AMBEL	Ambrosia elatior L.	Corn1, 10a, 18, 21; Pmkn1; Soy4, 17, 21, 22
Ryegrass, Annual	LOLMU	Lolium multiflorum Lam.	Corn19; SG6, 13
Rye, Winter	SECCE	Secale cereale L.	Soy1
Shepherdspurse	CAPBP	Capsella bursa-pastoris (L.) Medik.	SG12

<b><u>Common Name</u></b>	<b><u>WSSA Code</u></b>	<b><u>Scientific Name</u></b>	<b><u>Trial</u></b>
Sida, Prickly	SIDSP	Sida spinosa L.	DSB1a
Speedwell, Corn	VERAR	Veronica arvensis L.	SG4
Star-of-Bethlehem	OTGUM	Ornithogalum umbellatum L.	SG4, Soy2
Stinkgrass	ERACN	Eragrostis cilianensis (All.) E. Mosher	MELN1
Vetch Species	VICSS	Vicia ssp.	SG4, 6; DSB2, 3; Soy1, 20
Wheat, Volunteer	TRZAX	Triticum aestivum L. Wiggers	Corn2, 19, 22
Woodsorrel, Yellow	OXAST	Oxalis stricta L.	Corn19, 22; Soy20

## INDEX OF CHEMICALS

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
Aatrex	atrazine	Corn1, 2, 7, 8, 9a, 9b, 10a, 10b, 13, 16, 18, 19, 20, 21, 22, 23; SCRN1, 3, 7; Milo1, 3
Abundit	glyphosate	Corn1, 22; Soy19, 20
Aim	carfentrazone	Bean3
Anthem ATZ Premix	pyroxasulfone + fluthiacet + atrazine	Corn16, 19, 20
Anthem Premix	pyroxasulfone + fluthiacet	Corn20; Soy14, 16, 17
Authority Assist Premix	sulfentrazone + imazethapyr	Soy16
Authority Elite Premix	sulfentrazone + s-metolachlor	Soy16
Authority First Premix	sulfentrazone + cloransulam	Soy5, 10
Authority MTZ Premix	sulfentrazone + metribuzin	Corn19; SG1; Soy5, 14, 16, 17
Authority XL Premix	sulfentrazone + chlorimuron	DSB7; Soy5, 22
Autumn	iodosulfuron	Brndwn1
Autumn Super 51 Premix	iodosulfuron + thiencazone	Brndwn1
Axial XL	pinoxaden	SG2, 13, 17
Axiom Premix	flufenacet + metribuzin	SG1, 4, 6, 7, 13, 16a
Balance Flexx	isoxaflutole	Corn6, 7, 15, 16
Banvel	dicamba	Corn8; SG4; Milo1; Soy2
Basagran	bentazon	SCRN1; Bean3, 3b; Pea1; DSB1a; Soy18
Basis Blend Premix	rimsulfuron + thifensulfuron	Corn6
Bicep II Magnum Premix	s-metolachlor + atrazine	Corn6, 9a, 9b, 10a, 10b, 13, 18, 19, 20, 21; SCRN7; Milo2, 3
Boundary Premix	s-metolachlor + metribuzin	DSB2; Soy5, 20
Breakfree ATZ Premix	acetochlor + atrazine	Corn1
Cadet	fluthiacet	Corn20; SCRN1; Soy11, 18
Callisto	mesotrione	Corn8, 9b, 13, 19, 20, 23; SCRN7; Milo2; Soy24

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Canopy EX Premix	chlorimuron + tribenuron	DSB2
Canopy Premix	chlorimuron + metribuzin	DSB7; Soy1, 3, 5, 10, 17, 19, 20, 21, 22, 23
Capreno Premix	tembotrione + thiencazone + Isoxadifen	Corn6, 7, 8, 15, 23
Chateau	flumioxazin	Cuke2; Meln2, 3; Veg2
Cinch ATZ Premix	s-metolachlor + atrazine	Corn1, 2, 22
Cinch	s-metolachlor	Soy19, 20
Clarity	dicamba	Corn23; SG14; DSB3; Soy1, 4
Classic	chlorimuron	SG11; Soy1, 16, 17
Cobra	lactofen	DSB6, 7
Collide	oxyfluorfen	Soy24
Command	clomazone	Cuke1; DSB4
Corvus Premix	thiencazone + isoxaflutole	Corn6, 7, 9a, 9b, 15, 16, 22
Curbit	ethalfluralin	Cuke1, 2; MELN2; Pmkn1
Dual II Magnum	s-metolachlor	Corn7; SCR1
Dual II	metolachlor	MELN1, 3
Dual Magnum	s-metolachlor	Bean6; MELN2; Pea2a, 3; Veg2; DSB1a, 4, 6; Soy7, 15, 18
Durango DMA	glyphosate	Corn21; Soy19
Envive Premix	chlorimuron + flumioxazin + thifensulfuron	SG11; DSB3; Soy19, 20
Express TS	tribenuron	SG12; Soy1
Fierce Premix	flumioxazin + pyroxasulfone	Corn15, 22; Milo2; Soy5, 14, 21
Firstrate	cloransulam	Soy19
Flexstar GT Premix	fomesafen + glyphosate	Soy20
Flexstar	fomesafen	Soy18
Glyphosate	glyphosate	Bean3; DSB1a, 6
Goal 2XL	oxyfluorfen	DSB7

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Gramoxone SL	paraquat	Corn13, 19; SG7; Brndwn1, 3; MELN2, 3; DSB2, 7; Soy17, 20, 22, 23, 24
Halex GT Premix	s-metolachlor + glyphosate + mesotrione	Corn10a, 10b, 13, 18, 21
Harmony Extra SG Premix	thifensulfuron + tribenuron	SG2, 7, 8, 11, 12, 13; DSB3
Harmony SG	thifensulfuron	Soy1
Harness Xtra Premix	acetochlor + atrazine	Corn9a, 9b, 10a, 10b
Hornet WDG Premix	flumetsulam + clopyralid	Corn6, 20
Huskie Premix	pyrasulfotole + bromoxynil	SG6, 7, 14; Milo1; Soy2
Impact	topramezone	Corn8, 18, 22; SCR1, 3, 7
Instigate Premix	rimsulfuron + mesotrione	Corn1, 2, 6, 15
Keystone LA NXT Premix	acetochlor + atrazine	Corn21
Keystone NXT Premix	acetochlor + atrazine	Corn21
KFD-104-01	"experimental"	DSB8; Soy24
Laudis	tembotrione	Corn8, 18; SCR7
Lexar EZ Premix	s-metolachlor + mesotrione + atrazine	Corn7, 9a, 9b, 13, 16, 21
Liberty 280	glufosinate	DSB1a, 6, 7, 8; Soy4, 10, 20, 23
Lumax EZ Premix	s-metolachlor + mesotrione + atrazine	Corn1, 2, 9a, 9b, 10a, 10b, 13, 20, 21, 22; Milo3
Marksman Premix	dicamba + atrazine	Miol1
Maverick	sulfosulfuron	SG16a, 17; Soy2
Metribuzin	metribuzin	Corn19; SG1, 3, 4, 5, 6, 7, 8, 10, 12, 14, 17; DSB1a; Soy5, 7, 10, 14, 17, 23
Metsulfuron	metsulfuron	SG11, 12
MON 76832	"experimental"	Soy9
Olympus Flex Premix	mesosulfuron + propoxycarbazone	SG2, 13, 14, 16a, 17; Soy2
Olympus	propoxycarbazone	SG2, 13, 16a, 17

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
OpTill Premix	saflufenacil + imazethapyr	Soy5, 14
Osprey	mesosulfuron	SG2, 6, 7, 13, 16a, 17
Outlook	dimethenamid-p	Corn17; Soy15
Paramount	quinclorac	Milo1
Peak	prosulfuron	SG1
Permit	halosulfuron	Milo1
Permit Plus Premix	halosulfuron + thifensulfuron	Corn20, 21, 23
PowerFlex HL	pyroxsulam	SG2, 6, 7, 12, 13, 14, 16a, 17; Soy2
Prefar	bensulide	MELN1
Prefix Premix	s-metolachlor + fomesafen	DSB1a, 6; Soy5, 10, 16, 20, 21
Prequel Premix	rimsulfuron + isoxaflutole	Corn1, 6, 9a, 9b, 15, 22
Prowl	pendimethalin	DSB1a, 4
Prowl H <sub>2</sub> O	pendimethalin	Corn9a, 9b, 10a, 10b, 13, 17, 21; SCRN1; Soy1, 15, 20
Pulsar Premix	dicamba + fluroxypyr	SG14
Pursuit	imazethapyr	Bean6; Pea2a, 3
Raptor	imazamox	Bean3, 3b; Pea1; DSB8
Realm Q Premix	rimsulfuron + mesotrione	Corn1, 6, 8, 10a, 10b, 23
Reflex	fomesafen	Cuke2; MELN1, 2, 3; Pea2a, 3; DSB1a, 6; Soy3, 10, 11, 12, 17
Require Q multi-pak	rimsulfuron + dicamba + safener	Corn23
Resolve Q multi-pak	rimsulfuron + thifensulfuron + safener	Corn8, 22
Resolve SG	rimsulfuron	Corn9a, 9b, 10a, 10b
Resource	flumiclorac	Soy11
Roundup PowerMax	glyphosate	Corn7, 18, 19, 20, 22; Milo2; DSB4, 7, 8; Soy1, 16, 17, 18, 24

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Roundup WeatherMax	glyphosate	Corn6, 8, 10a, 10b, 13, 15, 17, 21, 23; SCR1; SG11, 16a, 17; Brndwn3, 4; DSB2, 3; Soy2, 3, 9, 11, 15, 23
Sandea	halosulfuron	Corn8; Bean3, 3b; Cuke1; MELN1, 2
Select Max	clethodim	DSB1a, 4, 6; Soy11, 18
Sharpen	saflufenacil	Corn16, 20; SCR1; SG1, 3, 4, 6, 7; Brndwn1; Cuke2; MELN2, 3; Milo2; Pea2a; Veg2; Soy3, 12, 13, 14, 23
Simazine	simazine	Corn1, 9a, 9b, 13, 21
Sinbar	terbacil	MELN1
Sonic Premix	sulfentrazone + cloransulam	Soy14, 19
Spartan	sulfentrazone	Corn19; Soy17
Spartan Charge Premix	carfentrazone + sulfentrazone	Bean6; Cuke2
Starane Ultra	fluroxypyr	SCR1; SG3, 4, 7, 8, 14; Milo1
Status Premix	diflufenzopyr + dicamba + safener	Corn8, 18, 23
Steadfast Q Premix	nicosulfuron + rimsulfuron + safener	Corn22
Storm Premix	bentazon + acifluorfen	DSB8
Strategy Premix	ethalfuralin + clomazone	Cuke1; MELN2; Pmkn1
SureStart Premix	acetochlor + clopyralid + flumetsulam	Corn15, 16, 20, 21
Synchrony XP Premix	chlorimuron + thifensulfuron	DSB1a, 8; Soy20
Thistrol	MCPB	Pea1
Touchdown HiTech	glyphosate	Soy11
Touchdown Total	glyphosate	Corn21; Soy20
Tricor DF	metribuzin	Soy24
Trivence	chlorimuron + metribuzin + flumioxazin	Soy19
Ultra Blazer	acifluorfen	DSB8; Soy18

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Trial</u></b>
Valor SX	flumioxazin	SG1, 3, 4; Brndwn1; Milo2; DSB2, 6; Soy1, 3, 4, 7, 12, 13, 20, 21
Valor XLT Premix	flumioxazin + chlorimuron	DSB1a, 2, 7; Soy5, 9, 10, 11, 14, 16, 22
Verdict Premix	saflufenacil + dimethenamid-p	Corn15, 16, 20; Soy14
Warrant	acetochlor	Corn18; Soy4
Zemax Premix	s-metolachlor + mesotrione	Corn15
Zidua	pyroxasulfone	Corn9a, 9b, 16, 17; SCR1; Milo2; Pea2a; DSB4; Soy10, 14, 15
2,4-D amine	2,4-D amine	Corn23; SG4, 14; Milo1; DSB3; Soy4
2,4-D ester	2,4-D ester	Corn22; DSB2; Soy1, 2, 3, 9, 20

**Daily Temperature Record**  
**October 2012 - September 2013**  
 University of Delaware, Research and Education Center  
 Georgetown, Delaware

	2012																							
	Oct		Nov		Dec		Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sept	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
<b>1</b>	72	47	53	37	59	30	44	38	31	20	45	34	66	41	62	46	88	69	78	70	76	67	88	74
<b>2</b>	80	62	53	42	59	40	38	25	30	14	39	32	49	26	63	44	87	70	87	71	85	65	86	73
<b>3</b>	83	72	48	40	69	47	35	24	35	25	37	28	50	23	56	43	75	68	88	70	83	69	85	66
<b>4</b>	82	63	50	34	71	46	41	22	34	25	41	28	51	25	62	45	75	57	89	72	79	63	80	59
<b>5</b>	80	57	45	29	60	37	42	28	48	30	48	24	60	35	57	44	77	53	88	72	79	58	83	59
<b>6</b>	81	56	48	26	43	27	50	33	44	24	43	35	52	34	58	46	75	54	91	74	72	63	73	55
<b>7</b>	56	47	43	34	53	26	49	26	40	22	44	35	64	31	61	53	75	66	90	73	81	66	79	49
<b>8</b>	53	41	51	35	52	49	52	24	46	36	44	34	77	52	71	56	76	65	85	72	85	72	86	61
<b>9</b>	60	51	53	30	51	48	60	34	36	27	58	32	82	60	73	57	81	61	87	72	88	73	77	59
<b>10</b>	67	53	65	31	67	51	50	34	44	19	53	26	86	62	83	53	81	66	88	73	83	67	88	65
<b>11</b>	62	41	69	44	63	39	54	30	58	38	63	34	81	49	79	63	82	70	78	72	79	65	91	71
<b>12</b>	67	40	71	45	45	34	58	41	53	36	61	43	74	49	65	49	84	68	73	68	86	69	89	69
<b>13</b>	62	30	66	35	47	27	56	40	45	34	50	32	64	44	60	39	90	68	86	67	83	72	77	61
<b>14</b>	74	45	46	33	51	23	62	44	48	33	44	31	65	39	60	35	73	57	89	74	74	58	68	50
<b>15</b>	76	58	48	40	53	29	44	37	57	33	50	29	59	50	79	52	81	57	91	72	75	54	74	44
<b>16</b>	63	41	48	30	54	44	43	36	41	30	53	32	72	48	85	65	85	62	91	75	76	52	74	56
<b>17</b>	67	38	51	28	55	49	42	32	33	25	39	34	74	55	80	56	84	70	93	72	77	59	64	46
<b>18</b>	71	45	53	41	60	42	36	25	37	21	48	34	74	54	69	58	78	64	95	74	70	64	70	43
<b>19</b>	76	65	50	44	52	34	50	27	50	32	56	40	80	60	76	59	75	59	94	76	73	62	75	45
<b>20</b>	69	48	53	37	53	30	57	35	40	26	50	27	64	46	81	65	77	54	92	80	84	63	78	48
<b>21</b>	65	41	53	31	60	38	43	25	36	23	41	29	51	35	81	67	77	53	91	73	86	66	79	50
<b>22</b>	68	40	55	32	43	33	29	15	37	26	44	26	51	31	81	69	82	59	89	72	85	69	72	53
<b>23</b>	78	45	59	31	45	27	25	12	52	37	49	26	55	45	78	68	84	64	88	73	79	67	65	47
<b>24</b>	78	55	49	33	44	26	24	14	50	33	42	24	72	38	68	50	90	71	87	69	78	60	69	44
<b>25</b>	68	60	42	27	47	33	24	11	45	27	35	32	63	43	63	47	92	70	73	65	79	54	74	44
<b>26</b>	72	53	53	27	53	32	30	12	54	25	49	32	66	37	69	45	91	70	82	65	81	57	71	52
<b>27</b>	66	59	51	33	50	37	36	12	55	42	50	36	67	38	73	45	88	71	83	64	86	70	69	51
<b>28</b>	59	55	43	25	42	31	45	22	47	36	46	34	68	38	79	60	89	67	82	66	84	69	70	53
<b>29</b>	55	47	47	23	40	32	66	39			54	31	58	53	86	65	86	67	83	63	79	65	70	50
<b>30</b>	47	42	56	26	40	31	72	49			58	32	57	51	87	69	83	72	81	58	81	62	72	47
<b>31</b>	54	39			43	27	66	30			58	36			88	67			82	60	86	67		

Data Collected Midnight- Midnight

**Daily Rainfall Record**  
 October 2012 - September 2013  
 University of Delaware, Reserch and Education Center  
 Georgetown, Delaware

	2012											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
1	0.00	0.00	0.01	0.00	0.05	0.00	0.02	0.00	0.00	2.08	2.16	0.00
2	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.36	0.18	0.00	0.00
3	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	2.35	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.08	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	2.60	0.00	0.00	0.00	0.00	0.18	0.00
7	0.00	0.45	0.46	0.00	0.00	0.02	0.00	0.27	2.07	0.00	1.10	0.00
8	0.04	0.04	0.12	0.00	1.43	0.00	0.00	0.19	0.50	0.00	0.01	0.00
9	0.03	0.00	0.02	0.00	0.01	0.00	0.00	0.07	0.00	0.01	1.06	0.00
10	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	1.63	0.00	0.00	0.00
11	0.00	0.00	0.00	0.06	0.22	0.00	0.00	0.58	0.13	0.40	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.41	0.67	0.08	0.00	2.81	0.16	0.31
13	0.00	0.11	0.00	0.00	0.55	0.01	0.05	0.00	0.24	0.01	0.02	0.00
14	0.00	0.00	0.00	0.21	0.01	0.00	0.00	0.01	0.06	0.01	0.01	0.00
15	0.40	0.00	0.00	0.79	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
16	0.01	0.00	0.10	0.49	0.14	0.00	0.00	0.00	0.03	0.37	0.00	0.00
17	0.00	0.00	0.06	0.58	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
18	0.00	0.00	0.06	0.04	0.00	0.17	0.00	0.26	1.65	0.00	0.24	0.00
19	0.19	0.00	0.00	0.00	0.19	0.06	0.46	0.20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.23	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.61	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.33
22	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.01	0.52	0.09
23	0.00	0.01	0.00	0.00	0.14	0.00	0.00	0.29	0.09	0.02	0.06	0.00
24	0.00	0.00	0.14	0.00	0.01	0.02	0.00	0.28	0.01	0.00	0.00	0.00
25	0.01	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	1.75	0.07	0.85	0.00	0.00	0.00	0.01	0.00	0.00	0.00
27	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.00
28	0.97	0.00	0.00	0.08	0.30	0.01	0.00	0.07	0.81	0.12	0.11	0.00
29	6.60	0.00	0.24	0.00		0.00	1.13	0.01	0.03	0.00	0.00	0.00
30	0.35	0.00	0.00	0.00		0.00	0.33	0.00	0.10	0.00	0.00	0.00
31	0.00		0.00	0.22		0.08		0.00		0.00	0.00	
<b>Total</b>	<b>8.60</b>	<b>0.71</b>	<b>3.91</b>	<b>2.54</b>	<b>4.08</b>	<b>3.98</b>	<b>4.19</b>	<b>2.33</b>	<b>10.60</b>	<b>6.03</b>	<b>5.71</b>	<b>0.73</b>

**Total for Period = 53.41 Inches**

Data Collected Midnight- Midnight

Measurements shown in Inches

## Daily Irrigation Record (Inches H<sub>2</sub>O)

April-August 2013

University of Delaware, Research and Education Center  
Georgetown, Delaware

	April Field 18*	May Field 18*	June Field 18*	July Field 18*	August Field 18*
1					
2					
3		0.5			
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17		0.5			
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
<b>Total</b>	<b>0.0</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

\*Field 18 applies to Corn 1, 6, 8, 9a, 10a, 18, 20, 21; SCRNs 1, 3, 7; Cuke1.

Weed Control Programs with Instigate in Field Corn

Trial ID: Corn1-13 Cooperator: DuPont  
 Location: Field #18 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947  
**Investigator:** Mark VanGessel

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Common Lambsquarters	CHEAL	Chenopodium album L.
2.	Annual Grasses	GGGAN	
3.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
4.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
5.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Field Corn **ZEAMX** **Variety:** H6555RCSS  
**Planting Date:** 04/26/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 28000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 68 F **Soil Moisture:** Moist **Emergence Date:** 05/07/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed & Disked Twice

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

**SOIL DESCRIPTION**

**% Sand:** 81 **% OM:** 1.3 **Texture:** loamy sand  
**% Silt:** 12 **pH:** 6.3  
**% Clay:** 7 **CEC:** 5.0 **Fert. Level:** Optimum  
**Irrigation/Type:** Sprinkler - Lateral Move **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	05/02/13	05/28/13
<b>Time of Day:</b>	8:30 am	2:00 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	28DAP
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	51 F	78 F
<b>% Relative Humidity:</b>	86	60
<b>Wind Velocity, Unit:</b>	3 mph	5 mph
<b>Wind Direction:</b>	Northeast	Southwest
<b>Dew Presence (Y/N):</b>	Y	N
<b>Soil Temp., Unit:</b>	50 F	76 F
<b>Soil Surf. Moisture:</b>	Moist	Moist
<b>Root Zone Moisture:</b>	Wet	Moist
<b>Leaf Surf. Moisture:</b>	N/A	Dry
<b>% Cloud Cover:</b>	100	100

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V4-5
Height, Unit:		8 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	CHEAL	CHEAL
Growth Stage:		vegetative
Height, Unit:		3 in
Density, Unit:		120 m <sup>2</sup>
Weed 2 Code:	GGGAN	GGGAN
Growth Stage:		3-4 leaf
Height, Unit:		2 in
Density, Unit:		50 m <sup>2</sup>
Weed 3 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		2.5 in
Density, Unit:		5 m <sup>2</sup>
Weed 4 Code:	CYPES	CYPES
Growth Stage:		4-7 leaf
Height, Unit:		5 in
Density, Unit:		50 m <sup>2</sup>
Weed 5 Code:	IPOSS	IPOSS
Growth Stage:		cot-4 leaf
Height, Unit:		2.5 in
Density, Unit:		4 m <sup>2</sup>

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	24 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

#### Trial Comments

5/17/13: Most of the corn is pale & chlorotic due to cool wet weather. Did not notice a treatment effect.

5/29/13: Weed control was good to excellent, >90 for all annual species with all soil-applied herbicides. Morningglory was at cotyledon stage, but many looked like they were injured from herbicides. Too early to rate.

6/5/13: Few summer annual plots were present at time of POST applications. Mostly morningglory at cotyledon stage. Treatments 4 and 6 (PRE only) are still showing excellent weed control. A few morningglory plots in cotyledon to 1 leaf stage.

Weed Control Programs with Instigate in Field Corn												
Trial ID: Corn1-13 Cooperator: DuPont												
Location: Field #18 Investigator: Mark VanGessel												
Trt	Treatment	Form	Form	Rate	Grow	Appl	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	AMAPA
No.	Name	Conc	Type	Rate	Stg	Code	Field	Field	Field	Field	Field	Palmer
				Unit			Corn	Corn	Corn	Corn	Corn	Amaranth
							Stunting	Stunting	Chloross	Stunting	Stunting	Control
							%	%	%	%	%	%
							05/17/13	05/24/13	05/24/13	06/05/13	06/19/13	06/19/13
1	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE	A	10.3 ab	14.0 cd	5.7 a	19.0 cd	24.0 bc	89.0 a
	Atrazine 4L	4L		1 lb ai/A	PRE	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2% w/v	28DAP	B						
2	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE	A	11.3 ab	15.7 bcd	5.7 a	21.7 bcd	14.0 cde	92.0 a
	Atrazine 4L	4L		1 lb ai/A	PRE	A						
	Realm Q Premix	38.7	WG	0.097 lb ai/A	28DAP	B						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2% w/v	28DAP	B						
3	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE	A	14.0 a	23.3 a	8.3 a	32.3 a	36.7 a	92.7 a
	Cinch ATZ Premix	5.5	L	2.06 lb ai/A	PRE	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2% w/v	28DAP	B						
4	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE	A	8.7 b	11.3 d	4.0 a	18.3 d	18.0 bcd	95.7 a
	Cinch ATZ Premix	5.5	L	2.75 lb ai/A	PRE	A						
5	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE	A	10.7 ab	20.7 ab	8.0 a	25.7 abc	25.0 b	99.3 a
	Breakfree ATZ Premix	5.25	SE	1.97 lb ai/A	PRE	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2% w/v	28DAP	B						
6	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE	A	12.3 ab	19.0 abc	9.0 a	25.0 bcd	25.0 b	89.7 a
	Breakfree ATZ Premix	5.25	SE	2.62 lb ai/A	PRE	A						
7	Instigate Premix	45.8	WG	0.15 lb ai/A	PRE	A	12.3 ab	16.7 bcd	4.7 a	20.7 bcd	28.3 ab	92.0 a
	Cinch ATZ Premix	5.5	L	2.06 lb ai/A	PRE	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2% w/v	28DAP	B						
8	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE	A	11.7 ab	14.7 cd	2.3 a	26.7 ab	25.0 b	92.0 a
	Atrazine 4L	4L		1 lb ai/A	PRE	A						
	Simazine.....simazine	4L		1.5 lb ai/A	PRE	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2% w/v	28DAP	B						
9	Prequel Premix	45	DF	0.0467 lb ai/A	PRE	A	9.0 b	16.3 bcd	8.3 a	18.3 d	21.7 bc	94.0 a
	Cinch ATZ Premix	5.5	L	2.06 lb ai/A	PRE	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2% w/v	28DAP	B						

(Corn1-13)

## University of Delaware

Weed Code						AMAPA							
Crop Code													
Weed or Crop Name						Palmer							
Weed or Crop Name						Amaranth							
Rating Data Type						Control							
Rating Unit						%							
Rating Date						%							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code	ZEAMX Field Corn Stunting %	ZEAMX Field Corn Stunting %	ZEAMX Field Corn Chloross %	ZEAMX Field Corn Stunting %	ZEAMX Field Corn Stunting %	AMAPA Control %
								05/17/13	05/24/13	05/24/13	06/05/13	06/19/13	06/19/13
10	Realm Q Premix	38.7	WG	0.097	lb ai/A	28DAP	B	0.0d	0.0e	0.0a	3.3e	9.0def	98.7a
	Atrazine 4L	4	L	1	lb ai/A	28DAP	B						
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B						
11	Lumax EZ Premix	3.67	SC	2.98	lb ai/A	PRE	A	4.0c	4.7e	0.0a	0.0e	6.3ef	99.7a
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B						
12	Untreated Check							0.0d	0.0e	0.0a	0.0e	0.0f	0.0b
LSD (P=.05)								3.79	5.91	7.04	6.93	10.75	10.68
Standard Deviation								2.24	3.49	4.16	4.09	6.35	6.31
CV								25.75	26.8	89.04	23.29	32.71	7.31
Replicate F								0.837	7.916	11.936	3.236	2.722	4.313
Replicate Prob(F)								0.4464	0.0026	0.0003	0.0586	0.0879	0.0263
Treatment F								13.620	14.475	2.054	20.678	8.012	56.594
Treatment Prob(F)								0.0001	0.0001	0.0727	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

Weed Code						AMBEL	CHEAL	IPOSS	DIGSA			
Crop Code												
Weed or Crop Name						Common	Common	Mornglry	Large	ZEAMX		
Weed or Crop Name						Ragweed	Lambqtrs	Species	Crabgras	Field		
Rating Data Type						Control	Control	Control	Control	Corn		
Rating Unit						%	%	%	%	Yield		
Rating Date						06/19/13	06/19/13	06/19/13	06/19/13	Bu/A		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code					
1	Instigate Premix	45.8	WG	0.172	lb ai/A	PRE	A	100.0 a	100.0 a	73.3 ab	90.3 ab	141.6 a
	Atrazine 4L	4	L	1	lb ai/A	PRE	A					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
2	Instigate Premix	45.8	WG	0.172	lb ai/A	PRE	A	100.0 a	100.0 a	75.0 a	92.0 ab	130.1 a
	Atrazine 4L	4	L	1	lb ai/A	PRE	A					
	Realm Q Premix	38.7	WG	0.097	lb ai/A	28DAP	B					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
3	Instigate Premix	45.8	WG	0.172	lb ai/A	PRE	A	100.0 a	100.0 a	76.0 a	89.3 ab	100.3 a
	Cinch ATZ Premix	5.5	L	2.06	lb ai/A	PRE	A					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
4	Instigate Premix	45.8	WG	0.172	lb ai/A	PRE	A	100.0 a	100.0 a	69.3 ab	84.3 b	126.8 a
	Cinch ATZ Premix	5.5	L	2.75	lb ai/A	PRE	A					
5	Instigate Premix	45.8	WG	0.172	lb ai/A	PRE	A	100.0 a	100.0 a	60.0 b	92.7 ab	95.6 a
	Breakfree ATZ Premix	5.25	SE	1.97	lb ai/A	PRE	A					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
6	Instigate Premix	45.8	WG	0.172	lb ai/A	PRE	A	100.0 a	96.7 b	63.3 ab	87.3 ab	98.0 a
	Breakfree ATZ Premix	5.25	SE	2.62	lb ai/A	PRE	A					
7	Instigate Premix	45.8	WG	0.15	lb ai/A	PRE	A	100.0 a	100.0 a	75.0 a	93.3 ab	120.8 a
	Cinch ATZ Premix	5.5	L	2.06	lb ai/A	PRE	A					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
8	Instigate Premix	45.8	WG	0.172	lb ai/A	PRE	A	99.7 b	100.0 a	74.3 ab	88.3 ab	118.9 a
	Atrazine 4L	4	L	1	lb ai/A	PRE	A					
	Simazine.....simazine	4	L	1.5	lb ai/A	PRE	A					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
9	Prequel Premix	45	DF	0.0467	lb ai/A	PRE	A	100.0 a	100.0 a	68.3 ab	89.3 ab	104.3 a
	Cinch ATZ Premix	5.5	L	2.06	lb ai/A	PRE	A					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					

(Corn1-13)

## University of Delaware

Weed Code					AMBEL	CHEAL	IPOSS	DIGSA				
Crop Code					Common	Common	Mornglry	Large	ZEAMX			
Weed or Crop Name					Ragweed	Lambqtrs	Species	Crabgras	Field			
Weed or Crop Name					Control	Control	Control	Control	Corn			
Rating Data Type					%	%	%	%	Yield			
Rating Unit					%	%	%	%	Bu/A			
Rating Date					06/19/13	06/19/13	06/19/13	06/19/13	09/16/13			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
10	Realm Q Premix	38.7	WG	0.097	lb ai/A	28DAP	B	100.0 a	100.0 a	73.3 ab	95.0 a	107.7 a
	Atrazine 4L	4	L	1	lb ai/A	28DAP	B					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
11	Lumax EZ Premix	3.67	SC	2.98	lb ai/A	PRE	A	100.0 a	100.0 a	72.7 ab	92.3 ab	103.5 a
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
12	Untreated Check							0.0 c	0.0 c	0.0 c	0.0 c	56.7 a
LSD (P=.05)					0.28	2.82	14.38	10.07	49.00			
Standard Deviation					0.17	1.67	8.49	5.95	28.93			
CV					0.18	1.82	13.05	7.18	26.62			
Replicate F					1.000	1.000	3.495	0.844	5.880			
Replicate Prob(F)					0.3840	0.3840	0.0481	0.4434	0.0090			
Treatment F					89946.462	895.546	18.486	58.468	1.703			
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.1387			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

Instigate on Low Organic Matter Soils

Trial ID: Corn2-13 Cooperator: DuPont  
 Location: Field #34 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Conducted Under GLP (Y/N):** N **Conducted Under GEP (Y/N):** N

**Crop 1:** Field Corn **ZEAMX** **Variety:** H6179RCSS  
**Planting Date:** 05/10/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 19000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 84 F **Soil Moisture:** Moist **Emergence Date:** 05/17/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Wheat Stubble

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	pt/A
3.	05/22/13	Roundup WeatherMax	4.5	AS	1	qt/A

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 5.4  
**% Clay:** 11 **CEC:** 4.8 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	04/26/13	05/10/13
<b>Time of Day:</b>	8:30 am	2:15 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	14EPP	PRE
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	53 F	83 F
<b>% Relative Humidity:</b>	65	36
<b>Wind Velocity, Unit:</b>	1 mph	3 mph
<b>Wind Direction:</b>	North	Southwest
<b>Dew Presence (Y/N):</b>	Y	N
<b>Soil Temp., Unit:</b>	50 F	82 F
<b>Soil Surf. Moisture:</b>	Dry	Moist
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Wet	Dry
<b>% Cloud Cover:</b>	0	15

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

Trial Comments

6/6/13: Excellent weed control - both burndown and summer annuals.

7/9/13: Some standing water in Rep 1 which affected corn growth. Plots affected are 107, 108, 109, 110, 204 and 205. None were affected in Rep 3. Low weed density throughout the study. All treated plots were >97% weed control.

Instigate on Low Organic Matter Soils

Trial ID: Corn2-13 Cooperator: DuPont  
 Location: Field #34 Investigator: Mark VanGessel

Weed Code					ZEAMX	ZEAMX	TRZAX	VIORA	ZEAMX			
Crop Code					Field	Field	Volunter	Field	Field			
Weed or Crop Name					Corn	Corn	Wheat	Pansy	Corn			
Weed or Crop Name					Stunting	Stunting	Control	Control	Yield			
Rating Data Type					%	%	%	%	Bu/A			
Rating Unit												
Rating Date					05/21/13	06/06/13	05/21/13	05/21/13	09/05/13			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code					
1	Instigate Premix	45.8	WG	0.15 lb ai/A	14EPP A			5.7 a	9.0 bc	100.0 a	83.3 a	140.2 a
2	Instigate Premix	45.8	WG	0.15 lb ai/A	14EPP A			9.7 a	9.7 b	86.7 a	83.3 a	138.3 a
	Cinch ATZ Premix	5.5	L	2.75 lb ai/A	14EPP A							
3	Instigate Premix	45.8	WG	0.172 lb ai/A	14EPP A			7.3 a	4.0 bcd	98.0 a	78.7 a	159.5 a
4	Instigate Premix	45.8	WG	0.172 lb ai/A	14EPP A			7.3 a	1.7 d	93.3 a	90.0 a	169.9 a
	Cinch ATZ Premix	5.5	L	2.75 lb ai/A	14EPP A							
5	Instigate Premix	45.8	WG	0.15 lb ai/A	PRE B			9.0 a	16.3 a	90.0 a	97.7 a	160.4 a
6	Instigate Premix	45.8	WG	0.15 lb ai/A	PRE B			12.3 a	20.7 a	100.0 a	71.7 a	167.5 a
	Cinch ATZ Premix	5.5	L	2.75 lb ai/A	PRE B							
7	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE B			9.7 a	20.0 a	96.7 a	70.0 a	162.2 a
8	Instigate Premix	45.8	WG	0.172 lb ai/A	PRE B			4.0 a	18.0 a	90.0 a	91.7 a	147.0 a
	Cinch ATZ Premix	5.5	L	2.75 lb ai/A	PRE B							
9	Lumax EZ Premix	3.67	SC	2.98 lb ai/A	14EPP A			8.7 a	3.3 cd	86.7 a	91.0 a	135.5 a
10	Lumax EZ Premix	3.67	SC	2.98 lb ai/A	PRE B			9.0 a	0.0 d	100.0 a	71.7 a	131.0 a
11	Lumax EZ Premix	3.67	SC	2.98 lb ai/A	PRE B			9.7 a	2.3 d	100.0 a	90.0 a	153.0 a
	Atrazine 4L	4	L	0.75 lb ai/A	PRE B							
12	Untreated Check							6.7 a	0.0 d	95.0 a	85.0 a	142.0 a
LSD (P=.05)					9.08	5.71	19.92	23.11	37.85			
Standard Deviation					5.36	3.37	11.76	13.47	22.35			
CV					64.97	38.51	12.42	16.09	14.85			
Replicate F					0.139	0.095	0.642	2.128	0.010			
Replicate Prob(F)					0.8708	0.9094	0.5358	0.1481	0.9899			
Treatment F					0.502	17.025	0.596	1.481	1.055			
Treatment Prob(F)					0.8814	0.0001	0.8123	0.2249	0.4363			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates = Average (3)

(Corn6-13)

University of Delaware

Tolerance to ALS-Herbicides and Isoxaflutole Applied at Planting at 2X Rates

Trial ID: Corn6-13 Cooperator:  
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science  
Affiliation: University of Delaware Research & Education Center  
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Crop 1: Field Corn ZEAMX Variety: H6652, H4744, H5555, H6179  
Planting Date: 05/06/13 Planting Method: Row- Unit Planter Depth: 2 in  
Rate: 28000 Sd/A Row Spacing: 30 in Seed Bed: Smooth  
Soil Temperature: 58 F Soil Moisture: Moist Emergence Date: 05/15/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3  
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK  
Tillage Type: Chisel Plowed, Disked & Field Cultivated

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/17/13	Roundup WeatherMax	4.5	AS	22	fl oz/A

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 Texture: loamy sand  
% Silt: 12 pH: 6.3  
% Clay: 7 CEC: 5.0 Fert. Level: Optimum

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed  
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book  
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown  
Distance: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/06/13	06/04/13
Time of Day:	11:00 am	2:00 pm
Application Method:	Spray	Spray
Application Timing:	PRE	28 DAT
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	54 F	74 F
% Relative Humidity:	93	35
Wind Velocity, Unit:	6 mph	2 mph
Wind Direction:	East	West
Dew Presence (Y/N):	Y	N
Soil Temp., Unit:	54 F	72 F
Soil Surf. Moisture:	Moist	Wet
Root Zone Moisture:	Moist	Wet
Leaf Surf. Moisture:	Moist	Moist
% Cloud Cover:	100	0

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V5-6
Height, Unit:		15 in
Crop Health:		Good

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	32 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

6/19/13: Hybrid 5555 knocked over more than 4744; both were directly under the spray tractor. The two hybrids outside were not broken off during post applications.

Tolerance to ALS-Herbicides and Isoxaflutole Applied at Planting at 2X Rates													
Trial ID: Corn6-13 Cooperator:													
Location: Field #18 Investigator: Mark VanGessel													
Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
Weed or Crop Name						FldCrn	FldCrn	FldCrn	FldCrn	FldCrn	FldCrn		
Weed or Crop Name						6652	6179	4744	5555	6652	4744		
Rating Data Type						Stunting	Stunting	Stunting	Stunting	Stunting	Stunting		
Rating Unit						%	%	%	%	%	%		
Rating Date						05/19/13	05/19/13	05/19/13	05/19/13	05/28/13	05/28/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code						
1	Untreated Check							0.0c	0.0c	0.0e	0.0e	0.0c	0.0e
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
2	Hornet WDG Premix	78.5WG		0.392lb ai/A		PRE	A	13.0ab	5.7bc	20.7a	16.3ab	17.0b	11.3cd
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
3	Basis Blend Premix	30SG		0.047lb ai/A		PRE	A	18.3a	0.0c	18.0ab	13.0bc	26.7a	22.3a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
4	Capreno Premix	3.45SC		0.162lb ai/A		PRE	A	17.3a	7.0ab	13.0c	8.7cd	25.0a	13.7bc
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
5	Prequel Premix	45DF		0.09lb ai/A		PRE	A	19.0a	0.0c	21.3a	19.0a	22.3ab	16.3abc
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
6	Corvus Premix	2.63SC		0.136lb ai/A		PRE	A	11.3ab	8.0ab	8.0d	5.7d	16.7b	5.0de
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
7	Balance Flexx...isoxaflutole	2L		0.094lb ai/A		PRE	A	6.3bc	4.7bc	0.0e	0.0e	3.3c	2.3e
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
8	Instigate Premix	45.8WG		0.343lb ai/A		PRE	A	8.3b	11.7a	16.3bc	12.0bc	23.3ab	21.0ab
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
9	Instigate Premix	45.8WG		0.343lb ai/A		PRE	A	16.7a	12.3a	14.0c	11.7bc	26.7a	23.3a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
	Realm Q Premix	38.7WG		0.193lb ai/A		28 DAT	B						
	Roundup WeatherMax..glyphosate	4.5AS		0.77lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v		28 DAT	B						
10	Realm Q Premix	38.7WG		0.193lb ai/A		28 DAT	B	0.0c	0.0c	0.0e	0.0e	0.0c	0.0e
	Roundup WeatherMax..glyphosate	4.5AS		0.77lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v		28 DAT	B						
LSD (P=.05)						8.15	5.75	3.52	5.43	7.36	8.55		
Standard Deviation						4.75	3.35	2.05	3.16	4.29	4.98		
CV						43.08	67.94	18.45	36.65	26.65	43.19		
Replicate F						0.072	0.733	0.719	0.023	1.211	0.670		
Replicate Prob(F)						0.9305	0.4943	0.5007	0.9770	0.3210	0.5239		
Treatment F						6.859	6.283	52.348	14.609	19.485	10.295		
Treatment Prob(F)						0.0003	0.0005	0.0001	0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
Weed or Crop Name						FldCrn	FldCrn	FldCrn	FldCrn	FldCrn	FldCrn		
Weed or Crop Name						5555	6179	6652	4744	5555	6179		
Rating Data Type						Stunting	Stunting	Stunting	Stunting	Stunting	Stunting		
Rating Unit						%	%	%	%	%	%		
Rating Date						05/28/13	05/28/13	06/05/13	06/05/13	06/05/13	06/05/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	Untreated Check							0.0e	0.0c	0.0d	0.0d	0.0d	0.0d
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
2	Hornet WDG Premix	78.5WG		0.392 lb ai/A		PRE	A	28.3bc	27.3ab	25.7c	40.0b	63.3ab	40.0ab
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
3	Basis Blend Premix	30SG		0.047 lb ai/A		PRE	A	25.0c	25.7ab	53.3a	53.3a	63.3ab	36.7bc
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
4	Capreno Premix	3.45SC		0.162 lb ai/A		PRE	A	24.0cd	23.3ab	46.7ab	36.7b	56.7b	36.7bc
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
5	Prequel Premix	45DF		0.09 lb ai/A		PRE	A	28.3bc	30.0a	46.7ab	53.3a	60.0ab	36.7bc
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
6	Corvus Premix	2.63SC		0.136 lb ai/A		PRE	A	16.7d	16.7b	25.0c	21.7c	43.3c	26.7c
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
7	Balance Flexx...isoxaflutole	2L		0.094 lb ai/A		PRE	A	0.0e	0.0c	0.0d	0.0d	0.0d	0.0d
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
8	Instigate Premix	45.8WG		0.343 lb ai/A		PRE	A	33.3ab	29.0ab	33.3bc	53.3a	63.3ab	46.7ab
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
9	Instigate Premix	45.8WG		0.343 lb ai/A		PRE	A	36.7a	33.3a	43.3ab	60.0a	66.7a	50.0a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
	Realm Q Premix	38.7WG		0.193 lb ai/A		28 DAT	B						
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v		28 DAT	B						
10	Realm Q Premix	38.7WG		0.193 lb ai/A		28 DAT	B	0.0e	0.0c	0.0d	0.0d	0.0d	0.0d
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v		28 DAT	B						
LSD (P=.05)						8.31	13.12	13.36	10.71	9.16	13.08		
Standard Deviation						4.84	7.65	7.79	6.24	5.34	7.63		
CV						25.18	41.27	28.42	19.61	12.82	27.9		
Replicate F						1.008	1.180	0.863	1.048	5.026	0.745		
Replicate Prob(F)						0.3847	0.3300	0.4388	0.3712	0.0184	0.4887		
Treatment F						26.167	9.373	21.798	46.292	91.234	20.357		
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
Weed or Crop Name						FldCrn	FldCrn	FldCrn	FldCrn	FldCrn	FldCrn		
Weed or Crop Name						6652	4744	5555	6179	6652	4744		
Rating Data Type						Stunting	Stunting	Stunting	Stunting	Stunting	Stunting		
Rating Unit						%	%	%	%	%	%		
Rating Date						06/19/13	06/19/13	06/19/13	06/19/13	07/10/13	07/10/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	Untreated Check							0.0f	0.0g	0.0e	0.0d	0.0c	0.0e
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
2	Hornet WDG Premix	78.5WG		0.392 lb ai/A		PRE	A	25.0cd	31.7cd	46.7b	35.0ab	14.7a	14.7ab
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
3	Basis Blend Premix	30SG		0.047 lb ai/A		PRE	A	40.0ab	40.0bc	56.7b	31.7ab	14.0a	11.7bc
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
4	Capreno Premix	3.45SC		0.162 lb ai/A		PRE	A	36.7bc	28.3cde	50.0b	26.7abc	14.0a	8.3cd
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
5	Prequel Premix	45DF		0.09 lb ai/A		PRE	A	36.7bc	46.7b	53.3b	33.3ab	13.0ab	11.7bc
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
6	Corvus Premix	2.63SC		0.136 lb ai/A		PRE	A	26.7cd	18.3ef	33.3c	18.3bcd	5.7c	4.7de
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
7	Balance Flexx...isoxaflutole	2L		0.094 lb ai/A		PRE	A	7.3ef	7.3fg	2.3e	3.3d	0.0c	0.0e
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
8	Instigate Premix	45.8WG		0.343 lb ai/A		PRE	A	25.0cd	45.0b	46.7b	35.0ab	6.3bc	11.3bc
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
9	Instigate Premix	45.8WG		0.343 lb ai/A		PRE	A	50.0a	68.3a	71.7a	46.7a	17.3a	20.7a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A		PRE	A						
	Realm Q Premix	38.7WG		0.193 lb ai/A		28 DAT	B						
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v		28 DAT	B						
10	Realm Q Premix	38.7WG		0.193 lb ai/A		28 DAT	B	15.7de	20.7de	20.0d	9.7cd	3.3c	0.0e
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v		28 DAT	B						
LSD (P=.05)						13.26	13.10	11.08	20.73	6.78	6.21		
Standard Deviation						7.73	7.64	6.46	12.08	3.95	3.62		
CV						29.39	24.93	16.96	50.41	44.73	43.63		
Replicate F						0.750	1.278	2.786	2.621	0.777	1.700		
Replicate Prob(F)						0.4867	0.3026	0.0883	0.1002	0.4746	0.2107		
Treatment F						11.893	21.212	40.563	4.909	8.104	11.316		
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0020	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
Weed or Crop Name						FldCrn	FldCrn	FldCrn	FldCrn	FldCrn	FldCrn		
Weed or Crop Name						5555	6179	6652	6652	6652	6652		
Rating Data Type						Stunting	Stunting	StndCts	>30%stnt	>50%stnt	Injured		
Rating Unit						%	%	plnt/25'	plnt/25'	plnt/25'	plnt/25'		
Rating Date						07/10/13	07/10/13	05/20/13	05/20/13	05/20/13	05/20/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	Untreated Check							0.0c	0.0a	34.7a	8.7cd	4.0a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
2	Hornet WDG Premix	78.5WG		0.392lb ai/A		PRE	A	9.0b	3.3a	33.7a	13.7a-d	9.0a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
3	Basis Blend Premix	30SG		0.047lb ai/A		PRE	A	7.3bc	4.0a	36.0a	20.7a	13.0a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
4	Capreno Premix	3.45SC		0.162lb ai/A		PRE	A	3.3bc	5.7a	34.3a	17.0ab	13.7a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
5	Prequel Premix	45DF		0.09lb ai/A		PRE	A	7.3bc	9.0a	37.0a	20.7a	12.3a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
6	Corvus Premix	2.63SC		0.136lb ai/A		PRE	A	0.0c	3.3a	37.0a	11.0bcd	6.7a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
7	Balance Flexx...isoxaflutole	2L		0.094lb ai/A		PRE	A	0.0c	0.0a	33.7a	9.0cd	5.0a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
8	Instigate Premix	45.8WG		0.343lb ai/A		PRE	A	2.3bc	4.0a	36.0a	15.0abc	8.7a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
9	Instigate Premix	45.8WG		0.343lb ai/A		PRE	A	21.7a	13.7a	34.3a	17.0ab	10.3a	0.0a
	Bicep II Magnum Premix	5.5L		2.2lb ai/A		PRE	A						
	Realm Q Premix	38.7WG		0.193lb ai/A		28 DAT	B						
	Roundup WeatherMax..glyphosate	4.5AS		0.77lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v		28 DAT	B						
10	Realm Q Premix	38.7WG		0.193lb ai/A		28 DAT	B	0.0c	5.0a	33.3a	6.7d	3.3a	0.0a
	Roundup WeatherMax..glyphosate	4.5AS		0.77lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v		28 DAT	B						
LSD (P=.05)						8.13	10.13	5.23	7.68	7.67	0.00		
Standard Deviation						4.74	5.91	3.05	4.48	4.47	0.00		
CV						92.98	123.06	8.71	32.12	51.96	0.0		
Replicate F						0.058	1.757	0.785	1.020	0.816	0.000		
Replicate Prob(F)						0.9440	0.2009	0.4711	0.3804	0.4577	1.0000		
Treatment F						6.144	1.421	0.621	3.731	2.132	0.000		
Treatment Prob(F)						0.0006	0.2509	0.7643	0.0084	0.0820	1.0000		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
Weed or Crop Name						FldCrn	FldCrn	FldCrn	FldCrn	FldCrn	FldCrn		
Weed or Crop Name						4744	4744	4744	4744	5555	5555		
Rating Data Type						StndCts	>30%stnt	>50%stnt	Injured	StndCts	>30%stnt		
Rating Unit						plnt/25'	plnt/25'	plnt/25'	plnt/25'	plnt/25'	plnt/25'		
Rating Date						05/20/13	05/20/13	05/20/13	05/20/13	05/20/13	05/20/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	Untreated Check							40.3 a	5.7 d	1.0 d	0.0 a	41.7 a	3.6 c
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
2	Hornet WDG Premix	78.5 WG		0.392 lb ai/A		PRE	A	39.0 a	30.0 a	10.7 a	0.0 a	40.0 a	19.3 a
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
3	Basis Blend Premix	30 SG		0.047 lb ai/A		PRE	A	39.7 a	24.0 ab	8.3 ab	0.0 a	38.0 a	18.0 a
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
4	Capreno Premix	3.45 SC		0.162 lb ai/A		PRE	A	40.0 a	14.0 bcd	2.7 cd	0.0 a	41.0 a	19.7 a
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
5	Prequel Premix	45 DF		0.09 lb ai/A		PRE	A	39.0 a	14.3 bcd	3.0 cd	0.0 a	41.3 a	12.7 ab
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
6	Corvus Premix	2.63 SC		0.136 lb ai/A		PRE	A	40.3 a	10.7 cd	3.3 cd	0.3 a	39.7 a	9.0 bc
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
7	Balance Flexx...isoxaflutole	2 L		0.094 lb ai/A		PRE	A	37.7 a	13.0 cd	4.3 cd	0.0 a	41.0 a	5.7 bc
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
8	Instigate Premix	45.8 WG		0.343 lb ai/A		PRE	A	38.0 a	20.7 abc	5.0 bc	0.0 a	39.0 a	12.7 ab
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
9	Instigate Premix	45.8 WG		0.343 lb ai/A		PRE	A	39.3 a	20.3 abc	2.3 cd	0.0 a	40.3 a	14.0 ab
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
	Realm Q Premix	38.7 WG		0.193 lb ai/A		28 DAT	B						
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100 D		1.2% w/v		28 DAT	B						
10	Realm Q Premix	38.7 WG		0.193 lb ai/A		28 DAT	B	39.3 a	7.0 d	0.7 d	0.0 a	40.0 a	3.7 c
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100 D		1.2% w/v		28 DAT	B						
LSD (P=.05)								4.57	10.57	3.82	0.31	3.65	8.86
Standard Deviation								2.67	6.16	2.23	0.18	2.12	5.14
CV								6.79	38.59	53.86	547.72	5.29	43.47
Replicate F								0.849	1.186	0.753	1.000	0.155	0.250
Replicate Prob(F)								0.4443	0.3281	0.4851	0.3874	0.8575	0.7815
Treatment F								0.342	4.676	6.072	1.000	0.840	4.308
Treatment Prob(F)								0.9482	0.0026	0.0006	0.4742	0.5903	0.0047

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	
Weed or Crop Name						FldCrn	FldCrn	FldCrn	FldCrn	FldCrn	FldCrn	
Weed or Crop Name						5555	5555	6179	6179	6179	6179	
Rating Data Type						>50%stnt	Injured	StndCts	>30%stnt	>50%stnt	Injured	
Rating Unit						plnt/25'	plnt/25'	plnt/25'	plnt/25'	plnt/25'	plnt/25'	
Rating Date						05/20/13	05/20/13	05/20/13	05/20/13	05/20/13	05/20/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code						
1	Untreated Check						0.7 a	0.0 a	40.7 a	6.8 a	0.3 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
2	Hornet WDG Premix	78.5WG		0.392 lb ai/A	PRE	A	8.3 a	0.0 a	41.0 a	15.3 a	3.0 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
3	Basis Blend Premix	30SG		0.047 lb ai/A	PRE	A	4.3 a	0.0 a	41.7 a	13.0 a	1.3 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
4	Capreno Premix	3.45SC		0.162 lb ai/A	PRE	A	5.0 a	0.0 a	43.3 a	18.3 a	3.3 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
5	Prequel Premix	45DF		0.09 lb ai/A	PRE	A	3.7 a	0.0 a	39.3 a	13.7 a	2.7 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
6	Corvus Premix	2.63SC		0.136 lb ai/A	PRE	A	2.7 a	0.7 a	42.0 a	17.3 a	3.3 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
7	Balance Flexx...isoxaflutole	2L		0.094 lb ai/A	PRE	A	1.7 a	0.0 a	41.3 a	19.0 a	2.3 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
8	Instigate Premix	45.8WG		0.343 lb ai/A	PRE	A	3.0 a	0.0 a	40.7 a	18.7 a	2.0 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
9	Instigate Premix	45.8WG		0.343 lb ai/A	PRE	A	6.7 a	0.0 a	43.0 a	19.0 a	3.7 a	
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A						
	Realm Q Premix	38.7WG		0.193 lb ai/A	28 DAT	B						
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v	28 DAT	B						
10	Realm Q Premix	38.7WG		0.193 lb ai/A	28 DAT	B	1.3 a	0.0 a	40.3 a	9.7 a	1.0 a	
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	28 DAT	B						
	Dry Ammonium Sulfate	100D		1.2% w/v	28 DAT	B						
LSD (P=.05)							5.58	0.63	2.94	12.91	3.79	0.31
Standard Deviation							3.25	0.37	1.71	7.50	2.21	0.18
CV							87.18	547.72	4.14	49.7	96.17	547.72
Replicate F							0.315	1.000	3.045	1.494	0.061	1.000
Replicate Prob(F)							0.7340	0.3874	0.0726	0.2525	0.9407	0.3874
Treatment F							1.663	1.000	1.515	0.967	0.764	1.000
Treatment Prob(F)							0.1713	0.4742	0.2163	0.4986	0.6501	0.4742

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
Weed or Crop Name						FldCrn	FldCrn	FldCrn	FldCrn	FldCrn	FldCrn		
Weed or Crop Name						6652	4744	5555	6179	6652	4744		
Rating Data Type						Stnd Cts	Stnd Cts	Stnd Cts	Stnd Cts	Yield	Yield		
Rating Unit						plnt/25'	plnt/25'	plnt/25'	plnt/25'	Bu/A	Bu/A		
Rating Date						09/19/13	09/19/13	09/19/13	09/19/13	09/19/13	09/19/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	Untreated Check							36.5 a	32.7 c	34.0 b	41.7 a	136.1 a	220.5 de
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
2	Hornet WDG Premix	78.5 WG		0.392 lb ai/A		PRE	A	35.1 a	38.7 ab	39.7 a	40.7 a	155.0 a	234.0 bcd
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
3	Basis Blend Premix	30 SG		0.047 lb ai/A		PRE	A	37.0 a	40.3 ab	40.3 a	42.7 a	134.5 a	238.3 a-d
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
4	Capreno Premix	3.45 SC		0.162 lb ai/A		PRE	A	37.9 a	41.3 a	42.0 a	42.7 a	140.3 a	252.1 ab
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
5	Prequel Premix	45 DF		0.09 lb ai/A		PRE	A	37.1 a	41.7 a	42.3 a	42.3 a	128.2 a	230.7 cd
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
6	Corvus Premix	2.63 SC		0.136 lb ai/A		PRE	A	37.5 a	39.0 ab	41.3 a	43.0 a	142.5 a	256.2 a
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
7	Balance Flexx...isoxaflutole	2 L		0.094 lb ai/A		PRE	A	35.7 a	36.7 b	34.3 b	42.7 a	134.6 a	242.2 abc
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
8	Instigate Premix	45.8 WG		0.343 lb ai/A		PRE	A	38.3 a	39.0 ab	42.3 a	42.7 a	135.8 a	219.3 de
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
9	Instigate Premix	45.8 WG		0.343 lb ai/A		PRE	A	36.9 a	40.3 ab	41.7 a	44.0 a	113.1 a	208.1 e
	Bicep II Magnum Premix	5.5 L		2.2 lb ai/A		PRE	A						
	Realm Q Premix	38.7 WG		0.193 lb ai/A		28 DAT	B						
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100 D		1.2% w/v		28 DAT	B						
10	Realm Q Premix	38.7 WG		0.193 lb ai/A		28 DAT	B	34.7 a	39.7 ab	42.7 a	42.7 a	115.0 a	238.5 a-d
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A		28 DAT	B						
	Dry Ammonium Sulfate	100 D		1.2% w/v		28 DAT	B						
LSD (P=.05)								3.99	3.68	4.36	2.36	44.68	19.75
Standard Deviation								2.24	2.15	2.54	1.37	25.11	11.51
CV								6.12	5.51	6.35	3.23	18.81	4.92
Replicate F								1.514	0.268	2.231	3.024	2.652	9.959
Replicate Prob(F)								0.2591	0.7680	0.1363	0.0738	0.1113	0.0012
Treatment F								0.849	4.502	4.886	1.189	0.736	5.059
Treatment Prob(F)								0.5887	0.0032	0.0021	0.3591	0.6722	0.0017

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMX	ZEAMX
Weed or Crop Name						FldCrn	FldCrn
Weed or Crop Name						5555	6179
Rating Data Type						Yield	Yield
Rating Unit						Bu/A	Bu/A
Rating Date						09/19/13	09/19/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check						
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	201.7 ab 173.1 a
2	Hornet WDG Premix	78.5WG		0.392 lb ai/A	PRE	A	191.7 ab 156.1 a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	
3	Basis Blend Premix	30SG		0.047 lb ai/A	PRE	A	174.0 b 167.7 a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	
4	Capreno Premix	3.45SC		0.162 lb ai/A	PRE	A	185.0 ab 169.1 a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	
5	Prequel Premix	45DF		0.09 lb ai/A	PRE	A	185.3 ab 155.4 a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	
6	Corvus Premix	2.63SC		0.136 lb ai/A	PRE	A	200.2 ab 172.4 a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	
7	Balance Flexx...isoxaflutole	2L		0.094 lb ai/A	PRE	A	183.8 ab 172.3 a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	
8	Instigate Premix	45.8WG		0.343 lb ai/A	PRE	A	208.9 a 159.9 a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	
9	Instigate Premix	45.8WG		0.343 lb ai/A	PRE	A	144.3 c 150.6 a
	Bicep II Magnum Premix	5.5L		2.2 lb ai/A	PRE	A	
	Realm Q Premix	38.7WG		0.193 lb ai/A	28 DAT	B	
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	28 DAT	B	
	Dry Ammonium Sulfate	100D		1.2% w/v	28 DAT	B	
10	Realm Q Premix	38.7WG		0.193 lb ai/A	28 DAT	B	193.6 ab 162.2 a
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	28 DAT	B	
	Dry Ammonium Sulfate	100D		1.2% w/v	28 DAT	B	
LSD (P=.05)						28.29	23.76
Standard Deviation						16.49	13.85
CV						8.83	8.45
Replicate F						0.532	1.894
Replicate Prob(F)						0.5963	0.1792
Treatment F						3.604	1.043
Treatment Prob(F)						0.0099	0.4455

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Isoxaflutole in Field Corn

Trial ID: Corn7-13 Cooperator: Bayer  
 Location: Field #34 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill

**Crop 1:** Field Corn **ZEAMX** **Variety:** H6179RCSS  
**Planting Date:** 05/10/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 19000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 84 F **Soil Moisture:** Moist **Emergence Date:** 05/17/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	pt/A

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 5.4  
**% Clay:** 11 **CEC:** 4.8 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	05/10/13	05/22/13	05/31/13
<b>Time of Day:</b>	2:00 pm	9:15 am	8:40 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	EPost	Post
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	83 F	74 F	77 F
<b>% Relative Humidity:</b>	36	82	67
<b>Wind Velocity, Unit:</b>	3 mph	6 mph	1 mph
<b>Wind Direction:</b>	Southwest	Southwest	Southwest
<b>Dew Presence (Y/N):</b>	N	Y	Y
<b>Soil Temp., Unit:</b>	82 F	74 F	75 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Dry
<b>Root Zone Moisture:</b>	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Moist	Moist
<b>% Cloud Cover:</b>	15	100	0

**CROP STAGE AT EACH APPLICATION**

	<b>A</b>	<b>B</b>	<b>C</b>
<b>Crop 1 Code:</b>	ZEAMX	ZEAMX	ZEAMX
<b>Growth Stage:</b>		V1-2	V3-4
<b>Height, Unit:</b>		2.5 in	8 in
<b>Crop Health:</b>		Good	Good

**WEED STAGE AT EACH APPLICATION**

	<b>A</b>	<b>B</b>	<b>C</b>
<b>Weed 1 Code:</b>	OEOLA	OEOLA	OEOLA
<b>Growth Stage:</b>		5-leaf	
<b>Height, Unit:</b>		2 in	
<b>Density, Unit:</b>		0-20 m2	

**APPLICATION EQUIPMENT**

	<b>A</b>	<b>B</b>	<b>C</b>
<b>Appl. Equipment:</b>	Tractor	Tractor	Tractor
<b>Operating Pressure:</b>	40 psi	40 psi	40 psi
<b>Nozzle Type:</b>	AIRMIX	AIRMIX	AIRMIX
<b>Nozzle Size:</b>	11002	11002	11002
<b>Nozzle Spacing, Unit:</b>	20 in	20 in	20 in
<b>Boom Length, Unit:</b>	6 nozl	6 nozl	6 nozl
<b>Boom Height, Unit:</b>	20 in	20 in	24 in
<b>Ground Speed, Unit:</b>	3 mph	3 mph	3 mph
<b>Carrier:</b>	water	water	water
<b>Spray Volume, Unit:</b>	20 gpa	20 gpa	20 gpa
<b>Propellant:</b>	Comp. Air	Comp. Air	Comp. Air

**Trial Comments**

7/09/13: Very low density of Palmer Amaranth and Giant Foxtail throughout the study.

5/21/13: Corn is at V1 stage

6/06/13: Excellent weed control both burndown and summer annuals.

Isoxaflutole in Field Corn											
Trial ID: Corn7-13 Cooperator: Bayer											
Location: Field #34 Investigator: Mark VanGessel											
Trt	Treatment	Form	Form	Rate	Grow	Appl	ZEAMX	ZEAMX	AMAPA	SETFA	ZEAMX
No.	Name	Conc	Type	Rate	Unit	Stg	Field	Field	Palmer	Giant	Field
							Corn	Corn	Amaranth	Foxtail	Corn
							Stunting	Stunting	Control	Control	Yield
							%	%	%	%	Bu/A
							05/21/13	06/06/13	07/09/13	07/09/13	09/05/13
1	Untreated Check						0.0 a	0.0 d	0.0 b	0.0 b	157.9 a
2	Corvus Premix	2.63	SC	0.068	lb ai/A	PRE A	8.0 a	16.7 b	100.0 a	100.0 a	152.6 a
	Atrazine 4L	4L		1.5	lb ai/A	PRE A					
3	Corvus Premix	2.63	SC	0.092	lb ai/A	PRE A	12.3 a	15.0 bc	100.0 a	100.0 a	158.0 a
	Atrazine 4L	4L		1.5	lb ai/A	PRE A					
4	Balance Flexx...isoxaflutole	2L		0.047	lb ai/A	PRE A	0.0 a	0.0 d	100.0 a	100.0 a	154.3 a
	Atrazine 4L	4L		1.5	lb ai/A	PRE A					
	Dual II Magnum...s-metolachlor	7.64	E	1.43	lb ai/A	PRE A					
5	Balance Flexx...isoxaflutole	2L		0.047	lb ai/A	EPost B	7.3 a	60.0 a	100.0 a	100.0 a	153.0 a
	Atrazine 4L	4L		1.5	lb ai/A	EPost B					
	Dual II Magnum...s-metolachlor	7.64	E	1.43	lb ai/A	EPost B					
6	Balance Flexx...isoxaflutole	2L		0.047	lb ai/A	PRE A	8.3 a	15.3 bc	100.0 a	100.0 a	153.4 a
	Atrazine 4L	4L		1.5	lb ai/A	PRE A					
	Capreno Premix	3.45	SC	0.081	lb ai/A	POST C					
	Roundup PowerMax...glyphosate	4.5	AS	1.12	lb ae/A	POST C					
	Dry Ammonium Sulfate	100	D	2.04	% w/v	POST C					
7	Capreno Premix	3.45	SC	0.081	lb ai/A	EPost B	0.0 a	11.3 c	100.0 a	100.0 a	152.8 a
	Atrazine 4L	4L		0.5	lb ai/A	EPost B					
	Roundup PowerMax...glyphosate	4.5	AS	1.12	lb ae/A	EPost B					
	Dry Ammonium Sulfate	100	D	2.04	% w/v	EPost B					
8	Lexar EZ Premix	3.7	SC	2.78	lb ai/A	PRE A	6.7 a	3.3 d	100.0 a	100.0 a	153.5 a
	LSD (P=.05)						8.89	5.20	0.00	0.00	14.13
	Standard Deviation						5.08	2.97	0.00	0.00	8.07
	CV						95.16	19.54	0.0	0.0	5.22
	Replicate F						0.273	1.647	0.000	0.000	1.577
	Replicate Prob(F)						0.7648	0.2278	1.0000	1.0000	0.2411
	Treatment F						2.599	127.546	0.000	0.000	0.229
	Treatment Prob(F)						0.0608	0.0001	1.0000	1.0000	0.9713

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluating Residual Broadleaf Herbicides with Glyphosate for RR corn

Trial ID: Corn8-13 Cooperator:  
 Location: Field #18 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Annual Grasses	GGGAN	
2.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
3.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Field Corn **ZEAMX** **Variety:** H6555RCSS  
**Planting Date:** 04/26/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 28000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 68 F **Soil Moisture:** Moist **Emergence Date:** 05/07/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed & Disked Twice

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/02/13	Dual II Magnum	7.64	E	1	pt/A

**SOIL DESCRIPTION**

**% Sand:** 81 **% OM:** 1.3 **Texture:** loamy sand  
**% Silt:** 12 **pH:** 6.3  
**% Clay:** 7 **CEC:** 5.0 **Fert. Level:** Optimum  
**Irrigation/Type:** Sprinkler - Lateral Move **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/20/13
<b>Time of Day:</b>	11:15 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	V2
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	77 F
<b>% Relative Humidity:</b>	72
<b>Wind Velocity, Unit:</b>	4 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	Y
<b>Soil Temp., Unit:</b>	75 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Wet
<b>Leaf Surf. Moisture:</b>	Moist
<b>% Cloud Cover:</b>	85

## CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	ZEAMX
Growth Stage:	V3
Height, Unit:	4.5 in
Crop Health:	Good

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	GGGAN
Growth Stage:	cotyledon
Height, Unit:	0.2 in
Density, Unit:	40-60 m2
Weed 2 Code:	CYPES
Growth Stage:	2-4 leaf
Height, Unit:	2.5 in
Density, Unit:	20-60 m2
Weed 3 Code:	IPOSS
Growth Stage:	cot-1 leaf
Height, Unit:	1 in
Density, Unit:	2-6 m2

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	21 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

5/29/13: Glyphosate killed all annual weeds that were emerged at time of application. Morningglory just beginning to emerge in glyphosate only treatments.

6/05/13: Fair to good weed control for most trts.

Evaluating Residual Broadleaf Herbicides with Glyphosate for RR corn											
Trial ID: Corn8-13 Cooperator:											
Location: Field #18 Investigator: Mark VanGessel											
Weed Code					ZEAMX	ZEAMX	ZEAMX	IPOSS	ZEAMX		
Crop Code					Field	Field	Field	Morning	Field		
Weed or Crop Name					Corn	Corn	Corn	Species	Corn		
Weed or Crop Name					Leafburn	Stunting	Stunting	Control	Yield		
Rating Data Type					%	%	%	%	Bu/A		
Rating Unit					05/28/13	05/28/13	06/05/13	06/20/13	09/16/13		
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code					
1	Untreated Check						0.0c	0.0f	0.0e	30.0a	145.3a
2	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	4.0bc	0.0f	1.7de	45.0a	183.7a
3	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	14.0a	8.0cd	7.0bc	60.0a	172.4a
	Atrazine 4L	4L		1 lb ai/A	V2	A					
4	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	11.3a	1.7ef	0.0e	53.3a	179.2a
	Atrazine 4L	4L		1.5 lb ai/A	V2	A					
5	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	10.7a	5.7de	7.4bc	36.7a	171.4a
	Banvel.....dicamba	4EC		0.25 lb ai/A	V2	A					
6	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	3.0bc	10.0bcd	0.0e	56.7a	196.9a
	Sandea.....halosulfuron	75DF		0.031 lb ai/A	V2	A					
7	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	5.0b	2.3ef	0.0e	63.3a	183.8a
	Callisto.....mesotrione	4SC		0.094 lb ai/A	V2	A					
8	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	0.0c	0.0f	5.7bcd	48.3a	167.9a
	Impact.....topramezone	2.8SC		0.0164 lb ai/A	V2	A					
9	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	4.0bc	2.3ef	9.7b	60.0a	178.3a
	Laudis.....tembotrione	3.5SC		0.082 lb ai/A	V2	A					
10	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	2.7bc	0.0f	4.7cd	71.0a	182.0a
	Callisto.....mesotrione	4SC		0.094 lb ai/A	V2	A					
	Atrazine 4L	4L		0.5 lb ai/A	V2	A					
11	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	1.0bc	14.0ab	0.0e	46.7a	181.3a
	Resolve Q Multi-Pak	22.4DF		0.0175 lb ai/A	V2						
12	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	1.0bc	2.3ef	0.0e	55.0a	186.2a
	Status Premix	56WG		0.175 lb ai/A	V2	A					
13	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	0.0c	10.7abc	6.3bc	82.1a	188.4a
	Realm Q Premix	38.7WG		0.097 lb ai/A	V2						
14	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V2	A	0.0c	14.7a	14.7a	55.0a	165.3a
	Capreno Premix	3.45SC		0.081 lb ai/A	V2	A					
LSD (P=.05)					4.36	4.44	4.59	45.23	38.82		
Standard Deviation					2.59	2.65	2.73	26.89	23.12		
CV					63.97	51.67	66.91	49.34	13.04		
Replicate F					0.025	2.341	1.010	1.345	3.222		
Replicate Prob(F)					0.9753	0.1162	0.3787	0.2788	0.0562		
Treatment F					9.772	12.311	8.578	0.729	0.874		
Treatment Prob(F)					0.0001	0.0001	0.0001	0.7193	0.5876		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates = Yates (1- 3)

## Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9a-13      Cooperator:  
 Location: REC Field #18      Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel      **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy      **City:** Georgetown      **State:** DE      **Zip Code:** 19947

**Crop 1:** Field Corn      **ZEAMX**      **Variety:** N68B-3111  
**Planting Date:** 05/14/13      **Planting Method:** Row- Unit Planter      **Depth:** 2 in  
**Rate:** 28000 Sd/A      **Row Spacing:** 30 in      **Seed Bed:** Smooth  
**Soil Temperature:** 64 F      **Soil Moisture:** Moist      **Emergence Date:** 05/20/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT      **Plot Length, Unit:** 25 FT      **Reps:** 3  
**Site Type:** Field      **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed, Disked & Field Cultivated

## MAINTENANCE

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

## SOIL DESCRIPTION

**% Sand:** 81      **% OM:** 1.3      **Texture:** loamy sand  
**% Silt:** 12      **pH:** 6.3  
**% Clay:** 7      **CEC:** 5.0      **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move      **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3      **Unit:** mi

## APPLICATION DESCRIPTION

	A
<b>Application Date:</b>	05/15/13
<b>Time of Day:</b>	9:45 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	64 F
<b>% Relative Humidity:</b>	65
<b>Wind Velocity, Unit:</b>	4 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	Y
<b>Soil Temp., Unit:</b>	62 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	N/A
<b>% Cloud Cover:</b>	20

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

6/01/13: No injury observed with quick observations.

6/04/13: Trt 7 & 10 still providing good to excellent weed control.

7/10/13: Zidua weak on yellow nutsedge. Corvus weak on goosegrass.

Soil-Applied Herbicide Evaluation in Corn											
Trial ID: Corn9a-13		Cooperator:									
Location: REC Field #18		Investigator: Mark VanGessel									
Weed Code	Crop Code	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Field Corn Stunting %	AMAPA Palmer Amaranth Control %	IPOSS Morngrly Species Control %	DIGSA Large Crabgras Control %	ZEAMX Field Corn Yield Bu/A	
						06/04/13	07/10/13	07/10/13	07/10/13	09/17/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code					
1	Untreated Check						0.0 c	0.0 c	0.0 d	199.8 a	
2	Lumax EZ Premix	3.67	SC	2.47 lb ai/A	PRE	A	0.0 c	96.0 ab	69.3 ab	93.0 abc	215.8 a
3	Lexar EZ Premix	3.7	SC	2.77 lb ai/A	PRE	A	0.0 c	97.3 ab	65.0 abc	97.3 a	220.9 a
4	Lumax EZ Premix Atrazine 4L	3.67 4L	SC	2.47 lb ai/A 0.75 lb ai/A	PRE	A	2.3 bc	97.7 ab	69.3 ab	96.7 a	220.5 a
5	Lexar EZ Premix Simazine.....simazine	3.7 4L	SC	2.77 lb ai/A 1.5 lb ai/A	PRE	A	1.7 c	100.0 a	74.3 a	94.0 abc	227.4 a
6	Bicep II Magnum Premix	5.5	L	2.9 lb ai/A	PRE	A	0.0 c	95.0 ab	63.3 abc	87.7 abc	234.2 a
7	Bicep II Magnum Premix	5.5	L	2.2 lb ai/A	PRE	A	0.0 c	98.3 ab	51.7 c	92.0 abc	234.1 a
8	Bicep II Magnum Premix Resolve.....rimsulfuron	5.5 25 WG	L	2.2 lb ai/A 0.0156 lb ai/A	PRE	A	10.7 a	94.0 ab	64.3 abc	91.0 abc	230.1 a
9	Bicep II Magnum Premix Prowl H2O.....pendimethalin	5.5 3.8 CS	L	2.2 lb ai/A 1.42 lb ai/A	PRE	A	1.7 c	96.7 ab	65.0 abc	94.3 ab	219.6 a
10	Harness Xtra 5.6L Premix	5.6	L	2.38 lb ai/A	PRE	A	0.0 c	94.0 ab	58.3 bc	84.0 bcd	212.9 a
11	Harness Xtra 5.6L Premix	5.6	L	4.2 lb ai/A	PRE	A	0.0 c	91.7 b	70.0 ab	87.3 a-d	228.7 a
12	Zidua.....pyroxasulfone Atrazine 4L	85 4L	WG	0.08 lb ai/A 1.25 lb ai/A	PRE	A	3.3 bc	99.0 a	71.7 ab	97.0 a	223.7 a
13	Prequel Premix Atrazine 4L	45 4L	DF	0.045 lb ai/A 1.5 lb ai/A	PRE	A	13.0 a	93.3 ab	66.7 ab	83.3 cd	230.7 a
14	Corvus Premix Atrazine 4L	2.63 4L	SC	0.068 lb ai/A 1.5 lb ai/A	PRE	A	5.7 b	100.0 a	72.0 a	76.7 d	213.8 a
LSD (P=.05)						3.64	6.77	13.47	10.88	21.41	
Standard Deviation						2.17	4.03	8.02	6.48	12.76	
CV						79.28	4.5	13.04	7.73	5.74	
Replicate F						0.157	7.373	4.639	5.447	8.917	
Replicate Prob(F)						0.8558	0.0029	0.0189	0.0106	0.0011	
Treatment F						11.363	123.725	16.228	44.159	1.704	
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	0.1199	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9b-13    Cooperator:  
 Location: Newark    Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**Crop 1:** Field Corn    ZEAMX  
**Planting Date:** 05/31/13    **Planting Method:** Row- Unit Planter    **Depth:** 2 in  
**Rate:** 29900    Sd/A    **Row Spacing:** 30 in    **Seed Bed:** Medium  
**Soil Temperature:** 90    F    **Soil Moisture:** Moist    **Emergence Date:** 06/05/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Conventional Tillage

## APPLICATION DESCRIPTION

	A
Application Date:	06/04/13
Time of Day:	7:30 pm
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	70    F
% Relative Humidity:	73
Wind Velocity, Unit:	5    mph
Wind Direction:	Southeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	70    F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	0

## CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	ZEAMX
Growth Stage:	spike
Height, Unit:	0.5    in
Crop Health:	Good

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18    in
Boom Length, Unit:	6    nozl
Boom Height, Unit:	20    in
Ground Speed, Unit:	3    mph
Carrier:	water
Spray Volume, Unit:	20    gpa
Propellant:	CO2

## Trial Comments

6/20/13: No injury observed from the treatment of emerged tissue. Corn @ V4 stage so cotyledon and oldest tissue is not visible. Also lots of wind damage (torn or shredded leaves) and made it difficult to observe leaf burn.

## Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9b-13 Cooperator:  
Location: Newark Investigator: Mark VanGessel

Weed Code						ZEAMX	CHEAL	DIGSA
Crop Code						Field	Common	Large
Weed or Crop Name						Corn	Lambqtrs	Crabgras
Weed or Crop Name						Stunting	Control	Control
Rating Data Type						%	%	%
Rating Unit								
Rating Date						06/20/13	07/11/13	07/11/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code		
1	Untreated Check						0.0e	0.0g
2	Lumax EZ Premix	3.67	SC	2.98 lb ai/A	PRE	A	0.0e	100.0a
3	Lexar EZ Premix	3.7	SC	3.24 lb ai/A	PRE	A	1.7de	100.0a
4	Lumax EZ Premix Atrazine 4L	3.67 4L	SC	2.98 lb ai/A 0.75 lb ai/A	PRE	A	4.0de	95.0ab
5	Lexar EZ Premix Simazine.....simazine	3.7 4L	SC	3.24 lb ai/A 1.5 lb ai/A	PRE	A	2.3de	99.0a
6	Bicep II Magnum Premix	5.5	L	2.9 lb ai/A	PRE	A	0.0e	72.7f
7	Bicep II Magnum Premix	5.5	L	2.2 lb ai/A	PRE	A	0.0e	74.3ef
8	Bicep II Magnum Premix Resolve.....rimsulfuron	5.5 25	L WG	2.2 lb ai/A 0.0156 lb ai/A	PRE	A	11.3ab	88.7bc
9	Bicep II Magnum Premix Prowl H2O.....pendimethalin	5.5 3.8	L CS	2.2 lb ai/A 1.42 lb ai/A	PRE	A	0.0e	99.0a
10	Harness Xtra 5.6L Premix	5.6	L	2.38 lb ai/A	PRE	A	0.0e	81.0de
11	Harness Xtra 5.6L Premix	5.6	L	4.2 lb ai/A	PRE	A	4.7cd	84.7cd
12	Zidua.....pyoxasulfone Atrazine 4L	85 4L	WG	0.106 lb ai/A 1.25 lb ai/A	PRE	A	13.3a	82.0cd
13	Prequel Premix Resolve SG.....rimsulfuron Callisto.....mesotrione Atrazine 4L	45 25 50 4L	DF SG WG	0.056 lb ai/A 0.0187 lb ai/A 0.0373 lb ai/A 1.5 lb ai/A	PRE	A	8.7bc	80.8de
14	Corvus Premix Atrazine 4L	2.63 4L	SC	0.115 lb ai/A 1.5 lb ai/A	PRE	A	4.7cd	99.7a
	LSD (P=.05)						4.52	7.14
	Standard Deviation						2.70	4.25
	CV						74.48	5.14
	Replicate F						1.222	0.490
	Replicate Prob(F)						0.3109	0.6182
	Treatment F						8.441	110.438
	Treatment Prob(F)						0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Missing data estimates = Yates (2)

## Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10a-13      Cooperator:  
 Location: REC Field #18      Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel      **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy      **City:** Georgetown      **State:** DE      **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Common Lambsquarters	CHEAL	Chenopodium album L.
2.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
3.	Common Ragweed	AMBEL	Ambrosia artemisifolia L.
4.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
5.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Field Corn      **ZEAMX**      **Variety:** H6555RCSS  
**Planting Date:** 04/26/13      **Planting Method:** Row- Unit Planter      **Depth:** 2 in  
**Rate:** 28000 Sd/A      **Row Spacing:** 30 in      **Seed Bed:** Smooth  
**Soil Temperature:** 68 F      **Soil Moisture:** Moist      **Emergence Date:** 05/07/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT      **Plot Length, Unit:** 25 FT      **Reps:** 3  
**Site Type:** Field      **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed & Disked Twice

## MAINTENANCE

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

## SOIL DESCRIPTION

**% Sand:** 81      **% OM:** 1.3      **Texture:** loamy sand  
**% Silt:** 12      **pH:** 6.3  
**% Clay:** 7      **CEC:** 5.0      **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move      **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3      **Unit:** mi

## APPLICATION DESCRIPTION

	A	B	C	D
<b>Application Date:</b>	05/02/13	05/16/13	05/22/13	05/30/13
<b>Time of Day:</b>	7:00 am	3:30 pm	9:15 am	10:30 am
<b>Application Method:</b>	Spray	Spray	Spray	Spray
<b>Application Timing:</b>	Pre	V1-2	V3	V5
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	51 F	83 F	74 F	79 F
<b>% Relative Humidity:</b>	86	40	82	64
<b>Wind Velocity, Unit:</b>	2 mph	7 mph	6 mph	4 mph
<b>Wind Direction:</b>	Northeast	West	Southwest	Southwest
<b>Dew Presence (Y/N):</b>	Y	N	Y	N
<b>Soil Temp., Unit:</b>	50 F	83 F	74 F	77 F
<b>Soil Surf. Moisture:</b>	Moist	Dry	Moist	Dry
<b>Root Zone Moisture:</b>	Wet	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	N/A	Dry	Moist	Dry
<b>% Cloud Cover:</b>	100	90	100	0

## CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:		V1	V3-4	V5
Height, Unit:		2 in	6 in	11 in
Crop Health:		Good	Good	Good

## WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	CHEAL	CHEAL	CHEAL	CHEAL
Growth Stage:			2-8 leaf	vegetative
Height, Unit:			1 in	2.5 in
Density, Unit:			30-50 m2	30-50 m2
Weed 2 Code:	DIGSA	DIGSA	DIGSA	DIGSA
Growth Stage:			2-3 leaf	4lf-2tillr
Height, Unit:			1 in	2.5 in
Density, Unit:			70 m2	70 m2
Weed 3 Code:	AMBEL	AMBEL	AMBEL	AMBEL
Growth Stage:			4-6 leaf	6-8 leaf
Height, Unit:			1.5 in	2.5 in
Density, Unit:			2-7 m2	2-7 m2
Weed 4 Code:	CYPES	CYPES	CYPES	CYPES
Growth Stage:			2-5 leaf	vegetative
Height, Unit:			2.5 in	5 in
Density, Unit:			5-10 m2	5-10 m2
Weed 5 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:		cotyledon	cot-2 leaf	3-5 leaf
Height, Unit:		1 in	1.5 in	3 in
Density, Unit:		0-5 m2	4-6 m2	4-6 m2

## APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Tractor	Backpack	Tractor	Tractor
Operating Pressure:	40 psi	31 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	18 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	22 in	28 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	CO2	Comp. Air	Comp. Air

## Trial Comments

6/05/13: Treatment 3 with Resolve about 12% stunting observed. No other injury observed. Pre treatments have excellent control of crabgrass, lambsquarters, ragweed and pigweed. Only morningglory was rated.

6/24/13: Weed control is fair to excellent with all trts. Some plots have morningglory emerging and TR lambsquarters and all plots treated with a POST have excellent control.

Comparison of Approaches to Weed Control in Field Corn													
Trial ID: CRN10a-13		Cooperator:											
Location: REC Field #18		Investigator: Mark VanGessel											
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Field Corn Stunting % 05/17/13	ZEAMX Field Corn Stunting % 05/24/13	IPOSS Morngrly Species Control % 06/05/13	AMAPA Palmer Amaranth Control % 06/20/13	AMBEL Common Ragweed Control % 06/20/13	CHEAL Common Lambqtrs Control % 06/20/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	Untreated Check							0.0c	0.0d		0.0c	0.0c	
2	Lumax EZ Premix Atrazine 4L	3.67 4L	SC	2.47 lb ai/A 0.75 lb ai/A	ai/A	PRE	A	1.7c	0.0d	82.7 a	100.0 a	100.0 a	
3	Bicep II Magnum Premix Resolve SG.....rimsulfuron	5.5 L 25 SG		2.9 lb ai/A 0.0156 lb ai/A	ai/A	PRE	A	0.0c	14.0 a	82.3 a	100.0 a	100.0 a	
4	Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L 4.5 AS		2.9 lb ai/A 0.77 lb ae/A	ai/A	PRE	A	8.0 a	2.3 d	88.3 a	100.0 a	100.0 a	
5	Harness Xtra 5.6L Premix Roundup WeatherMax..glyphosate	5.6 L 4.5 AS		3.36 lb ai/A 0.77 lb ae/A	ai/A	PRE	A	4.7 b	4.7 cd	90.0 a	99.0 ab	100.0 a	
6	Bicep II Magnum Premix Halex GT Premix Atrazine 4L Nonionic Surfactant	5.5 L 4.38 SC 4L 100L		1.79 lb ai/A 1.97 lb ai/A 0.5 lb ai/A 0.25 % v/v	ai/A	PRE	A	0.0c	1.7 d		100.0 a	100.0 a	
7	Bicep II Magnum Premix Realm Q Premix Atrazine 4L Nonionic Surfactant	5.5 L 38.7 WG 4L 100L		1.79 lb ai/A 0.097 lb ai/A 0.5 lb ai/A 0.25 % v/v	ai/A	PRE	A	0.0c	4.0 cd		100.0 a	97.7 b	
8	Bicep II Magnum Premix Atrazine 4L Prowl H2O.....pendimethalin Nonionic Surfactant	5.5 L 4L 3.8 CS 100L		1.79 lb ai/A 1.25 lb ai/A 1.42 lb ai/A 0.25 % v/v	ai/A	PRE	A	0.0c	2.3 d		96.7 b	100.0 a	
9	Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L 4.5 AS		1.79 lb ai/A 0.77 lb ae/A	ai/A	PRE	A	1.7c	0.0d		98.3 ab	100.0 a	
10	Atrazine 4L Prowl H2O.....pendimethalin Roundup WeatherMax..glyphosate	4L 3.8 CS 4.5 AS		1.25 lb ai/A 1.42 lb ai/A 0.77 lb ae/A	ai/A	PRE	A	0.0c	7.3 bc		100.0 a	100.0 a	
11	Halex GT Premix Atrazine 4L Nonionic Surfactant	4.38 SC 4L 100L		1.97 lb ai/A 1 lb ai/A 0.25 % v/v	ai/A	V1-2	B	0.0c	9.7 ab		100.0 a	100.0 a	
12	Roundup WeatherMax..glyphosate Bicep II Magnum Premix Prowl H2O.....pendimethalin	4.5 AS 5.5 L 3.8 CS		0.77 lb ae/A 2.2 lb ai/A 1.42 lb ai/A	ae/A	V1-2	B	0.0c	0.0d		100.0 a	100.0 a	
LSD (P=.05)								2.79	4.94	12.58	3.21	1.98	2.82
Standard Deviation								1.65	2.92	6.30	1.89	1.17	1.67
CV								123.69	76.16	7.34	2.08	1.28	1.88
Replicate F								2.237	3.197	3.786	1.465	1.000	1.000
Replicate Prob(F)								0.1305	0.0604	0.0864	0.2527	0.3840	0.3840
Treatment F								7.019	6.987	1.158	690.968	1829.943	961.000
Treatment Prob(F)								0.0001	0.0001	0.4001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					IPOSS	DIGSA	AMAPA	AMBEL	CHEAL
Crop Code					Morningly	Large	Palmer	Common	Common
Weed or Crop Name					Species	Crabgras	Amaranth	Ragweed	Lambqtrs
Weed or Crop Name					Control	Control	Control	Control	Control
Rating Data Type					%	%	%	%	%
Rating Unit					06/20/13	06/20/13	07/11/13	07/11/13	07/11/13
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code		
1	Untreated Check							0.0c	0.0c
2	Lumax EZ Premix Atrazine 4L	3.67 4L	SC	2.47 lb ai/A 0.75 lb ai/A	PRE PRE	A A		68.3a	97.3ab
3	Bicep II Magnum Premix Resolve SG.....rimsulfuron	5.5 25	L SG	2.9 lb ai/A 0.0156 lb ai/A	PRE PRE	A A		46.7b	95.7ab
4	Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 4.5	L AS	2.9 lb ai/A 0.77 lb ae/A	PRE V5	A D		66.7a	96.7ab
5	Harness Xtra 5.6L Premix Roundup WeatherMax..glyphosate	5.6 4.5	L AS	3.36 lb ai/A 0.77 lb ae/A	PRE V5	A D		64.3a	88.3cd
6	Bicep II Magnum Premix Halex GT Premix Atrazine 4L Nonionic Surfactant	5.5 4.38 4 100	L SC L L	1.79 lb ai/A 1.97 lb ai/A 0.5 lb ai/A 0.25 % v/v	PRE V3 V3 V3	A C C C		75.0a	99.0ab
7	Bicep II Magnum Premix Realm Q Premix Atrazine 4L Nonionic Surfactant	5.5 38.7 4 100	L WG L L	1.79 lb ai/A 0.097 lb ai/A 0.5 lb ai/A 0.25 % v/v	PRE V3 V3 V3	A C C C		69.3a	97.0ab
8	Bicep II Magnum Premix Atrazine 4L Prowl H2O.....pendimethalin Nonionic Surfactant	5.5 4 3.8 100	L L CS L	1.79 lb ai/A 1.25 lb ai/A 1.42 lb ai/A 0.25 % v/v	PRE V3 V3 V3	A C C C		63.8a	94.7abc
9	Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 4.5	L AS	1.79 lb ai/A 0.77 lb ae/A	PRE V3	A C		61.7a	87.0d
10	Atrazine 4L Prowl H2O.....pendimethalin Roundup WeatherMax..glyphosate	4 3.8 4.5	L CS AS	1.25 lb ai/A 1.42 lb ai/A 0.77 lb ae/A	PRE PRE V3	A A C		61.7a	92.7bcd
11	Halex GT Premix Atrazine 4L Nonionic Surfactant	4.38 4 100	SC L L	1.97 lb ai/A 1 lb ai/A 0.25 % v/v	V1-2 V1-2 V1-2	B B B		72.7a	100.0a
12	Roundup WeatherMax..glyphosate Bicep II Magnum Premix Prowl H2O.....pendimethalin	4.5 5.5 3.8	AS L CS	0.77 lb ae/A 2.2 lb ai/A 1.42 lb ai/A	V1-2 V1-2 V1-2	B B B		75.0a	96.7ab
LSD (P=.05)					13.81	7.26	6.23	5.64	6.37
Standard Deviation					8.13	4.29	3.68	3.33	3.76
CV					13.45	4.92	4.08	3.66	4.24
Replicate F					4.668	1.310	0.351	1.000	0.786
Replicate Prob(F)					0.0210	0.2901	0.7079	0.3840	0.4682
Treatment F					19.091	125.241	179.506	223.273	180.625
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						IPOSS	DIGSA	ZEAMX	
Crop Code						Morningly	Large	Field	
Weed or Crop Name						Species	Crabgrass	Corn	
Weed or Crop Name						Control	Control	Yield	
Rating Data Type						%	%	Bu/A	
Rating Unit						07/11/13	07/11/13	09/17/13	
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code			
1	Untreated Check						0.0d	0.0f	70.2d
2	Lumax EZ Premix	3.67	SC	2.47 lb ai/A	PRE	A	68.3bc	87.3cde	154.3abc
	Atrazine 4L	4L		0.75 lb ai/A	PRE	A			
3	Bicep II Magnum Premix	5.5	L	2.9 lb ai/A	PRE	A	63.3c	89.0b-e	157.5abc
	Resolve SG.....rimsulfuron	25	SG	0.0156 lb ai/A	PRE	A			
4	Bicep II Magnum Premix	5.5	L	2.9 lb ai/A	PRE	A	71.7abc	90.7a-d	166.4ab
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V5	D			
5	Harness Xtra 5.6L Premix	5.6	L	3.36 lb ai/A	PRE	A	66.7bc	78.3e	128.4bc
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V5	D			
6	Bicep II Magnum Premix	5.5	L	1.79 lb ai/A	PRE	A	82.7a	96.7abc	171.6ab
	Halex GT Premix	4.38	SC	1.97 lb ai/A	V3	C			
	Atrazine 4L	4L		0.5 lb ai/A	V3	C			
	Nonionic Surfactant	100	L	0.25 % v/v	V3	C			
7	Bicep II Magnum Premix	5.5	L	1.79 lb ai/A	PRE	A	70.0abc	96.0abc	120.7c
	Realm Q Premix	38.7	WG	0.097 lb ai/A	V3	C			
	Atrazine 4L	4L		0.5 lb ai/A	V3	C			
	Nonionic Surfactant	100	L	0.25 % v/v	V3	C			
8	Bicep II Magnum Premix	5.5	L	1.79 lb ai/A	PRE	A	71.7abc	92.3a-d	147.2abc
	Atrazine 4L	4L		1.25 lb ai/A	V3	C			
	Prowl H2O.....pendimethalin	3.8	CS	1.42 lb ai/A	V3	C			
	Nonionic Surfactant	100	L	0.25 % v/v	V3	C			
9	Bicep II Magnum Premix	5.5	L	1.79 lb ai/A	PRE	A	70.0abc	78.3e	137.0abc
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C			
10	Atrazine 4L	4L		1.25 lb ai/A	PRE	A	65.0bc	83.3de	135.1abc
	Prowl H2O.....pendimethalin	3.8	CS	1.42 lb ai/A	PRE	A			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C			
11	Halex GT Premix	4.38	SC	1.97 lb ai/A	V1-2	B	68.3bc	99.0ab	173.6a
	Atrazine 4L	4L		1 lb ai/A	V1-2	B			
	Nonionic Surfactant	100	L	0.25 % v/v	V1-2	B			
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V1-2	B	77.7ab	100.0a	162.5abc
	Bicep II Magnum Premix	5.5	L	2.2 lb ai/A	V1-2	B			
	Prowl H2O.....pendimethalin	3.8	CS	1.42 lb ai/A	V1-2	B			
LSD (P=.05)							13.75	10.82	44.56
Standard Deviation							8.12	6.39	26.31
CV							12.57	7.74	18.31
Replicate F							5.348	2.720	6.902
Replicate Prob(F)							0.0128	0.0880	0.0047
Treatment F							20.116	53.636	3.599
Treatment Prob(F)							0.0001	0.0001	0.0051

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10b-13 Cooperator:  
 Location: Newark Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science  
 Affiliation: University of Delaware Research & Education Center  
 Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Crop 1: Field Corn ZEAMX  
 Planting Date: 05/31/13 Planting Method: Row- Unit Planter Depth: 2 in  
 Rate: 29900 Sd/A Row Spacing: 30 in Seed Bed: Medium  
 Soil Temperature: 90 F Soil Moisture: Moist Emergence Date: 06/05/13

## SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3  
 Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK  
 Tillage Type: Conventional Tillage

## APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	06/04/13	06/20/13	06/20/13	not applied
Time of Day:	7:30 pm	1:00 pm	1:00 pm	
Application Method:	Spray	Spray	Spray	
Application Timing:	PRE	V1-2	V3	
Applic. Placement:	Brdcst	Brdcst	Brdcst	
Air Temp., Unit:	70 F	76 F	76 F	
% Relative Humidity:	73	52	52	
Wind Velocity, Unit:	5 mph	5 mph	5 mph	
Wind Direction:	Southeast	South	South	
Dew Presence (Y/N):	N	N	N	
Soil Temp., Unit:	70 F	75 F	75 F	
Soil Surf. Moisture:	Dry	Moist	Moist	
Root Zone Moisture:	Moist	Wet	Wet	
Leaf Surf. Moisture:	Dry	Moist	Moist	
% Cloud Cover:	0	30	30	

## CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:	spike	V4	V4	
Height, Unit:	0.5 in	7 in	7 in	
Crop Health:	Good	Fair	Fair	

## APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Backpack	Backpack	Backpack	
Operating Pressure:	31 psi	31 psi	31 psi	
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	
Nozzle Size:	11002	11002	11002	
Nozzle Spacing, Unit:	18 in	18 in	18 in	
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	
Boom Height, Unit:	20 in	20 in	20 in	
Ground Speed, Unit:	3 mph	3 mph	3 mph	
Carrier:	water	water	water	
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	
Propellant:	CO2	CO2	CO2	

## Trial Comments

6/20/13: No injury observed from the treatment of emerged tissue. Corn @ V4 stage so cotyledon and oldest tissue is not visible. Also lots of wind damage (torn or shredded leaves) and made it difficult to observe leaf burn. Weed control from and PRE treatments are providing good control of grasses.

The V5 treatments were not applied.

## Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10b-13 Cooperator:  
 Location: Newark Investigator: Mark VanGessel

Weed Code						ZEAMX	CHEAL	DIGSA
Crop Code						Field	Common	Large
Weed or Crop Name						Corn	Lambqtrs	Crabgras
Weed or Crop Name						Stunting	Control	Control
Rating Data Type						%	%	%
Rating Unit								
Rating Date						06/20/13	07/11/13	07/11/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code	
1	Untreated Check							0.0b 0.0d 0.0d
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/A	PRE	A	0.0b 100.0a 98.7a
	Atrazine 4L	4	L	0.75	lb ai/A	PRE	A	
3	Bicep II Magnum Premix	5.5	L	2.9	lb ai/A	PRE	A	5.7a 81.0b 97.0a
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/A	PRE	A	
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/A	PRE	A	0.0b 71.7c 90.7b
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	V5	D	
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/A	PRE	A	0.0b 75.0c 78.3c
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	V5	D	
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/A	PRE	A	0.0b 100.0a 100.0a
	Halex GT Premix	4.38	SC	1.97	lb ai/A	V3	C	
	Atrazine 4L	4	L	0.5	lb ai/A	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/A	PRE	A	0.0b 100.0a 100.0a
	Realm Q Premix	38.7	WG	0.097	lb ai/A	V3	C	
	Atrazine 4L	4	L	0.5	lb ai/A	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/A	PRE	A	0.0b 100.0a 100.0a
	Atrazine 4L	4	L	1.25	lb ai/A	V3	C	
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/A	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	
9	Bicep II Magnum Premix	5.5	L	1.79	lb ai/A	PRE	A	0.0b 100.0a 100.0a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	V3	C	
10	Atrazine 4L	4	L	1.25	lb ai/A	PRE	A	0.0b 99.0a 95.7a
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/A	PRE	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	V3	C	
11	Halex GT Premix	4.38	SC	1.97	lb ai/A	V1-2	B	0.0b 100.0a 100.0a
	Atrazine 4L	4	L	1	lb ai/A	V1-2	B	
	Nonionic Surfactant	100	L	0.25	% v/v	V1-2	B	
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	V1-2	B	0.0b 100.0a 100.0a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/A	V1-2	B	
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/A	V1-2	B	
13	Realm Q Premix	38.7	WG	0.097	lb ai/A	V1-2	B	0.0b 100.0a 99.0a
	Atrazine 4L	4	L	0.5	lb ai/A	V1-2	B	
	Nonionic Surfactant	100	L	0.25	% v/v	V1-2	B	
14	Atrazine 4L	4	L	1.25	lb ai/A	PRE	A	0.0b
	Realm Q Premix	38.7	WG	0.097	lb ai/A	V5	D	
	Atrazine 4L	4	L	0.5	lb ai/A	V5	D	
	Nonionic Surfactant	100	L	0.25	% v/v	V5	D	
LSD (P=.05)						2.30	5.20	4.54
Standard Deviation						1.37	3.08	2.69
CV						338.84	3.56	3.02
Replicate F						1.000	1.596	2.404
Replicate Prob(F)						0.3816	0.2235	0.1118
Treatment F						3.658	249.102	312.864
Treatment Prob(F)						0.0024	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Comparison of Approaches to Weed Control in No-Tillage Field Corn

Trial ID: CRN13-13 Cooperator:  
 Location: Field #7 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Field Pansy	VIORA	Viola rafinesquii Greene
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Horseweed	ERICA	Erigeron canadensis L.
4.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
5.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
6.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
7.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Field Corn **ZEAMX** **Variety:** H6179RCSS  
**Planting Date:** 05/10/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 19000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 84 F **Soil Moisture:** Moist **Emergence Date:** 05/17/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

## MAINTENANCE

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

## SOIL DESCRIPTION

**% Sand:** 78 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 13 **pH:** 6.4  
**% Clay:** 9 **CEC:** 8.6 **Fert. Level:** Optimum  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.1 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B	C	D	E
<b>Application Date:</b>	04/17/13	05/01/13	05/13/13	05/30/13	06/05/13
<b>Time of Day:</b>	12:50 pm	9:40 am	9:20 am	11:00 am	1:25 pm
<b>Application Method:</b>	Spray	Spray	Spray	Spray	Spray
<b>Application Timing:</b>	21DPP	7DPP	PRE	V3	V5
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	74 F	59 F	56 F	82 F	76 F
<b>% Relative Humidity:</b>	62	58	40	60	38
<b>Wind Velocity, Unit:</b>	2 mph	5 mph	4 mph	4 mph	2 mph
<b>Wind Direction:</b>	East	Northeast	West	Southwest	East
<b>Dew Presence (Y/N):</b>	N	Y	N	N	N
<b>Soil Temp., Unit:</b>	74 F	57 F	55 F	80 F	75 F
<b>Soil Surf. Moisture:</b>	Dry	Moist	Moist	Dry	Moist
<b>Root Zone Moisture:</b>	Moist	Wet	Moist	Moist	Wet
<b>Leaf Surf. Moisture:</b>	Dry	Moist	Moist	Dry	Dry
<b>% Cloud Cover:</b>	65	0	40	0	20

## CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:				V3-4	V5
Height, Unit:				8 in	15 in
Crop Health:				Good	Good

## WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	VIORA	VIORA	VIORA	VIORA	VIORA
Growth Stage:	flower	flowr-seed	flowr-seed		
Height, Unit:	6 in	7 in	7 in		
Density,Unit:	30-60 m2	20-50 m2	0-10 m2		
Weed 2 Code:	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:	flowr-seed	seed	seed		
Height, Unit:	5 in	5 in	5 in		
Density,Unit:	30-50 m2	30-50 m2	0-10 m2		
Weed 3 Code:	ERICA	ERICA	ERICA	ERICA	ERICA
Growth Stage:	early bolt	bolt	bolt		
Height, Unit:	3 in	5 in	6 in		
Density,Unit:	0-40 m2	0-40 m2	0-8 m2		
Weed 4 Code:	OEOLA	OEOLA	OEOLA	OEOLA	OEOLA
Growth Stage:	rosette	rosette	rosette		
Height, Unit:	4 in	7 in	8 in		
Density,Unit:	0-4 m2	0-4 m2	0-2 m2		
Weed 5 Code:	AMAPA	AMAPA	AMAPA	AMAPA	AMAPA
Growth Stage:				2-4 leaf	vegetative
Height, Unit:				1 in	4 in
Density,Unit:				0-5 m2	0-100 m2
Weed 6 Code:	DIGSA	DIGSA	DIGSA	DIGSA	DIGSA
Growth Stage:				1-3 leaf	3-4 tiller
Height, Unit:				1 in	4 in
Density,Unit:				0-12 m2	0-30 m2
Weed 7 Code:	IPOSS	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:				1-3 leaf	cot-2 leaf
Height, Unit:				1.5 in	2 in
Density,Unit:				0-10 m2	0-4 m2

## APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	22 in	24 in	24 in	25 in	30 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

5/27/13: Poor on Carolina geranium and primrose. Lots of crabgrass emerging, Palmer amaranth and some spurred anoda. All other treatments had good to excellent burndown and little to no emergence of summer annual weeds.

6/06/13: Winter annual control and burndowns were excellent for all treatments. Spurred anoda seedlings present in treatments 12, 5, and 3.

9/04/13: Plots with better crabgrass control tended to have more broadleaf weeds. Morningglory pressure was light in Rep 1, but treatments 4, 5, and 12 had very light morningglory pressure and treatment 9 had light morningglory pressure.

Comparison of Approaches to Weed Control in No-Tillage Field Corn												
Trial ID: CRN13-13 Cooperator:												
Location: Field #7 Investigator: Mark VanGessel												
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Field Corn Stunting %	ZEAMX Field Corn Stunting %	AMAPA Palmer Amaranth Control %	IPOSS Morngrly Species Control %	DIGSA Large Crabgras Control %	
							05/27/13	06/06/13	06/06/13	06/06/13	06/06/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code					
1	Untreated Check							0.0a	0.0a	0.0d	0.0f	0.0e
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	B					
2	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A		21 DPP	A	1.7a	0.0a	100.0a	93.7 abc	100.0a
	Simazine.....simazine	4	L	1.5 lb ai/A		21 DPP	A					
	Nonionic Surfactant	100	L	0.25 % v/v		21 DPP	A					
	Lumax EZ Premix	3.67	SC	2.47 lb ai/A		PRE	C					
	Atrazine 4L	4	L	0.75 lb ai/A		PRE	C					
	Crop Oil Concentrate	100	L	1.25 % v/v		PRE	C					
3	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A		21 DPP	A	1.7a	2.3a	99.0ab	70.0e	85.3b
	Bicep II Magnum Premix	5.5	L	1.72 lb ai/A		21 DPP	A					
	Nonionic Surfactant	100	L	0.25 % v/v		21 DPP	A					
	Bicep II Magnum Premix	5.5	L	1.38 lb ai/A		PRE	C					
	Prowl H2O.....pendimethalin	3.8	CS	1.42 lb ai/A		PRE	C					
	Crop Oil Concentrate	100	L	1.25 % v/v		PRE	C					
4	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A		21 DPP	A	3.3a	0.0a	63.3c	71.7e	63.3d
	Bicep II Magnum Premix	5.5	L	2.9 lb ai/A		21 DPP	A					
	Simazine.....simazine	4	L	1.5 lb ai/A		21 DPP	A					
	Nonionic Surfactant	100	L	0.25 % v/v		21 DPP	A					
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A		V-5	E					
5	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A		21 DPP	A	3.3a	0.0a	100.0a	93.3 abc	94.0a
	Bicep II Magnum Premix	5.5	L	1.72 lb ai/A		21 DPP	A					
	Nonionic Surfactant	100	L	0.25 % v/v		21 DPP	A					
	Lexar EZ Premix	3.7	SC	1.57 lb ai/A		PRE	C					
	Crop Oil Concentrate	100	L	1.25 % v/v		PRE	C					
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A		V-5	E					
6	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A		21 DPP	A	3.3a	0.0a	100.0a	85.7 cd	100.0a
	Simazine.....simazine	4	L	1.5 lb ai/A		21 DPP	A					
	Nonionic Surfactant	100	L	0.25 % v/v		21 DPP	A					
	Halex GT Premix	4.38	SC	1.97 lb ai/A		V-3	D					
	Atrazine 4L	4	L	0.5 lb ai/A		V-3	D					
	Nonionic Surfactant	100	L	0.25 % v/v		V-3	D					
	Dry Ammonium Sulfate	100	D	1.02 % w/v		V-3	D					
7	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A		7 DPP	B	2.3a	0.0a	100.0a	88.3 bcd	99.0a
	Lexar EZ Premix	3.7	SC	3.24 lb ai/A		7 DPP	B					
	Simazine.....simazine	4	L	1.5 lb ai/A		7 DPP	B					
	Nonionic Surfactant	100	L	0.25 % v/v		7 DPP	B					

## University of Delaware

Weed Code						ZEAMX	ZEAMX	AMAPA	IPOSS	DIGSA		
Crop Code						Field	Field	Palmer	Morngrly	Large		
Weed or Crop Name						Corn	Corn	Amaranth	Species	Crabgras		
Weed or Crop Name						Stunting	Stunting	Control	Control	Control		
Rating Data Type						%	%	%	%	%		
Rating Unit						05/27/13	06/06/13	06/06/13	06/06/13	06/06/13		
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code					
8	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B		0.0 a	0.0 a	100.0 a	99.0 a	100.0 a
	Simazine.....simazine	4	L	1.5 lb ai/A	7 DPP	B						
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B						
	Lumax EZ Premix	3.67	SC	2.47 lb ai/A	PRE	C						
	Atrazine 4L	4	L	0.75 lb ai/A	PRE	C						
	Crop Oil Concentrate	100	L	1.25 % v/v	PRE	C						
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B		0.0 a	0.0 a	100.0 a	100.0 a	100.0 a
	Lumax EZ Premix	3.67	SC	2.47 lb ai/A	7 DPP	B						
	Atrazine 4L	4	L	0.75 lb ai/A	7 DPP	B						
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V-5	E						
10	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B		0.0 a	0.0 a	100.0 a	96.0 ab	100.0 a
	Simazine.....simazine	4	L	1 lb ai/A	7 DPP	B						
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B						
	Halex GT Premix	4.38	SC	1.97 lb ai/A	V-3	D						
	Atrazine 4L	4	L	0.5 lb ai/A	V-3	D						
	Nonionic Surfactant	100	L	0.25 % v/v	V-3	D						
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V-3	D						
11	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B		0.0 a	0.0 a	100.0 a	90.7 a-d	100.0 a
	Bicep II Magnum Premix	5.5	L	2.2 lb ai/A	7 DPP	B						
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V-3	D						
	Callisto.....mesotrione	4	SC	0.094 lb ai/A	V-3	D						
12	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B		0.0 a	0.0 a	90.0 b	83.3 d	76.7 c
	Atrazine 4L	4	L	1.5 lb ai/A	7 DPP	B						
	Simazine.....simazine	4	L	1.5 lb ai/A	7 DPP	B						
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V-5	E						
LSD (P=.05)						3.99	1.98	9.23	9.38	7.09		
Standard Deviation						2.36	1.17	5.45	5.52	4.19		
CV						180.58	600.0	6.21	6.82	4.94		
Replicate F						0.155	1.000	0.326	3.742	1.484		
Replicate Prob(F)						0.8574	0.3840	0.7249	0.0408	0.2486		
Treatment F						1.172	1.000	88.431	73.031	145.992		
Treatment Prob(F)						0.3595	0.4767	0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						AMAPA	DIGSA		
Crop Code								ZEAMX	
Weed or Crop Name						Palmer	Large	Field	
Weed or Crop Name						Amaranth	Crabgrass	Corn	
Rating Data Type						Control	Control	Yield	
Rating Unit						%	%	Bu/A	
Rating Date						09/04/13	09/04/13	09/04/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check						0.0d	0.0e	85.8a
	Roundup WeatherMax..glyphosate	4.5AS		1.12 lb ai/A	7 DPP	B			
2	Gramoxone SL....paraquat	2SL		0.5 lb ai/A	21 DPP	A	46.7 bc	68.3 abc	147.7 a
	Simazine.....simazine	4L		1.5 lb ai/A	21 DPP	A			
	Nonionic Surfactant	100L		0.25 % v/v	21 DPP	A			
	Lumax EZ Premix	3.67SC		2.47 lb ai/A	PRE	C			
	Atrazine 4L	4L		0.75 lb ai/A	PRE	C			
	Crop Oil Concentrate	100L		1.25 % v/v	PRE	C			
3	Gramoxone SL....paraquat	2SL		0.5 lb ai/A	21 DPP	A	49.1 abc	70.0 ab	135.5 a
	Bicep II Magnum Premix	5.5L		1.72 lb ai/A	21 DPP	A			
	Nonionic Surfactant	100L		0.25 % v/v	21 DPP	A			
	Bicep II Magnum Premix	5.5L		1.38 lb ai/A	PRE	C			
	Prowl H2O.....pendimethalin	3.8CS		1.42 lb ai/A	PRE	C			
	Crop Oil Concentrate	100L		1.25 % v/v	PRE	C			
4	Gramoxone SL....paraquat	2SL		0.5 lb ai/A	21 DPP	A	50.0 abc	68.3 abc	174.2 a
	Bicep II Magnum Premix	5.5L		2.9 lb ai/A	21 DPP	A			
	Simazine.....simazine	4L		1.5 lb ai/A	21 DPP	A			
	Nonionic Surfactant	100L		0.25 % v/v	21 DPP	A			
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V-5	E			
5	Gramoxone SL....paraquat	2SL		0.5 lb ai/A	21 DPP	A	50.0 abc	68.3 abc	144.1 a
	Bicep II Magnum Premix	5.5L		1.72 lb ai/A	21 DPP	A			
	Nonionic Surfactant	100L		0.25 % v/v	21 DPP	A			
	Lexar EZ Premix	3.7SC		1.57 lb ai/A	PRE	C			
	Crop Oil Concentrate	100L		1.25 % v/v	PRE	C			
	Roundup WeatherMax..glyphosate	4.5AS		0.77 lb ae/A	V-5	E			
6	Gramoxone SL....paraquat	2SL		0.5 lb ai/A	21 DPP	A	61.7 ab	75.0 a	122.7 a
	Simazine.....simazine	4L		1.5 lb ai/A	21 DPP	A			
	Nonionic Surfactant	100L		0.25 % v/v	21 DPP	A			
	Halex GT Premix	4.38SC		1.97 lb ai/A	V-3	D			
	Atrazine 4L	4L		0.5 lb ai/A	V-3	D			
	Nonionic Surfactant	100L		0.25 % v/v	V-3	D			
	Dry Ammonium Sulfate	100D		1.02 % w/v	V-3	D			
7	Gramoxone SL....paraquat	2SL		0.5 lb ai/A	7 DPP	B	53.3 abc	53.3 cd	142.6 a
	Lexar EZ Premix	3.7SC		3.24 lb ai/A	7 DPP	B			
	Simazine.....simazine	4L		1.5 lb ai/A	7 DPP	B			
	Nonionic Surfactant	100L		0.25 % v/v	7 DPP	B			

					AMAPA	DIGSA	
Weed Code					Palmer	Large	ZEAMX
Crop Code					Amaranth	Crabgras	Field
Weed or Crop Name					Control	Control	Corn
Weed or Crop Name					%	%	Yield
Rating Data Type					09/04/13	09/04/13	Bu/A
Rating Unit							
Rating Date					09/04/13	09/04/13	09/04/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code
8	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B	B
	Simazine.....simazine	4	L	1.5 lb ai/A	7 DPP	B	B
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B	B
	Lumax EZ Premix	3.67	SC	2.47 lb ai/A	PRE	C	C
	Atrazine 4L	4	L	0.75 lb ai/A	PRE	C	C
	Crop Oil Concentrate	100	L	1.25 % v/v	PRE	C	C
9	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B	B
	Lumax EZ Premix	3.67	SC	2.47 lb ai/A	7 DPP	B	B
	Atrazine 4L	4	L	0.75 lb ai/A	7 DPP	B	B
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B	B
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V-5	E	E
10	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B	B
	Simazine.....simazine	4	L	1 lb ai/A	7 DPP	B	B
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B	B
	Halex GT Premix	4.38	SC	1.97 lb ai/A	V-3	D	D
	Atrazine 4L	4	L	0.5 lb ai/A	V-3	D	D
	Nonionic Surfactant	100	L	0.25 % v/v	V-3	D	D
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V-3	D	D
11	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B	B
	Bicep II Magnum Premix	5.5	L	2.2 lb ai/A	7 DPP	B	B
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B	B
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V-3	D	D
	Callisto.....mesotrione	4	SC	0.094 lb ai/A	V-3	D	D
12	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	7 DPP	B	B
	Atrazine 4L	4	L	1.5 lb ai/A	7 DPP	B	B
	Simazine.....simazine	4	L	1.5 lb ai/A	7 DPP	B	B
	Nonionic Surfactant	100	L	0.25 % v/v	7 DPP	B	B
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V-5	E	E
LSD (P=.05)					18.00	16.39	45.65
Standard Deviation					10.60	9.68	26.88
CV					21.77	16.28	19.21
Replicate F					2.510	5.189	0.412
Replicate Prob(F)					0.1053	0.0143	0.6673
Treatment F					7.892	13.154	1.882
Treatment Prob(F)					0.0001	0.0001	0.1024

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## PRE Weed Control in No-Tillage Field Corn Without Atrazine

Trial ID: CRN15-13    Cooperator:  
 Location: Field #7    Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.

**Crop 1:** Field Corn    **ZEAMX**    **Variety:** H6179RCSS  
**Planting Date:** 05/10/13    **Planting Method:** Row- Unit Planter    **Depth:** 2 in  
**Rate:** 19000 Sd/A    **Row Spacing:** 30 in    **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 84 F    **Soil Moisture:** Moist    **Emergence Date:** 05/17/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

## MAINTENANCE

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	pt/A

## SOIL DESCRIPTION

**% Sand:** 78    **% OM:** 2.1    **Texture:** sandy loam  
**% Silt:** 13    **pH:** 6.4  
**% Clay:** 9    **CEC:** 8.6    **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3    **Unit:** mi

## APPLICATION DESCRIPTION

	A	B
<b>Application Date:</b>	05/01/13	06/06/13
<b>Time of Day:</b>	8:15 am	9:00 am
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	7DPP	4WAP
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	55 F	69 F
<b>% Relative Humidity:</b>	70	70
<b>Wind Velocity, Unit:</b>	3 mph	6 mph
<b>Wind Direction:</b>	Northeast	Southeast
<b>Dew Presence (Y/N):</b>	Y	Y
<b>Soil Temp., Unit:</b>	52 F	67 F
<b>Soil Surf. Moisture:</b>	Wet	Dry
<b>Root Zone Moisture:</b>	Wet	Moist
<b>Leaf Surf. Moisture:</b>	Wet	Wet
<b>% Cloud Cover:</b>	0	30

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V5
Height, Unit:		15 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		6 in
Density, Unit:		0-50 m <sup>2</sup>
Weed 2 Code:	DIGSA	DIGSA
Growth Stage:		4-tiller
Height, Unit:		5 in
Density, Unit:		0-200 m <sup>2</sup>

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	24 in	30 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

#### Trial Comments

5/27/13: Treatment 1 has heavy crabgrass, palmer amaranth, and morningglory pressure. Excellent burndown. All other treatments showing good to excellent control.

6/06/13: Excellent control of winter annuals and burndown. Spurred anoda present in treatments 3, 5, 6, 7, 10. Morningglory present in treatments 5, 6, 7, 8, 9, 10.

PRE Weed Control in No-Tillage Field Corn Without Atrazine													
Trial ID: CRN15-13 Cooperator:													
Location: Field #7 Investigator: Mark VanGessel													
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Field Corn Stunting %	ZEAMX Field Corn Stunting %	AMAPA Palmer Amaranth Control %	DIGSA Large Crabgras Control %	AMAPA Palmer Amaranth Control %	DIGSA Large Crabgras Control %	
							05/27/13	06/06/13	06/06/13	06/06/13	09/04/13	09/04/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code							
1	Untreated Check						0.0c	0.0a	0.0d	0.0d	0.0c	0.0c	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
2	SureStart Premix	4.25	SE	0.93 lb ai/A	7 DPP	A	0.0c	4.0a	60.0c	60.0c	56.7b	75.0ab	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
3	Verdict Premix	5.57	EC	0.566 lb ai/A	7 DPP	A	0.0c	2.3a	86.7ab	68.3bc	63.3ab	78.3ab	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
4	Zemax Premix	3.67	SC	1.84 lb ai/A	7 DPP	A	0.0c	0.0a	88.3ab	88.3a	62.4ab	75.0ab	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
5	Fierce Premix	76	WG	0.178 lb ai/A	7 DPP	A	3.3bc	4.0a	93.3a	83.3ab	75.0a	83.3a	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
6	Capreno Premix	3.45	SC	0.081 lb ai/A	7 DPP	A	1.7c	2.3a	58.3c	70.0bc	55.0b	76.7ab	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
7	Prequel Premix	45	DF	0.045 lb ai/A	7 DPP	A	8.3a	9.0a	73.3bc	96.3a	65.0ab	83.3a	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
8	Corvus Premix	2.63	SC	0.068 lb ai/A	7 DPP	A	1.7c	4.7a	70.0c	89.0a	56.7b	78.3ab	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
9	Balance Flexx...isoxaflutole	2	L	0.047 lb ai/A	7 DPP	A	2.0c	1.7a	60.0c	65.0c	50.0b	80.0a	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
10	Instigate Premix	45.8	WG	0.172 lb ai/A	7 PPD	A	7.0ab	6.7a	88.3ab	98.3a	60.0ab	70.0b	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	7 DPP	A							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	4 WAP	B							
	Dry Ammonium Sulfate	100	D	2.04 % w/v	4 WAP	B							
LSD (P=.05)							4.37	6.25	15.91	15.91	16.09	9.16	
Standard Deviation							2.55	3.64	9.27	9.28	9.34	5.34	
CV							106.26	105.13	13.67	12.91	17.16	7.63	
Replicate F							0.431	0.010	0.591	0.444	0.462	0.351	
Replicate Prob(F)							0.6567	0.9900	0.5642	0.6481	0.6378	0.7089	
Treatment F							4.178	1.825	25.943	28.527	14.152	65.325	
Treatment Prob(F)							0.0048	0.1326	0.0001	0.0001	0.0001	0.0001	

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	Yield Bu/A
	Weed Code							ZEAMX
	Crop Code							Field
	Weed or Crop Name							Corn
	Weed or Crop Name							Yield
	Rating Data Type							Bu/A
	Rating Unit							09/04/13
	Rating Date							
1	Untreated Check							133.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
2	SureStart Premix	4.25	SE	0.93 lb ai/A		7 DPP	A	122.2 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
3	Verdict Premix	5.57	EC	0.566 lb ai/A		7 DPP	A	125.8 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
4	Zemax Premix	3.67	SC	1.84 lb ai/A		7 DPP	A	149.8 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
5	Fierce Premix	76	WG	0.178 lb ai/A		7 DPP	A	142.8 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
6	Capreno Premix	3.45	SC	0.081 lb ai/A		7 DPP	A	120.1 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
7	Prequel Premix	45	DF	0.045 lb ai/A		7 DPP	A	147.2 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
8	Corvus Premix	2.63	SC	0.068 lb ai/A		7 DPP	A	143.4 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
9	Balance Flexx...isoxaflutole	2	L	0.047 lb ai/A		7 DPP	A	144.6 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
10	Instigate Premix	45.8	WG	0.172 lb ai/A		7 PPD	A	132.2 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A		7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A		4 WAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v		4 WAP	B	
	LSD (P=.05)							27.84
	Standard Deviation							16.23
	CV							11.92
	Replicate F							1.695
	Replicate Prob(F)							0.2116
	Treatment F							1.336
	Treatment Prob(F)							0.2863

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Zidua Programs in Field Corn

Trial ID: CRN16-13    Cooperator: BASF  
 Location: Hebron    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947  
**Investigator:** Mark VanGessel

**Crop 1:** Field Corn    **ZEAMX**    **Variety:** DK6298  
**Planting Date:** 04/27/13    **Planting Method:** Row- Unit Planter    **Depth:** 2 in  
**Rate:** 24000 Sd/A    **Row Spacing:** 30 in    **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 68 F    **Soil Moisture:** Moist    **Emergence Date:** 05/08/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**MAINTENANCE**  
 Field Prep./Maintenance: Prior to planting an early preplant treatment was applied for burndown.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/06/13	Halex GT	4.38	SC	3.6	pt/A

**APPLICATION DESCRIPTION**

	A
Application Date:	05/02/13
Time of Day:	10:30 am
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	60 F
% Relative Humidity:	70
Wind Velocity, Unit:	4 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	Y
Soil Temp., Unit:	58 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	90

**APPLICATION EQUIPMENT**

	A	
Appl. Equipment:	Backpack	Trial Comments  5/30/13: Stunting is not consistent in the plots. Treatments providing good to excellent control of palmer amaranth and fall panicum.  6/05/13: Treatments 5, 8 and 10 have poor fall panicum control.
Operating Pressure:	31 psi	
Nozzle Type:	AIRMIX	
Nozzle Size:	11002	
Nozzle Spacing, Unit:	18 in	
Boom Length, Unit:	6 nozl	
Boom Height, Unit:	20 in	
Ground Speed, Unit:	3 mph	
Carrier:	water	
Spray Volume, Unit:	20 gpa	
Propellant:	CO2	

Zidua Programs in Field Corn											
Trial ID: CRN16-13 Cooperator: BASF											
Location: Hebron Investigator: Mark VanGessel											
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Field Corn Stunting % 05/18/13	ZEAMX Field Corn Stunting % 05/30/13	AMAPA Palmer Amaranth Control % 06/05/13	IPOSS Morngrly Species Control % 06/05/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code				
1	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A		0.0 a	7.3 a	100.0 a	92.7 ab
	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	A					
	Methylated Seed Oil	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
2	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A		5.7 a	3.3 a	97.3 a	89.3 ab
	Verdict Premix	5.57	EC	0.435 lb ai/A	PRE	A					
	Methylated Seed Oil	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
3	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A		2.3 a	3.3 a	100.0 a	93.3 ab
	Verdict Premix	5.57	EC	0.435 lb ai/A	PRE	A					
	Atrazine 4L	4	L	1 lb ai/A	PRE	A					
	Methylated Seed Oil	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
4	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A		1.0 a	9.7 a	95.0 a	93.0 ab
	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	A					
	Atrazine 4L	4	L	1 lb ai/A	PRE	A					
	Methylated Seed Oil	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
5	Verdict Premix	5.57	EC	0.52 lb ai/A	PRE	A		1.7 a	8.3 a	73.3 b	94.0 ab
	Methylated Seed Oil	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
6	Anthem ATZ Premix	4.5	SE	0.98 lb ai/A	PRE	A		2.3 a	3.3 a	96.7 a	73.3 cd
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
7	Lexar EZ Premix	3.7	SC	2.78 lb ai/A	PRE	A		1.7 a	0.0 a	100.0 a	83.7 bc
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
8	SureStart Premix	4.25	SE	1.06 lb ai/A	PRE	A		5.7 a	10.7 a	91.7 a	70.0 d
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
9	Corvus Premix	2.63	SC	0.0684 lb ai/A	PRE	A		0.0 a	4.0 a	100.0 a	92.7 ab
	Atrazine 4L	4	L	1 lb ai/A	PRE	A					
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					
10	Balance Flexx...isoxaflutole	2	L	0.047 lb ai/A	PRE	A		0.0 a	4.0 a	100.0 a	84.3 bc
	Atrazine 4L	4	L	1 lb ai/A	PRE	A					
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A					

## University of Delaware

Weed Code					ZEAMX	ZEAMX	AMAPA	IPOSS
Crop Code					Field	Field	Palmer	Morngrly
Weed or Crop Name					Corn	Corn	Amaranth	Species
Weed or Crop Name					Stunting	Stunting	Control	Control
Rating Data Type					%	%	%	%
Rating Unit								
Rating Date					05/18/13	05/30/13	06/05/13	06/05/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code		
11	Untreated Check						0.0a	0.0e
12	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	PRE	A	2.3a	97.0a
	Atrazine 4L	4 L		1.5 lb ai/A	PRE	A	3.3a	
	Crop Oil Concentrate	100 L		1% v/v	PRE	A	99.7a	
	30% Urea Ammonium Nitrate	100 L		2% v/v	PRE	A		
LSD (P=.05)					4.22	9.77	13.37	11.21
Standard Deviation					2.49	5.77	7.90	6.62
CV					132.09	120.78	8.99	8.24
Replicate F					1.102	0.011	0.575	0.587
Replicate Prob(F)					0.3498	0.9892	0.5708	0.5646
Treatment F					1.941	1.089	39.542	48.681
Treatment Prob(F)					0.0894	0.4130	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Overlapping Residual Herbicides in Field Corn

Trial ID: CRN17-13    Cooperator: BASF  
 Location: Field #32    Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Horsenettle	SOLCA	Solanum carolinense L.

**Crop 1:** Field Corn    **ZEAMX**    **Variety:** N68B-3111  
**Planting Date:** 05/16/13    **Planting Method:** Row- Unit Planter    **Depth:** 2 in  
**Rate:** 19000 Sd/A    **Row Spacing:** 30 in    **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 87 F    **Soil Moisture:** Moist    **Emergence Date:** 05/23/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

## MAINTENANCE

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

## SOIL DESCRIPTION

**% Sand:** 77    **% OM:** 1.5    **Texture:** sandy loam  
**% Silt:** 12    **pH:** 5.8  
**% Clay:** 11    **CEC:** 5.1    **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4    **Unit:** mi

## APPLICATION DESCRIPTION

	A	B	C
<b>Application Date:</b>	04/26/13	05/16/13	06/05/13
<b>Time of Day:</b>	8:45 am	10:40 am	1:00 pm
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	21EPP	PRE	V3
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	53 F	83 F	76 F
<b>% Relative Humidity:</b>	65	42	38
<b>Wind Velocity, Unit:</b>	1 mph	3 mph	2 mph
<b>Wind Direction:</b>	North	Northwest	East
<b>Dew Presence (Y/N):</b>	Y	N	N
<b>Soil Temp., Unit:</b>	50 F	82 F	75 F
<b>Soil Surf. Moisture:</b>	Dry	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Wet
<b>Leaf Surf. Moisture:</b>	Wet	Dry	Dry
<b>% Cloud Cover:</b>	0	70	20

**CROP STAGE AT EACH APPLICATION**

	<b>A</b>	<b>B</b>	<b>C</b>
<b>Crop 1 Code:</b>	ZEAMX	ZEAMX	ZEAMX
<b>Growth Stage:</b>			V3
<b>Height, Unit:</b>			10 in
<b>Crop Health:</b>			Good

**WEED STAGE AT EACH APPLICATION**

	<b>A</b>	<b>B</b>	<b>C</b>
<b>Weed 1 Code:</b>	AMAPA	AMAPA	AMAPA
<b>Growth Stage:</b>			6-8 leaf
<b>Height, Unit:</b>			2.5 in
<b>Density, Unit:</b>			0-100 m2
<b>Weed 2 Code:</b>	SOLCA	SOLCA	SOLCA
<b>Growth Stage:</b>			vegetative
<b>Height, Unit:</b>			8 in
<b>Density, Unit:</b>			0-8 m2

**APPLICATION EQUIPMENT**

	<b>A</b>	<b>B</b>	<b>C</b>
<b>Appl. Equipment:</b>	Tractor	Tractor	Tractor
<b>Operating Pressure:</b>	40 psi	40 psi	40 psi
<b>Nozzle Type:</b>	AIRMIX	AIRMIX	AIRMIX
<b>Nozzle Size:</b>	11002	11002	11002
<b>Nozzle Spacing, Unit:</b>	20 in	20 in	20 in
<b>Boom Length, Unit:</b>	6 nozl	6 nozl	6 nozl
<b>Boom Height, Unit:</b>	20 in	20 in	26 in
<b>Ground Speed, Unit:</b>	3 mph	3 mph	3 mph
<b>Carrier:</b>	water	water	water
<b>Spray Volume, Unit:</b>	20 gpa	20 gpa	20 gpa
<b>Propellant:</b>	Comp. Air	Comp. Air	Comp. Air

**Trial Comments**

7/03/13: Some Palmer amaranth plants may be glyphosate resistant, but the majority of the Palmer amaranth plants emerged since V3 stage application, so results are based on differences in residual control.

## Overlapping Residual Herbicides in Field Corn

Trial ID: CRN17-13    Cooperator: BASF  
 Location: Field #32    Investigator: Mark VanGessel

Weed or Crop Code						ZEAMX	ZEAMX	AMAPA	ZEAMX	
Weed or Crop Name						Field	Field	Palmer	Field	
Weed or Crop Name						Corn	Corn	Amaranth	Corn	
Rating Data Type						Stunting	Stunting	Control	Yield	
Rating Unit						%	%	%	Bu/A	
Rating Date						06/04/13	07/03/13	07/03/13	09/27/13	
Trt	Treatment	Form	Form	Rate	Grow	Appl				
No.	Name	Conc	Type	Rate	Unit	Stg	Code			
1	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A	0.0 a	0.0 a	68.3 bcd	161.7 ab
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C				
2	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	21EPP	A	0.0 a	5.0 a	65.0 cd	152.2 ab
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C				
3	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	21EPP	A	1.7 a	2.3 a	61.7 d	173.5 ab
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A				
	Outlook.....dimethenamid-p	6	L	0.56 lb ai/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C				
4	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	21EPP	A	3.3 a	7.3 a	76.7 ab	167.9 ab
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A				
	Outlook.....dimethenamid-p	6	L	0.56 lb ai/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	V3	C				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C				
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A	4.0 a	0.0 a	65.0 cd	150.8 b
	Outlook.....dimethenamid-p	6	L	0.56 lb ai/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C				
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A	0.0 a	0.0 a	83.3 a	182.1 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	V3	C				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C				
7	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	21EPP	A	0.0 a	5.7 a	83.3 a	173.5 ab
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	V3	C				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C				
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A	1.7 a	2.3 a	74.0 abc	159.6 ab
	Outlook.....dimethenamid-p	6	L	0.56 lb ai/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	V3	C				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	C				
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A	4.7 a	1.7 a	61.7 d	170.3 ab
	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B				
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A	0.0 a	0.0 a	0.0 e	104.2 c
LSD (P=.05)						4.90	5.10	9.66	30.86	
Standard Deviation						2.86	2.95	5.63	17.99	
CV						186.37	121.16	8.81	11.27	
Replicate F						0.714	0.476	0.846	2.355	
Replicate Prob(F)						0.5029	0.6301	0.4456	0.1235	
Treatment F						1.263	2.506	54.021	4.416	
Treatment Prob(F)						0.3207	0.0523	0.0001	0.0036	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Impact Programs in Field Corn

Trial ID: CRN18-13 Cooperator: AMVAC  
 Location: Field #18 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Common Lambsquarters	CHEAL	Chenopodium album L.
2.	Annual Grasses	GGGAN	
3.	Common Ragweed	AMBEL	Ambrosia artemisifolia L.
4.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Field Corn **ZEAMX** **Variety:** H6555RCSS  
**Planting Date:** 04/26/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 28000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 68 F **Soil Moisture:** Moist **Emergence Date:** 05/07/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed & Disked Twice

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

**SOIL DESCRIPTION**

**% Sand:** 81 **% OM:** 1.3 **Texture:** loamy sand  
**% Silt:** 12 **pH:** 6.3  
**% Clay:** 7 **CEC:** 5.0 **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	05/02/13	05/20/13	05/28/13
<b>Time of Day:</b>	7:00 am	10:45 am	2:00 pm
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	V2	V3-4
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	51 F	77 F	78 F
<b>% Relative Humidity:</b>	86	72	60
<b>Wind Velocity, Unit:</b>	2 mph	4 mph	5 mph
<b>Wind Direction:</b>	Northeast	Southwest	Southwest
<b>Dew Presence (Y/N):</b>	Y	Y	N
<b>Soil Temp., Unit:</b>	50 F	75 F	76 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Moist
<b>Root Zone Moisture:</b>	Wet	Wet	Moist
<b>Leaf Surf. Moisture:</b>	N/A	Moist	Dry
<b>% Cloud Cover:</b>	100	85	100

## CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX
Growth Stage:		V3	V4-5
Height, Unit:		4.5 in	8 in
Crop Health:		Good	Good

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	CHEAL	CHEAL	CHEAL
Growth Stage:		2-4 leaf	vegetative
Height, Unit:		0.4 in	1.5 in
Density, Unit:		20-40 m2	30 m2
Weed 2 Code:	GGGAN	GGGAN	GGGAN
Growth Stage:		cot-2 leaf	3-leaf
Height, Unit:		0.4 in	1.5 in
Density, Unit:		40-60 m2	50 m2
Weed 3 Code:	AMBEL	AMBEL	AMBEL
Growth Stage:		2-4 leaf	4-leaf
Height, Unit:		0.7 in	2 in
Density, Unit:		2-10 m2	5 m2
Weed 4 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		cot-2 leaf	cot-2 leaf
Height, Unit:		1 in	1.5 in
Density, Unit:		0-2 m2	3 m2

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	22 in	24 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

5/29/13: Heavy triazine-resistant lambsquarters in plots with only low rate Bicep. Treatment leaning follows; Rep 1=20%, Rep 2=15%, Rep 3=15%.

6/05/13: Treatment 5 had noticeable leaf burn from POST treatment. Excellent weed control from all treatments receiving a POST application.

Impact Programs in Field Corn										
Trial ID: CRN18-13 Cooperator: AMVAC										
Location: Field #18 Investigator: Mark VanGessel										
Weed Code					ZEAMX	ZEAMX	ZEAMX	AMAPA	AMBEL	CHEAL
Crop Code					Field	Field	Field	Palmer	Common	Common
Weed or Crop Name					Corn	Corn	Corn	Amaranth	Ragweed	Lambqtrs
Weed or Crop Name					Stunting	Leafburn	Stunting	Control	Control	Control
Rating Data Type					%	%	%	%	%	%
Rating Unit					05/29/13	05/29/13	06/05/13	06/20/13	06/20/13	06/20/13
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code			
1	Untreated Check							0.0c	0.0c	0.0b
2	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A		0.0c	5.0b	100.0a
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	V3-4	C				
	Atrazine 4L	4 L		0.5 lb ai/A	V3-4	C				
	Methylated Seed Oil	100 L		1 % v/v	V3-4	C				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	V3-4	C				
3	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A		4.0b	4.7b	100.0a
	Impact.....topramezone	2.8 SC		0.0164 lb ai/A	V3-4	C				
	Status Premix	56 WG		0.0875 lb ai/A	V3-4	C				
	Atrazine 4L	4 L		0.5 lb ai/A	V3-4	C				
	Methylated Seed Oil	100 L		1 % v/v	V3-4	C				
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	V3-4	C				
4	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A		0.0c	0.0c	100.0a
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V3-4	C				96.7a
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V3-4	C				
5	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A		4.7b	15.7a	100.0a
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V3-4	C				
	Impact.....topramezone	2.8 SC		0.0164 lb ai/A	V3-4	C				
	Atrazine 4L	4 L		0.5 lb ai/A	V3-4	C				
	Methylated Seed Oil	100 L		0.5 % v/v	V3-4	C				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V3-4	C				
6	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A		3.3bc	0.0c	100.0a
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V3-4	C				
	Laudis.....tembotrione	3.5 SC		0.082 lb ai/A	V3-4	C				
	Atrazine 4L	4 L		0.5 lb ai/A	V3-4	C				
	Methylated Seed Oil	100 L		0.5 % v/v	V3-4	C				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V3-4	C				
7	Warrant.....acetochlor	3 CS		1.13 lb ai/A	V2	B		20.0a	7.3b	100.0a
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V2	B				
	Impact.....topramezone	2.8 SC		0.0164 lb ai/A	V2	B				
	Atrazine 4L	4 L		1 lb ai/A	V2	B				
	Methylated Seed Oil	100 L		0.5 % v/v	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
8	Halex GT Premix	4.38 SC		1.97 lb ai/A	V2	B		4.7b	7.0b	100.0a
	Atrazine 4L	4 L		1 lb ai/A	V2	B				
	Nonionic Surfactant	100 L		0.25 % v/v	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
LSD (P=.05)					3.65	4.33	4.08	7.25	0.00	3.58
Standard Deviation					2.07	2.47	2.33	4.14	0.00	2.04
CV					45.2	49.82	47.36	4.83	0.0	2.34
Replicate F					6.082	0.048	1.852	1.278	0.000	1.000
Replicate Prob(F)					0.0137	0.9535	0.1934	0.3091	1.0000	0.3927
Treatment F					30.299	13.931	32.241	211.470	0.000	892.429
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	1.0000	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						IPOSS	DIGSA		
Crop Code								ZEAMX	
Weed or Crop Name						Morninglry	Large	Field	
Weed or Crop Name						Species	Crabgras	Corn	
Rating Data Type						Control	Control	Yield	
Rating Unit						%	%	Bu/A	
Rating Date						06/20/13	06/20/13	09/17/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code			
1	Untreated Check						0.0 d	0.0 d	165.3 a
2	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A	66.7 bc	88.3 c	176.5 a
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	V3-4	C			
	Atrazine 4L	4 L		0.5 lb ai/A	V3-4	C			
	Methylated Seed Oil	100 L		1 % v/v	V3-4	C			
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	V3-4	C			
3	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A	80.0 ab	98.0 a	189.7 a
	Impact.....topramezone	2.8 SC		0.0164 lb ai/A	V3-4	C			
	Status Premix	56 WG		0.0875 lb ai/A	V3-4	C			
	Atrazine 4L	4 L		0.5 lb ai/A	V3-4	C			
	Methylated Seed Oil	100 L		1 % v/v	V3-4	C			
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	V3-4	C			
4	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A	60.0 c	88.3 c	202.5 a
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V3-4	C			
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V3-4	C			
5	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A	73.3 abc	95.0 ab	186.9 a
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V3-4	C			
	Impact.....topramezone	2.8 SC		0.0164 lb ai/A	V3-4	C			
	Atrazine 4L	4 L		0.5 lb ai/A	V3-4	C			
	Methylated Seed Oil	100 L		0.5 % v/v	V3-4	C			
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V3-4	C			
6	Bicep II Magnum Premix	5.5 L		1.03 lb ai/A	PRE	A	83.3 a	98.3 a	197.4 a
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V3-4	C			
	Laudis.....tembotrione	3.5 SC		0.082 lb ai/A	V3-4	C			
	Atrazine 4L	4 L		0.5 lb ai/A	V3-4	C			
	Methylated Seed Oil	100 L		0.5 % v/v	V3-4	C			
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V3-4	C			
7	Warrant.....acetochlor	3 CS		1.13 lb ai/A	V2	B	75.0 ab	89.3 bc	189.8 a
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V2	B			
	Impact.....topramezone	2.8 SC		0.0164 lb ai/A	V2	B			
	Atrazine 4L	4 L		1 lb ai/A	V2	B			
	Methylated Seed Oil	100 L		0.5 % v/v	V2	B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B			
8	Halex GT Premix	4.38 SC		1.97 lb ai/A	V2	B	73.3 abc	96.0 a	159.8 a
	Atrazine 4L	4 L		1 lb ai/A	V2	B			
	Nonionic Surfactant	100 L		0.25 % v/v	V2	B			
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B			
LSD (P=.05)						13.56	6.53	36.28	
Standard Deviation						7.74	3.73	20.72	
CV						12.11	4.56	11.29	
Replicate F						1.893	2.533	1.344	
Replicate Prob(F)						0.1872	0.1151	0.2925	
Treatment F						36.047	239.122	1.583	
Treatment Prob(F)						0.0001	0.0001	0.2199	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Sulfentrazone Burndown in Corn

Trial ID: CRN19-13 Cooperator: FMC  
 Location: Field #34 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Volunteer Wheat	TRZAX	Triticum aestivum L. Wiggers
2.	Horseweed	ERICA	Erigeron canadensis L.
3.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
4.	Field Pansy	VIORA	Viola rafinesquii Greene
5.	Yellow Woodsorrel	OXAST	Oxalis stricta L.

**Crop** 1: Field Corn **ZEAMX** **Variety:** H6179RCSS  
**Planting Date:** 05/10/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 19000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 84 F **Soil Moisture:** Moist **Emergence Date:** 05/17/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

## MAINTENANCE

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

## SOIL DESCRIPTION

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 5.4  
**% Clay:** 11 **CEC:** 4.8 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B
<b>Application Date:</b>	05/15/13	06/04/13
<b>Time of Day:</b>	8:45 am	1:50 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	V4
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	64 F	74 F
<b>% Relative Humidity:</b>	65	35
<b>Wind Velocity, Unit:</b>	4 mph	2 mph
<b>Wind Direction:</b>	Southwest	West
<b>Dew Presence (Y/N):</b>	Y	N
<b>Soil Temp., Unit:</b>	62 F	72 F
<b>Soil Surf. Moisture:</b>	Moist	Wet
<b>Root Zone Moisture:</b>	Moist	Wet
<b>Leaf Surf. Moisture:</b>	Moist	Moist
<b>% Cloud Cover:</b>	20	0

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V5
Height, Unit:		13 in
Crop Health:		Good

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	TRZAX	TRZAX
Growth Stage:	Heading	
Height, Unit:	18 in	
Density, Unit:	0-10 m <sup>2</sup>	
Weed 2 Code:	ERICA	ERICA
Growth Stage:	bolting	
Height, Unit:	3.5 in	
Density, Unit:	0-3 m <sup>2</sup>	
Weed 3 Code:	OEOLA	OEOLA
Growth Stage:	vegetative	
Height, Unit:	7 in	
Density, Unit:	0-3 m <sup>2</sup>	
Weed 4 Code:	VIORA	VIORA
Growth Stage:	flowr-seed	
Height, Unit:	8 in	
Density, Unit:	0-5 m <sup>2</sup>	
Weed 5 Code:	OXAST	OXAST
Growth Stage:	flower	
Height, Unit:	7 in	
Density, Unit:	0-15 m <sup>2</sup>	

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	34 in	30 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

5/24/13: Primrose density was not consistent. Common chickweed was present (scattered). All treatments provided 100% control.

6/04/13: Weeds are minimal to none in treated plots at V4 application timing.

6/06/13: Field pansy was dense in untreated checks, but not observed in the treatments. Ratings based on weeds present at time of POST application.

7/09/13: Untreated check: Horseweed, ryegrass, daisy and common ragweed present but not seen in any treated plots.

Sulfentrazone Burndown in Corn											
Trial ID: CRN19-13 Cooperator: FMC											
Location: Field #34 Investigator: Mark VanGessel											
Weed Code						ZEAMX	ZEAMX	ERICA	OEOLA	LOLMU	OXAST
Crop Code						Field	Field	Horse-	Cutleaf	Annual	Yellow
Weed or Crop Name						Corn	Corn	weed	EPrimrse	Ryegrass	Woodsorl
Weed or Crop Name						Stunting	Stunting	Control	Control	Control	Control
Rating Data Type						%	%	%	%	%	%
Rating Unit						05/24/13	06/06/13	05/24/13	05/24/13	05/24/13	05/24/13
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code					
1	Untreated Check						0.0a	0.0a	0.0b	0.0b	0.0b
2	Authority MTZ Premix	45 DF		0.155 lb ai/A	PRE	A	2.3a	0.0a	74.3a	90.0a	82.5a
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B					
	Atrazine 4L	4 L		1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B					
3	Authority MTZ Premix	45 DF		0.155 lb ai/A	PRE	A	0.0a	8.3a	66.7a	100.0a	85.0a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B					
	Atrazine 4L	4 L		1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B					
4	Spartan.....sulfentrazone	4 F		0.075 lb ai/A	PRE	A	2.3a	1.7a	77.1a	96.7a	100.0a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A					
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B					
	Atrazine 4L	4 L		1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B					
5	Spartan.....sulfentrazone	4 F		0.075 lb ai/A	PRE	A	2.3a	3.3a	78.8a	100.0a	100.0a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A					
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B					
	Atrazine 4L	4 L		1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B					
6	Spartan.....sulfentrazone	4 F		0.05 lb ai/A	PRE	A	4.0a	4.7a	87.7a	100.0a	80.0a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A					
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B					
	Atrazine 4L	4 L		1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B					

## University of Delaware

Weed Code					ZEAMX	ZEAMX	ERICA	OEOLA	LOLMU	OXAST			
Crop Code					Field	Field	Horse-	Cutleaf	Annual	Yellow			
Weed or Crop Name					Corn	Corn	weed	EPrimrse	Ryegrass	Woodsorl			
Weed or Crop Name					Stunting	Stunting	Control	Control	Control	Control			
Rating Data Type					%	%	%	%	%	%			
Rating Unit					05/24/13	06/06/13	05/24/13	05/24/13	05/24/13	05/24/13			
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Grow Stg	Appl Code						
7	Spartan.....sulfentrazone	4 F		0.05 lb ai/A		PRE	A	0.0 a	4.7 a	70.6 a	95.0 a	82.5 a	100.0 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A		PRE	A						
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A		PRE	A						
	Dry Ammonium Sulfate	100 D		1.5 % w/v		PRE	A						
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A		V4	B						
	Atrazine 4L	4 L		1 lb ai/A		V4	B						
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A		V4	B						
8	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	0.0 a	2.3 a	85.0 a	96.7 a	83.0 a	100.0 a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A		PRE	A						
	Dry Ammonium Sulfate	100 D		1.5 % w/v		PRE	A						
	Callisto.....mesotrione	4 SC		0.094 lb ai/A		V4	B						
	Atrazine 4L	4 L		0.5 lb ai/A		V4	B						
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A		V4	B						
	LSD (P=.05)			4.95				4.95	6.04	23.70	13.70	10.38	0.00
	Standard Deviation			2.83				2.83	3.45	13.19	7.82	4.00	0.00
	CV			205.7				205.7	110.27	19.53	9.22	5.81	0.0
	Replicate F			0.750				0.750	1.337	1.320	0.221	0.848	0.000
	Replicate Prob(F)			0.4904				0.4904	0.2942	0.3063	0.8041	0.5107	1.0000
	Treatment F			0.922				0.922	1.956	13.665	58.139	214.059	0.000
	Treatment Prob(F)			0.5187				0.5187	0.1351	0.0001	0.0001	0.0005	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					VIORA	TRZAX	ERICA	OEOLA	LOLMU	OXAST	
Crop Code					Field	Volunter	Horse-	Cutleaf	Annual	Yellow	
Weed or Crop Name					Pansy	Wheat	weed	EPrimse	Ryegrass	Woodsorl	
Weed or Crop Name					Control	Control	Control	Control	Control	Control	
Rating Data Type					%	%	%	%	%	%	
Rating Unit					05/24/13	05/24/13	06/06/13	06/06/13	06/06/13	06/06/13	
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Grow Stg	Appl Code					
1	Untreated Check						0.0b	0.0b	0.0d	0.0c	0.0b
2	Authority MTZ Premix	45	DF	0.155 lb ai/A	PRE	A	96.7 a	79.3 a	80.0 abc	80.0 b	85.0 ab
	Gramoxone SL....paraquat	2	SL	0.375 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5	SE	1.12 lb ai/A	V4	B					
	Atrazine 4L	4	L	1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5	AS	1.12 lb ae/A	V4	B					
3	Authority MTZ Premix	45	DF	0.155 lb ai/A	PRE	A	100.0 a	80.0 a	66.7 c	100.0 a	86.7 ab
	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5	SE	1.12 lb ai/A	V4	B					
	Atrazine 4L	4	L	1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5	AS	1.12 lb ae/A	V4	B					
4	Spartan.....sulfentrazone	4	F	0.075 lb ai/A	PRE	A	94.0 a	75.0 a	90.0 ab	100.0 a	100.0 a
	Metribuzin.....metribuzin	75	DF	0.234 lb ai/A	PRE	A					
	Gramoxone SL....paraquat	2	SL	0.375 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5	SE	1.12 lb ai/A	V4	B					
	Atrazine 4L	4	L	1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5	AS	1.12 lb ae/A	V4	B					
5	Spartan.....sulfentrazone	4	F	0.075 lb ai/A	PRE	A	100.0 a	76.7 a	77.7 abc	100.0 a	100.0 a
	Metribuzin.....metribuzin	75	DF	0.234 lb ai/A	PRE	A					
	Gramoxone SL....paraquat	2	SL	0.5 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5	SE	1.12 lb ai/A	V4	B					
	Atrazine 4L	4	L	1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5	AS	1.12 lb ae/A	V4	B					
6	Spartan.....sulfentrazone	4	F	0.05 lb ai/A	PRE	A	100.0 a	76.0 a	91.7 a	100.0 a	100.0 a
	Metribuzin.....metribuzin	75	DF	0.234 lb ai/A	PRE	A					
	Gramoxone SL....paraquat	2	SL	0.375 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	PRE	A					
	Anthem ATZ Premix	4.5	SE	1.12 lb ai/A	V4	B					
	Atrazine 4L	4	L	1 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5	AS	1.12 lb ae/A	V4	B					

## University of Delaware

Weed Code					VIORA	TRZAX	ERICA	OEOLA	LOLMU	OXAST
Crop Code										
Weed or Crop Name					Field	Volunter	Horse-	Cutleaf	Annual	Yellow
Weed or Crop Name					Pansy	Wheat	weed	EPrimse	Ryegrass	Woodsorl
Rating Data Type					Control	Control	Control	Control	Control	Control
Rating Unit					%	%	%	%	%	%
Rating Date					05/24/13	05/24/13	06/06/13	06/06/13	06/06/13	06/06/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Grow Stg	Appl Code			
7	Spartan.....sulfentrazone	4 F		0.05 lb ai/A		PRE	A	100.0 a	76.0 a	71.7 bc
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A		PRE	A			
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A		PRE	A			
	Dry Ammonium Sulfate	100 D		1.5 % w/v		PRE	A			
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A		V4	B			
	Atrazine 4L	4 L		1 lb ai/A		V4	B			
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A		V4	B			
8	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	100.0 a	75.0 a	95.0 a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A		PRE	A			
	Dry Ammonium Sulfate	100 D		1.5 % w/v		PRE	A			
	Callisto.....mesotrione	4 SC		0.094 lb ai/A		V4	B			
	Atrazine 4L	4 L		0.5 lb ai/A		V4	B			
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A		V4	B			
LSD (P=.05)					6.34	9.14	18.38	12.38	17.79	5.36
Standard Deviation					3.62	5.22	10.49	7.07	10.16	3.06
CV					4.19	7.76	14.66	8.32	12.73	3.52
Replicate F					0.346	0.179	3.323	1.000	3.828	1.000
Replicate Prob(F)					0.7132	0.8381	0.0659	0.3927	0.0472	0.3927
Treatment F					279.532	81.655	25.490	73.714	32.333	395.286
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					TRZAX	AMAPA	SETFA	
Crop Code								ZEAMX
Weed or Crop Name					Volunter	Palmer	Giant	Field
Weed or Crop Name					Wheat	Amaranth	Foxtail	Corn
Rating Data Type					Control	Control	Control	Yield
Rating Unit					%	%	%	Bu/A
Rating Date					06/06/13	07/09/13	07/09/13	09/06/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Grow Stg	Appl Code		
1	Untreated Check						0.0b	0.0b
2	Authority MTZ Premix	45 DF		0.155 lb ai/A	PRE	A	86.7 a	100.0 a
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A		
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A		
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B		
	Atrazine 4L	4 L		1 lb ai/A	V4	B		
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B		
3	Authority MTZ Premix	45 DF		0.155 lb ai/A	PRE	A	80.0 a	100.0 a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A		
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A		
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B		
	Atrazine 4L	4 L		1 lb ai/A	V4	B		
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B		
4	Spartan.....sulfentrazone	4 F		0.075 lb ai/A	PRE	A	78.3 a	100.0 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A		
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A		
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A		
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B		
	Atrazine 4L	4 L		1 lb ai/A	V4	B		
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B		
5	Spartan.....sulfentrazone	4 F		0.075 lb ai/A	PRE	A	76.7 a	100.0 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A		
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A		
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A		
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B		
	Atrazine 4L	4 L		1 lb ai/A	V4	B		
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B		
6	Spartan.....sulfentrazone	4 F		0.05 lb ai/A	PRE	A	70.0 a	100.0 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A		
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A		
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A		
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B		
	Atrazine 4L	4 L		1 lb ai/A	V4	B		
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B		

## University of Delaware

Weed Code					TRZAX	AMAPA	SETFA	
Crop Code								ZEAMX
Weed or Crop Name					Volunter	Palmer	Giant	Field
Weed or Crop Name					Wheat	Amaranth	Foxtail	Corn
Rating Data Type					Control	Control	Control	Yield
Rating Unit					%	%	%	Bu/A
Rating Date					06/06/13	07/09/13	07/09/13	09/06/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code	
7	Spartan.....sulfentrazone	4 F		0.05 lb ai/A	PRE	A		76.7 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A		100.0 a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A		100.0 a
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A		146.2 a
	Anthem ATZ Premix	4.5 SE		1.12 lb ai/A	V4	B		
	Atrazine 4L	4 L		1 lb ai/A	V4	B		
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B		
8	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		81.7 a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A		100.0 a
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A		100.0 a
	Callisto.....mesotrione	4 SC		0.094 lb ai/A	V4	B		150.2 a
	Atrazine 4L	4 L		0.5 lb ai/A	V4	B		
	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ae/A	V4	B		
LSD (P=.05)					18.07	0.00	0.00	16.07
Standard Deviation					10.31	0.00	0.00	9.11
CV					15.0	0.0	0.0	6.29
Replicate F					2.320	0.000	0.000	0.904
Replicate Prob(F)					0.1348	1.0000	1.0000	0.4289
Treatment F					22.394	0.000	0.000	7.705
Treatment Prob(F)					0.0001	1.0000	1.0000	0.0009

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Anthem Programs in Field Corn

Trial ID: CRN20-13    Cooperator: FMC  
 Location: Field #18    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Crabgrass Species	DIGSS	Digitaria sp.
2.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Field Corn    **ZEAMX**    **Variety:** N68B-3111  
**Planting Date:** 05/14/13    **Planting Method:** Row- Unit Planter    **Depth:** 2 in  
**Rate:** 28000 Sd/A    **Row Spacing:** 30 in    **Seed Bed:** Smooth  
**Soil Temperature:** 64 F    **Soil Moisture:** Moist    **Emergence Date:** 05/20/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed, Disked & Field Cultivated

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

**SOIL DESCRIPTION**

**% Sand:** 81    **% OM:** 1.3    **Texture:** loamy sand  
**% Silt:** 12    **pH:** 6.3  
**% Clay:** 7    **CEC:** 5.0    **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move    **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3    **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	05/15/13	05/30/13
<b>Time of Day:</b>	9:15 am	10:30 am
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	V3
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	64 F	79 F
<b>% Relative Humidity:</b>	65	64
<b>Wind Velocity, Unit:</b>	4 mph	4 mph
<b>Wind Direction:</b>	Southwest	Southwest
<b>Dew Presence (Y/N):</b>	Y	N
<b>Soil Temp., Unit:</b>	62 F	77 F
<b>Soil Surf. Moisture:</b>	Moist	Dry
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	N/A	Dry
<b>% Cloud Cover:</b>	20	0

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V2-3
Height, Unit:		6 in
Crop Health:		Good

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	DIGSS	DIGSS
Growth Stage:		2-3 leaf
Height, Unit:		0.6 in
Density, Unit:		120 m2
Weed 2 Code:	IPOSS	IPOSS
Growth Stage:		cot-1 leaf
Height, Unit:		1 in
Density, Unit:		12 m2

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	22 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

6/01/13: Leaf speckling observed from cadet POST applications.

Anthem Programs in Field Corn													
Trial ID: CRN20-13		Cooperator: FMC											
Location: Field #18		Investigator: Mark VanGessel											
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Field Corn Leafburn %	ZEAMX Field Corn Stunting %	AMAPA Palmer Amaranth Control %	CHEAL Common Lambqtrs Control %	IPOSS Morngly Species Control %	DIGSA Large Crabgras Control %	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code						
1	Anthem Premix Cadet.....fluthiacet	2.15	SE	0.134 lb ai/A	PRE	A		12.0 a	2.3 cd	100.0 a	100.0 a	60.0 bc	90.7 a
	Roundup PowerMax..glyphosate	4.5	AS	0.0064 lb ai/A	V3	B							
	Dry Ammonium Sulfate	100	D	0.77 lb ae/A	V3	B							
				1.02 % w/v	V3	B							
2	Anthem ATZ Premix Cadet.....fluthiacet	4.5	SE	1.12 lb ai/A	PRE	A		9.0 b	0.0 d	96.7 a	100.0 a	63.3 abc	91.7 a
	Roundup PowerMax..glyphosate	0.91	EC	0.0064 lb ai/A	V3	B							
	Dry Ammonium Sulfate	4.5	AS	0.77 lb ae/A	V3	B							
		100	D	1.02 % w/v	V3	B							
3	Anthem ATZ Premix Atrazine 4L	4.5	SE	1.12 lb ai/A	PRE	A		12.3 a	0.0 d	100.0 a	100.0 a	63.3 abc	94.7 a
	Cadet.....fluthiacet	4	L	0.5 lb ai/A	PRE	A							
	Roundup PowerMax..glyphosate	0.91	EC	0.0064 lb ai/A	V3	B							
	Dry Ammonium Sulfate	4.5	AS	0.77 lb ae/A	V3	B							
		100	D	1.02 % w/v	V3	B							
4	Anthem ATZ Premix Atrazine 4L	4.5	SE	1.12 lb ai/A	PRE	A		6.3 c	0.0 d	100.0 a	100.0 a	74.3 ab	89.0 a
	Cadet.....fluthiacet	4	L	0.5 lb ai/A	V3	B							
	Roundup PowerMax..glyphosate	0.91	EC	0.0064 lb ai/A	V3	B							
	Dry Ammonium Sulfate	4.5	AS	0.77 lb ae/A	V3	B							
		100	D	1.02 % w/v	V3	B							
5	Anthem Premix Solstice	2.15	SE	0.134 lb ai/A	PRE	A		12.0 a	2.3 cd	100.0 a	100.0 a	70.0 ab	88.7 a
	Roundup PowerMax..glyphosate	4	SC	0.094 lb ai/A	V3	B							
	Dry Ammonium Sulfate	4.5	AS	0.77 lb ae/A	V3	B							
		100	D	1.02 % w/v	V3	B							
6	Anthem ATZ Premix Solstice	4.5	SE	1.12 lb ai/A	PRE	A		13.0 a	0.0 d	100.0 a	100.0 a	75.0 ab	87.7 ab
	Roundup PowerMax..glyphosate	4	SC	0.094 lb ai/A	V3	B							
	Dry Ammonium Sulfate	4.5	AS	0.77 lb ae/A	V3	B							
		100	D	1.02 % w/v	V3	B							
7	Anthem ATZ Premix Sharpen.....saflufenacil	4.5	SE	1.12 lb ai/A	PRE	A		0.0 e	0.0 d	100.0 a	100.0 a	70.0 ab	93.3 a
	Roundup PowerMax..glyphosate	2.85	SC	0.0445 lb ai/A	PRE	A							
	Dry Ammonium Sulfate	4.5	AS	0.77 lb ae/A	V3	B							
		100	D	1.02 % w/v	V3	B							
8	Verdict Premix Roundup PowerMax..glyphosate	5.57	EC	0.61 lb ai/A	PRE	A		0.0 e	5.0 bc	95.0 a	100.0 a	66.7 abc	74.3 b
	Dry Ammonium Sulfate	4.5	AS	0.77 lb ae/A	V3	B							
		100	D	1.02 % w/v	V3	B							
9	Bicep II Magnum Premix Callisto.....mesotrione	5.5	L	2.75 lb ai/A	PRE	A		0.0 e	0.0 d	100.0 a	100.0 a	68.3 abc	89.0 a
	Roundup PowerMax..glyphosate	4	SC	0.094 lb ai/A	V3	B							
	Dry Ammonium Sulfate	4.5	AS	0.77 lb ae/A	V3	B							
		100	D	1.02 % w/v	V3	B							

## University of Delaware

Weed Code						ZEAMX	ZEAMX	AMAPA	CHEAL	IPOSS	DIGSA		
Crop Code						Field	Field	Palmer	Common	Morningly	Large		
Weed or Crop Name						Corn	Corn	Amaranth	Lambqtrs	Species	Crabgras		
Weed or Crop Name						Leafburn	Stunting	Control	Control	Control	Control		
Rating Data Type						%	%	%	%	%	%		
Rating Unit						06/04/13	06/04/13	07/10/13	07/10/13	07/10/13	07/10/13		
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code						
10	Lumax EZ Premix	3.67	SC	2.48 lb ai/A	PRE	A		0.0e	0.0d	100.0a	100.0a	77.7a	93.3a
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	B							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V3	B							
11	Anthem ATZ Premix	4.5	SE	1.12 lb ai/A	PRE	A		0.0e	7.3b	98.3a	95.0b	69.3abc	94.7a
	Hornet WDG Premix	78.5	WG	0.147 lb ai/A	PRE	A							
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	B							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V3	B							
12	SureStart Premix	4.25	SE	1.06 lb ai/A	PRE	A		0.0e	7.0b	100.0a	100.0a	53.3c	87.3ab
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	B							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V3	B							
13	Anthem ATZ Premix	4.5	SE	1.12 lb ai/A	PRE	A		2.0d	33.3a	98.3a	100.0a	61.7abc	87.7ab
	Permit Plus Premix	75	WG	0.035 lb ai/A	V3	B							
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	V3	B							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	V3	B							
14	Untreated Check							0.0e	0.0d	0.0b	0.0c	0.0d	0.0c
	LSD (P=.05)							1.76	4.62	5.12	3.89	16.41	13.93
	Standard Deviation							1.05	2.75	3.05	2.31	9.78	8.30
	CV							21.96	67.09	3.31	2.5	15.68	10.0
	Replicate F							2.243	0.401	0.448	1.000	0.332	0.079
	Replicate Prob(F)							0.1263	0.6739	0.6436	0.3816	0.7206	0.9244
	Treatment F							87.960	31.043	227.197	397.923	11.435	25.971
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						ZEAMX	
Crop Code						Field	
Weed or Crop Name						Corn	
Weed or Crop Name						Yield	
Rating Data Type						Bu/A	
Rating Unit						09/17/13	
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Rate	Rate Unit	Grow Stg	Appl Code	
1	Anthem Premix	2.15 SE	0.134 lb ai/A	PRE	A		235.7 abc
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	V3	B		
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		
2	Anthem ATZ Premix	4.5 SE	1.12 lb ai/A	PRE	A		242.6 ab
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	V3	B		
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		
3	Anthem ATZ Premix	4.5 SE	1.12 lb ai/A	PRE	A		245.5 a
	Atrazine 4L	4 L	0.5 lb ai/A	PRE	A		
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	V3	B		
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		
4	Anthem ATZ Premix	4.5 SE	1.12 lb ai/A	PRE	A		236.7 abc
	Atrazine 4L	4 L	0.5 lb ai/A	V3	B		
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	V3	B		
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		
5	Anthem Premix	2.15 SE	0.134 lb ai/A	PRE	A		242.7 ab
	Solstice	4 SC	0.094 lb ai/A	V3	B		
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		
6	Anthem ATZ Premix	4.5 SE	1.12 lb ai/A	PRE	A		243.1 ab
	Solstice	4 SC	0.094 lb ai/A	V3	B		
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		
7	Anthem ATZ Premix	4.5 SE	1.12 lb ai/A	PRE	A		223.6 abc
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		
8	Verdict Premix	5.57 EC	0.61 lb ai/A	PRE	A		245.7 a
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		
9	Bicep II Magnum Premix	5.5 L	2.75 lb ai/A	PRE	A		242.0 ab
	Callisto.....mesotrione	4 SC	0.094 lb ai/A	V3	B		
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	V3	B		
	Dry Ammonium Sulfate	100 D	1.02 % w/v	V3	B		

Weed Code											ZEAMX	
Crop Code											Field	
Weed or Crop Name											Corn	
Weed or Crop Name											Yield	
Rating Data Type											Bu/A	
Rating Unit											09/17/13	
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code					
10	Lumax EZ Premix	3.67	SC	2.48	lb ai/A	PRE	A					238.3 abc
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	V3	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B					
11	Anthem ATZ Premix	4.5	SE	1.12	lb ai/A	PRE	A					247.2 a
	Hornet WDG Premix	78.5	WG	0.147	lb ai/A	PRE	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	V3	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B					
12	SureStart Premix	4.25	SE	1.06	lb ai/A	PRE	A					216.3 bc
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	V3	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B					
13	Anthem ATZ Premix	4.5	SE	1.12	lb ai/A	PRE	A					212.0 c
	Permit Plus Premix	75	WG	0.035	lb ai/A	V3	B					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	V3	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B					
14	Untreated Check											168.9 d
	LSD (P=.05)										28.16	
	Standard Deviation										16.77	
	CV										7.25	
	Replicate F										2.792	
	Replicate Prob(F)										0.0798	
	Treatment F										4.779	
	Treatment Prob(F)										0.0003	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

PRE and POST Weed Control in Field Corn

Trial ID: CRN21-13 Cooperator: Syngenta, Dow, Gowan  
 Location: Field #18 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Common Lambsquarters	CHEAL	Chenopodium album L.
2.	Common Ragweed	AMBEL	Ambrosia artemisifolia L.
3.	Morningglory Species	IPOSS	Ipomoea sp.
4.	Yellow Nutsedge	CYPES	Cyperus esculentus L.

**Crop 1:** Field Corn **ZEAMX** **Variety:** H6555RCSS  
**Planting Date:** 04/26/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 28000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 68 F **Soil Moisture:** Moist **Emergence Date:** 05/07/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed & Disked Twice

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

**SOIL DESCRIPTION**

**% Sand:** 81 **% OM:** 1.3 **Texture:** loamy sand  
**% Silt:** 12 **pH:** 6.3  
**% Clay:** 7 **CEC:** 5.0 **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	05/02/13	05/28/13	06/04/13
<b>Time of Day:</b>	8:00 am	2:00 pm	2:10 pm
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	V4	V6
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	51 F	78 F	74 F
<b>% Relative Humidity:</b>	86	60	35
<b>Wind Velocity, Unit:</b>	2 mph	5 mph	2 mph
<b>Wind Direction:</b>	Northeast	Southwest	West
<b>Dew Presence (Y/N):</b>	Y	N	N
<b>Soil Temp., Unit:</b>	50 F	76 F	72 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Wet
<b>Root Zone Moisture:</b>	Wet	Moist	Wet
<b>Leaf Surf. Moisture:</b>	N/A	Dry	Moist
<b>% Cloud Cover:</b>	100	100	0

## CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX
Growth Stage:		V4-5	V6
Height, Unit:		8 in	16 in
Crop Health:		Good	Good

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	CHEAL	CHEAL	CHEAL
Growth Stage:		vegetative	
Height, Unit:		1.5 in	
Density, Unit:		20 m <sup>2</sup>	
Weed 2 Code:	AMBEL	AMBEL	AMBEL
Growth Stage:		4-6 leaf	
Height, Unit:		2.5 in	
Density, Unit:		4 m <sup>2</sup>	
Weed 3 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:			cot-1 leaf
Height, Unit:			1 in
Density, Unit:			0-1 m <sup>2</sup>
Weed 4 Code:	CYPES	CYPES	CYPES
Growth Stage:			5-8 leaf
Height, Unit:			6 in
Density, Unit:			0-2 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	24 in	32 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

6/01/13: All treatments have good to excellent weed control. Treatments with low rates of atrazine have morningglory emerging.

6/05/13: Excellent control of common ragweed, common lambsquarters, pigweed species and large crabgrass with all treatments. A few morningglory have emerged in some treatments but they are cotyledon to one leaf.

6/28/13: Permit Plus is still showing about 20% injury. Treatment 9 is weak/poor on common cocklebur.

PRE and POST Weed Control in Field Corn										AMAPA	AMBEL	CHEAL	
Trial ID: CRN21-13 Cooperator: Syngenta, Dow, Gowan													
Location: Field #18 Investigator: Mark VanGessel													
Weed Code	Crop Code	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date		ZEAMX Field Corn Stunting %	ZEAMX Field Corn Stunting %	ZEAMX Field Corn Stunting %	Palmer Amaranth Control %	Common Ragweed Control %	Common Lambqtrs Control %	
							05/18/13	06/01/13	06/05/13	06/28/13	06/28/13	06/28/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Grow Stg	Appl Code						
1	Untreated Check							0.0d	0.0c	0.0e	0.0c	0.0b	
2	Lexar EZ Premix Simazine.....simazine	3.7 4L	SC	2.78 1 lb ai/A	ai/A	PRE	A	1.7cd	0.0c	0.0e	100.0a	100.0a	
3	Lexar EZ Premix Hallex GT Premix Atrazine 4L Nonionic Surfactant	3.7 4.38 4L 100L	SC	1.39 1.97 0.5 0.25%	ai/A ai/A ai/A v/v	PRE V4 V4 V4	A B B B	0.0d	0.0c	0.1e	100.0a	100.0a	
4	Lumax EZ Premix Touchdown Total...k glyphosate	3.67 4.17	SC SL	1.83 0.98 lb ae/A	ai/A	PRE V6	A C	8.0ab	0.0c	2.3de	97.7a	100.0a	
5	Lumax EZ Premix	3.67	SC	2.98 lb ai/A	ai/A	PRE	A	2.3cd	0.0c	0.0e	98.0a	100.0a	
6	Lumax EZ Premix Simazine.....simazine	3.67 4L	SC	2.52 1 lb ai/A	ai/A	PRE	A	3.2bcd	0.0c	3.8de	97.7a	100.0a	
7	Hallex GT Premix Atrazine 4L Nonionic Surfactant	4.38 4L 100L	SC	1.97 0.5 0.25%	ai/A ai/A v/v	V4 V4 V4	B B B	4.7a-d	0.0c	6.7d	100.0a	100.0a	
8	Lexar EZ Premix	3.7	SC	3.24 lb ai/A	ai/A	PRE	A	5.7abc	2.3c	2.3de	100.0a	100.0a	
9	Keystone LA NXT Premix Prowl H2O.....pendimethalin	6 3.8	SE CS	2.7 0.95 lb ai/A	ai/A	PRE	A	3.3bcd	0.0c	1.7e	95.0a	100.0a	
10	Keystone NXT Premix Prowl H2O.....pendimethalin	5.6 3.8	SE CS	1.96 0.95 lb ai/A	ai/A	PRE	A	8.0ab	0.0c	2.3de	100.0a	100.0a	
11	SureStart Premix Atrazine 4L Durango DMA.....glyphosate	4.25 4L 4SL	SE	0.8 1 lb ai/A 0.75 lb ae/A	ai/A	PRE	A	2.3cd	11.3b	14.0c	100.0a	100.0a	
12	SureStart Premix Atrazine 4L Durango DMA.....glyphosate	4.25 4L 4SL	SE	0.8 1 lb ai/A 0.75 lb ae/A	ai/A	V4 V4 V4	B B B	9.0a	13.7b	14.0c	95.0a	100.0a	
13	Bicep II Magnum Premix Permit Plus Premix Roundup WeatherMax..glyphosate Nonionic Surfactant Dry Ammonium Sulfate	5.5 75 4.5 100 100	L WG AS L D	1.1 0.035 0.77 0.25 2.04%	ai/A ai/A ae/A v/v w/v	PRE V4 V4 V4 V4	A B B B B	0.0d	10.7b	20.0b	98.3a	100.0a	
14	Bicep II Magnum Premix Permit Plus Premix Roundup WeatherMax..glyphosate Methylated Seed Oil Dry Ammonium Sulfate	5.5 75 4.5 100 100	L WG AS L D	1.1 0.035 0.77 1 2.04%	ai/A ai/A ae/A v/v w/v	PRE V4 V4 V4 V4	A B B B B	0.0d	20.0a	30.0a	81.7b	100.0a	
LSD (P=.05)								5.53	5.57	4.94	6.53	0.00	
Standard Deviation								3.28	3.32	2.93	3.89	0.00	0.00
CV								95.32	80.05	42.19	4.31	0.0	0.0
Replicate F								0.892	0.396	0.728	0.634	0.000	0.000
Replicate Prob(F)								0.4228	0.6769	0.4930	0.5385	1.0000	1.0000
Treatment F								2.833	12.467	29.461	138.300	0.000	0.000
Treatment Prob(F)								0.0131	0.0001	0.0001	0.0001	1.0000	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code							IPOSS	DIGSA	ZEAMX	
Crop Code							Morngrly	Large	Field	
Weed or Crop Name							Species	Crabgras	Corn	
Weed or Crop Name							Control	Control	Yield	
Rating Data Type							%	%	Bu/A	
Rating Unit							06/28/13	06/28/13	09/17/13	
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code			
1	Untreated Check							0.0f	0.0d	141.8cde
2	Lexar EZ Premix	3.7	SC	2.78 lb ai/A	PRE	A		70.0b-e	100.0a	167.2abc
	Simazine.....simazine	4L		1 lb ai/A	PRE	A				
3	Lexar EZ Premix	3.7	SC	1.39 lb ai/A	PRE	A		84.3 ab	100.0 a	148.7 b-e
	Halex GT Premix	4.38	SC	1.97 lb ai/A	V4	B				
	Atrazine 4L	4L		0.5 lb ai/A	V4	B				
	Nonionic Surfactant	100L		0.25 % v/v	V4	B				
4	Lumax EZ Premix	3.67	SC	1.83 lb ai/A	PRE	A		71.7 b-e	97.7 a	176.0 ab
	Touchdown Total...k glyphosate	4.17	SL	0.98 lb ae/A	V6	C				
5	Lumax EZ Premix	3.67	SC	2.98 lb ai/A	PRE	A		65.0 cde	99.3 a	168.5 abc
6	Lumax EZ Premix	3.67	SC	2.52 lb ai/A	PRE	A		60.0 de	100.0 a	157.1 a-e
	Simazine.....simazine	4L		1 lb ai/A	PRE	A				
7	Halex GT Premix	4.38	SC	1.97 lb ai/A	V4	B		88.3 a	100.0 a	163.2 a-d
	Atrazine 4L	4L		0.5 lb ai/A	V4	B				
	Nonionic Surfactant	100L		0.25 % v/v	V4	B				
8	Lexar EZ Premix	3.7	SC	3.24 lb ai/A	PRE	A		63.3 cde	98.0 a	181.8 a
9	Keystone LA NXT Premix	6	SE	2.7 lb ai/A	PRE	A		56.7 e	95.7 a	179.6 ab
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	PRE	A				
10	Keystone NXT Premix	5.6	SE	1.96 lb ai/A	PRE	A		68.3 b-e	96.7 a	134.8 de
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	PRE	A				
11	SureStart Premix	4.25	SE	0.8 lb ai/A	PRE	A		68.3 b-e	93.3 ab	173.5 abc
	Atrazine 4L	4L		1 lb ai/A	PRE	A				
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/A	V6	C				
12	SureStart Premix	4.25	SE	0.8 lb ai/A	V4	B		76.7 abc	99.0 a	151.4 a-e
	Atrazine 4L	4L		1 lb ai/A	V4	B				
	Durango DMA.....glyphosate	4 SL		0.75 lb ae/A	V4	B				
13	Bicep II Magnum Premix	5.5	L	1.1 lb ai/A	PRE	A		66.7 cde	85.0 bc	151.6 a-e
	Permit Plus Premix	75	WG	0.035 lb ai/A	V4	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V4	B				
	Nonionic Surfactant	100L		0.25 % v/v	V4	B				
	Dry Ammonium Sulfate	100D		2.04 % w/v	V4	B				
14	Bicep II Magnum Premix	5.5	L	1.1 lb ai/A	PRE	A		73.3 a-d	81.7 c	130.3 e
	Permit Plus Premix	75	WG	0.035 lb ai/A	V4	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V4	B				
	Methylated Seed Oil	100L		1 % v/v	V4	B				
	Dry Ammonium Sulfate	100D		2.04 % w/v	V4	B				
LSD (P=.05)							16.50	10.39	32.32	
Standard Deviation							9.83	6.19	19.25	
CV							15.08	6.95	12.11	
Replicate F							1.549	2.633	0.252	
Replicate Prob(F)							0.2314	0.0909	0.7791	
Treatment F							13.226	53.961	2.210	
Treatment Prob(F)							0.0001	0.0001	0.0414	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Preplant Weed Control in Field Corn

Trial ID: CRN22-13 Cooperator: DuPont, Valent  
 Location: Field #34 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Field Pansy	VIORA	Viola rafinesquii Greene
3.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

**Crop 1:** Field Corn **ZEAMX** **Variety:** H6179RCSS  
**Planting Date:** 05/10/13 **Planting Method:** Row- Unit Planter **Depth:** 2 in  
**Rate:** 19000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 84 F **Soil Moisture:** Moist **Emergence Date:** 05/17/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Wheat Stubble

**Trial Initiation Comments:** The 6WAP treatments were not applied. The corn was too tall to spray without causing serious damage with tractor axles.

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 5.4  
**% Clay:** 11 **CEC:** 4.8 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	05/01/13	06/06/13	not applied
<b>Time of Day:</b>	9:50 am	8:50 am	
<b>Application Method:</b>	Spray	Spray	
<b>Application Timing:</b>	7EPP	4WAP	
<b>Applic. Placement:</b>	Brdcst	Brdcst	
<b>Air Temp., Unit:</b>	59 F	69 F	
<b>% Relative Humidity:</b>	58	70	
<b>Wind Velocity, Unit:</b>	5 mph	6 mph	
<b>Wind Direction:</b>	Northeast	Southeast	
<b>Dew Presence (Y/N):</b>	Y	Y	
<b>Soil Temp., Unit:</b>	57 F	67 F	
<b>Soil Surf. Moisture:</b>	Moist	Dry	
<b>Root Zone Moisture:</b>	Wet	Moist	
<b>Leaf Surf. Moisture:</b>	Moist	Wet	
<b>% Cloud Cover:</b>	0	30	

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX
Growth Stage:		V5	
Height, Unit:		16 in	
Crop Health:		Good	

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	ERICA	ERICA	ERICA
Growth Stage:	bolting		
Height, Unit:	5 in		
Density, Unit:	0-5 m2		
Weed 2 Code:	VIORA	VIORA	VIORA
Growth Stage:	flower		
Height, Unit:	7 in		
Density, Unit:	2-10 m2		
Weed 3 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	
Height, Unit:		2 in	
Density, Unit:		0-3 m2	

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Tractor	Tractor	
Operating Pressure:	40 psi	40 psi	
Nozzle Type:	AIRMIX	AIRMIX	
Nozzle Size:	11002	11002	
Nozzle Spacing, Unit:	20 in	20 in	
Boom Length, Unit:	6 nozl	6 nozl	
Boom Height, Unit:	20 in	32 in	
Ground Speed, Unit:	3 mph	3 mph	
Carrier:	water	water	
Spray Volume, Unit:	20 gpa	20 gpa	
Propellant:	Comp. Air	Comp. Air	

#### Trial Comments

5/24/13: Common chickweed and wild mustard were scattered throughout test site and all treatments provided excellent control.

6/06/13: Field pansy, horseweed, volunteer wheat, yellow woodsorrel, and common chickweed in untreated checks, but most treatments provided good to excellent burndown weed control. Good control of summer annuals.

7/09/13: Horseweed in Plot 106. Horseweed and common ragweed observed in untreated checks, but not seen in any treatment. It appears 208 was not sprayed.

Preplant Weed Control in Field Corn												
Trial ID: CRN22-13 Cooperator: DuPont, Valent												
Location: Field #34 Investigator: Mark VanGessel												
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Field Corn Stunting %	ERICA Horse- weed Control %	OXAST Yellow Woodsr  Control %	VIORA Field Pansy Control %	TRZAX Volunter Wheat Control %	ERICA Horse- weed Control %
							05/24/13	05/24/13	05/24/13	05/24/13	05/24/13	06/06/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code						
1	Untreated Check						0.0a	0.0b	0.0b	0.0b	0.0d	0.0c
2	Abundit.....glyphosate	3	SC	0.75 lb ae/A	7EPP	A	0.0a	100.0a	100.0a	91.7 a	99.0ab	100.0a
	2,4-D ester	3.8	L	0.475 lb ae/A	7EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	7EPP	A						
	Steadfast Q Premix	75	WG	0.035 lb ai/A	4WAP	B						
	Impact.....topramezone	2.8	SC	0.0109 lb ai/A	4WAP	B						
	Atrazine 4L	4	L	1 lb ai/A	4WAP	B						
	Nonionic Surfactant	100	L	0.25 % v/v	4WAP	B						
3	Prequel Premix	45	DF	0.0467 lb ai/A	7EPP	A	0.0a	100.0a	100.0a	100.0a	98.3ab	100.0a
	Atrazine 4L	4	L	1 lb ai/A	7EPP	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	7EPP	A						
	2,4-D ester	3.8	L	0.475 lb ae/A	7EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	7EPP	A						
	Resolve Q Multi-Pak	22.4	DF	0.0182 lb ai/A	4WAP	B						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	4WAP	B						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	4WAP	B						
4	Prequel Premix	45	DF	0.0467 lb ai/A	7EPP	A	2.3a	100.0a	100.0a	99.0a	100.0a	100.0a
	Cinch ATZ Premix	5.5	L	2.75 lb ai/A	7EPP	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	7EPP	A						
	2,4-D ester	3.8	L	0.475 lb ae/A	7EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	7EPP	A						
5	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	7EPP	A	2.3a	100.0a	96.7a	99.0a	99.0ab	100.0a
	2,4-D ester	3.8	L	0.95 lb ae/A	7EPP	A						
	Fierce Premix	76	WG	0.142 lb ai/A	7EPP	A						
	Dry Ammonium Sulfate	100	D	1.5 % w/v	7EPP	A						
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	6WAP	C						
	Dry Ammonium Sulfate	100	D	1.5 % w/v	6WAP	C						
6	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	7EPP	A	5.0a	93.3a	100.0a	100.0a	94.7ab	88.3b
	2,4-D ester	3.8	L	0.95 lb ae/A	7EPP	A						
	Fierce Premix	76	WG	0.142 lb ai/A	7EPP	A						
	Atrazine 4L	4	L	1 lb ai/A	7EPP	A						
	Dry Ammonium Sulfate	100	D	1.5 % w/v	7EPP	A						
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	6WAP	C						
	Dry Ammonium Sulfate	100	D	1.5 % w/v	6WAP	C						

## University of Delaware

Weed Code					ZEAMX	ERICA	OXAST	VIORA	TRZAX	ERICA			
Crop Code					Field	Horse-	Yellow	Field	Volunter	Horse-			
Weed or Crop Name					Corn	weed	Woodsorl	Pansy	Wheat	weed			
Weed or Crop Name					Stunting	Control	Control	Control	Control	Control			
Rating Data Type					%	%	%	%	%	%			
Rating Unit					05/24/13	05/24/13	05/24/13	05/24/13	05/24/13	06/06/13			
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	Appl Code						
7	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	7EPP	A		3.3 a	100.0 a	100.0 a	100.0 a	91.0 bc	100.0 a
	2,4-D ester	3.8	L	0.95 lb ae/A	7EPP	A							
	Lumax EZ Premix	3.67	SC	2.48 lb ai/A	7EPP	A							
	Atrazine 4L	4	L	0.75 lb ai/A	7EPP	A							
	Dry Ammonium Sulfate	100	D	1.5 % w/v	7EPP	A							
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	6WAP	C							
	Dry Ammonium Sulfate	100	D	1.5 % w/v	6WAP	C							
8	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	7EPP	A		7.0 a	100.0 a	100.0 a	100.0 a	85.7 c	100.0 a
	2,4-D ester	3.8	L	0.95 lb ae/A	7EPP	A							
	Corvus Premix	2.63	SC	0.068 lb ai/A	7EPP	A							
	Atrazine 4L	4	L	1 lb ai/A	7EPP	A							
	Dry Ammonium Sulfate	100	D	1.5 % w/v	7EPP	A							
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	6WAP	C							
	Dry Ammonium Sulfate	100	D	1.5 % w/v	6WAP	C							
LSD (P=.05)					5.05	7.15	3.58	9.00	8.40	6.44			
Standard Deviation					2.88	4.08	2.04	5.14	4.80	3.68			
CV					115.26	4.71	2.34	5.96	5.75	4.28			
Replicate F					0.948	1.000	1.000	1.119	0.512	1.000			
Replicate Prob(F)					0.4109	0.3927	0.3927	0.3541	0.6101	0.3927			
Treatment F					2.374	221.714	892.429	138.801	151.307	271.462			
Treatment Prob(F)					0.0799	0.0001	0.0001	0.0001	0.0001	0.0001			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						VIORA	AMAPA	SETFA	ZEAMX	
Crop Code						Field	Palmer	Giant	Field	
Weed or Crop Name						Pansy	Amaranth	Foxtail	Corn	
Weed or Crop Name						Control	Control	Control	Yield	
Rating Data Type						%	%	%	Bu/A	
Rating Unit						06/06/13	07/09/13	07/09/13	09/06/13	
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code				
1	Untreated Check						0.0 b	0.0 c	0.0 b	47.6 c
2	Abundit.....glyphosate	3	SC	0.75 lb ae/A	7EPP A		93.3 a	100.0 a	100.0 a	167.7 a
	2,4-D ester	3.8	L	0.475 lb ae/A	7EPP A					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	7EPP A					
	Steadfast Q Premix	75	WG	0.035 lb ai/A	4WAP B					
	Impact.....topramezone	2.8	SC	0.0109 lb ai/A	4WAP B					
	Atrazine 4L	4	L	1 lb ai/A	4WAP B					
	Nonionic Surfactant	100	L	0.25 % v/v	4WAP B					
3	Prequel Premix	45	DF	0.0467 lb ai/A	7EPP A		100.0 a	93.3 b	100.0 a	141.8 ab
	Atrazine 4L	4	L	1 lb ai/A	7EPP A					
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	7EPP A					
	2,4-D ester	3.8	L	0.475 lb ae/A	7EPP A					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	7EPP A					
	Resolve Q Multi-Pak	22.4	DF	0.0182 lb ai/A	4WAP B					
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	4WAP B					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	4WAP B					
4	Prequel Premix	45	DF	0.0467 lb ai/A	7EPP A		93.3 a	96.7 ab	100.0 a	148.8 ab
	Cinch ATZ Premix	5.5	L	2.75 lb ai/A	7EPP A					
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	7EPP A					
	2,4-D ester	3.8	L	0.475 lb ae/A	7EPP A					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	7EPP A					
5	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	7EPP A		90.0 a	100.0 a	100.0 a	126.3 b
	2,4-D ester	3.8	L	0.95 lb ae/A	7EPP A					
	Fierce Premix	76	WG	0.142 lb ai/A	7EPP A					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	7EPP A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	6WAP C					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	6WAP C					
6	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	7EPP A		93.3 a	100.0 a	90.0 a	133.6 ab
	2,4-D ester	3.8	L	0.95 lb ae/A	7EPP A					
	Fierce Premix	76	WG	0.142 lb ai/A	7EPP A					
	Atrazine 4L	4	L	1 lb ai/A	7EPP A					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	7EPP A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	6WAP C					
	Dry Ammonium Sulfate	100	D	1.5 % w/v	6WAP C					

## University of Delaware

					VIORA	AMAPA	SETFA	ZEAMX
					Field	Palmer	Giant	Field
					Pansy	Amaranth	Foxtail	Corn
					Control	Control	Control	Yield
					%	%	%	Bu/A
					06/06/13	07/09/13	07/09/13	09/06/13
Trt	Treatment	Form	Form	Rate	Grow	Appl		
No.	Name	Conc	Type	Rate	Unit	Stg	Code	
7	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	7EPP	A	
	2,4-D ester	3.8	L	0.95	lb ae/A	7EPP	A	
	Lumax EZ Premix	3.67	SC	2.48	lb ai/A	7EPP	A	
	Atrazine 4L	4	L	0.75	lb ai/A	7EPP	A	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	6WAP	C	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	6WAP	C	
8	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	7EPP	A	
	2,4-D ester	3.8	L	0.95	lb ae/A	7EPP	A	
	Corvus Premix	2.63	SC	0.068	lb ai/A	7EPP	A	
	Atrazine 4L	4	L	1	lb ai/A	7EPP	A	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	A	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	6WAP	C	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	6WAP	C	
LSD (P=.05)					14.28	5.95	33.18	39.71
Standard Deviation					8.16	3.37	18.82	22.67
CV					9.74	3.94	23.13	17.04
Replicate F					0.141	5.218	0.226	5.157
Replicate Prob(F)					0.8698	0.0217	0.8004	0.0210
Treatment F					52.322	317.009	9.821	7.846
Treatment Prob(F)					0.0001	0.0001	0.0003	0.0006

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Palmer Amaranth Control in Roundup Ready Corn

Trial ID: CRN23-13    Cooperator:  
 Location: Hebron    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Fall Panicum	PANDI	Panicum dichotomiflorum (L.) Michx.

**Crop 1:** Field Corn    **ZEAMX**    **Variety:** DK6298  
**Planting Date:** 04/27/13    **Planting Method:** Row- Unit Planter    **Depth:** 2 in  
**Rate:** 24000 Sd/A    **Row Spacing:** 30 in    **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 68 F    **Soil Moisture:** Moist    **Emergence Date:** 05/08/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/02/13	Gramoxone SL	2	SL	2	qt/A
2.	05/02/13	Crop Oil Concentrate			1	% v/v
3.	05/02/13	30% UAN			1	% v/v

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/30/13
<b>Time of Day:</b>	2:00 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	POST
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	86 F
<b>% Relative Humidity:</b>	53
<b>Wind Velocity, Unit:</b>	5 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	84 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	0

**CROP STAGE AT EACH APPLICATION**

	A
<b>Crop 1 Code:</b>	ZEAMX
<b>Growth Stage:</b>	V6
<b>Height, Unit:</b>	20 in
<b>Crop Health:</b>	Good

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	AMAPA
Growth Stage:	vegetative
Height, Unit:	5 in
Density, Unit:	5-15 m <sup>2</sup>
Weed 2 Code:	IPOSS
Growth Stage:	vegetative
Height, Unit:	5 in
Density, Unit:	1-6 m <sup>2</sup>
Weed 3 Code:	PANDI
Growth Stage:	vegetative
Height, Unit:	7 in
Density, Unit:	10-20 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	36 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO <sub>2</sub>

## Trial Comments

6/05/13: Leaf burn was observed with treatment 2, probably due to some tank contamination.

6/13/13: Palmer amaranth control is based on plants present at time of application (post only). Treatment 4 had lots of twisted stems. Treatment 3 had some "goose-necking" corn. Brittleness of stems from treatments 3 and 4 was not acceptable. No leaf burn observed from initial treatments except in treatment 2. Only leaves present at time of application were affected.

6/30/13: Palmer amaranth control was good to excellent for all treatments. Treatment 9 showed weakening.

Palmer Amaranth Control in Roundup Ready Corn												
Trial ID: CRN23-13 Cooperator:												
Location: Hebron Investigator: Mark VanGessel												
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Field Corn Twisting %	ZEAMX Field Corn Stunting %	ZEAMX Field Corn LeafBurn %	ZEAMX Field Corn Stunting %	AMAPA Palmer Amaranth Control %	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code	06/05/13	06/05/13	06/05/13	06/13/13	06/13/13
1	Untreated Check							0.0c	0.0d	0.0b		
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	A	0.0c	0.0d	12.0a	0.0b	0.0f
3	2,4-D amine Roundup WeatherMax..glyphosate	3.8	L	0.475	lb ae/A	POST	A	14.7b	0.0d	0.0b	10.7b	93.3bc
4	2,4-D amine Roundup WeatherMax..glyphosate	3.8	L	0.95	lb ae/A	POST	A	33.3a	0.0d	0.0b	41.7a	96.7ab
5	Clarity.....dicamba Roundup WeatherMax..glyphosate	4	L	0.25	lb ai/A	POST	A	0.0c	0.0d	0.0b	7.0b	70.0e
6	Clarity.....dicamba Roundup WeatherMax..glyphosate	4	L	0.5	lb ai/A	POST	A	0.0c	15.3ab	0.0b	15.0b	99.0ab
7	Status Premix Roundup WeatherMax..glyphosate	56	WG	0.175	lb ai/A	POST	A	0.0c	0.0d	0.0b	2.3b	98.0ab
8	Callisto.....mesotrione Atrazine 4L Roundup WeatherMax..glyphosate	4	SC	0.094	lb ai/A	POST	A	0.0c	4.7c	0.0b	0.0b	100.0a
9	Permit Plus Premix Roundup WeatherMax..glyphosate	75	WG	0.035	lb ai/A	POST	A	0.0c	18.0a	0.0b	11.7b	86.7d
10	Realm Q Premix Roundup WeatherMax..glyphosate	38.7	WG	0.097	lb ai/A	POST	A	0.0c	0.0d	0.0b	2.3b	89.3cd
11	Require Q Multi-Pak Roundup WeatherMax..glyphosate	59.19	WG	0.148	lb ai/A	POST	A	0.0c	13.0b	0.0b	5.7b	96.7ab
12	Capreno Premix Atrazine 4L Roundup WeatherMax..glyphosate	3.45	SC	0.081	lb ai/A	POST	A	0.0c	17.3a	0.0b	11.7b	100.0a
LSD (P=.05)								3.69	2.69	0.00	18.12	6.22
Standard Deviation								2.18	1.59	0.00	10.64	3.65
CV								54.53	27.92	0.0	108.37	4.32
Replicate F								0.490	3.637	0.000	0.603	0.548
Replicate Prob(F)								0.6189	0.0432	1.0000	0.5568	0.5868
Treatment F								65.019	71.340	0.000	3.654	194.033
Treatment Prob(F)								0.0001	0.0001	1.0000	0.0066	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Sweet Corn Weed Control to Allow Rotational Flexibility

Trial ID: SCRN1-13    Cooperator:  
 Location: Field #18    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Sweet Corn    **ZEAMS**    **Variety:** Temptation II  
**Planting Date:** 05/22/13    **Planting Method:** Row- Unit Planter    **Depth:** 0.75 in  
**Rate:** 24000 Sd/A    **Row Spacing:** 30 in    **Seed Bed:** Smooth  
**Soil Temperature:** 82 F    **Soil Moisture:** Moist    **Emergence Date:** 05/29/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed, Disked & Field Cultivated

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

**SOIL DESCRIPTION**

**% Sand:** 81    **% OM:** 1.3    **Texture:** loamy sand  
**% Silt:** 12    **pH:** 6.3  
**% Clay:** 7    **CEC:** 5.0    **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move    **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3    **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C	D
<b>Application Date:</b>	05/23/13	05/30/13	06/05/13	06/17/13
<b>Time of Day:</b>	9:00 am	10:30 am	12:50 pm	11:00 am
<b>Application Method:</b>	Spray	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	DPRE	EPOST	POST
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	78 F	79 F	76 F	80 F
<b>% Relative Humidity:</b>	70	64	38	69
<b>Wind Velocity, Unit:</b>	7 mph	4 mph	2 mph	2 mph
<b>Wind Direction:</b>	South	Southwest	East	Southwest
<b>Dew Presence (Y/N):</b>	N	N	N	N
<b>Soil Temp., Unit:</b>	76 F	77 F	75 F	78 F
<b>Soil Surf. Moisture:</b>	Dry	Dry	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Wet	Moist
<b>Leaf Surf. Moisture:</b>	N/A	Dry	Dry	Dry
<b>% Cloud Cover:</b>	90	0	20	96

## CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code:	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Growth Stage:		VE-V1	V2	V4-5
Height, Unit:		1.5 in	5 in	12 in
Crop Health:		Good	Good	Good

## WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:		cotyledon	cot-1 leaf	vegetative
Height, Unit:		1 in	1.5 in	5 in
Density, Unit:		2 m2	2-5 m2	5-15 m2

## APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	21 in	28 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

6/05/13: Treatment 10 with Zidua had 5 to 7% stunting. No other treatments had stunting observed.

7/09/13: Annual grass is a mix of large crabgrass and goosegrass. Treatments 2, 4 and 5 had poor common ragweed control in some of three repetitions.

7/23/13: Poor ragweed control: Treatment 4 repetitions 1 and 3, treatment 2 repetition 2, treatment 3 repetitions 2 and 3, treatment 5 repetitions 2 and 3.

Sweet Corn Weed Control to Allow Rotational Flexibility  
 Trial ID: SCRN1-13 Location: Field #18 Investigator: Mark VanGessel

Weed Code						AMAPA	IPOSS	GGGAN	AMAPA	IPOSS	
Weed or Crop Name						Palmer	Morninglry	Annual	Palmer	Morninglry	
Weed or Crop Name						Amaranth	Species	Grasses	Amaranth	Species	
Rating Data Type						Control	Control	Control	Control	Control	
Rating Unit						%	%	%	%	%	
Rating Date						07/09/13	07/09/13	07/09/13	07/23/13	07/23/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code					
1	Untreated Check						0.0f	0.0e	0.0b	0.0g	0.0d
2	Dual II Magnum..s-metolachlor	7.64 E		0.64 lb ai/A	PRE	A	68.3e	43.3 d	95.0 a	70.0f	38.3 c
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	EPOST	C					
	Basagran.....bentazon	4L		0.75 lb ai/A	EPOST	C					
	Nonionic Surfactant	100L		0.5 % v/v	EPOST	C					
3	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/A	PRE	A	78.7cd	61.7 cd	100.0 a	83.3 cde	46.7 c
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	EPOST	C					
	Basagran.....bentazon	4L		0.75 lb ai/A	EPOST	C					
	Nonionic Surfactant	100L		0.5 % v/v	EPOST	C					
4	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/A	PRE	A	77.7 de	50.0 d	100.0 a	78.3 def	43.3 c
	Prowl H2O.....pendimethalin	3.8 CS		1.42 lb ai/A	DPRE	B					
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	EPOST	C					
	Basagran.....bentazon	4L		0.75 lb ai/A	EPOST	C					
	Nonionic Surfactant	100L		0.5 % v/v	EPOST	C					
5	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/A	PRE	A	71.7 de	81.7 ab	100.0 a	73.3 ef	66.7 b
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	EPOST	C					
	Starane Ultra...fluroxypyr	2.8 EC		0.14 lb ai/A	EPOST	C					
	Nonionic Surfactant	100L		0.5 % v/v	EPOST	C					
6	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/A	PRE	A	95.0 ab	73.3 bc	100.0 a	85.0 bcd	79.3 ab
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	D					
	Dry Ammonium Sulfate	100D		1.02 % w/v	POST	D					
7	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/A	PRE	A	100.0 a	46.7 d	100.0 a	100.0 a	40.0 c
	Impact.....topramezone	2.8 SC		0.0164 lb ai/A	POST	D					
	Crop Oil Concentrate	100L		1.25 % v/v	POST	D					
	30% Urea Ammonium Nitrate	100L		2 % v/v	POST	D					
8	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/A	PRE	A	100.0 a	71.0 bc	100.0 a	100.0 a	76.7 ab
	Impact.....topramezone	2.8 SC		0.0164 lb ai/A	POST	D					
	Atrazine 4L	4L		0.5 lb ai/A	POST	D					
	Crop Oil Concentrate	100L		1.25 % v/v	POST	D					
	30% Urea Ammonium Nitrate	100L		2 % v/v	POST	D					
9	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/A	PRE	A	100.0 a	75.7 abc	100.0 a	95.0 ab	73.3 ab
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	D					
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	POST	D					
	Dry Ammonium Sulfate	100D		1.02 % w/v	POST	D					
10	Zidua.....pyoxasulfone	85 WG		0.106 lb ai/A	PRE	A	97.3 ab	86.7 ab	100.0 a	90.0 abc	77.3 ab
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	D					
	Dry Ammonium Sulfate	100D		1.02 % w/v	POST	D					
11	Dual II Magnum..s-metolachlor	7.64 E		1.43 lb ai/A	PRE	A	88.3 bc	80.0 abc	95.0 a	86.0 bcd	71.7 b
	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	PRE	A					
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	D					
	Dry Ammonium Sulfate	100D		1.02 % w/v	POST	D					
12	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	PRE	A	88.3 bc	95.0 a	100.0 a	83.3 cde	86.7 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	D					
	Dry Ammonium Sulfate	100D		1.02 % w/v	POST	D					
LSD (P=.05)						10.31	19.37	6.12	11.64	14.56	
Standard Deviation						6.09	11.44	3.61	6.88	8.60	
CV						7.57	17.94	3.98	8.74	14.74	
Replicate F						0.796	1.904	0.478	4.577	2.114	
Replicate Prob(F)						0.4635	0.1728	0.6262	0.0218	0.1446	
Treatment F						62.344	15.298	188.696	44.627	25.507	
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	0.0001	

(SCRN1-13)

University of Delaware

Trt	Treatment	Form	Form	Rate	Grow	Appl	
No.	Name	Conc	Type	Rate	Unit	Stg	Code
	1 Untreated Check						0.0 c
2	Dual II Magnum..s-metolachlor	7.64	E	0.64	lb ai/A	PRE	A
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/A	EPOST	C
	Basagran.....bentazon	4	L	0.75	lb ai/A	EPOST	C
	Nonionic Surfactant	100	L	0.5	% v/v	EPOST	C
3	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/A	PRE	A
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/A	EPOST	C
	Basagran.....bentazon	4	L	0.75	lb ai/A	EPOST	C
	Nonionic Surfactant	100	L	0.5	% v/v	EPOST	C
4	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/A	PRE	A
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/A	DPRE	B
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/A	EPOST	C
	Basagran.....bentazon	4	L	0.75	lb ai/A	EPOST	C
	Nonionic Surfactant	100	L	0.5	% v/v	EPOST	C
5	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/A	PRE	A
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/A	EPOST	C
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/A	EPOST	C
	Nonionic Surfactant	100	L	0.5	% v/v	EPOST	C
6	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/A	PRE	A
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	D
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POST	D
7	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/A	PRE	A
	Impact.....topramezone	2.8	SC	0.0164	lb ai/A	POST	D
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	D
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	D
8	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/A	PRE	A
	Impact.....topramezone	2.8	SC	0.0164	lb ai/A	POST	D
	Atrazine 4L	4	L	0.5	lb ai/A	POST	D
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	D
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	D
9	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/A	PRE	A
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	D
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/A	POST	D
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POST	D
10	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/A	PRE	A
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	D
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POST	D
11	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/A	PRE	A
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/A	PRE	A
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	D
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POST	D
12	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/A	PRE	A
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	D
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POST	D
	LSD (P=.05)						9.04
	Standard Deviation						5.34
	CV						6.12
	Replicate F						1.730
	Replicate Prob(F)						0.2005
	Treatment F						81.057
	Treatment Prob(F)						0.0001

Impact Carryover to Double-Cropped Vegetables  
 Late Fall Vegetables with Light Tillage  
 Trial ID: SCRN3-13 Cooperator:  
 Location: Field #18 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Crabgrass Species	DIGSS	Digitaria sp.
2.	Common Lambsquarters	CHEAL	Chenopodium album L.
3.	Morningglory Species	IPOSS	Ipomoea sp.
4.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

**Crop 1:** Spinach **SPQOL** **Variety:** Persius  
**Planting Date:** 08/16/13 **Planting Method:** Row- Unit Planter **Depth:** 0.25 in  
**Rate:** 2.6 Sd/row-ft **Row Spacing:** 12 in **Seed Bed:** Smooth  
**Soil Temperature:** 76 F **Soil Moisture:** Moist **Emergence Date:** 08/21/13

**Crop 2:** Snap Bean **PHSVN** **Variety:** Envy  
**Planting Date:** 08/16/13 **Planting Method:** Row- Push Planter **Depth:** 0.75 in  
**Rate:** 7 Sd/row-ft **Row Spacing:** 12 in **Seed Bed:** Smooth  
**Soil Temperature:** 76 F **Soil Moisture:** Moist **Emergence Date:** 08/21/13

**Crop 3:** Collards **BRSOA** **Variety:** Champion  
**Planting Date:** 08/16/13 **Planting Method:** Row- Unit Planter **Depth:** 0.75 in  
**Rate:** 3.2 Sd/row-ft **Row Spacing:** 12 in **Seed Bed:** Smooth  
**Soil Temperature:** 76 F **Soil Moisture:** Moist **Emergence Date:** 08/21/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice prior to establishment

**Trial Initiation Comments:** Trial established on 5-22-13; POST treatments applied 6-5; Total EPP (prior to vegetables) Liberty 280 on 7-3 and 7-24. Plots were disked once 8-1; due to delayed planting from excessive moisture, plots were lightly field cultivated 8-16.

**SOIL DESCRIPTION**

**% Sand:** 81 **% OM:** 1.3 **Texture:** loamy sand  
**% Silt:** 12 **pH:** 6.3  
**% Clay:** 7 **CEC:** 5.0 **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3 **Unit:** mi

## APPLICATION DESCRIPTION

	A
Application Date:	06/05/13
Time of Day:	12:40 pm
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	76 F
% Relative Humidity:	38
Wind Velocity, Unit:	2 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	75 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	20

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	DIGSS
Growth Stage:	cot-2 leaf
Height, Unit:	0.4 in
Density,Unit:	50-80 m2
Weed 2 Code:	CHEAL
Growth Stage:	vegetative
Height, Unit:	3 in
Density,Unit:	0-1 m2
Weed 3 Code:	IPOSS
Growth Stage:	cot-1 leaf
Height, Unit:	1 in
Density,Unit:	2-5 m2
Weed 4 Code:	AMAPA
Growth Stage:	2-5 leaf
Height, Unit:	1.5 in
Density,Unit:	0-10 m2

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

6/28/13: Percent control morningglory species is POST control; Palmer amaranth and large crabgrass is residual. Common Lambsquarters + Trt 2 jimsonweed residual control was very poor.

Impact Carryover to Double-Cropped Vegetables						
Late Fall Vegetables with Light Tillage						
Trial ID: SCRN3-13 Cooperator:						
Location: Field #18 Investigator: Mark VanGessel						
Weed Code						
Crop Code	SPQOL	PHSVN	BRSOA	SPQOL	PHSVN	BRSOA
Weed or Crop Name	Spinach	Snap Bean	Collards	Spinach	Snap Bean	Collards
Weed or Crop Name						
Rating Data Type	Stunting %	Stunting %	Stunting %	Chloross %	Chloross %	Stunting %
Rating Unit	%	%	%	%	%	%
Rating Date	09/03/13	09/03/13	09/03/13	09/03/13	09/03/13	09/03/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code
1	Untreated Check					
2	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	A
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	A
	30% Urea Ammonium Nitrate	100 L		1.25 % v/v	POST	A
3	Impact.....topramezone	2.8 SC		0.0437 lb ai/A	POST	A
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	A
	30% Urea Ammonium Nitrate	100 L		1.25 % v/v	POST	A
4	Impact.....topramezone	2.8 SC		0.0875 lb ai/A	POST	A
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	A
	30% Urea Ammonium Nitrate	100 L		1.25 % v/v	POST	A
5	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	A
	Atrazine 4L	4 L		0.5 lb ai/A	POST	A
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	A
	30% Urea Ammonium Nitrate	100 L		1.25 % v/v	POST	A
6	Impact.....topramezone	2.8 SC		0.0437 lb ai/A	POST	A
	Atrazine 4L	4 L		1 lb ai/A	POST	A
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	A
	30% Urea Ammonium Nitrate	100 L		1.25 % v/v	POST	A
LSD (P=.05)	7.27	6.96	7.42	2.80	4.03	5.60
Standard Deviation	4.00	3.83	4.08	1.54	2.21	3.08
CV	62.59	48.53	75.66	24.95	28.87	115.38
Replicate F	0.441	0.936	0.655	0.915	3.299	0.493
Replicate Prob(F)	0.6552	0.4239	0.5403	0.4314	0.0794	0.6249
Treatment F	3.581	6.684	3.950	32.493	29.252	2.408
Treatment Prob(F)	0.0408	0.0055	0.0308	0.0001	0.0001	0.1110

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						SPQOL	PHSVN	BRSOA	SPQOL	PHSVN	BRSOA
Crop Code						Spinach	Snap Bean	Collards	Spinach	Snap Bean	Collards
Weed or Crop Name						Stunting %	Stunting %	Stunting %	Stunting %	Stunting %	Stunting %
Rating Data Type						09/18/13	09/18/13	09/18/13	09/25/13	09/25/13	09/25/13
Rating Unit						%	%	%	%	%	%
Rating Date						09/18/13	09/18/13	09/18/13	09/25/13	09/25/13	09/25/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code					
1	Untreated Check						0.0c	0.0b	0.0c	0.0c	0.0b
2	Impact.....topramezone	2.8	SC	0.0219 lb ai/A	POST	A	2.3c	0.0b	3.3c	0.0c	0.0b
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A					
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A					
3	Impact.....topramezone	2.8	SC	0.0437 lb ai/A	POST	A	18.3a	11.3a	14.7a	6.3b	12.3ab
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A					
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A					
4	Impact.....topramezone	2.8	SC	0.0875 lb ai/A	POST	A	17.3a	14.0a	14.0a	11.3ab	14.0a
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A					
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A					
5	Impact.....topramezone	2.8	SC	0.0219 lb ai/A	POST	A	8.0b	3.3b	9.0b	9.7ab	7.3b
	Atrazine 4L	4	L	0.5 lb ai/A	POST	A					
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A					
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A					
6	Impact.....topramezone	2.8	SC	0.0437 lb ai/A	POST	A	16.7a	10.7a	11.3ab	13.3a	9.7ab
	Atrazine 4L	4	L	1 lb ai/A	POST	A					
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A					
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A					
LSD (P=.05)							4.96	4.55	4.94	5.77	6.60
Standard Deviation							2.72	2.50	2.72	3.17	3.63
CV							26.08	38.15	31.16	46.79	50.22
Replicate F							2.725	3.632	1.361	0.204	0.473
Replicate Prob(F)							0.1136	0.0652	0.3001	0.8184	0.6364
Treatment F							26.617	18.366	14.227	9.794	8.318
Treatment Prob(F)							0.0001	0.0001	0.0003	0.0013	0.0025

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

## University of Delaware

Weed Code						AMAPA	IPOSS	DIGSA
Crop Code						Palmer	Morngly	Large
Weed or Crop Name						Amaranth	Species	Crabgrass
Weed or Crop Name						Control	Control	Control
Rating Data Type						%	%	%
Rating Unit						06/28/13	06/28/13	06/28/13
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code		
1	Untreated Check						0.0 d	0.0 d
2	Impact.....topramezone	2.8	SC	0.0219 lb ai/A	POST	A	85.0 c	41.7 c
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A		
3	Impact.....topramezone	2.8	SC	0.0437 lb ai/A	POST	A	83.3 c	56.7 b
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A		
4	Impact.....topramezone	2.8	SC	0.0875 lb ai/A	POST	A	96.3 a	60.0 b
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A		
5	Impact.....topramezone	2.8	SC	0.0219 lb ai/A	POST	A	88.3 bc	88.7 a
	Atrazine 4L	4	L	0.5 lb ai/A	POST	A		
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A		
6	Impact.....topramezone	2.8	SC	0.0437 lb ai/A	POST	A	95.7 ab	93.7 a
	Atrazine 4L	4	L	1 lb ai/A	POST	A		
	Crop Oil Concentrate	100	L	1.25 % v/v	POST	A		
	30% Urea Ammonium Nitrate	100	L	1.25 % v/v	POST	A		
LSD (P=.05)						7.63	11.31	9.48
Standard Deviation						4.19	6.22	5.21
CV						5.61	10.95	6.65
Replicate F						7.129	0.027	0.350
Replicate Prob(F)						0.0119	0.9731	0.7132
Treatment F						233.812	90.649	165.448
Treatment Prob(F)						0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

Impact Safety with Mesotrione Applied at Planting

Trial ID: SCRN7-13    Cooperator:  
 Location: Field #18    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

<b>Crop 1:</b> Sweet Corn	ZEAMS	<b>Variety:</b> Temptation II
<b>Planting Date:</b> 06/25/13	<b>Planting Method:</b> Row- Unit Planter	<b>Depth:</b> 0.8 in
<b>Rate:</b> 24000 Sd/A	<b>Row Spacing:</b> 30 in	<b>Seed Bed:</b> Smooth
<b>Soil Temperature:</b> 92 F	<b>Soil Moisture:</b> Moist	<b>Emergence Date:</b> 07/01/13
<b>Crop 2:</b> Sweet Corn	ZEAMS	<b>Variety:</b> Overland
<b>Planting Date:</b> 06/25/13	<b>Planting Method:</b> Row- Unit Planter	<b>Depth:</b> 0.8 in
<b>Rate:</b> 24000 Sd/A	<b>Row Spacing:</b> 30 in	<b>Seed Bed:</b> Smooth
<b>Soil Temperature:</b> 92 F	<b>Soil Moisture:</b> Moist	<b>Emergence Date:</b> 07/01/13
<b>Crop 3:</b> Sweet Corn	ZEAMS	<b>Variety:</b> How Sweet It Is
<b>Planting Date:</b> 06/25/13	<b>Planting Method:</b> Row- Unit Planter	<b>Depth:</b> 0.8 in
<b>Rate:</b> 24000 Sd/A	<b>Row Spacing:</b> 30 in	<b>Seed Bed:</b> Smooth
<b>Soil Temperature:</b> 92 F	<b>Soil Moisture:</b> Moist	<b>Emergence Date:</b> 07/01/13
<b>Crop 4:</b> Sweet Corn	ZEAMS	<b>Variety:</b> Silver Queen
<b>Planting Date:</b> 06/25/13	<b>Planting Method:</b> Row- Unit Planter	<b>Depth:</b> 0.8 in
<b>Rate:</b> 24000 Sd/A	<b>Row Spacing:</b> 30 in	<b>Seed Bed:</b> Smooth
<b>Soil Temperature:</b> 92 F	<b>Soil Moisture:</b> Moist	<b>Emergence Date:</b> 07/01/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed, Disked & Field Cultivated

**MAINTENANCE**

**Field Prep./Maintenance:** Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

**SOIL DESCRIPTION**

**% Sand:** 81    **% OM:** 1.3    **Texture:** loamy sand  
**% Silt:** 12    **pH:** 6.3  
**% Clay:** 7    **CEC:** 5.0    **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move    **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3    **Unit:** mi

## APPLICATION DESCRIPTION

	A	B
Application Date:	06/25/13	07/09/13
Time of Day:	11:00 am	9:00 am
Application Method:	Spray	Spray
Application Timing:	PRE	POST
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	85 F	79 F
% Relative Humidity:	67	88
Wind Velocity, Unit:	4 mph	1 mph
Wind Direction:	West	South
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	84 F	78 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Moist
% Cloud Cover:	35	90

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	ZEAMS	ZEAMS
Growth Stage:		V3
Height, Unit:		5 in
Crop Health:		Good
Crop 2 Code:	ZEAMS	ZEAMS
Growth Stage:		V3
Height, Unit:		5 in
Crop Health:		Good
Crop 3 Code:	ZEAMS	ZEAMS
Growth Stage:		V3
Height, Unit:		5 in
Crop Health:		Good
Crop 4 Code:	ZEAMS	ZEAMS
Growth Stage:		V3
Height, Unit:		5 in
Crop Health:		Good

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	21 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

Impact Safety with Mesotrione Applied at Planting							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS	
Trial ID: SCR7-13 Cooperator:							Overlan	Tmptatn	HSwltls	SilvQuee	Overlan	Tmptatn	
Location: Field #18 Investigator: Mark VanGessel							SwCorn	SwCorn	SwCorn	SwCorn	SwCorn	SwCorn	
Crop Code							Stunting	Stunting	Stunting	Stunting	Stunting	Stunting	
Weed or Crop Name							%	%	%	%	%	%	
Weed or Crop Name							07/15/13	07/15/13	07/15/13	07/15/13	07/23/13	07/23/13	
Rating Data Type													
Rating Unit													
Rating Date													
Trt No.	Treatment Name	Form	Form	Rate	Grow	Appl							
		Conc	Type	Rate	Unit	Stg	Code						
1	Untreated Check							0.0e	0.0e	0.0e	0.0c	0.0d	0.0c
	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A							
2	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		9.0de	3.3de	15.7d	11.7b	0.0d	0.0c
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A							
3	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		13.3cde	8.3de	25.0bcd	13.3b	5.7cd	6.3b
	Callisto.....mesotrione	4 SC		0.156 lb ai/A	PRE	A							
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B							
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
4	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		28.3bc	28.3ab	33.3b	17.3ab	16.7ab	13.3a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A							
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
5	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		16.7b-e	15.0bcd	18.3cd	12.3b	10.3bc	10.7ab
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A							
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B							
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
6	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		50.0a	35.0a	46.7a	26.7a	23.3a	14.7a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A							
	Impact.....topramezone	2.8 SC		0.0437 lb ai/A	POST	B							
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
7	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		18.3bcd	12.3cde	19.0cd	13.3b	12.3bc	11.7a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A							
	Laudis.....tembotrione	3.5 SC		0.082 lb ai/A	POST	B							
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
8	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		33.3ab	25.0abc	30.0bc	26.7a	12.3bc	15.7a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A							
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B							
	Methylated Seed Oil	100 L		0.94 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
LSD (P=.05)							16.73	13.42	12.28	10.05	7.09	5.25	
Standard Deviation							9.55	7.66	7.01	5.74	4.05	3.00	
CV							45.22	48.15	29.83	37.84	40.17	33.17	
Replicate F							0.285	2.471	1.025	1.633	0.254	1.561	
Replicate Prob(F)							0.7563	0.1204	0.3841	0.2304	0.7792	0.2443	
Treatment F							8.063	7.907	11.674	6.848	11.807	13.071	
Treatment Prob(F)							0.0005	0.0006	0.0001	0.0012	0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMS HSwItIs	ZEAMS SilvQuee	ZEAMS Overlan	ZEAMS Tmptatn	ZEAMS HSwItIs	ZEAMS SilvQuee		
Weed or Crop Name						SwCorn	SwCorn	SwCorn	SwCorn	SwCorn	SwCorn		
Rating Data Type						Stunting %	Stunting %	Stunting %	Stunting %	Stunting %	Stunting %		
Rating Unit						07/23/13	07/23/13	08/01/13	08/01/13	08/01/13	08/01/13		
Rating Date													
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
1	Untreated Check							0.0 d	0.0 c	0.0 c	0.0 d		
	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A				0.0 a	0.0 c		
2	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		3.3 cd	6.3 bc	0.0 c	0.0 d		
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A				5.7 a	2.3 bc		
3	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		10.7 bc	9.0 abc	3.3 bc	1.7 d		
	Callisto.....mesotrione	4 SC		0.156 lb ai/A	PRE	A				8.0 a	2.3 bc		
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B							
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
4	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		8.3 bcd	10.7 ab	10.0 a	9.7 ab		
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A				4.7 a	0.0 c		
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
5	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		2.3 cd	9.0 abc	4.0 bc	3.3 cd		
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A				7.3 a	0.0 c		
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B							
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
6	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		20.7 a	17.3 a	11.3 a	5.7 bcd		
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A				12.3 a	8.0 a		
	Impact.....topramezone	2.8 SC		0.0437 lb ai/A	POST	B							
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
7	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		14.0 ab	8.0 abc	4.0 bc	8.0 abc		
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A				8.7 a	5.0 ab		
	Laudis.....tembotrione	3.5 SC		0.082 lb ai/A	POST	B							
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B							
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
8	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		15.0 ab	16.7 a	7.0 ab	11.7 a		
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A				9.7 a	6.3 ab		
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B							
	Methylated Seed Oil	100 L		0.94 % v/v	POST	B							
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B							
LSD (P=.05)								9.52	9.54	5.00	5.91	7.14	4.78
Standard Deviation								5.44	5.45	2.85	3.37	4.07	2.73
CV								58.51	56.59	57.55	67.47	57.86	90.96
Replicate F								1.583	1.976	2.292	0.527	1.011	1.326
Replicate Prob(F)								0.2399	0.1755	0.1377	0.6015	0.3888	0.2969
Treatment F								5.180	3.134	6.520	5.255	2.469	3.914
Treatment Prob(F)								0.0044	0.0328	0.0015	0.0041	0.0711	0.0143

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code						ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS		
Weed or Crop Name						Tmptatn	Tmptatn	Tmptatn	Tmptatn	HSwItIs		
Weed or Crop Name						SwCorn	SwCorn	SwCorn	SwCorn	SwCorn		
Rating Data Type						Stand	Ears	Yld/#ear	Yld/lbs	Stand		
Rating Unit						ct/24ft	#/24ft	marketbl	marketbl	ct/24ft		
Rating Date						08/20/13	08/20/13	08/20/13	08/20/13	09/03/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
1	Untreated Check							33.3 a	25.7 a	14.0 a	6.99 a	30.7 a
	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A						
2	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		29.0 a	28.7 a	22.0 a	11.01 a	27.0 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
3	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		29.7 a	28.3 a	16.7 a	7.98 a	24.7 a
	Callisto.....mesotrione	4 SC		0.156 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
4	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		32.3 a	31.3 a	16.3 a	7.87 a	30.7 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
5	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		33.0 a	32.3 a	16.7 a	7.90 a	29.0 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
6	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		31.3 a	31.0 a	12.3 a	5.87 a	25.7 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0437 lb ai/A	POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
7	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		29.7 a	29.0 a	15.0 a	7.03 a	27.0 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Laudis.....tembotrione	3.5 SC		0.082 lb ai/A	POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
8	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		30.7 a	29.7 a	8.0 a	4.30 a	28.7 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B						
	Methylated Seed Oil	100 L		0.94 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
LSD (P=.05)								6.17	6.41	8.77	4.83	6.87
Standard Deviation								3.52	3.66	5.01	2.76	3.92
CV								11.32	12.41	33.12	37.39	14.05
Replicate F								3.394	6.124	0.901	0.692	0.068
Replicate Prob(F)								0.0628	0.0123	0.4283	0.5169	0.9348
Treatment F								0.652	0.980	1.935	1.475	0.952
Treatment Prob(F)								0.7080	0.4826	0.1389	0.2536	0.4995

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

## University of Delaware

Crop Code						ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS		
Weed or Crop Name						HSwItIs	HSwItIs	HSwItIs	SilvQuee	SilvQuee	SilvQuee		
Weed or Crop Name						SwCorn	SwCorn	SwCorn	SwCorn	SwCorn	SwCorn		
Rating Data Type						Ears	Yld/#ear	Yld/lbs	Stand	Ears	Yld/#ear		
Rating Unit						#/24ft	marketbl	marketbl	ct/24ft	#/24ft	marketbl		
Rating Date						09/03/13	09/03/13	09/03/13	09/06/13	09/06/13	09/06/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
1	Untreated Check							28.7 a	10.3 a	5.79 a	31.7 a	28.3 a	14.0 a
	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A						
2	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	26.0 a	11.7 a	6.43 a	26.0 a	25.7 a	18.0 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A		PRE	A						
3	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	24.7 a	8.7 a	4.86 a	28.3 a	27.3 a	19.3 a
	Callisto.....mesotrione	4 SC		0.156 lb ai/A		PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A		POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A		POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v		POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v		POST	B						
4	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	29.7 a	11.7 a	6.49 a	30.7 a	30.3 a	19.7 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A		PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A		POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v		POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v		POST	B						
5	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	28.7 a	17.0 a	9.58 a	30.7 a	28.3 a	18.7 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A		PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A		POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A		POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v		POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v		POST	B						
6	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	24.7 a	10.0 a	5.36 a	24.7 a	23.7 a	16.0 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A		PRE	A						
	Impact.....topramezone	2.8 SC		0.0437 lb ai/A		POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A		POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v		POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v		POST	B						
7	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	27.0 a	13.7 a	7.67 a	27.3 a	25.7 a	16.0 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A		PRE	A						
	Laudis.....tembotrione	3.5 SC		0.082 lb ai/A		POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A		POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v		POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v		POST	B						
8	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A		PRE	A	28.3 a	10.7 a	5.79 a	29.0 a	28.7 a	14.3 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A		PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A		POST	B						
	Methylated Seed Oil	100 L		0.94 % v/v		POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v		POST	B						
LSD (P=.05)								5.75	8.73	5.043	5.91	5.74	6.81
Standard Deviation								3.28	4.98	2.879	3.37	3.28	3.89
CV								12.07	42.56	44.32	11.82	12.04	22.86
Replicate F								0.236	0.691	0.878	0.904	1.058	0.968
Replicate Prob(F)								0.7930	0.5172	0.4372	0.4274	0.3735	0.4037
Treatment F								1.033	0.811	0.820	1.580	1.264	0.978
Treatment Prob(F)								0.4513	0.5928	0.5868	0.2206	0.3347	0.4841

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

## University of Delaware

Crop Code						ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS		
Weed or Crop Name						SilvQuee	Overland	Overland	Overland	Overland		
Weed or Crop Name						SwCorn	SwCorn	SwCorn	SwCorn	SwCorn		
Rating Data Type						Yld/lbs	Stand	Ears	Yld/#ear	Yld/lbs		
Rating Unit						marketbl	ct/24ft	#/24ft	marketbl	marketbl		
Rating Date						09/06/13	09/06/13	09/06/13	09/06/13	09/06/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
1	Untreated Check							8.85 a	33.3 a	31.3 a	31.3 a	22.10 a
	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A						
2	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		11.23 a	28.3 a	25.7 a	25.7 a	20.47 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
3	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		11.91 a	29.7 a	29.3 a	29.3 a	21.86 a
	Callisto.....mesotrione	4 SC		0.156 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
4	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		12.50 a	30.0 a	28.3 a	28.3 a	20.61 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
5	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		12.05 a	31.0 a	30.0 a	30.0 a	23.45 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
6	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		9.74 a	30.0 a	28.3 a	28.3 a	19.78 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0437 lb ai/A	POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
7	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		9.73 a	27.3 a	27.3 a	27.3 a	21.69 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Laudis.....tembotrione	3.5 SC		0.082 lb ai/A	POST	B						
	Atrazine 4L	4 L		0.5 lb ai/A	POST	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
8	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	PRE	A		8.83 a	30.0 a	28.7 a	28.7 a	20.81 a
	Callisto.....mesotrione	4 SC		0.312 lb ai/A	PRE	A						
	Impact.....topramezone	2.8 SC		0.0219 lb ai/A	POST	B						
	Methylated Seed Oil	100 L		0.94 % v/v	POST	B						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	B						
LSD (P=.05)								4.208	7.24	6.65	6.65	4.927
Standard Deviation								2.402	4.13	3.80	3.80	2.813
CV								22.66	13.79	13.26	13.26	13.18
Replicate F								1.456	0.632	0.729	0.729	1.431
Replicate Prob(F)								0.2663	0.5461	0.4999	0.4999	0.2719
Treatment F								1.151	0.555	0.605	0.605	0.511
Treatment Prob(F)								0.3879	0.7801	0.7431	0.7431	0.8120

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

## Early-Season Weed Control in No-Till Winter Wheat

Trial ID: SG1-13 Cooperator:  
 Location: Field #30 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Winter Wheat **TRZAW** **Variety:** Shirley  
**Planting Date:** 10/25/12 **Planting Method:** Drilled **Depth:** 0.75 in  
**Rate:** 150 lb/A **Row Spacing:** 7 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 67 F **Soil Moisture:** Moist **Emergence Date:** 11/04/12

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Corn Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	10/26/12	Gramoxone SL	2	SL	2	qt/A
2.	10/26/12	Crop Oil Concentrate			1	qt/A
3.	10/26/12	30% UAN			2	qt/A

## SOIL DESCRIPTION

**% Sand:** 83 **% OM:** 0.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.1  
**% Clay:** 9 **CEC:** 4.2 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B	C
<b>Application Date:</b>	10/18/12	10/26/12	11/09/12
<b>Time of Day:</b>	3:00 pm	1:00 pm	10:50 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	7 DPP	PRE	Spike
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	68 F	71 F	48 F
<b>% Relative Humidity:</b>	55	66	51
<b>Wind Velocity, Unit:</b>	2 mph	3 mph	5 mph
<b>Wind Direction:</b>	Southeast	East	Northwest
<b>Dew Presence (Y/N):</b>	N	N	N
<b>Soil Temp., Unit:</b>	69 F	70 F	44 F
<b>Soil Surf. Moisture:</b>	Dry	Dry	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry	Dry
<b>% Cloud Cover:</b>	80	50	0

## CROP STAGE AT EACH APPLICATION

	A	B	C
<b>Crop 1 Code:</b>	TRZAW	TRZAW	TRZAW
<b>Growth Stage:</b>			spike
<b>Height, Unit:</b>			0.8 in
<b>Crop Health:</b>			Good

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2

Trial Comments

1/30/13: Treatment 4 is providing ~80% control of jagged chickweed; treatment 2 is providing some suppression. None of the other treatments are having much effect on jagged chickweed.

4/09/13: Cress was quite inconsistent and not rated.

4/13/13: Treatments 2, 3, 4, and 14 had noticeably less jagged chickweed (rated fair) but probably not acceptable. Treatment 11 had less in 2 out of 3 reps; and treatments 10, 12, and 13 had one rep with lower jagged chickweed density.

Early-Season Weed Control in No-Till Winter Wheat												
Trial ID: SG1-13    Cooperator:												
Location: Field #30    Investigator: Mark VanGessel												
Weed Code	Crop Code	TRZAW	TRZAW	HLOUM	LAMAM	TRZAW						
Weed or Crop Name	Weed or Crop Name	Winter	Winter	Jagged	Henbit	Winter						
Rating Data Type	Rating Data Type	Wheat	Wheat	Chickwd	Control	Wheat						
Rating Unit	Rating Unit	Stunting	Stunting	Control	Control	Yield						
Rating Date	Rating Date	%	%	%	%	Bu/A						
		01/30/13	04/09/13	04/09/13	04/09/13	07/08/13						
Trt No.	Treatment Name	Form	Form	Rate	Grow	Appl						
		Conc	Type	Rate	Unit	Stg	Code					
1	Untreated Check							0.0c	0.0c	0.0g	0.0c	37.7 a
2	Valor SX.....flumioxazin	51	WG	0.064 lb	ai/A	7 DPP	A	16.0a	19.0a	76.0a	100.0a	39.9 a
3	Peak.....prosulfuron	57	WG	0.0135 lb	ai/A	7 DPP	A	4.7bc	0.0c	75.0a	95.0a	46.9 a
4	Peak.....prosulfuron	57	WG	0.0178 lb	ai/A	7 DPP	A	2.3c	3.3bc	77.7 a	93.3a	49.4 a
5	Sharpen.....saflufenacil	2.85	SC	0.0223 lb	ai/A	PRE	B	5.0bc	0.0c	0.0g	0.0c	36.9 a
6	Sharpen.....saflufenacil	2.85	SC	0.0445 lb	ai/A	PRE	B	0.0c	0.0c	10.0fg	0.0c	45.8 a
7	Metribuzin.....metribuzin	75	DF	0.047 lb	ai/A	PRE	B	4.0bc	0.0c	10.0fg	0.0c	39.6 a
8	Metribuzin.....metribuzin	75	DF	0.094 lb	ai/A	PRE	B	3.3bc	0.0c	0.0g	0.0c	42.6 a
9	Authority MTZ Premix	45	DF	0.155 lb	ai/A	PRE	B	4.7bc	0.0c	23.3ef	26.7bc	41.6 a
10	Authority MTZ Premix	45	DF	0.31 lb	ai/A	PRE	B	3.3bc	0.0c	40.0de	35.0bc	45.6 a
11	Axiom Premix	68	WG	0.17 lb	ai/A	Spike	C	5.7bc	0.0c	46.7cd	0.0c	39.3 a
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C					
12	Axiom Premix	68	WG	0.255 lb	ai/A	Spike	C	9.0b	6.7b	63.3abc	13.3bc	42.6 a
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C					
13	Metribuzin.....metribuzin	75	DF	0.047 lb	ai/A	Spike	C	0.0c	0.0c	53.3bcd	25.0bc	40.1 a
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C					
14	Metribuzin.....metribuzin	75	DF	0.094 lb	ai/A	Spike	C	4.0bc	0.0c	70.0ab	43.3b	47.0 a
	Nonionic Surfactant	100	L	0.25 %	v/v	Spike	C					
LSD (P=.05)				6.63		5.93		18.75		38.30		9.56
Standard Deviation				3.94		3.53		11.17		22.55		5.69
CV				89.02		170.58		28.68		73.14		13.4
Replicate F				3.518		0.589		1.365		1.019		9.481
Replicate Prob(F)				0.0451		0.5620		0.2730		0.3780		0.0008
Treatment F				3.317		6.589		23.058		8.641		1.390
Treatment Prob(F)				0.0049		0.0001		0.0001		0.0001		0.2294

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Evaluation of Wheat Herbicides on Volunteer Cereal Rye

Trial ID: SG2-13    Cooperator:  
 Location: Field #35    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Volunteer Rye	SECCE	Secale cereale L.

Crop 1: Non-Crop

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 15 FT    **Reps:** 1  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 82    **% OM:** 1.3    **Texture:** loamy sand  
**% Silt:** 11    **pH:** 5.9  
**% Clay:** 7    **CEC:** 5.7    **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2    **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	10/18/12
<b>Time of Day:</b>	2:30 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	7 DPP
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	68 F
<b>% Relative Humidity:</b>	55
<b>Wind Velocity, Unit:</b>	2 mph
<b>Wind Direction:</b>	Southeast
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	69 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	80

**WEED STAGE AT EACH APPLICATION**

	A
<b>Weed 1 Code:</b>	SECCE
<b>Growth Stage:</b>	2 leaf
<b>Height, Unit:</b>	2.5 in
<b>Density, Unit:</b>	150 m2

APPLICATION EQUIPMENT	
	<b>A</b>
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Evaluation of Wheat Herbicides on Volunteer Cereal Rye

Trial ID: SG2-13    Cooperator:  
 Location: Field #35    Investigator: Mark VanGessel

Crop Code						SECCE Winter Rye Stunting %	12/06/12
Weed or Crop Name							
Weed or Crop Name							
Rating Data Type							
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1	Untreated Check						0.0
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/A	1-lf	A	0.0
	Nonionic Surfactant	100	L	0.5% v/v	1-lf	A	
	Dry Ammonium Sulfate	100	D	0.9% w/v	1-lf	A	
3	Olympus Flex Premix	11.25	DF	0.0246 lb ai/A	1-lf	A	30.0
	Nonionic Surfactant	100	L	0.5% v/v	1-lf	A	
	Dry Ammonium Sulfate	100	D	0.9% w/v	1-lf	A	
4	Olympus.....propoxycarbazone	70	WG	0.0394 lb ai/A	1-lf	A	0.0
	Nonionic Surfactant	100	L	0.5% v/v	1-lf	A	
	Dry Ammonium Sulfate	100	D	0.9% w/v	1-lf	A	
5	Axial XL.....pinoxaden	0.42	L	0.054 lb ai/A	1-lf	A	0.0
	Harmony Extra SG Premix	50	SG	0.028 lb ai/A	1-lf	A	
6	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/A	1-lf	A	40.0
	Nonionic Surfactant	100	L	0.5% v/v	1-lf	A	
	Dry Ammonium Sulfate	100	D	0.9% w/v	1-lf	A	
LSD (P=.05)							.
Standard Deviation							.
CV							.

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Common Chickweed Control in No-Till Winter Wheat

Trial ID: SG3-13 Cooperator:  
 Location: Field #3 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Non-Crop

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Corn Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	10/26/12	Gramoxone SL	2	SL	2	qt/A
2.	10/26/12	30% UAN			2	qt/A
3.	10/26/12	Crop Oil Concentrate			1	qt/A

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.7 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.1  
**% Clay:** 11 **CEC:** 7.0 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C	D	E
<b>Application Date:</b>	10/18/12	10/26/12	11/09/12	11/20/12	03/20/13
<b>Time of Day:</b>	2:45 pm	1:40 pm	10:30 am	1:30 pm	10:30 am
<b>Application Method:</b>	Spray	Spray	Spray	Spray	Spray
<b>Application Timing:</b>	7 DPP	PRE	Spike	Fall	Spring
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	68 F	71 F	48 F	53 F	44 F
<b>% Relative Humidity:</b>	55	66	51	59	31
<b>Wind Velocity, Unit:</b>	3 mph	3 mph	5 mph	1 mph	7 mph
<b>Wind Direction:</b>	Southeast	East	Northwest	Northeast	West
<b>Dew Presence (Y/N):</b>	N	N	N	N	N
<b>Soil Temp., Unit:</b>	69 F	70 F	44 F	53 F	40 F
<b>Soil Surf. Moisture:</b>	Dry	Dry	Moist	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry	Dry	Dry	Dry
<b>% Cloud Cover:</b>	80	50	0	70	10

APPLICATION EQUIPMENT					
	A	B	C	D	E
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2	CO2	CO2

Trial Comments

12/06/12: Henbit and chickweed at cotyledon to 2 leaf stage. Gramoxone broadcast controlled all plants present at time of application.

4/14/13: Poor cress control on plots 108, 204, 210, 309.

Poor primrose control on plot 309. Poor on groundsel on 307, 310. Plot 312 looked like it did not get sprayed.

4/23/13: The following treatments are poor on cress; 4, 12, 8, 13. The following treatments are poor on purslane and speedwell; 13, 12, 8, 3, 5, 10, 4, 10, 9. Treatment 11 is weak on groundsel. PA smartweed, lambsquarters, and morningglory are all emerging.

Common Chickweed Control in No-Till Winter Wheat												
Trial ID: SG3-13 Cooperator:												
Location: Field #3 Investigator: Mark VanGessel												
Weed Code						HLOUM	CERVU	STEME	LAMAM	VIORA		
Weed or Crop Name						Jagged	Mouseear	Common	Henbit	Field		
Weed or Crop Name						Chickwd	Chickwd	Chickwd	Control	Pansy		
Rating Data Type						Control	Control	Control	Control	Control		
Rating Unit						%	%	%	%	%		
Rating Date						04/14/13	04/14/13	04/14/13	04/14/13	04/14/13		
Trt No.	Treatment Name	Form	Form	Rate	Grow	Appl						
		Conc	Type	Rate	Unit	Stg	Code					
1	Untreated Check							0.0d	0.0e	0.0f	0.0i	0.0c
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	7 DPP	A		67.5 abc	90.0 abc	85.0 abc	100.0 a	80.0 a
	Crop Oil Concentrate	100	L	1 % v/v	7 DPP	A						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	7 DPP	A						
3	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	B		0.0d	10.0e	40.0e	20.0h	0.0c
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	B						
4	Metribuzin.....metribuzin	75	DF	0.047 lb ai/A	Spike	C		75.0 abc	50.0d	50.0de	53.3 efg	0.0c
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C						
5	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Spike	C		85.0 ab	90.0 abc	65.0 cde	40.0g	35.0 abc
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C						
6	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	D		85.0 ab	100.0 a	85.0 abc	76.7 bcd	61.7 a
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D						
7	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	D		100.0 a	100.0 a	100.0 a	100.0 a	52.5 ab
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D						
8	Starane Ultra...fluroxypyr	2.8	EC	0.105 lb ae/A	Fall	D		50.0c	67.5 bcd	85.0 abc	68.3 c-f	50.0 ab
9	Starane Ultra...fluroxypyr	2.8	EC	0.105 lb ae/A	Fall	D		94.0 a	93.3 ab	93.3 ab	88.3 ab	80.0 a
	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	D						
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D						
10	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Spring	E		87.5 ab	78.3 a-d	85.0 abc	85.0 abc	0.0c
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	E						
11	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Spring	E		100.0 a	100.0 a	100.0 a	100.0 a	75.0 a
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	E						
12	Starane Ultra...fluroxypyr	2.8	EC	0.105 lb ae/A	Spring	E		45.0c	60.0cd	72.5 bcd	50.0fg	10.0bc
13	Starane Ultra...fluroxypyr	2.8	EC	0.14 lb ae/A	Spring	E		60.0bc	60.0cd	75.0 a-d	61.0 def	
14	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Spike	C		90.0 ab	100.0 a	100.0 a	71.7 b-e	57.5 ab
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C						
	Starane Ultra...fluroxypyr	2.8	EC	0.105 lb ae/A	Spring	E						
LSD (P=.05)								32.54	32.22	25.71	18.87	47.53
Standard Deviation								14.94	18.92	14.31	11.22	26.13
CV								22.27	26.51	19.34	17.18	67.71
Replicate F								3.228	0.612	0.188	5.283	0.376
Replicate Prob(F)								0.0976	0.5523	0.8310	0.0122	0.6958
Treatment F								9.910	9.088	11.472	22.107	4.671
Treatment Prob(F)								0.0002	0.0001	0.0001	0.0001	0.0103

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						CERVU	HLOUM	LAMAM	STEME	VIORA		
Weed or Crop Name						Mouseear	Jagged	Henbit	Common	Field		
Weed or Crop Name						Chickwd	Chickwd		Chickwd	Pansy		
Rating Data Type						Control	Control	Control	Control	Control		
Rating Unit						%	%	%	%	%		
Rating Date						04/23/13	04/23/13	04/23/13	04/23/13	04/23/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
1	Untreated Check							0.0d	0.0d	0.0g	0.0d	0.0d
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	7 DPP	A		93.3 ab	75.0 abc	100.0 a	90.0 ab	91.7 a
	Crop Oil Concentrate	100	L	1 % v/v	7 DPP	A						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	7 DPP	A						
3	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	B		20.0 d	20.0 d	36.7 f	60.0 c	35.0 bcd
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	B						
4	Metribuzin.....metribuzin	75	DF	0.047 lb ai/A	Spike	C		60.0 c	65.0 bc	46.7 ef	60.0 c	60.0 abc
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C						
5	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Spike	C		70.0 bc	75.0 abc	60.0 de	65.0 bc	60.0 abc
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C						
6	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	D		82.5 abc	85.0 abc	65.0 cde	80.0 abc	70.0 ab
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D						
7	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	D		100.0 a	100.0 a	90.0 ab	100.0 a	70.0 ab
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D						
8	Starane Ultra...fluroxypyr	2.8	EC	0.105 lb ae/A	Fall	D		80.0 abc	67.5 bc	63.3 cde	77.5 abc	50.0 bc
9	Starane Ultra...fluroxypyr	2.8	EC	0.105 lb ae/A	Fall	D		90.0 ab	100.0 a	76.7 bcd	85.0 abc	60.0 abc
	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	D						
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D						
10	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Spring	E		76.7 abc	90.0 ab	96.7 ab	80.0 abc	35.0 bcd
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	E						
11	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Spring	E		100.0 a	100.0 a	100.0 a	100.0 a	90.0 a
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	E						
12	Starane Ultra...fluroxypyr	2.8	EC	0.105 lb ae/A	Spring	E		85.0 abc	60.0 c	53.3 ef	60.0 c	26.7 cd
13	Starane Ultra...fluroxypyr	2.8	EC	0.14 lb ae/A	Spring	E		77.5 abc	70.0 bc	61.7 cde	75.0 abc	60.0 abc
14	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Spike	C		100.0 a	80.0 abc	83.3 abc	80.0 abc	55.0 abc
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C						
	Starane Ultra...fluroxypyr	2.8	EC	0.105 lb ae/A	Spring	E						
LSD (P=.05)								25.71	25.01	23.29	28.06	37.62
Standard Deviation								15.10	13.75	13.87	12.88	21.33
CV								20.42	19.49	20.81	17.81	39.12
Replicate F								0.658	0.191	0.467	0.436	0.351
Replicate Prob(F)								0.5287	0.8288	0.6320	0.5215	0.7107
Treatment F								11.654	13.432	12.051	7.380	3.941
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0007	0.0096

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Horseweed Control in No-Till Winter Wheat Without ALS-Herbicides

Trial ID: SG4-13 Cooperator:

Location: Field #28 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science

Affiliation: University of Delaware Research &amp; Education Center

Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Annual Ryegrass	LOLMU	Lolium multiflorum Lam.
3.	Henbit	LAMAM	Lamium amplexicaule L.
4.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
5.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.

Crop 1: Winter Wheat TRZAW Variety: Shirley  
 Planting Date: 10/25/12 Planting Method: Drilled Depth: 0.75 in  
 Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Firm/Trashy  
 Soil Temperature: 67 F Soil Moisture: Moist Emergence Date: 11/04/12

**SITE AND DESIGN**

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3  
 Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK  
 Tillage Type: No Tillage/Corn Stubble  
 Trial Initiation Comments: Annual ryegrass was broadcast seeded at 20 lb/A prior to planting on 10-24-12.

**MAINTENANCE**

Field Prep./Maintenance: Axial XL was applied on 3-13-13 for annual ryegrass control.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	03/13/13	Axial XL	0.42	L	16.4	fl oz/A

**SOIL DESCRIPTION**

% Sand: 81 % OM: 1.0 Texture: sandy loam  
 % Silt: 2 pH: 5.8  
 % Clay: 17 CEC: 3.7 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book  
 Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown  
 Distance: 0.4 Unit: mi

**APPLICATION DESCRIPTION**

	A	B	C	D	E
Application Date:	10/18/12	10/26/12	11/09/12	11/20/12	03/15/13
Time of Day:	3:09 pm	2:00 pm	10:30 am	1:30 pm	10:15 am
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	7 DPP	PRE	Spike	Fall	Spring
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	67 F	71 F	48 F	53 F	40 F
% Relative Humidity:	55	66	51	59	40
Wind Velocity, Unit:	3 mph	3 mph	5 mph	1 mph	6 mph
Wind Direction:	Southeast	East	Northwest	Northeast	West
Dew Presence (Y/N):	N	N	N	N	Y
Soil Temp., Unit:	69 F	70 F	44 F	53 F	38 F
Soil Surf. Moisture:	Dry	Dry	Moist	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry	Dry	Moist
% Cloud Cover:	90	50	0	70	15

CROP STAGE AT EACH APPLICATION					
	A	B	C	D	E
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:			spike	2-leaf	1-2 tiller
Height, Unit:			0.8 in	2.5 in	4 in
Crop Health:			Good	Good	Good

WEED STAGE AT EACH APPLICATION					
	A	B	C	D	E
Weed 1 Code:	ERICA	ERICA	ERICA	ERICA	ERICA
Growth Stage:	rosette	rosette	rosette	rosette	
Height, Unit:	3 in	3 in	3 in	3 in	
Density, Unit:	0-10 m <sup>2</sup>	0-10	0-10	0-10 m <sup>2</sup>	
Weed 2 Code:	LOLMU	LOLMU	LOLMU	LOLMU	LOLMU
Growth Stage:			spike	1-2 leaf	1-2 tiller
Height, Unit:			0.8 in	1 in	3 in
Density, Unit:			100 m <sup>2</sup>	100 m <sup>2</sup>	100 m <sup>2</sup>
Weed 3 Code:	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:					vegetative
Height, Unit:					8 in
Density, Unit:					0-20 m <sup>2</sup>
Weed 4 Code:	HLOUM	HLOUM	HLOUM	HLOUM	HLOUM
Growth Stage:					vegetative
Height, Unit:					1.5 in
Density, Unit:					0-12 m <sup>2</sup>
Weed 5 Code:	CERVU	CERVU	CERVU	CERVU	CERVU
Growth Stage:					vegetative
Height, Unit:					1.5 in
Density, Unit:					0-12 m <sup>2</sup>

APPLICATION EQUIPMENT					
	A	B	C	D	E
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO <sub>2</sub>	CO <sub>2</sub>	CO <sub>2</sub>	CO <sub>2</sub>	CO <sub>2</sub>

#### Trial Comments

1/30/13: Treatments with Valor in the fall are still stunting the wheat (15 to 20%).

4/02/13: Axiom plus Valor injury about 20% stunting (Treatment 14). Valor alone 10 - 15% stunting. No leaf discoloration observed with spring treatments.

5/09/13: Plot 207 appears to have not been sprayed in the spring. Treatment 4 is very poor on horseweed.

5/21/13: Valor with metribuzin or Axiom provided excellent control of horseweed; all other treatments were poor to fair (trts 2,3, and 4 were very poor). 1= present, 0.5 = present but no flowers, 0= absent

6/13/13: Horseweed control was poor with Sharpen or metribuzin applied PRE or at spike stage. 1= present, 2= heavy, 0= absent.

Horseweed Control in No-Till Winter Wheat Without ALS-Herbicides							TRZAW	LAMAM	OEOLA	SCRAN	VICSS	CERVU	
Trial ID: SG4-13 Cooperator:							Winter	Henbit	Cutleaf	Knawel	Vetch	Mouseear	
Location: Field #28 Investigator: Mark VanGessel							Wheat	Control	EPrimrse	Control	Species	Chickwd	
Weed Code							Stunting	%	%	%	%	%	
Crop Code							%	%	%	%	%	%	
Weed or Crop Name							12/06/12	05/09/13	05/09/13	05/09/13	05/09/13	05/09/13	
Weed or Crop Name													
Rating Data Type													
Rating Unit													
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code							
1	Untreated Check						0.0c	0.0e	0.0d	0.0g	0.0e	0.2g	
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	7 DPP	A	13.3b	94.2ab	71.7b	73.3b	50.0cd	93.3a	
	Crop Oil Concentrate	100	L	1 % v/v	7 DPP	A							
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	7 DPP	A							
3	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	B	0.0c	50.0cd	46.7c	33.3ef	23.3de	20.0fg	
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B							
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	B							
4	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Spike	C	3.3c	95.0a	100.0a	66.7bc	43.3cd	100.0a	
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C							
5	Starane Ultra...fluroxypyr	2.8	EC	0.14 lb ae/A	Fall	D	0.0c	99.7a	93.3a	60.0bcd	71.8abc	90.0ab	
6	Starane Ultra...fluroxypyr	2.8	EC	0.14 lb ae/A	Spring	E		61.2c	94.2a	50.0cde	100.0a	69.0bcd	
7	Banvel.....dicamba	4	EC	0.125 lb ai/A	Spring	E		44.7d	100.0a	63.3bcd	100.0a	46.7de	
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	E							
8	Banvel.....dicamba	4	EC	0.187 lb ai/A	Spring	E		59.2c	100.0a	91.7a	86.7ab	70.8bc	
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	E							
	9 2,4-D amine	3.8	L	0.237 lb ae/A	Spring	E		81.7b	100.0a	46.0def	43.3cd	46.7de	
	10 2,4-D amine	3.8	L	0.374 lb ae/A	Spring	E		92.2ab	100.0a	41.0ef	98.0a	35.8ef	
11	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	B	0.0c	90.0ab	100.0a	40.0ef	71.7abc	40.0ef	
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B							
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	B							
	2,4-D amine	3.8	L	0.237 lb ae/A	Spring	E							
12	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	B	0.0c	100.0a	100.0a	30.0f	61.8bc	53.3cde	
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B							
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	B							
	2,4-D amine	3.8	L	0.237 lb ae/A	Spring	E							
13	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	7 DPP	A	18.3a	100.0a	98.3a	100.0a	56.7bc	100.0a	
	Crop Oil Concentrate	100	L	1 % v/v	7 DPP	A							
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	7 DPP	A							
	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	D							
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D							
14	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	7 DPP	A	16.7ab	99.0a	94.0a	99.0a	43.3cd	99.0a	
	Crop Oil Concentrate	100	L	1 % v/v	7 DPP	A							
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	7 DPP	A							
	Axiom Premix	68	WG	0.425 lb ai/A	Fall	D							
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D							
	LSD (P=.05)							4.41	12.95	17.80	17.56	30.99	22.39
	Standard Deviation							2.55	7.58	10.53	10.42	18.30	13.22
	CV							44.35	9.94	12.31	18.36	30.15	21.4
	Replicate F							1.000	0.987	0.426	0.672	0.613	0.263
	Replicate Prob(F)							0.3897	0.3912	0.6581	0.5201	0.5507	0.7715
	Treatment F							29.286	45.673	22.575	22.261	7.933	17.758
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						OTGUM	VERAR	VIORA	VIORA	ANTSP	ANTSP	
Crop Code						Star of Bethlehm 1=presnt 0=absent 05/09/13	Corn Speedwll 1=presnt 0=absent 05/09/13	Field Pansy 1=presnt 0=absent 05/09/13	Field Pansy 1=presnt 0=absent 05/21/13	Chamomil species 1=presnt 0=absent 05/21/13	Chamomil species 1=presnt 0=absent 06/13/13	
Weed or Crop Name												
Rating Data Type												
Rating Unit												
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code						
1	Untreated Check						0.3 ab	0.0 a	0.0 a	1.00 a	1.00 ab	1.0 abc
2	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	7 DPP	A	0.0 b	0.0 a	0.3 a	0.83 ab	0.83 abc	0.7 bcd
	Crop Oil Concentrate	100 L		1 % v/v	7 DPP	A						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	7 DPP	A						
3	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	PRE	B	0.7 a	0.0 a	0.0 a	1.00 a	1.00 ab	1.7 a
	Crop Oil Concentrate	100 L		1 % v/v	PRE	B						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	PRE	B						
4	Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	Spike	C	0.0 b	0.0 a	0.7 a	0.67 bc	0.73 bcd	0.3 cd
	Nonionic Surfactant	100 L		0.25 % v/v	Spike	C						
5	Starane Ultra...fluroxypyr	2.8 EC		0.14 lb ae/A	Fall	D	0.0 b	0.7 a	0.0 a	0.83 ab	1.06 a	0.6 bcd
6	Starane Ultra...fluroxypyr	2.8 EC		0.14 lb ae/A	Spring	E	0.0 b	0.7 a	0.3 a	1.00 a	1.00 ab	1.0 abc
7	Banvel.....dicamba	4 EC		0.125 lb ai/A	Spring	E	0.0 b	0.3 a	0.0 a	0.50 c	0.50 d	1.3 ab
	Nonionic Surfactant	100 L		0.25 % v/v	Spring	E						
8	Banvel.....dicamba	4 EC		0.187 lb ai/A	Spring	E	0.0 b	0.7 a	0.3 a	0.50 c	0.56 cd	1.3 ab
	Nonionic Surfactant	100 L		0.25 % v/v	Spring	E						
	9,2,4-D amine	3.8 L		0.237 lb ae/A	Spring	E	0.7 a	0.3 a	0.0 a	0.50 c	0.56 cd	1.0 abc
	10,2,4-D amine	3.8 L		0.374 lb ae/A	Spring	E	0.0 b	0.3 a	0.7 a	0.67 bc	0.81 abc	1.3 ab
11	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	PRE	B	0.0 b	0.7 a	0.0 a	0.67 bc	0.67 cd	1.0 abc
	Crop Oil Concentrate	100 L		1 % v/v	PRE	B						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	PRE	B						
	2,4-D amine	3.8 L		0.237 lb ae/A	Spring	E						
12	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	PRE	B	0.0 b	0.7 a	0.0 a	0.67 bc	0.67 cd	1.0 abc
	Crop Oil Concentrate	100 L		1 % v/v	PRE	B						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	PRE	B						
	2,4-D amine	3.8 L		0.237 lb ae/A	Spring	E						
13	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	7 DPP	A	0.0 b	0.0 a	0.0 a	0.00 d	0.00 e	0.0 d
	Crop Oil Concentrate	100 L		1 % v/v	7 DPP	A						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	7 DPP	A						
	Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	Fall	D						
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	D						
14	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	7 DPP	A	0.0 b	0.0 a	0.0 a	0.00 d	0.00 e	0.0 d
	Crop Oil Concentrate	100 L		1 % v/v	7 DPP	A						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	7 DPP	A						
	Axiom Premix	68 WG		0.425 lb ai/A	Fall	D						
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	D						
	LSD (P=.05)						0.46	0.69	0.57	0.321	0.279	0.81
	Standard Deviation						0.27	0.41	0.34	0.191	0.165	0.48
	CV						230.18	133.34	203.81	30.33	24.6	54.68
	Replicate F						0.317	2.656	1.444	0.650	4.778	1.788
	Replicate Prob(F)						0.7311	0.0892	0.2542	0.5303	0.0195	0.1881
	Treatment F						2.463	1.645	1.667	8.463	12.586	3.308
	Treatment Prob(F)						0.0244	0.1357	0.1297	0.0001	0.0001	0.0050

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code							VICSA	TRZAW
Crop Code							Vetch	Winter
Weed or Crop Name							Species	Wheat
Weed or Crop Name							1=presnt	Yield
Rating Data Type							0=absent	Bu/A
Rating Unit							06/13/13	07/08/13
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code		
1	Untreated Check						1.0 a	42.3 a
2	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	7 DPP	A	0.7 ab	43.7 a
	Crop Oil Concentrate	100	L	1 % v/v	7 DPP	A		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	7 DPP	A		
3	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	B	1.0 a	44.2 a
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	B		
4	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Spike	C	1.0 a	49.2 a
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	C		
5	Starane Ultra...fluroxypyr	2.8	EC	0.14 lb ae/A	Fall	D	0.0 c	46.5 a
6	Starane Ultra...fluroxypyr	2.8	EC	0.14 lb ae/A	Spring	E	0.0 c	42.7 a
7	Banvel.....dicamba	4	EC	0.125 lb ai/A	Spring	E	0.0 c	43.1 a
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	E		
8	Banvel.....dicamba	4	EC	0.187 lb ai/A	Spring	E	0.0 c	41.1 a
	Nonionic Surfactant	100	L	0.25 % v/v	Spring	E		
	9 2,4-D amine	3.8	L	0.237 lb ae/A	Spring	E	0.3 bc	42.7 a
	10 2,4-D amine	3.8	L	0.374 lb ae/A	Spring	E	0.3 bc	40.5 a
11	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	B	0.7 ab	42.7 a
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	B		
	2,4-D amine	3.8	L	0.237 lb ae/A	Spring	E		
12	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	B	1.0 a	43.9 a
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	PRE	B		
	2,4-D amine	3.8	L	0.237 lb ae/A	Spring	E		
13	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	7 DPP	A	1.0 a	43.0 a
	Crop Oil Concentrate	100	L	1 % v/v	7 DPP	A		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	7 DPP	A		
	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	D		
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D		
14	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	7 DPP	A	0.7 ab	45.2 a
	Crop Oil Concentrate	100	L	1 % v/v	7 DPP	A		
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	7 DPP	A		
	Axiom Premix	68	WG	0.425 lb ai/A	Fall	D		
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	D		
LSD (P=.05)							0.51	5.24
Standard Deviation							0.31	3.12
CV							55.81	7.15
Replicate F							4.843	3.781
Replicate Prob(F)							0.0163	0.0362
Treatment F							5.824	1.514
Treatment Prob(F)							0.0001	0.1779

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Wheat Varieties Response to Metribuzin

Trial ID: SG5-13    Cooperator:  
 Location: Field #30    Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**Crop 1:** Winter Wheat    **TRZAW**    **Variety:** see treatment list  
**Planting Date:** 11/29/12    **Planting Method:** Drilled- Cone System    **Depth:** 0.75 in  
**Rate:** 24    **Sd/row-ft**    **Row Spacing:** 7 in    **Seed Bed:** Smooth  
**Soil Temperature:** 48    **F**    **Soil Moisture:** Moist    **Emergence Date:** 12/09/12

**Crop 2:** Barley    **HORVW**    **Variety:** see treatment list  
**Planting Date:** 11/29/12    **Planting Method:** Drilled- Cone System    **Depth:** 0.75 in  
**Rate:** 24    **Sd/row-ft**    **Row Spacing:** 7 in    **Seed Bed:** Smooth  
**Soil Temperature:** 48    **F**    **Soil Moisture:** Moist    **Emergence Date:** 12/09/12

## SITE AND DESIGN

**Plot Width, Unit:** 8 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** SPLIT-PLOT  
**Tillage Type:** Disked Twice

## MAINTENANCE

**Field Prep./Maintenance:** Axial XL (16.4 fl oz) plus Starane (0.4 pt) plus Harmony Extra (0.9 oz wt) was sprayed on the non-treated plots (treatments 1, 4, 7, 10, 13, and 16) on 4-17-13.

## SOIL DESCRIPTION

**% Sand:** 83    **% OM:** 0.8    **Texture:** loamy sand  
**% Silt:** 8    **pH:** 6.1  
**% Clay:** 9    **CEC:** 4.2    **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4    **Unit:** mi

## APPLICATION DESCRIPTION

	A
<b>Application Date:</b>	03/15/13
<b>Time of Day:</b>	11:30 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	Fall
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	45 F
<b>% Relative Humidity:</b>	36
<b>Wind Velocity, Unit:</b>	7 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	Y
<b>Soil Temp., Unit:</b>	44 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Moist
<b>% Cloud Cover:</b>	15

## CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	TRZAW
Growth Stage:	1-2 tiller
Height, Unit:	3.5 in
Crop Health:	Good
Crop 2 Code:	HORVW
Growth Stage:	1-2 tiller
Height, Unit:	3.5 in
Crop Health:	Good

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

## Trial Comments

4/13/13: Metribuzin at 2 oz/A provided ~85% control of jagged chickweed, >95% control of henbit, and ~50% control of corn speedwell; 4 oz was 100% control for all three species. Noticeable stand loss observed in plots 103 and 109; stand loss was less in plots 106, 112, 115, and 201. Weed pressure was heavy in plots 101, 104, 113, 202, 212, 213, 218, 313, and 317. Weed pressure was moderate in plots 206, 209, 303, 306, 308, and 312. Weed pressure was light in plots 104, 110, and 116.

5/08/13: Biomass Reduction is a combination of stand loss and stunting. Harmony application suppressed/controlled weeds in untreated check but those plots with heavy weed density early are still stunted. Corn speedwell >40% control with low rate of metribuzin.

5/13/13: Biomass was taken just prior to heading.

Wheat Varieties Response to Metribuzin											
Trial ID: SG5-13    Cooperator:											
Location: Field #30    Investigator: Mark VanGessel											
Weed or Crop Name						Wheat/ Barley Chloross %	Wheat/ Barley Stunting %	Wheat/ Barley BiomsRdx %	Wheat/ Barley Biomass g/row-m	Wheat/ Barley Yield Bu/A	
Rating Data Type						04/02/13	04/13/13	05/08/13	05/13/13	07/08/13	
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code					
1	SS 560 Untreated Check						0.0d	0.0c	0.0d	68.7 a-d	42.4 a
2	SS 560 Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	Fall Fall	A A	5.7 abc	0.0c	0.0d	72.3 abc	48.7 a
3	SS 560 Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	Fall Fall	A A	9.7 a	12.3 b	25.0 b	59.0 bcd	45.3 a
4	SS 520 Untreated Check						0.0d	0.0c	0.0d	54.3 cd	51.8 a
5	SS 520 Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	Fall Fall	A A	4.7 bc	0.0c	0.0d	68.3 a-d	49.9 a
6	SS 520 Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	Fall Fall	A A	6.7 ab	8.3 bc	15.0 c	50.7 cd	41.1 a
7	Shirley Untreated Check						0.0d	0.0c	0.0d	45.7 d	51.4 a
8	Shirley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	Fall Fall	A A	5.7 abc	11.7 b	0.0d	51.7 cd	54.0 a
9	Shirley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	Fall Fall	A A	9.7 a	45.0 a	43.3 a	47.0 cd	51.0 a
10	Chesapeake Untreated Check						0.0d	0.0c	0.0d	66.3 a-d	53.5 a
11	Chesapeake Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	Fall Fall	A A	2.3 bcd	3.3 bc	0.0d	56.3 cd	46.3 a
12	Chesapeake Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	Fall Fall	A A	0.0d	0.0c	3.3 d	83.0 ab	53.3 a
13	USG-3251 Untreated Check						0.0d	0.0c	0.0d	59.0 bcd	55.9 a
14	USG-3251 Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	Fall Fall	A A	1.7 cd	0.0c	0.0d	71.3 a-d	56.2 a

## University of Delaware

Weed or Crop Name					Wheat/ Barley Chloross %	Wheat/ Barley Stunting %	Wheat/ Barley BiomsRdx %	Wheat/ Barley Biomass g/row-m	Wheat/ Barley Yield Bu/A
Rating Data Type					04/02/13	04/13/13	05/08/13	05/13/13	07/08/13
Rating Unit									
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code		
15	USG-3251								
	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	A			
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A			
16	Thoroughbred barley								
	Untreated Check								
17	Thoroughbred barley								
	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	A			
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A			
18	Thoroughbred barley								
	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	A			
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A			
LSD (P=.05)					4.46	10.65	8.96	26.36	13.94
Standard Deviation					2.68	6.39	5.38	15.81	8.36
CV					88.62	125.89	90.44	24.44	16.82
Replicate F					2.285	0.546	0.623	7.090	1.414
Replicate Prob(F)					0.1172	0.5840	0.5425	0.0027	0.2572
Treatment F					4.842	8.629	14.349	2.269	0.952
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0206	0.5273

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Wheat Varieties Response to Metribuzin

Trial ID: SG5-13 Cooperator:  
 Location: Field #30 Investigator: Mark VanGessel

Weed or Crop Name						Wheat/ Barley Chloross %	Wheat/ Barley Stunting %	Wheat/ Barley BiomsRdx %	Wheat/ Barley Biomass g/row-m	Wheat/ Barley Yield Bu/A
Rating Data Type						04/02/13	04/13/13	05/08/13	05/13/13	07/08/13
Rating Unit										
Rating Date										
Trt Treatment	Form	Form	Rate	Grow	Appl					
No. Name	Conc	Type	Unit	Stg	Code					
TABLE OF R MEANS										
Replicate 1						2.0	6.2	6.9	53.6	51.1
Replicate 2						3.9	4.0	5.9	72.6	47.0
Replicate 3						3.2	5.0	4.9	67.9	51.0
TABLE OF A (Variety) MEANS										
1 SS 560						5.1	4.1	8.3	66.7	45.5
2 SS 520						3.8	2.8	5.0	57.8	47.6
3 Shirley						5.1	18.9	14.4	48.1	52.1
4 Chesapeake						0.8	1.1	1.1	68.6	51.0
5 USG-3251						1.9	2.4	4.9	66.9	54.3
6 Thoroughbred barley						1.4	1.1	1.9	80.1	47.6
TABLE OF B (Herbicide Rate) MEANS										
1 Untreated Check						0.0	0.0	0.0	58.7	50.3
2 Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	Fall	A	3.3	2.5	0.0	68.8	49.6
2 Nonionic Surfactant	100 L		0.25 % v/v	Fall	A					
3 Metribuzin.....metribuzin	75 DF		0.187 lb ai/A	Fall	A	5.7	12.7	17.8	66.6	49.2
3 Nonionic Surfactant	100 L		0.25 % v/v	Fall	A					
TABLE OF A (Variety) B (Herbicide Rate) MEANS										
1 SS 560						0.0	0.0	0.0	68.7	42.4
1 Untreated Check										
2 SS 520						0.0	0.0	0.0	54.3	51.8
1 Untreated Check										
3 Shirley						0.0	0.0	0.0	45.7	51.4
1 Untreated Check										
4 Chesapeake						0.0	0.0	0.0	66.3	53.5
1 Untreated Check										
5 USG-3251						0.0	0.0	0.0	59.0	55.9
1 Untreated Check										
6 Thoroughbred barley						0.0	0.0	0.0	58.3	46.9
1 Untreated Check										
1 SS 560						5.7	0.0	0.0	72.3	48.7
2 Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	Fall	A					
2 Nonionic Surfactant	100 L		0.25 % v/v	Fall	A					
2 SS 520						4.7	0.0	0.0	68.3	49.9
2 Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	Fall	A					
2 Nonionic Surfactant	100 L		0.25 % v/v	Fall	A					

## University of Delaware

Weed or Crop Name						Wheat/ Barley Chloross %	Wheat/ Barley Stunting %	Wheat/ Barley BiomsRdx %	Wheat/ Barley Biomass g/row-m	Wheat/ Barley Yield Bu/A	
Rating Data Type						04/02/13	04/13/13	05/08/13	05/13/13	07/08/13	
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code					
3	Shirley						5.7	11.7	0.0	51.7	54.0
2	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	A					
2	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
4	Chesapeake						2.3	3.3	0.0	56.3	46.3
2	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	A					
2	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
5	USG-3251						1.7	0.0	0.0	71.3	56.2
2	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	A					
2	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
6	Thoroughbred barley						0.0	0.0	0.0	92.7	42.2
2	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	A					
2	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
1	SS 560						9.7	12.3	25.0	59.0	45.3
3	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	A					
3	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
2	SS 520						6.7	8.3	15.0	50.7	41.1
3	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	A					
3	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
3	Shirley						9.7	45.0	43.3	47.0	51.0
3	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	A					
3	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
4	Chesapeake						0.0	0.0	3.3	83.0	53.3
3	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	A					
3	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
5	USG-3251						4.0	7.3	14.7	70.3	50.9
3	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	A					
3	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					
6	Thoroughbred barley						4.3	3.3	5.7	89.3	53.8
3	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	Fall	A					
3	Nonionic Surfactant	100	L	0.25 % v/v	Fall	A					

## Wheat Varieties Response to Metribuzin

Trial ID: SG5-13    Cooperator:  
 Location: Field #30    Investigator: Mark VanGessel

## FACTORIAL/POOLED ERROR AOV For Wheat/ Barley Chloross % 04/02/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	864.981481				
R	2	32.703704	16.351852	2.285	0.1172	1.8
A	5	162.981481	32.596296	4.555	0.0028	2.6
B	2	297.370370	148.685185	20.778	0.0001	1.8
AB	10	128.629630	12.862963	1.798	0.0990	4.5
ERROR	34	243.296296	7.155773			

## FACTORIAL/POOLED ERROR AOV For Wheat/ Barley Stunting % 04/13/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	7417.703704				
R	2	44.592593	22.296296	0.546	0.5840	4.3
A	5	2118.370370	423.674074	10.383	0.0001	6.1
B	2	1635.592593	817.796296	20.041	0.0001	4.3
AB	10	2231.740741	223.174074	5.469	0.0001	10.7
ERROR	34	1387.407407	40.806100			

## FACTORIAL/POOLED ERROR AOV For Wheat/ Barley BiomsRdx % 05/08/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	8068.833333				
R	2	36.000000	18.000000	0.623	0.5425	3.7
A	5	1077.944444	215.588889	7.459	0.0001	5.2
B	2	3816.333333	1908.166667	66.022	0.0001	3.7
AB	10	2155.888889	215.588889	7.459	0.0001	9.0
ERROR	34	982.666667	28.901961			

## FACTORIAL/POOLED ERROR AOV For Wheat/ Barley Biomass g/row-m 05/13/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	21689.648148				
R	2	3545.148148	1772.574074	7.090	0.0027	10.8
A	5	5257.203704	1051.440741	4.206	0.0044	15.2
B	2	1004.481481	502.240741	2.009	0.1497	10.8
AB	10	3382.629630	338.262963	1.353	0.2435	26.4
ERROR	34	8500.185185	250.005447			

## FACTORIAL/POOLED ERROR AOV For Wheat/ Barley Yield Bu/A 07/08/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	3703.761943				
R	2	197.528331	98.764166	1.414	0.2572	5.7
A	5	501.549648	100.309930	1.436	0.2366	8.0
B	2	11.524103	5.762051	0.082	0.9210	5.7
AB	10	617.733787	61.773379	0.884	0.5568	13.9
ERROR	34	2375.426074	69.865473			

Weed Control with Huskie in Winter Wheat

Trial ID: SG6-13    Cooperator: Bayer  
 Location: Field #30    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947  
**Investigator:** Mark VanGessel

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Annual Ryegrass	LOLMU	Lolium multiflorum Lam.
2.	Knawel	SCRAN	Scleranthus annuus L.
3.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.

**Crop 1:** Winter Wheat    **TRZAW**    **Variety:** Shirley  
**Planting Date:** 10/23/12    **Planting Method:** Drilled    **Depth:** 0.75 in  
**Rate:** 150 lb/A    **Row Spacing:** 7 in    **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 78 F    **Soil Moisture:** Moist    **Emergence Date:** 10/31/12

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**Trial Initiation Comments:** Annual ryegrass was broadcast seeded at 40 lb/A prior to second disking on 10-23-12.

**MAINTENANCE**

**Field Prep./Maintenance:** Treatment 4 was sprayed with Axial XL at 16.4 fl.oz./A on 12-13-12 for annual ryegrass control.

**SOIL DESCRIPTION**

**% Sand:** 83    **% OM:** 0.8    **Texture:** loamy sand  
**% Silt:** 8    **pH:** 6.1  
**% Clay:** 9    **CEC:** 4.2    **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4    **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C	D
<b>Application Date:</b>	10/26/12	11/09/12	11/20/12	03/15/13
<b>Time of Day:</b>	1:30 pm	10:35 am	1:40 pm	9:50 am
<b>Application Method:</b>	Spray	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	Spike	Fall	Spring
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	71 F	48 F	53 F	40 F
<b>% Relative Humidity:</b>	66	51	59	49
<b>Wind Velocity, Unit:</b>	3 mph	5 mph	1 mph	6 mph
<b>Wind Direction:</b>	East	Northwest	Northeast	West
<b>Dew Presence (Y/N):</b>	N	N	N	Y
<b>Soil Temp., Unit:</b>	70 F	44 F	53 F	38 F
<b>Soil Surf. Moisture:</b>	Dry	Moist	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry	Dry	Moist
<b>% Cloud Cover:</b>	50	0	70	15

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:		spike-1 lf	2-leaf	1-2 tiller
Height, Unit:		1.5 in	3 in	4 in
Crop Health:		Good	Good	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	LOLMU	LOLMU	LOLMU	LOLMU
Growth Stage:		spike	1-2 leaf	1-2 tiller
Height, Unit:		1 in	1.5 in	3.5 in
Density,Unit:		400 m2	400 m2	90-200 m2
Weed 2 Code:	SCRAN	SCRAN	SCRAN	SCRAN
Growth Stage:				vegetative
Height, Unit:				1 in
Density,Unit:				0-20 m2
Weed 3 Code:	HLOUM	HLOUM	HLOUM	HLOUM
Growth Stage:				vegetative
Height, Unit:				1.5 in
Density,Unit:				0-8 m2

APPLICATION EQUIPMENT				
	A	B	C	D
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2	CO2

#### Trial Comments

4/02/13: No leaf discoloration observed; with spring trts - no stunting observed.

4/13/13: Poor on primrose treatments 5, 4, 3; untreated check is about 20% stunted due to weed competition.

5/09/13: Appears to be a significant amount of spring ryegrass emergence. Poor on star of Bethlehem treatments 5, 7, 3, 4, and 8. Poor on field pansy treatments 3, 4, and 7.

Weed Control with Huskie in Winter Wheat							TRZAW	TRZAW	TRZAW	LOLMG	LOLMG	HLOUM
Trial ID: SG6-13 Cooperator: Bayer							Winter	Winter	Winter	Annual	Annual	Jagged
Location: Field #30 Investigator: Mark VanGessel							Wheat	Wheat	Wheat	Ryegrass	Ryegrass	Chickwd
Weed Code							Chloross	Stunting	Stunting	Control	Control	Control
Crop Code							%	%	%	%	%	%
Weed or Crop Name							12/07/12	12/07/12	04/13/13	12/07/12	04/13/13	04/13/13
Weed or Crop Name												
Rating Data Type												
Rating Unit												
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code						
1	Untreated Check						0.0b	0.0c		0.0e	0.0d	0.0c
2	Axiom Premix	68 WG		0.255 lb ai/A	Spike	B	0.0b	4.7b	0.0a	66.7 ab	70.0c	100.0a
	Nonionic Surfactant	100 L		0.25 % v/v	Spike	B						
3	Osprey.....mesosulfuron	4.5 WG		0.0134 lb ai/A	Fall	C	1.0b	6.3b	0.0a	60.0 abc	70.0c	71.7b
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	C						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	C						
4	Huskie Premix	2.05 EC		0.24 lb ai/A	Fall	C	0.0b	0.0c	0.0a	26.7 d	96.7 a	75.0b
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	C						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	C						
5	Osprey.....mesosulfuron	4.5 WG		0.0134 lb ai/A	Fall	C	9.0 a	9.7 a	2.3 a	53.3 bc	76.7 bc	100.0 a
	Huskie Premix	2.05 EC		0.24 lb ai/A	Fall	C						
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	C						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	C						
6	Axiom Premix	68 WG		0.255 lb ai/A	Spike	B	0.0b	10.3 a	4.0 a	73.3 a	86.0 ab	100.0 a
	Nonionic Surfactant	100 L		0.25 % v/v	Spike	B						
	Osprey.....mesosulfuron	4.5 WG		0.0134 lb ai/A	Spring	D						
	Nonionic Surfactant	100 L		0.5 % v/v	Spring	D						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Spring	D						
7	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	PRE	A	0.0b	0.0c	1.7 a	46.7 c	66.7 c	95.0 a
	Axiom Premix	68 WG		0.255 lb ai/A	Fall	C						
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	C						
8	Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	Fall	C	9.7 a	10.3 a	4.0 a	68.3 ab	91.7 a	93.3 a
	PowerFlex HL....pyroxsulam	13.1 WG		0.0164 lb ai/A	Fall	C						
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	C						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	C						
LSD (P=.05)							3.41	2.85	6.08	17.63	12.55	11.12
Standard Deviation							1.95	1.63	3.42	10.07	7.16	6.35
CV							79.21	31.46	199.38	20.39	10.28	8.0
Replicate F							0.209	8.387	1.333	1.881	1.014	0.232
Replicate Prob(F)							0.8140	0.0040	0.3001	0.1890	0.3879	0.7956
Treatment F							14.366	25.189	0.841	18.278	53.367	86.018
Treatment Prob(F)							0.0001	0.0001	0.5619	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						SCRAN	STEME	OEOLA	VICSS	ERICA	SCRAN	
Crop Code												
Weed or Crop Name						Knawel	Common Chickwd	Cutleaf EPrimrse	Vetch Species Control	Horseweed Control	Knawel Control	
Weed or Crop Name												
Rating Data Type						Control %	Control %	Control %	Control %	Control %	Control %	
Rating Unit												
Rating Date						04/13/13	05/09/13	05/09/13	05/09/13	05/09/13	05/09/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code						
1	Untreated Check						0.0d	0.0c	0.0e	0.0c	0.0	0.0e
2	Axiom Premix	68	WG	0.255 lb ai/A	Spike	B	90.0ab	100.0a	63.7b	5.0c		43.3cd
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	B						
3	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/A	Fall	C	61.7c	30.0b	33.3d	56.7b		33.3d
	Nonionic Surfactant	100	L	0.5 % v/v	Fall	C						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall	C						
4	Huskie Premix	2.05	EC	0.24 lb ai/A	Fall	C	71.7bc	86.7a	40.0cd	100.0a		56.7c
	Nonionic Surfactant	100	L	0.5 % v/v	Fall	C						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall	C						
5	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/A	Fall	C	95.0ab	100.0a	40.0cd	100.0a		81.7ab
	Huskie Premix	2.05	EC	0.24 lb ai/A	Fall	C						
	Nonionic Surfactant	100	L	0.5 % v/v	Fall	C						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall	C						
6	Axiom Premix	68	WG	0.255 lb ai/A	Spike	B	100.0a	100.0a	86.7a	95.8a	30.0	74.3b
	Nonionic Surfactant	100	L	0.25 % v/v	Spike	B						
	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/A	Spring	D						
	Nonionic Surfactant	100	L	0.5 % v/v	Spring	D						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Spring	D						
7	Sharpen.....saflufenacil	2.85	SC	0.0445 lb ai/A	PRE	A	96.7a	100.0a	53.7bc	43.3b		50.0c
	Axiom Premix	68	WG	0.255 lb ai/A	Fall	C						
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	C						
8	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	Fall	C	93.3ab	93.3a	95.0a	44.2b		95.0a
	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/A	Fall	C						
	Nonionic Surfactant	100	L	0.25 % v/v	Fall	C						
	30% Urea Ammonium Nitrate	100	L	2.5 % v/v	Fall	C						
LSD (P=.05)							23.88	20.20	18.96	26.83		15.81
Standard Deviation							13.63	11.11	10.66	14.93		8.97
CV							17.93	14.56	20.68	26.84		16.52
Replicate F							2.729	0.405	3.967	3.121		1.574
Replicate Prob(F)							0.0998	0.6772	0.0476	0.0844		0.2443
Treatment F							18.126	36.868	24.627	22.084		33.780
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001		0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						LOLMG	
Crop Code						Annual	TRZAW
Weed or Crop Name						Ryegrass	Winter
Weed or Crop Name						Control	Wheat
Rating Data Type						%	Yield
Rating Unit						05/09/13	Bu/A
Rating Date						07/08/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1	Untreated Check						33.4 d
2	Axiom Premix	68 WG		0.255 lb ai/A	Spike	B	56.7 cd
	Nonionic Surfactant	100 L		0.25 % v/v	Spike	B	42.7 c
3	Osprey.....mesosulfuron	4.5 WG		0.0134 lb ai/A	Fall	C	50.0 d
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	C	43.6 bc
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	C	
4	Huskie Premix	2.05 EC		0.24 lb ai/A	Fall	C	50.8 a
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	C	
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	C	
5	Osprey.....mesosulfuron	4.5 WG		0.0134 lb ai/A	Fall	C	65.0 c
	Huskie Premix	2.05 EC		0.24 lb ai/A	Fall	C	45.0 bc
	Nonionic Surfactant	100 L		0.5 % v/v	Fall	C	
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	C	
6	Axiom Premix	68 WG		0.255 lb ai/A	Spike	B	96.3 a
	Nonionic Surfactant	100 L		0.25 % v/v	Spike	B	51.4 a
	Osprey.....mesosulfuron	4.5 WG		0.0134 lb ai/A	Spring	D	
	Nonionic Surfactant	100 L		0.5 % v/v	Spring	D	
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Spring	D	
7	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	PRE	A	56.7 cd
	Axiom Premix	68 WG		0.255 lb ai/A	Fall	C	43.3 c
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	C	
8	Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	Fall	C	83.3 b
	PowerFlex HL....pyroxsulam	13.1 WG		0.0164 lb ai/A	Fall	C	48.6 ab
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	C	
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	Fall	C	
LSD (P=.05)						12.71	5.00
Standard Deviation						6.99	2.85
CV						10.28	6.36
Replicate F						6.802	7.649
Replicate Prob(F)						0.0136	0.0057
Treatment F						20.000	12.165
Treatment Prob(F)						0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Control with Huskie in No-Till Winter Wheat

Trial ID: SG7-13 Cooperator:  
 Location: Felton Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Volunteer Wheat	TRZAX	Triticum aestivum L. Wiggers

Crop 1: Non-Crop

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No-Tillage

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	11/17/12	03/29/13
<b>Time of Day:</b>	10:00 am	2:00 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	Fall	Spring
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	50 F	53 F
<b>% Relative Humidity:</b>	61	35
<b>Wind Velocity, Unit:</b>	7 mph	4 mph
<b>Wind Direction:</b>	Northeast	West
<b>Dew Presence (Y/N):</b>	N	N
<b>Soil Temp., Unit:</b>	48 F	52 F
<b>Soil Surf. Moisture:</b>	Dry	Dry
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry
<b>% Cloud Cover:</b>	15	90

**WEED STAGE AT EACH APPLICATION**

	A	B
<b>Weed 1 Code:</b>	STEME	STEME
<b>Growth Stage:</b>	Vegetative	Vegetative
<b>Height, Unit:</b>	3 in	4 in
<b>Density, Unit:</b>	20-60 m2	20-60 m2
<b>Weed 2 Code:</b>	LAMAM	LAMAM
<b>Growth Stage:</b>	Vegetative	Vegetative
<b>Height, Unit:</b>	1.5 in	5 in
<b>Density, Unit:</b>	20-40 m2	20-40 m2
<b>Weed 3 Code:</b>	TRZAX	TRZAX
<b>Growth Stage:</b>	4-leaf	tillering
<b>Height, Unit:</b>	4 in	8 in
<b>Density, Unit:</b>	1-5 m2	1-5 m2

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	21 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

#### Trial Comments

12/10/12: Treatment 2 has fair to good burndown control of most species. Higher rates may have been useful (see study Burndown 3). Gramoxone was not as effective for henbit species as it was for chickweed. Gramoxone alone was poor on annual bluegrass. Treatment 7 did not provide as good of control as treatment 8. Treatment 10 provided fair to good burndown of common chickweed. Treatment 12 showed many of the chickweed plants looked healthy.

03/22/13: Missed horseweed treatment 4, 12, 9. Missed jagged chickweed treatment 11, 9.

04/02/13: Horseweed present in treatments 9, 4 and 12. Corn speedwell present in treatments 2, 12, 10, 8, 11, 6, 5, 7, 3. Jagged chickweed was poor in treatment 11. ALS resistant chickweed is present. Corn speedwell plants appear to be spring emergence. Henbit density was variable.

Weed Control with Huskie in No-Till Winter Wheat

Trial ID: SG7-13 Cooperator:  
 Location: Felton Investigator: Mark VanGessel

Weed Code	STEME Common Chickwd Control %	LAMAM Henbit Control %	STEME Common Chickwd Control %	LAMAM Henbit Control %	POAAN Annual Bluegrss Control %
Weed or Crop Name	03/22/13	03/22/13	04/02/13	04/02/13	04/02/13
Rating Data Type					
Rating Unit					
Rating Date					
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1 Untreated Check					
2 Gramoxone SL....paraquat Nonionic Surfactant	2 SL 100 L		0.5 lb ai/A 0.25 % v/v	Fall Fall	A A
3 Gramoxone SL....paraquat Nonionic Surfactant Axiom Premix	2 SL 100 L 68 WG		0.5 lb ai/A 0.25 % v/v 0.255 lb ai/A	Fall Fall Fall	A A A
4 Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate	4.5 WG 100 L 100 D		0.0134 lb ai/A 0.5 % v/v 7.5 lb/100 GAL	Fall Fall Fall	A A A
5 Huskie Premix Nonionic Surfactant Dry Ammonium Sulfate	2.05 EC 100 L 100 D		0.24 lb ai/A 0.5 % v/v 7.5 lb/100 GAL	Fall Fall Fall	A A A
6 Osprey.....mesosulfuron Huskie Premix Nonionic Surfactant Dry Ammonium Sulfate	4.5 WG 2.05 EC 100 L 100 D		0.0134 lb ai/A 0.24 lb ai/A 0.5 % v/v 7.5 lb/100 GAL	Fall Fall Fall Fall	A A A A
7 Gramoxone SL....paraquat Nonionic Surfactant Axiom Premix Osprey.....mesosulfuron Nonionic Surfactant Dry Ammonium Sulfate	2 SL 100 L 68 WG 4.5 WG 100 L 100 D		0.5 lb ai/A 0.25 % v/v 0.255 lb ai/A 0.0134 lb ai/A 0.5 % v/v 7.5 lb/100 GAL	Fall Fall Fall Spring Spring Fall	A A A B B B
8 Gramoxone SL....paraquat Nonionic Surfactant Sharpen.....saflufenacil Axiom Premix	2 SL 100 L 2.85 SC 68 WG		0.5 lb ai/A 0.25 % v/v 0.0445 lb ai/A 0.255 lb ai/A	Fall Fall Fall Fall	A A A A
9 Metribuzin.....metribuzin PowerFlex HL....pyroxsulam Nonionic Surfactant Dry Ammonium Sulfate	75 DF 13.1 WG 100 L 100 D		0.094 lb ai/A 0.0164 lb ai/A 0.25 % v/v 7.5 lb/100 GAL	Fall Fall Fall Fall	A A A A
10 Sharpen.....saflufenacil Crop Oil Concentrate Dry Ammonium Sulfate	2.85 SC 100 L 100 D		0.0445 lb ai/A 1.25 % v/v 7.5 lb/100 GAL	Fall Fall Fall	A A A
11 Osprey.....mesosulfuron Starane Ultra...fluroxypyr Nonionic Surfactant Dry Ammonium Sulfate	4.5 WG 2.8 EC 100 L 100 D		0.0134 lb ai/A 0.105 lb ai/A 0.5 % v/v 7.5 lb/100 GAL	Fall Fall Fall Fall	A A A A
12 Harmony Extra SG Premix Nonionic Surfactant Dry Ammonium Sulfate	50 SG 100 L 100 D		0.0187 lb ai/A 0.25 % v/v 7.5 lb/100 GAL	Fall Fall Fall	A A A
LSD (P=.05)			14.94	7.32	20.71
Standard Deviation			8.80	4.25	12.23
CV			16.6	7.14	21.53
Replicate F			1.587	0.921	0.200
Replicate Prob(F)			0.2282	0.4169	0.8205
Treatment F			67.658	212.118	22.829
Treatment Prob(F)			0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Control of ALS-Resistant Common Chickweed in Wheat

Trial ID: SG8-13    Cooperator:  
 Location: Felton    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.

Crop 1: Winter Wheat    TRZAW

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	03/29/13
<b>Time of Day:</b>	3:00 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	Spring
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	54 F
<b>% Relative Humidity:</b>	34
<b>Wind Velocity, Unit:</b>	5 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	54 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	95

**CROP STAGE AT EACH APPLICATION**

	A
<b>Crop 1 Code:</b>	TRZAW
<b>Growth Stage:</b>	1-2 tiller
<b>Height, Unit:</b>	4 in
<b>Crop Health:</b>	Good

**WEED STAGE AT EACH APPLICATION**

	A
<b>Weed 1 Code:</b>	STEME
<b>Growth Stage:</b>	vegetative
<b>Height, Unit:</b>	3 in
<b>Density, Unit:</b>	8 m <sup>2</sup>

APPLICATION EQUIPMENT	
	<b>A</b>
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

4/02/13: No injury or discoloration of the wheat observed.

Control of ALS-Resistant Common Chickweed in Wheat						
Trial ID: SG8-13 Cooperator:						
Location: Felton Investigator: Mark VanGessel						
Weed Code	STEME ALS-R C.	STEME ALS-R C.				
Weed or Crop Name	Chickwd	Chickwd				
Rating Data Type	Control	Control				
Rating Unit	%	%				
Rating Date	04/26/13	05/18/13				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code
1	Harmony Extra SG Premix Nonionic Surfactant	50 SG 100 L		0.0234 lb ai/A 0.25 % v/v	Spring A Spring A	0.0 d 10.0 d
2	Harmony Extra SG Premix Metribuzin.....metribuzin Nonionic Surfactant	50 SG 75 DF 100 L		0.0234 lb ai/A 0.094 lb ai/A 0.25 % v/v	Spring A Spring A Spring A	71.7 c 75.0 b
3	Harmony Extra SG Premix Metribuzin.....metribuzin Nonionic Surfactant	50 SG 75 DF 100 L		0.0234 lb ai/A 0.14 lb ai/A 0.25 % v/v	Spring A Spring A Spring A	84.3 ab 93.3 a
4	Harmony Extra SG Premix Metribuzin.....metribuzin Nonionic Surfactant	50 SG 75 DF 100 L		0.0234 lb ai/A 0.187 lb ai/A 0.25 % v/v	Spring A Spring A Spring A	95.7 a 98.3 a
5	Harmony Extra SG Premix Starane Ultra...fluroxypyr Nonionic Surfactant	50 SG 2.8 EC 100 L		0.0234 lb ai/A 0.14 lb ai/A 0.25 % v/v	Spring A Spring A Spring A	73.3 bc 73.3 b
6	Harmony Extra SG Premix Metribuzin.....metribuzin Nonionic Surfactant 30% Urea Ammonium Nitrate	50 SG 75 DF 100 L 100 L		0.0234 lb ai/A 0.187 lb ai/A 0.25 % v/v 100 % v/v	Spring A Spring A Spring A Spring A	95.0 a 96.7 a
7	Untreated Check					0.0 d 0.0 d
8	Harmony Extra SG Premix Starane Ultra...fluroxypyr Nonionic Surfactant	50 SG 2.8 EC 100 L		0.0234 lb ai/A 0.105 lb ai/A 0.25 % v/v	Spring A Spring A Spring A	66.7 c 56.7 c
LSD (P=.05)						11.66 14.38
Standard Deviation						6.66 8.21
CV						10.94 13.05
Replicate F						2.518 4.002
Replicate Prob(F)						0.1164 0.0422
Treatment F						102.946 65.934
Treatment Prob(F)						0.0001 0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Wheat Safety to Metribuzin Timing

Trial ID: SG10-13 Cooperator:  
 Location: Field #30 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Winter Wheat **TRZAW** **Variety:** Shirley  
**Planting Date:** 10/23/12 **Planting Method:** Drilled **Depth:** 0.75 in  
**Rate:** 150 lb/A **Row Spacing:** 7 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 78 F **Soil Moisture:** Moist **Emergence Date:** 10/31/12

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** FACTORIAL  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 83 **% OM:** 0.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.1  
**% Clay:** 9 **CEC:** 4.2 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C	D	E
<b>Application Date:</b>	10/26/12	11/09/12	11/20/12	03/15/13	04/17/13
<b>Time of Day:</b>	1:20 pm	10:40 am	2:15 pm	11:00 am	1:00 pm
<b>Application Method:</b>	Spray	Spray	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	Spike	2-leaf	EaSpring	Spring
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	71 F	48 F	53 F	44 F	74 F
<b>% Relative Humidity:</b>	66	51	59	44	62
<b>Wind Velocity, Unit:</b>	3 mph	5 mph	1 mph	6 mph	2 mph
<b>Wind Direction:</b>	East	Northwest	Northeast	West	East
<b>Dew Presence (Y/N):</b>	N	N	N	Y	N
<b>Soil Temp., Unit:</b>	70 F	44 F	53 F	43 F	74 F
<b>Soil Surf. Moisture:</b>	Dry	Moist	Moist	Moist	Dry
<b>Root Zone Moisture:</b>	Moist	Moist	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry	Dry	Moist	Dry
<b>% Cloud Cover:</b>	50	0	70	15	65

**CROP STAGE AT EACH APPLICATION**

	A	B	C	D	E
<b>Crop 1 Code:</b>	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
<b>Growth Stage:</b>		spike-1 lf	2-leaf	1-3 tiller	1-2 nodes
<b>Height, Unit:</b>		1.5 in	3 in	4 in	12 in
<b>Crop Health:</b>		Good	Good	Good	Good

APPLICATION EQUIPMENT					
	A	B	C	D	E
<b>Appl. Equipment:</b>	Backpack	Backpack	Backpack	Backpack	Backpack
<b>Operating Pressure:</b>	31 psi	31 psi	31 psi	31 psi	31 psi
<b>Nozzle Type:</b>	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
<b>Nozzle Size:</b>	11002	11002	11002	11002	11002
<b>Nozzle Spacing, Unit:</b>	18 in	18 in	18 in	18 in	18 in
<b>Boom Length, Unit:</b>	6 nozl	6 nozl	6 nozl	6 nozl	6 nozl
<b>Boom Height, Unit:</b>	20 in	20 in	20 in	22 in	28 in
<b>Ground Speed, Unit:</b>	3 mph	3 mph	3 mph	3 mph	3 mph
<b>Carrier:</b>	water	water	water	water	water
<b>Spray Volume, Unit:</b>	20 gpa	20 gpa	20 gpa	20 gpa	20 gpa
<b>Propellant:</b>	CO2	CO2	CO2	CO2	CO2

Trial Comments

3/26/13: No injury with Treatment 3; treatment 7 had 17% injury (ranged from 15 to 25% for the three reps).

4/02/13: No injury observed with Treatment 3; treatment 7 had 12, 0 and 5% chlorosis for reps 1, 2, and 3, respectively.

4/25/13: Stunting with treatments 4 and 8 may be due to weed competition.

Wheat Safety to Metribuzin Timing											
Trial ID: SG10-13 Cooperator:											
Location: Field #30 Investigator: Mark VanGessel											
Weed Code	Crop Code	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	TRZAW Winter Wheat Stunting %	TRZAW Winter Wheat Stunting %	TRZAW Winter Wheat LfBurn %	TRZAW Winter Wheat Stunting %	HLOUM Jagged Chickwd Control %	LAMAM Henbit Control %
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Rate	Unit	Stg					
1	Metribuzin.....metribuzin Nonionic Surfactant PRE application	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	PRE	A A	10.0 ab	0.0 c	0.0 c	6.0 a	46.7 b 65.0 b
2	Metribuzin.....metribuzin Nonionic Surfactant EPOST - Fall (2lvs)	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	2-leaf 2-leaf	C C	5.7 c	1.7 bc	0.0 c	2.3 a	98.3 a 95.0 a
3	Metribuzin.....metribuzin Nonionic Surfactant Spring - First N application	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	EaSpring EaSpring	D D		0.0 c	1.7 bc	2.3 a	100.0 a 100.0 a
4	Metribuzin.....metribuzin Nonionic Surfactant Spring - After Green Up	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	Spring Spring	E E		3.3 b	2.3 bc	8.4 a	
5	Metribuzin.....metribuzin Nonionic Surfactant PRE application	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	PRE	A A	8.0 abc	0.0 c	0.0 c	2.3 a	33.3 c 26.7 c
6	Metribuzin.....metribuzin Nonionic Surfactant EPOST - Fall (2lvs)	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	2-leaf 2-leaf	C C	7.0 bc	0.0 c	0.0 c	6.0 a	100.0 a 100.0 a
7	Metribuzin.....metribuzin Nonionic Surfactant Spring - First N application	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	EaSpring EaSpring	D D		0.0 c	4.0 b	0.0 a	100.0 a 100.0 a
8	Metribuzin.....metribuzin Nonionic Surfactant Spring - After Green Up	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	Spring Spring	E E		9.7 a	11.3 a	5.9 a	
9	Untreated Check						0.0 d	0.0 c	0.0 c	0.0 a	
10	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.094 lb ai/A 0.25 % v/v	Spike Spike	B B	11.3 a	0.0 c	0.0 c	3.3 a	99.7 a 100.0 a
LSD (P=.05)							4.15	2.53	3.48	6.78	8.05 17.74
Standard Deviation							2.28	1.47	2.03	3.87	4.53 9.97
CV							32.58	100.53	104.83	105.82	5.48 11.9
Replicate F							0.897	3.419	0.495	2.474	2.559 1.880
Replicate Prob(F)							0.4381	0.0551	0.6176	0.1202	0.1186 0.1948
Treatment F							9.179	13.158	9.356	1.561	126.085 24.108
Treatment Prob(F)							0.0017	0.0001	0.0001	0.2196	0.0001 0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code										TRZAW
Crop Code										Winter
Weed or Crop Name										Wheat
Weed or Crop Name										Yield
Rating Data Type										Bu/A
Rating Unit										07/08/13
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code			
1	Metribuzin.....metribuzin Nonionic Surfactant PRE application	75 DF 100 L		0.094 lb 0.25 % v/v	ai/A PRE	PRE	A A			57.9 ab
2	Metribuzin.....metribuzin Nonionic Surfactant EPOST - Fall (2lvs)	75 DF 100 L		0.094 lb 0.25 % v/v	ai/A PRE	2-leaf 2-leaf	C C			57.8 ab
3	Metribuzin.....metribuzin Nonionic Surfactant Spring - First N application	75 DF 100 L		0.094 lb 0.25 % v/v	ai/A PRE	EaSpring EaSpring	D D			55.6 abc
4	Metribuzin.....metribuzin Nonionic Surfactant Spring - After Green Up	75 DF 100 L		0.094 lb 0.25 % v/v	ai/A PRE	Spring Spring	E E			43.8 d
5	Metribuzin.....metribuzin Nonionic Surfactant PRE application	75 DF 100 L		0.187 lb 0.25 % v/v	ai/A PRE	PRE	A A			57.2 abc
6	Metribuzin.....metribuzin Nonionic Surfactant EPOST - Fall (2lvs)	75 DF 100 L		0.187 lb 0.25 % v/v	ai/A PRE	2-leaf 2-leaf	C C			52.2 c
7	Metribuzin.....metribuzin Nonionic Surfactant Spring - First N application	75 DF 100 L		0.187 lb 0.25 % v/v	ai/A PRE	EaSpring EaSpring	D D			58.3 ab
8	Metribuzin.....metribuzin Nonionic Surfactant Spring - After Green Up	75 DF 100 L		0.187 lb 0.25 % v/v	ai/A PRE	Spring Spring	E E			41.7 d
9	Untreated Check									53.2 bc
10	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.094 lb 0.25 % v/v	ai/A PRE	Spike Spike	B B			58.8 a
LSD (P=.05)										5.15
Standard Deviation										3.00
CV										5.6
Replicate F										22.124
Replicate Prob(F)										0.0001
Treatment F										12.663
Treatment Prob(F)										0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



## Wheat Safety to Metribuzin Timing

Trial ID: SG10-13 Cooperator:  
 Location: Field #30 Investigator: Mark VanGessel

## FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 04/25/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	295.333333				
R	2	18.583333	9.291667	3.673	0.0522	1.7
A	1	8.166667	8.166667	3.228	0.0940	1.4
B	3	177.000000	59.000000	23.322	0.0001	2.0
AB	3	56.166667	18.722222	7.401	0.0033	2.8
ERROR	14	35.416667	2.529762			

## FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat LfBurn % 04/25/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	395.833333				
R	2	5.083333	2.541667	0.488	0.6239	2.4
A	1	48.166667	48.166667	9.248	0.0088	2.0
B	3	188.166667	62.722222	12.043	0.0004	2.8
AB	3	81.500000	27.166667	5.216	0.0126	4.0
ERROR	14	72.916667	5.208333			

## FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 05/22/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	381.641664				
R	2	49.636189	24.818095	2.070	0.1631	3.7
A	1	8.760530	8.760530	0.731	0.4070	3.0
B	3	105.645077	35.215026	2.937	0.0699	4.3
AB	3	49.758121	16.586040	1.383	0.2888	6.1
ERROR	14	167.841747	11.988696			

## FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Yield Bu/A 07/08/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	1435.063997				
R	2	350.011820	175.005910	16.999	0.0002	3.4
A	1	12.538747	12.538747	1.218	0.2884	2.8
B	3	874.947058	291.649019	28.329	0.0001	4.0
AB	3	53.437833	17.812611	1.730	0.2066	5.6
ERROR	14	144.128539	10.294896			

Soybean Recrop Tolerance to Low Rates of Metsulfuron

Trial ID: SG11-13 Cooperator: DuPont  
 Location: Field #30 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947  
**Investigator:** Mark VanGessel

<b>Crop 1:</b> Winter Wheat	TRZAW	<b>Variety:</b> Shirley
<b>Planting Date:</b> 10/23/12	<b>Planting Method:</b> Drilled	<b>Depth:</b> 0.75 in
<b>Rate:</b> 2 Bu/A	<b>Row Spacing:</b> 7 in	<b>Seed Bed:</b> Medium
<b>Soil Temperature:</b> 78 F	<b>Soil Moisture:</b> Moist	<b>Emergence Date:</b> 10/31/12
<b>Crop 2:</b> Soybean	GLXMA	<b>Variety:</b> M48-12R2 & RT4996NRR/STS
<b>Planting Date:</b> 07/17/13	<b>Planting Method:</b> Row- Unit Planter	<b>Depth:</b> 1 in
<b>Rate:</b> 4.5 Sd/row-ft	<b>Row Spacing:</b> 15 in	<b>Seed Bed:</b> Firm/Trashy
<b>Soil Temperature:</b> 93 F	<b>Soil Moisture:</b> Wet	<b>Emergence Date:</b> 07/23/13
<b>Crop 3:</b> Soybean Replanted	GLXMA	<b>Variety:</b> M48-12R2 & H418NRR/STS
<b>Planting Date:</b> 08/16/13	<b>Planting Method:</b> Row- Unit Planter	<b>Depth:</b> 1 in
<b>Rate:</b> 4.5 Sd/row-ft	<b>Row Spacing:</b> 15 in	<b>Seed Bed:</b> Firm/Trashy
<b>Soil Temperature:</b> 76 F	<b>Soil Moisture:</b> Moist	<b>Emergence Date:</b> 08/22/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**Trial Initiation Comments:** The first-planted soybeans did not emerge well and resulted in poor stands in all treatments. These beans were sprayed with Liberty 280 on 8-8-13 and replanted on 8-16-13.

**MAINTENANCE**

**Field Prep./Maintenance:** Axial XL plus Harmony Extra SG was applied prior to initiation of this trial on 12-13-12 for annual ryegrass control.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	12/13/12	Axial XL	0.42	L	16.4	fl oz/A
2.	12/13/12	Harmony Extra SG	50	SG	0.9	oz wt/A

**SOIL DESCRIPTION**

**% Sand:** 83 **% OM:** 0.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.1  
**% Clay:** 9 **CEC:** 4.2 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

APPLICATION DESCRIPTION				
	A	B	C	D
Application Date:	03/15/13	05/01/13	07/17/13	09/06/13
Time of Day:	9:30 am	10:20 am	2:00 pm	10:30 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	4moPP	2moPP	PRE	MPOST
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	38 F	60 F	93 F	70 F
% Relative Humidity:	50	52	65	52
Wind Velocity, Unit:	5 mph	5 mph	2 mph	3 mph
Wind Direction:	West	Northeast	Northeast	Northeast
Dew Presence (Y/N):	Y	Y	N	N
Soil Temp., Unit:	38 F	58 F	93 F	69 F
Soil Surf. Moisture:	Moist	Moist	Moist	Dry
Root Zone Moisture:	Moist	Wet	Wet	Moist
Leaf Surf. Moisture:	Moist	Moist	Dry	Dry
% Cloud Cover:	15	0	10	5

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:	1-3 tiller		seed shatr	
Height, Unit:	4 "	12 in	12 in	
Crop Health:	Good			
Crop 2 Code:	GLXMA	GLXMA	GLXMA	GLXMA
Crop 3 Code:	GLXMA	GLXMA	GLXMA	GLXMA
Growth Stage:				2-trifol
Height, Unit:				6.5 in
Crop Health:				Good

APPLICATION EQUIPMENT				
	A	B	C	D
Appl. Equipment:	Backpack	Tractor	Tractor	Tractor
Operating Pressure:	31 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	28 in	24 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	Comp. Air	Comp. Air	Comp. Air

#### Trial Comments

4/02/13: No leaf discoloration observed with any treatment.

4/13/13: Field has had no nitrogen so wheat is very stunted and chlorotic. Height and vigor of the wheat was very inconsistent. It is very difficult to determine injury from treatment, but appeared to have slight stunting (10%) in treatment 3, 13, and 14 and about 7% in treatment 2.

8/08/13: Stand of soybeans was very poor and alot of delayed emergence; as a result valid injury ratings are not possible and study will be replanted.

8/29/13: Soybeans are unifoliate to emergence of 1st trifoliate leaf.

10/9/13: Ratings are quite variable due to lack of rain the past few weeks.

Crop Code						GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	
Weed or Crop Name						H418N	M4812R2	H418N	M4812R2	H418N	
Weed or Crop Name						RR/STS		RR/STS		RR/STS	
Rating Data Type						Stunting	Stunting	Stunting	Stunting	Stunting	
Rating Unit						%	%	%	%	%	
Rating Date						08/29/13	08/29/13	09/14/13	09/14/13	10/09/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code					
1	Metsulfuron	60WG		.00125 lb ai/A	4moPP	A	5.7 a	2.3bc	0.0f	0.0d	14.0 a-d
	Harmony Extra SG Premix	50SG		0.028 lb ai/A	4moPP	A					
	Nonionic Surfactant	100L		0.25 % v/v	4moPP	A					
	Dry Ammonium Sulfate	100D		1.2 % w/v	4moPP	A					
2	Metsulfuron	60WG		0.0025 lb ai/A	4moPP	A	0.0 a	2.3bc	2.3ef	3.3d	18.3 a
	Harmony Extra SG Premix	50SG		0.056 lb ai/A	4moPP	A					
	Nonionic Surfactant	100L		0.25 % v/v	4moPP	A					
	Dry Ammonium Sulfate	100D		1.2 % w/v	4moPP	A					
3	Metsulfuron	60WG		.00375 lb ai/A	4moPP	A	2.3 a	5.7abc	9.0bcd	16.7 ab	15.0 abc
	Harmony Extra SG Premix	50SG		0.084 lb ai/A	4moPP	A					
	Nonionic Surfactant	100L		0.25 % v/v	4moPP	A					
	Dry Ammonium Sulfate	100D		1.2 % w/v	4moPP	A					
4	Metsulfuron	60WG		.00125 lb ai/A	2moPP	B	4.7 a	10.7 a	13.3 ab	15.3 abc	18.3 a
	Harmony Extra SG Premix	50SG		0.028 lb ai/A	2moPP	B					
	Nonionic Surfactant	100L		0.25 % v/v	2moPP	B					
	Dry Ammonium Sulfate	100D		1.2 % w/v	2moPP	B					
5	Metsulfuron	60WG		0.0025 lb ai/A	2moPP	B	2.3 a	0.0c	4.7 de	12.3 bc	5.7 c-f
	Harmony Extra SG Premix	50SG		0.056 lb ai/A	2moPP	B					
	Nonionic Surfactant	100L		0.25 % v/v	2moPP	B					
	Dry Ammonium Sulfate	100D		1.2 % w/v	2moPP	B					
6	Metsulfuron	60WG		.00375 lb ai/A	2moPP	B	9.0 a	5.7 abc	8.0 cd	15.0 abc	15.0 abc
	Harmony Extra SG Premix	50SG		0.084 lb ai/A	2moPP	B					
	Nonionic Surfactant	100L		0.25 % v/v	2moPP	B					
	Dry Ammonium Sulfate	100D		1.2 % w/v	2moPP	B					
7	Metsulfuron	60WG		.00125 lb ai/A	4moPP	A	7.3 a	5.7 abc	0.0f	0.0d	6.3 c-f
	Harmony Extra SG Premix	50SG		0.028 lb ai/A	4moPP	A					
	Nonionic Surfactant	100L		0.25 % v/v	4moPP	A					
	Dry Ammonium Sulfate	100D		1.2 % w/v	4moPP	A					
	Envive Premix	41.3WG		0.103 lb ai/A	PRE	C					
8	Metsulfuron	60WG		0.0025 lb ai/A	4moPP	A	5.7 a	10.0 a	2.3ef	13.0 abc	3.3ef
	Harmony Extra SG Premix	50SG		0.056 lb ai/A	4moPP	A					
	Nonionic Surfactant	100L		0.25 % v/v	4moPP	A					
	Dry Ammonium Sulfate	100D		1.2 % w/v	4moPP	A					
	Envive Premix	41.3WG		0.103 lb ai/A	PRE	C					
9	Metsulfuron	60WG		.00375 lb ai/A	4moPP	A	2.3 a	0.0c	8.7 cd	13.0 abc	7.3 b-f
	Harmony Extra SG Premix	50SG		0.084 lb ai/A	4moPP	A					
	Nonionic Surfactant	100L		0.25 % v/v	4moPP	A					
	Dry Ammonium Sulfate	100D		1.2 % w/v	4moPP	A					
	Envive Premix	41.3WG		0.103 lb ai/A	PRE	C					
10	Metsulfuron	60WG		.00125 lb ai/A	2moPP	B	3.3 a	0.0c	11.3 bc	16.3 ab	11.7 a-e
	Harmony Extra SG Premix	50SG		0.028 lb ai/A	2moPP	B					
	Nonionic Surfactant	100L		0.25 % v/v	2moPP	B					
	Dry Ammonium Sulfate	100D		1.2 % w/v	2moPP	B					
	Envive Premix	41.3WG		0.103 lb ai/A	PRE	C					
11	Metsulfuron	60WG		0.0025 lb ai/A	2moPP	B	0.0 a	2.3bc	0.0f	0.0d	2.3ef
	Harmony Extra SG Premix	50SG		0.056 lb ai/A	2moPP	B					
	Nonionic Surfactant	100L		0.25 % v/v	2moPP	B					
	Dry Ammonium Sulfate	100D		1.2 % w/v	2moPP	B					
	Envive Premix	41.3WG		0.103 lb ai/A	PRE	C					
12	Metsulfuron	60WG		.00375 lb ai/A	2moPP	B	0.0 a	0.0c	2.3ef	10.0c	5.0 def
	Harmony Extra SG Premix	50SG		0.084 lb ai/A	2moPP	B					
	Nonionic Surfactant	100L		0.25 % v/v	2moPP	B					
	Dry Ammonium Sulfate	100D		1.2 % w/v	2moPP	B					
	Envive Premix	41.3WG		0.103 lb ai/A	PRE	C					

Crop Code						GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
Weed or Crop Name						H418N	M4812R2	H418N	M4812R2	H418N		
Weed or Crop Name						RR/STS	RR/STS	RR/STS	RR/STS	RR/STS		
Rating Data Type						Stunting	Stunting	Stunting	Stunting	Stunting		
Rating Unit						%	%	%	%	%		
Rating Date						08/29/13	08/29/13	09/14/13	09/14/13	10/09/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
13	Metsulfuron	60	WG	0.0025	lb ai/A	4moPP	A	2.3 a	9.0 a	9.7 bc	16.3 ab	10.0 a-e
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	4moPP	A					
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4moPP	A					
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D					
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPOST	D					
14	Metsulfuron	60	WG	0.0025	lb ai/A	2moPP	B	2.3 a	6.3 ab	13.3 ab	18.0 a	16.7 ab
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	2moPP	B					
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	2moPP	B					
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D					
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPOST	D					
15	Metsulfuron	60	WG	0.0025	lb ai/A	4moPP	A	4.7 a	10.0 a	12.0 bc	17.0 ab	9.0 a-f
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	4moPP	A					
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4moPP	A					
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C					
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D					
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPOST	D					
16	Metsulfuron	60	WG	0.0025	lb ai/A	2moPP	B	3.3 a	4.7 abc	10.7 bc	14.7 abc	15.0 abc
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	2moPP	B					
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	2moPP	B					
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C					
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D					
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPOST	D					
17	Untreated Check							5.7 a	7.3 ab	0.0f	0.0d	0.0f
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	4moPP	A					
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4moPP	A					
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	PRE	C					
18	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	4moPP	A	3.3 a	2.3 bc	16.7 a	18.3 a	18.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4moPP	A					
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C					
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D					
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	MPOST	D					
	LSD (P=.05)							6.92	6.20	4.41	5.50	9.65
	Standard Deviation							4.15	3.72	2.65	3.30	5.79
	CV							116.1	79.37	38.34	29.77	54.48
	Replicate F							2.611	0.548	1.350	0.728	0.093
	Replicate Prob(F)							0.0881	0.5833	0.2729	0.4904	0.9111
	Treatment F							1.079	2.979	12.896	13.468	3.200
	Treatment Prob(F)							0.4102	0.0033	0.0001	0.0001	0.0021

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Code						GLXMA		
Weed or Crop Name						M4812R2		
Weed or Crop Name								
Rating Data Type						Stunting		
Rating Unit						%		
Rating Date						10/09/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Metsulfuron	60	WG	.00125	lb ai/A	4moPP	A	6.7 de
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
2	Metsulfuron	60	WG	0.0025	lb ai/A	4moPP	A	12.3 a-d
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
3	Metsulfuron	60	WG	.00375	lb ai/A	4moPP	A	13.3 a-d
	Harmony Extra SG Premix	50	SG	0.084	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
4	Metsulfuron	60	WG	.00125	lb ai/A	2moPP	B	15.0 abc
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	2moPP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B	
	Dry Ammonium Sulfate	100	D	1.2	w/v	2moPP	B	
5	Metsulfuron	60	WG	0.0025	lb ai/A	2moPP	B	11.7 a-d
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	2moPP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B	
	Dry Ammonium Sulfate	100	D	1.2	w/v	2moPP	B	
6	Metsulfuron	60	WG	.00375	lb ai/A	2moPP	B	13.3 a-d
	Harmony Extra SG Premix	50	SG	0.084	lb ai/A	2moPP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B	
	Dry Ammonium Sulfate	100	D	1.2	w/v	2moPP	B	
7	Metsulfuron	60	WG	.00125	lb ai/A	4moPP	A	0.0 e
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	
8	Metsulfuron	60	WG	0.0025	lb ai/A	4moPP	A	12.3 a-d
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	
9	Metsulfuron	60	WG	.00375	lb ai/A	4moPP	A	6.7 de
	Harmony Extra SG Premix	50	SG	0.084	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	
10	Metsulfuron	60	WG	.00125	lb ai/A	2moPP	B	8.3 bcd
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	2moPP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B	
	Dry Ammonium Sulfate	100	D	1.2	w/v	2moPP	B	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	
11	Metsulfuron	60	WG	0.0025	lb ai/A	2moPP	B	7.3 cde
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	2moPP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B	
	Dry Ammonium Sulfate	100	D	1.2	w/v	2moPP	B	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	
12	Metsulfuron	60	WG	.00375	lb ai/A	2moPP	B	11.7 a-d
	Harmony Extra SG Premix	50	SG	0.084	lb ai/A	2moPP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B	
	Dry Ammonium Sulfate	100	D	1.2	w/v	2moPP	B	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	

Crop Code						GLXMA		
Weed or Crop Name						M4812R2		
Weed or Crop Name								
Rating Data Type						Stunting		
Rating Unit						%		
Rating Date						10/09/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code	
13	Metsulfuron	60	WG	0.0025	lb ai/A	4moPP	A	15.0 abc
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D	
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D	
	Dry Ammonium Sulfate	100	D	1.2	w/v	MPOST	D	
14	Metsulfuron	60	WG	0.0025	lb ai/A	2moPP	B	15.0 abc
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	2moPP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B	
	Dry Ammonium Sulfate	100	D	1.2	w/v	2moPP	B	
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D	
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D	
	Dry Ammonium Sulfate	100	D	1.2	w/v	MPOST	D	
15	Metsulfuron	60	WG	0.0025	lb ai/A	4moPP	A	8.3 bcd
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D	
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D	
	Dry Ammonium Sulfate	100	D	1.2	w/v	MPOST	D	
16	Metsulfuron	60	WG	0.0025	lb ai/A	2moPP	B	15.6 ab
	Harmony Extra SG Premix	50	SG	0.056	lb ai/A	2moPP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	2moPP	B	
	Dry Ammonium Sulfate	100	D	1.2	w/v	2moPP	B	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D	
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D	
	Dry Ammonium Sulfate	100	D	1.2	w/v	MPOST	D	
17	Untreated Check							0.0 e
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	4moPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	PRE	C	
18	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	4moPP	A	16.7 a
	Nonionic Surfactant	100	L	0.25	% v/v	4moPP	A	
	Dry Ammonium Sulfate	100	D	1.2	w/v	4moPP	A	
	Envive Premix	41.3	WG	0.103	lb ai/A	PRE	C	
	Classic.....chlorimuron	25	WG	0.0078	lb ai/A	MPOST	D	
	Nonionic Surfactant	100	L	0.25	% v/v	MPOST	D	
	Dry Ammonium Sulfate	100	D	1.2	w/v	MPOST	D	
LSD (P=.05)								8.09
Standard Deviation								4.85
CV								46.16
Replicate F								0.904
Replicate Prob(F)								0.4146
Treatment F								3.144
Treatment Prob(F)								0.0023

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Low Rate Metsulfuron in Wheat

Trial ID: SG12-13 Cooperator: DuPont  
 Location: Field #16 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Winter Wheat **TRZAW** **Variety:** Shirley  
**Planting Date:** 10/23/12 **Planting Method:** Drilled **Depth:** 0.75 in  
**Rate:** 150 lb/A **Row Spacing:** 7 in **Seed Bed:** Medium  
**Soil Temperature:** 78 F **Soil Moisture:** Moist **Emergence Date:** 10/31/12

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 77 **% OM:** 2.3 **Texture:** sandy loam  
**% Silt:** 12 **pH:** 6.2  
**% Clay:** 11 **CEC:** 5.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	03/20/13
<b>Time of Day:</b>	11:00 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	Spring
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	44 F
<b>% Relative Humidity:</b>	31
<b>Wind Velocity, Unit:</b>	7 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	40 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	10

**CROP STAGE AT EACH APPLICATION**

	A
<b>Crop 1 Code:</b>	TRZAW
<b>Growth Stage:</b>	1-3 tiller
<b>Height, Unit:</b>	4 in
<b>Crop Health:</b>	Good

## APPLICATION EQUIPMENT

	<b>A</b>
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

## Trial Comments

4/14/13: No injury observed. Treatment 2 is weak on groundsel. Nothing controlled annual bluegrass but treatment 7 had some suppression.

4/25/13: No injury observed. No treatment controlled Annual Bluegrass. Treatment 7 provided good suppression aprox. 70% control.

5/08/13: Treatment 7 provided good to excellent annual bluegrass control, while all other treatments were poor.

Low Rate Metsulfuron in Wheat																		
Trial ID: SG12-13 Cooperator: DuPont																		
Location: Field #16 Investigator: Mark VanGessel																		
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	TRZAW Winter Wheat Chloross %	04/02/13	CAPBP Shephrds Purse Control %	04/14/13	CERVU Mouseear Chickwd Control %	04/14/13	LAMAM Henbit Control %	04/14/13	OEOLA Cutleaf EPrimrse Control %	04/14/13	STEME Common Chickwd Control %	04/14/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code											
1	Harmony Extra SG Premix Nonionic Surfactant	50 SG 100 L		0.0234 lb ai/A 0.25 % v/v	Spring A Spring A			0.0 b	100.0 a	68.3 a	82.5 abc	56.7 a	96.7 a					
2	Harmony Extra SG Premix Nonionic Surfactant	50 SG 100 L		0.028 lb ai/A 0.25 % v/v	Spring A Spring A			0.0 b	100.0 a	60.0 a	60.0 d	60.0 a	97.3 a					
3	Metsulfuron Nonionic Surfactant	60 WG 100 L		.00125 lb ai/A 0.25 % v/v	Spring A Spring A			0.0 b	100.0 a	60.0 a	70.0 cd	60.0 a	95.0 a					
4	Express TS.....tribenuron Metsulfuron Nonionic Surfactant	50 SG 60 WG 100 L		0.0094 lb ai/A .00125 lb ai/A 0.25 % v/v	Spring A Spring A Spring A			0.0 b	100.0 a	65.0 a	87.5 ab	69.4 a	93.3 a					
5	Harmony Extra SG Premix Metsulfuron Nonionic Surfactant	50 SG 60 WG 100 L		0.0234 lb ai/A .00125 lb ai/A 0.25 % v/v	Spring A Spring A Spring A			1.0 b	100.0 a	68.3 a	92.5 a	63.3 a	95.7 a					
6	Harmony Extra SG Premix Metsulfuron Nonionic Surfactant	50 SG 60 WG 100 L		0.028 lb ai/A .00125 lb ai/A 0.25 % v/v	Spring A Spring A Spring A			0.0 b	100.0 a	68.3 a	83.3 abc	63.3 a	98.0 a					
7	PowerFlex HL....pyroxsulam Metribuzin.....metribuzin Nonionic Surfactant	13.1 WG 75 DF 100 L		0.0164 lb ai/A 0.187 lb ai/A 0.25 % v/v	Spring A Spring A Spring A			16.7 a	100.0 a	65.0 a	73.3 bcd	65.0 a	97.7 a					
8	Untreated Check							0.0 b	0.0 b	0.0 b	0.0 e	0.0 b	0.0 b					
	LSD (P=.05)							1.95	0.00	8.83	16.40	13.13	6.44					
	Standard Deviation							1.11	0.00	5.04	8.49	7.45	3.67					
	CV							50.39	0.0	8.87	12.37	13.61	4.36					
	Replicate F							2.154	0.000	7.737	0.805	0.280	0.012					
	Replicate Prob(F)							0.1529	1.0000	0.0055	0.4844	0.7601	0.9877					
	Treatment F							82.995	0.000	63.667	36.515	27.226	257.806					
	Treatment Prob(F)							0.0001	1.0000	0.0001	0.0001	0.0001	0.0001					

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					CAPBP	CERVU	LAMAM	OEOLA	STEME	CERVU			
Crop Code					Shephrds	Mouseear	Henbit	Cutleaf	Common	Mouseear			
Weed or Crop Name					Purse	Chickwd	Control	EPrimrse	Chickwd	Chickwd			
Weed or Crop Name					Control	Control	Control	Control	Control	Control			
Rating Data Type					%	%	%	%	%	%			
Rating Unit					04/25/13	04/25/13	04/25/13	04/25/13	04/25/13	05/08/13			
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code						
1	Harmony Extra Nonionic Surfactant	50	SG	0.0234	lb ai/A	Spring	A	100.0	95.0	95.0	86.0	99.0	95.0
2	Harmony Extra Nonionic Surfactant	50	SG	0.028	lb ai/A	Spring	A	100.0	94.3	100.0	85.0	100.0	93.3
3	Metsulfuron Nonionic Surfactant	60	WG	.00125	lb ai/A	Spring	A	100.0	81.0	100.0	91.7	98.3	65.0
4	Express TS.....tribenuron Metsulfuron Nonionic Surfactant	50 60 100	SG WG L	0.0094 .00125 0.25	lb ai/A lb ai/A % v/v	Spring Spring Spring	A A A	100.0	95.0	100.0	94.3	99.0	88.7
5	Harmony Extra Metsulfuron Nonionic Surfactant	50 60 100	SG WG L	0.0234 .00125 0.25	lb ai/A lb ai/A % v/v	Spring Spring Spring	A A A	100.0	95.7	100.0	92.7	98.0	91.7
6	Harmony Extra Metsulfuron Nonionic Surfactant	50 60 100	SG WG L	0.028 .00125 0.25	lb ai/A lb ai/A % v/v	Spring Spring Spring	A A A	100.0	95.7	100.0	96.7	100.0	92.0
7	PowerFlex HL....pyroxulam Metribuzin.....metribuzin Nonionic Surfactant	13.1 75 100	WG DF L	0.0164 0.187 0.25	lb ai/A lb ai/A % v/v	Spring Spring Spring	A A A	100.0	99.0	100.0	97.7	100.0	96.0
8	Untreated Check							0.0	0.0	0.0	0.0	0.0	0.0
LSD (P=.05)					0.00	5.40	5.36	14.46	2.44	15.63			
Standard Deviation					0.00	3.08	3.06	8.26	1.39	8.93			
CV					0.0	3.76	3.52	10.26	1.6	11.49			
Replicate F					0.000	0.584	1.000	0.533	1.960	0.932			
Replicate Prob(F)					1.0000	0.5708	0.3927	0.5980	0.1776	0.4167			
Treatment F					0.000	355.606	395.286	47.461	1908.133	40.865			
Treatment Prob(F)					1.0000	0.0001	0.0001	0.0001	0.0001	0.0001			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						LAMAM	OEOLA
Crop Code						Henbit	Cutleaf
Weed or Crop Name						Control	EPrimrse
Weed or Crop Name						%	Control
Rating Data Type						%	%
Rating Unit						05/08/13	05/08/13
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code
1	Harmony Extra SG Premix Nonionic Surfactant	50 100	SG L	0.0234 0.25	lb ai/A % v/v	Spring Spring	A A
70.0	ab	63.3	c				
2	Harmony Extra SG Premix Nonionic Surfactant	50 100	SG L	0.028 0.25	lb ai/A % v/v	Spring Spring	A A
86.7	ab	80.0	b				
3	Metsulfuron Nonionic Surfactant	60 100	WG L	.00125 0.25	lb ai/A % v/v	Spring Spring	A A
93.3	ab	95.0	a				
4	Express TS.....tribenuron Metsulfuron Nonionic Surfactant	50 60 100	SG WG L	0.0094 .00125 0.25	lb ai/A lb ai/A % v/v	Spring Spring Spring	A A A
100.0	a	100.0	a				
5	Harmony Extra SG Premix Metsulfuron Nonionic Surfactant	50 60 100	SG WG L	0.0234 .00125 0.25	lb ai/A lb ai/A % v/v	Spring Spring Spring	A A A
63.3	b	100.0	a				
6	Harmony Extra SG Premix Metsulfuron Nonionic Surfactant	50 60 100	SG WG L	0.028 .00125 0.25	lb ai/A lb ai/A % v/v	Spring Spring Spring	A A A
100.0	a	91.0	ab				
7	PowerFlex HL....pyroxsulam Metribuzin.....metribuzin Nonionic Surfactant	13.1 75 100	WG DF L	0.0164 0.187 0.25	lb ai/A lb ai/A % v/v	Spring Spring Spring	A A A
100.0	a	96.7	a				
8	Untreated Check						
		0.0	c				
		0.0	d				
LSD (P=.05)		32.40					13.75
Standard Deviation		18.50					7.85
CV		24.13					10.03
Replicate F		0.597					1.193
Replicate Prob(F)		0.5641					0.3323
Treatment F		10.157					56.199
Treatment Prob(F)		0.0001					0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Annual Ryegrass Control in Winter Wheat

Trial ID: SG13-13 Cooperator:  
 Location: Field #30 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Annual Ryegrass	LOLMU	Lolium multiflorum Lam.

**Crop 1:** Winter Wheat **TRZAW** **Variety:** Shirley  
**Planting Date:** 10/23/12 **Planting Method:** Drilled **Depth:** 0.75 in  
**Rate:** 150 lb/A **Row Spacing:** 7 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 78 F **Soil Moisture:** Moist **Emergence Date:** 10/31/12

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**Trial Initiation Comments:** Annual ryegrass was broadcast seeded at 40 lb/A prior to second disking on 10-23-12.

**SOIL DESCRIPTION**

**% Sand:** 83 **% OM:** 0.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.1  
**% Clay:** 9 **CEC:** 4.2 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	11/09/12	11/20/12	03/15/13
<b>Time of Day:</b>	10:40 am	2:00 pm	10:35 AM
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	Spike	Fall	Spring
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	48 F	53 F	42 F
<b>% Relative Humidity:</b>	51	59	40
<b>Wind Velocity, Unit:</b>	5 mph	1 mph	6 mph
<b>Wind Direction:</b>	Northwest	Northeast	West
<b>Dew Presence (Y/N):</b>	N	N	Y
<b>Soil Temp., Unit:</b>	44 F	53 F	38 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry	Moist
<b>% Cloud Cover:</b>	0	70	15

**CROP STAGE AT EACH APPLICATION**

	A	B	C
<b>Crop 1 Code:</b>	TRZAW	TRZAW	TRZAW
<b>Growth Stage:</b>	spike-1 lf	2 leaf	1-2 tiller
<b>Height, Unit:</b>	1.5 in	3 in	4 in
<b>Crop Health:</b>	Good	Good	Good

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	LOLMU	LOLMU	LOLMU
Growth Stage:	spike	1-2 leaf	1-3 tiller
Height, Unit:	1 in	1.5 in	3 in
Density, Unit:	400 m <sup>2</sup>	400 m <sup>2</sup>	200 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO <sub>2</sub>	CO <sub>2</sub>	CO <sub>2</sub>

## Trial Comments

4/09/13: Hard to determine if injury in trts 9 & 10 is due to herbicide or competition from ryegrass.

4/02/13: No injury observed with spring treatments.

5/09/13: Treatments 2 and 5 are poor on Star of Bethlehem.

Annual Ryegrass Control in Winter Wheat												
Trial ID: SG13-13 Cooperator:												
Location: Field #30 Investigator: Mark VanGessel												
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	TRZAW Winter Wheat Chloross %	TRZAW Winter Wheat Stunting %	TRZAW Winter Wheat Stunting %	LOLMG Annual Ryegrass Control %	LOLMG Annual Ryegrass Control %	LOLMG Annual Ryegrass Control %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	12/07/12	12/07/12	04/09/13	12/07/12	04/09/13	05/09/13
1	Untreated Check						0.0c	0.0a	0.0b	0.0d	0.0g	0.0e
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/A	Fall	B	7.0a	6.3a	0.0b	60.0c	88.3ab	81.7b
	Nonionic Surfactant	100	L	0.5% v/v	Fall	B						
	Dry Ammonium Sulfate	100	D	0.9% w/v	Fall	B						
3	Olympus Flex Premix	11.25	DF	0.0246 lb ai/A	Fall	B	0.0c	5.0a	4.7b	63.3bc	75.0de	70.0c
	Nonionic Surfactant	100	L	0.5% v/v	Fall	B						
	Dry Ammonium Sulfate	100	D	0.9% w/v	Fall	B						
4	Olympus.....propoxycarbazone	70	WG	0.0394 lb ai/A	Fall	B	0.0c	2.3a	0.0b	63.3bc	46.7f	0.0e
	Nonionic Surfactant	100	L	0.5% v/v	Fall	B						
	Dry Ammonium Sulfate	100	D	0.9% w/v	Fall	B						
5	Axial XL.....pinoxaden	0.42	L	0.054 lb ai/A	Fall	B	0.0c	1.7a	1.0b	66.7abc	95.0a	81.3b
	Harmony Extra SG Premix	50	SG	0.028 lb ai/A	Fall	B						
6	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/A	Fall	B	3.3b	6.7a	5.7b	60.0c	76.7cde	61.7d
	Nonionic Surfactant	100	L	0.5% v/v	Fall	B						
	Dry Ammonium Sulfate	100	D	0.9% w/v	Fall	B						
7	Axiom Premix	68	WG	0.17 lb ai/A	Spike	A	0.0c	0.0a	6.3b	73.3a	87.7abc	87.7ab
	Axial XL.....pinoxaden	0.42	L	0.054 lb ai/A	Spring	C						
	Harmony Extra SG Premix	50	SG	0.028 lb ai/A	Spring	C						
8	Axiom Premix	68	WG	0.255 lb ai/A	Spike	A	1.7bc	2.3a	5.7b	68.3ab	86.7abc	92.0a
	Axial XL.....pinoxaden	0.42	L	0.054 lb ai/A	Spring	C						
	Harmony Extra SG Premix	50	SG	0.028 lb ai/A	Spring	C						
9	Axial XL.....pinoxaden	0.42	L	0.054 lb ai/A	Spring	C			14.7a		80.0bcd	86.0ab
	Harmony Extra SG Premix	50	SG	0.028 lb ai/A	Spring	C						
10	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/A	Spring	C			14.0a		68.3e	85.0ab
	Nonionic Surfactant	100	L	0.5% v/v	Spring	C						
	Dry Ammonium Sulfate	100	D	0.9% w/v	Spring	C						
	LSD (P=.05)						2.44	6.57	6.56	8.22	11.28	7.51
	Standard Deviation						1.39	3.75	3.79	4.69	6.57	4.38
	CV						92.72	123.41	72.87	8.25	9.33	6.79
	Replicate F						1.615	0.145	0.195	0.568	1.021	0.763
	Replicate Prob(F)						0.2338	0.8664	0.8248	0.5794	0.3800	0.4809
	Treatment F						9.945	1.497	6.218	74.642	55.282	193.033
	Treatment Prob(F)						0.0002	0.2463	0.0008	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code							TRZAW
Crop Code							Winter
Weed or Crop Name							Wheat
Weed or Crop Name							Yield
Rating Data Type							Bu/A
Rating Unit							07/08/13
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code
1	Untreated Check						24.8 f
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/A	Fall B	56.2 a
	Nonionic Surfactant	100	L	0.5%	v/v	Fall B	
	Dry Ammonium Sulfate	100	D	0.9%	w/v	Fall B	
3	Olympus Flex Premix	11.25	DF	0.0246	lb ai/A	Fall B	47.5 bc
	Nonionic Surfactant	100	L	0.5%	v/v	Fall B	
	Dry Ammonium Sulfate	100	D	0.9%	w/v	Fall B	
4	Olympus.....propoxycarbazone	70	WG	0.0394	lb ai/A	Fall B	24.6 f
	Nonionic Surfactant	100	L	0.5%	v/v	Fall B	
	Dry Ammonium Sulfate	100	D	0.9%	w/v	Fall B	
5	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/A	Fall B	59.5 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	Fall B	
6	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/A	Fall B	45.2 cd
	Nonionic Surfactant	100	L	0.5%	v/v	Fall B	
	Dry Ammonium Sulfate	100	D	0.9%	w/v	Fall B	
7	Axiom Premix	68	WG	0.17	lb ai/A	Spike A	54.5 ab
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/A	Spring C	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	Spring C	
8	Axiom Premix	68	WG	0.255	lb ai/A	Spike A	57.6 a
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/A	Spring C	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	Spring C	
9	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/A	Spring C	38.4 de
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	Spring C	
10	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/A	Spring C	35.4 e
	Nonionic Surfactant	100	L	0.5%	v/v	Spring C	
	Dry Ammonium Sulfate	100	D	0.9%	w/v	Spring C	
LSD (P=.05)							8.21
Standard Deviation							4.78
CV							10.78
Replicate F							1.639
Replicate Prob(F)							0.2219
Treatment F							22.563
Treatment Prob(F)							0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Jagged Chickweed Control in Small Grains

Trial ID: SG14-13 Cooperator:  
 Location: Field #30 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Winter Wheat **TRZAW** **Variety:** Shirley  
**Planting Date:** 10/23/12 **Planting Method:** Drilled **Depth:** 0.75 in  
**Rate:** 150 lb/A **Row Spacing:** 7 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 78 F **Soil Moisture:** Moist **Emergence Date:** 10/31/12

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 4  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 83 **% OM:** 0.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.1  
**% Clay:** 9 **CEC:** 4.2 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	03/20/13
<b>Time of Day:</b>	10:00 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	Spring
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	44 F
<b>% Relative Humidity:</b>	31
<b>Wind Velocity, Unit:</b>	7 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	40 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	10

**CROP STAGE AT EACH APPLICATION**

	A
<b>Crop 1 Code:</b>	TRZAW
<b>Growth Stage:</b>	1-3 tiller
<b>Height, Unit:</b>	4 in
<b>Crop Health:</b>	Good

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

#### Trial Comments

4/02/13: Only treatment 7 was showing injury (16%), 15, 20, and 12% for Reps 1, 2, and 3, respectively.

4/14/13: Trt 2 = no knawel control;  
 Trt 6 knawel suppression = 60-70%;  
 Trt 10 and 9 - good knawel control = >80%;  
 Trt 9 corn speedwell suppression;  
 Trts 2 & 5 about 20% twisting;  
 Trt 7 chlorotic ~20% rep 2, 10% rep 3 - everything > 90% control.

4/25/13: Corn speedwell was only observed in rep 4.

Powerflex	80%
Starane Ultra	60%
Clarity	60%
Pulsar	60%
Olympus Flex	50%

## Jagged Chickweed Control in Small Grains

Trial ID: SG14-13 Cooperator:  
 Location: Field #30 Investigator: Mark VanGessel

Weed Code	HLOUM	LAMAM	HLOUM	LAMAM	TRZAW						
Crop Code	Jagged	Henbit	Jagged	Henbit	Winter						
Weed or Crop Name	Chickwd	Control	Chickwd	Control	Wheat						
Weed or Crop Name	Control	Control	Control	Control	Yield						
Rating Data Type	%	%	%	%	Bu/A						
Rating Unit	04/14/13	04/14/13	04/25/13	04/25/13	07/08/13						
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code					
1	Untreated Check						0.0f	0.0g	0.0e	0.0f	
2	Clarity.....dicamba	4L		0.125 lb ai/A	Spring	A	55.0de	45.0ef	67.4c	60.0d	30.8a
	Nonionic Surfactant	100L		0.25 % v/v	Spring	A					
3	2,4-D amine	3.8L		0.475 lb ai/A	Spring	A	52.5e	40.0f	27.5d	30.0e	28.6a
4	Starane Ultra...fluroxypyr	2.8EC		0.109 lb ai/A	Spring	A	60.0cd	45.0ef	35.0d	27.5e	28.3a
5	Pulsar Premix	1.67EC		0.163 lb ai/A	Spring	A	60.0cd	53.6de	90.5ab	66.3cd	30.3a
	Nonionic Surfactant	100L		0.25 % v/v	Spring	A					
6	PowerFlex HL....pyroxsulam	13.1WG		0.0164 lb ai/A	Spring	A	85.0b	75.0c	91.5ab	80.0bc	31.2a
	Nonionic Surfactant	100L		0.25 % v/v	Spring	A					
	30% Urea Ammonium Nitrate	100L		1 % v/v	Spring	A					
7	PowerFlex HL....pyroxsulam	13.1WG		0.0164 lb ai/A	Spring	A	97.8a	97.8a	100.0a	100.0a	35.3a
	Metribuzin.....metribuzin	75DF		0.14 lb ai/A	Spring	A					
	Nonionic Surfactant	100L		0.25 % v/v	Spring	A					
	30% Urea Ammonium Nitrate	100L		1 % v/v	Spring	A					
8	PowerFlex HL....pyroxsulam	13.1WG		0.0164 lb ai/A	Spring	A	92.4a	77.2c	85.0b	77.5bc	35.5a
	Starane Ultra...fluroxypyr	2.8EC		0.109 lb ai/A	Spring	A					
	Nonionic Surfactant	100L		0.25 % v/v	Spring	A					
	30% Urea Ammonium Nitrate	100L		1 % v/v	Spring	A					
9	Huskie Premix	2.05EC		0.24 lb ai/A	Spring	A	95.5a	95.0a	100.0a	86.3ab	36.8a
	Nonionic Surfactant	100L		0.25 % v/v	Spring	A					
	30% Urea Ammonium Nitrate	100L		1 % v/v	Spring	A					
10	Olympus Flex Premix	11.25DF		0.0246 lb ai/A	Spring	A	61.3cd	86.3b	25.0d	78.8bc	33.4a
	Nonionic Surfactant	100L		0.25 % v/v	Spring	A					
	30% Urea Ammonium Nitrate	100L		1 % v/v	Spring	A					
11	Starane Ultra...fluroxypyr	2.8EC		0.24 lb ai/A	Spring	A	62.5c	57.5d	78.8bc	60.0d	31.7a
LSD (P=.05)							6.82	8.69	14.80	14.43	7.27
Standard Deviation							4.72	6.00	10.23	9.98	4.24
CV							7.19	9.81	16.07	16.47	13.16
Replicate F							0.996	2.245	1.280	1.741	1.099
Replicate Prob(F)							0.4087	0.1050	0.2997	0.1805	0.3546
Treatment F							138.418	92.794	47.789	35.924	1.445
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.2415

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Annual Bluegrass Control in Winter Wheat

Trial ID: SG16a-13    Cooperator:  
 Location: Felton    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Annual Bluegrass	POAAN	Poa annua L.
2.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.

Crop 1: Non-Crop

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	11/17/12
<b>Time of Day:</b>	10:15 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	fall
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	50 F
<b>% Relative Humidity:</b>	61
<b>Wind Velocity, Unit:</b>	7 mph
<b>Wind Direction:</b>	Northeast
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	48 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	15

**WEED STAGE AT EACH APPLICATION**

	A
<b>Weed 1 Code:</b>	POAAN
<b>Growth Stage:</b>	3-leaf
<b>Height, Unit:</b>	2 in
<b>Density, Unit:</b>	45-500 m2
<b>Weed 2 Code:</b>	STEME
<b>Growth Stage:</b>	vegetative
<b>Height, Unit:</b>	4 in
<b>Density, Unit:</b>	20-40 m2

APPLICATION EQUIPMENT		
	<b>A</b>	
Appl. Equipment:	Backpack	<p style="text-align: center;">Trial Comments</p> <p>12/10/12: Roundup alone was showing good activity on annual bluegrass. Roundup plus Axiom was not as injured/dead as Roundup alone. None of the other treatments were exhibiting much activity on the annual bluegrass.</p> <p>04/02/13: Ratings were for plants present at time of application. No weeds present in treatment 7 (no spring germination). Common chickweed is resistant to ALS herbicides. Horseweed present in treatments 2, 3, 5.</p>
Operating Pressure:	31 psi	
Nozzle Type:	AIRMIX	
Nozzle Size:	11002	
Nozzle Spacing, Unit:	18 in	
Boom Length, Unit:	6 nozl	
Boom Height, Unit:	20 in	
Ground Speed, Unit:	3 mph	
Carrier:	water	
Spray Volume, Unit:	20 gpa	
Propellant:	CO2	

Annual Bluegrass Control in Winter Wheat

Trial ID: SG16a-13    Cooperator:

Location: Felton    Investigator: Mark VanGessel

Weed Code		POAAN	STEME	POAAN	STEME						
Weed or Crop Name		Annual	Common	Annual	Common						
Rating Data Type		Bluegrss	Chickwd	Bluegrss	Chickwd						
Rating Unit		Control	Control	Control	Control						
Rating Date		%	%	%	%						
		03/22/13	03/22/13	04/02/13	04/02/13						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code					
1	Untreated Check							0.0e	0.0c	0.0e	0.0c
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/A	Fall	A		23.3d	100.0a	40.0d	86.7a
	Nonionic Surfactant	100	L	0.5% v/v	Fall	A					
	Dry Ammonium Sulfate	100	D	7.5 lb/100 GAL	Fall	A					
3	Olympus Flex Premix	11.25	DF	0.0246 lb ai/A	Fall	A		60.0b	10.0bc	86.0b	0.0c
	Nonionic Surfactant	100	L	0.5% v/v	Fall	A					
	Dry Ammonium Sulfate	100	D	7.5 lb/100 GAL	Fall	A					
4	Olympus.....propoxycarbazon	70	WG	0.0394 lb ai/A	Fall	A		50.0bc	10.0bc	44.9d	10.0bc
	Nonionic Surfactant	100	L	0.5% v/v	Fall	A					
	Dry Ammonium Sulfate	100	D	7.5 lb/100 GAL	Fall	A					
5	Maverick.....sulfosulfuron	75	WG	0.0314 lb ai/A	Fall	A		43.3c	23.3b	56.7c	20.0b
	Nonionic Surfactant	100	L	0.5% v/v	Fall	A					
6	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/A	Fall	A		63.3b	10.0bc	83.3b	0.0c
	Nonionic Surfactant	100	L	0.5% v/v	Fall	A					
	Dry Ammonium Sulfate	100	D	7.5 lb/100 GAL	Fall	A					
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	Fall	A		100.0a	100.0a	100.0a	100.0a
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	Fall	A		100.0a	100.0a	100.0a	100.0a
	Axiom Premix	68	WG	0.255 lb ai/A	Fall	A					
LSD (P=.05)								15.70	19.95	9.95	16.31
Standard Deviation								8.96	11.21	5.64	9.31
CV								16.3	25.38	8.83	23.53
Replicate F								2.956	4.608	2.763	0.012
Replicate Prob(F)								0.0850	0.0327	0.1000	0.9881
Treatment F								44.444	51.959	115.037	76.453
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Bulbous Oatgrass Control in Spring

Trial ID: SG17-13    Cooperator:  
 Location: Woodside    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Bulbous Oatgrass	ARREL	Arrhenatherum elatius var. bulbosa

Crop 1: Non-Crop

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	03/29/13	not applied
<b>Time of Day:</b>	2:15 pm	
<b>Application Method:</b>	Spray	
<b>Application Timing:</b>	Espring	
<b>Applic. Placement:</b>	Brdcst	
<b>Air Temp., Unit:</b>	53 F	
<b>% Relative Humidity:</b>	35	
<b>Wind Velocity, Unit:</b>	4 mph	
<b>Wind Direction:</b>	West	
<b>Dew Presence (Y/N):</b>	N	
<b>Soil Temp., Unit:</b>	52 F	
<b>Soil Surf. Moisture:</b>	Dry	
<b>Root Zone Moisture:</b>	Moist	
<b>Leaf Surf. Moisture:</b>	Dry	
<b>% Cloud Cover:</b>	90	

**WEED STAGE AT EACH APPLICATION**

	A	B
<b>Weed 1 Code:</b>	ARREL	ARREL
<b>Growth Stage:</b>	vegetative	
<b>Height, Unit:</b>	4 in	
<b>Density, Unit:</b>	15-25 m2	

**APPLICATION EQUIPMENT**

	A	B
<b>Appl. Equipment:</b>	Backpack	
<b>Operating Pressure:</b>	31 psi	
<b>Nozzle Type:</b>	AIRMIX	
<b>Nozzle Size:</b>	11002	
<b>Nozzle Spacing, Unit:</b>	18 in	
<b>Boom Length, Unit:</b>	6 nozl	
<b>Boom Height, Unit:</b>	20 in	
<b>Ground Speed, Unit:</b>	3 mph	
<b>Carrier:</b>	water	
<b>Spray Volume, Unit:</b>	20 gpa	
<b>Propellant:</b>	CO2	

Trial Comments

5/13/13: PowerFlex and Olympus provided good to excellent control of roughstalk bluegrass.

The "Heading" treatments were never applied.

Bulbous Oatgrass Control in Spring								
Trial ID: SG17-13    Cooperator:								
Location: Woodside    Investigator: Mark VanGessel								
Weed Code						ARREB	ARREB	
Weed or Crop Name						Bulbous	Bulbous	
Weed or Crop Name						Oatgrass	Oatgrass	
Rating Data Type						Control	Control	
Rating Unit						%	%	
Rating Date						04/26/13	05/14/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code		
1	Untreated Check						0.0 d	0.0 c
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/A	ESpring	A	70.0 ab	47.6 b
	Nonionic Surfactant	100	L	0.5% v/v	ESpring	A		
	Dry Ammonium Sulfate	100	D	0.9% w/v	ESpring	A		
3	Olympus Flex Premix	11.25	DF	0.0246 lb ai/A	ESpring	A	66.7 abc	63.3 a
	Nonionic Surfactant	100	L	0.5% v/v	ESpring	A		
	Dry Ammonium Sulfate	100	D	0.9% w/v	ESpring	A		
4	Olympus.....propoxycarbazone	70	WG	0.0394 lb ai/A	ESpring	A	56.7 c	36.7 b
	Nonionic Surfactant	100	L	0.5% v/v	ESpring	A		
	Dry Ammonium Sulfate	100	D	0.9% w/v	ESpring	A		
5	Maverick.....sulfosulfuron	75	WG	0.0314 lb ai/A	ESpring	A	63.3 abc	66.7 a
	Nonionic Surfactant	100	L	0.5% v/v	ESpring	A		
6	Osprey.....mesosulfuron	4.5	WG	0.0134 lb ai/A	ESpring	A	60.0 bc	43.3 b
	Nonionic Surfactant	100	L	0.5% v/v	ESpring	A		
	Dry Ammonium Sulfate	100	D	0.9% w/v	ESpring	A		
7	Axial XL.....pinoxaden	0.42	L	0.054 lb ai/A	ESpring	A	0.0 d	0.0 c
8	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	ESpring	A	75.0 a	63.3 a
9	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	ESpring	A		
10	Roundup WeatherMax..glyphosate	4.5	AS	2 lb ai/A	ESpring	A		
11	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	Heading	B		
12	Roundup WeatherMax..glyphosate	4.5	AS	2 lb ai/A	Heading	B		
LSD (P=.05)							12.69	11.93
Standard Deviation							7.25	6.77
CV							14.8	16.87
Replicate F							0.615	4.687
Replicate Prob(F)							0.5548	0.0293
Treatment F							53.980	47.550
Treatment Prob(F)							0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Effectiveness of Mechanical Weeding  
and Its Impact on Root Rots  
Trial ID: Bean2-13\_6tr Cooperator: Terry Wooters  
Location: Field #f4 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Snap Bean **PHSVN** **Variety:** Jade  
**Planting Date:** 06/26/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 6 **Sd/row-ft** **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 92 **F** **Soil Moisture:** Moist **Emergence Date:** 07/02/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**Trial Initiation Comments:** Rotary hoe treatments were done 6-29-13 and 7-5-13. Cultivation treatments were done on 7-10-13, 7-18-13, and 7-26-13.

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 11 **pH:** 5.7  
**% Clay:** 10 **CEC:** 6.1 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

**Trial Comments**

7/24/13: Severity rating is number of plants multiply by the middle of the % root affected.

7/29/13:

Straw trts weed cts/0.5m2

Plot	soy stand ct	soy stand ct	Palmer	Ht "	MG spp	Ht "	Lg Crabgrass	Ht "
105	23	14	9	15	4	25	3	7
204	7	19	19	10	0		1	8
302	29	27	10	8	0		1	15

Straw trts Yield

Plot	# beans/plnt	Wt. kg/plnt	Wt beans gr/plnt
105	28	1.96	703
204	13	0.91	265
302	31	2.26	764

DuPont Fall Burndown Programs in Small Grain Cover Crop

Trial ID: Soy1-13    Cooperator: DuPont  
 Location: Field #35    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
4.	Crabgrass Species	DIGSS	Digitaria sp.
5.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

**Crop 1:** Soybean    **GLXMA**    **Variety:** M48-12R2  
**Planting Date:** 05/20/13    **Planting Method:** Row- Unit Planter    **Depth:** 1 in  
**Rate:** 4.5    **Sd/row-ft**    **Row Spacing:** 15 in    **Seed Bed:** Friable/Trashy  
**Soil Temperature:** 82    **F**    **Soil Moisture:** Moist    **Emergence Date:** 05/25/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Rye Cover

**Trial Initiation Comments:** This trial was established in an existing fall-planted rye cover crop.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/03/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
2.	07/03/13	Reflex	2	L	1.5	pt/A

**SOIL DESCRIPTION**

**% Sand:** 82    **% OM:** 1.3    **Texture:** loamy sand  
**% Silt:** 11    **pH:** 5.9  
**% Clay:** 7    **CEC:** 5.7    **Fert. Level:** Optimum  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2    **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	11/29/12	04/24/13	06/12/13
<b>Time of Day:</b>	11:15 am	11:00 am	9:30 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	Fall	Spring	POST
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	45 F	59 F	78 F
<b>% Relative Humidity:</b>	45	69	65
<b>Wind Velocity, Unit:</b>	2 mph	2 mph	1 mph
<b>Wind Direction:</b>	West	Southwest	West
<b>Dew Presence (Y/N):</b>	Y	Y	N
<b>Soil Temp., Unit:</b>	43 F	58 F	76 F
<b>Soil Surf. Moisture:</b>	Moist	Dry	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Wet
<b>Leaf Surf. Moisture:</b>	Moist	Moist	Moist
<b>% Cloud Cover:</b>	0	10	100

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:			V2-3
Height, Unit:			6 in
Crop Health:			Good

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	CERVU	CERVU	CERVU
Growth Stage:	vegetative		
Height, Unit:	2.5 in		
Density, Unit:	4-10 m <sup>2</sup>		
Weed 2 Code:	LAMAM	LAMAM	LAMAM
Growth Stage:	vegetative		
Height, Unit:	1.5 in		
Density, Unit:	100 m <sup>2</sup>		
Weed 3 Code:	HLOUM	HLOUM	HLOUM
Growth Stage:	vegetative		
Height, Unit:	1 in		
Density, Unit:	50-100 m <sup>2</sup>		
Weed 4 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:			3lf-3tillr
Height, Unit:			3 in
Density, Unit:			0-10 m <sup>2</sup>
Weed 5 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:			vegetative
Height, Unit:			7 in
Density, Unit:			0-100 m <sup>2</sup>

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	40 in	30 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

Trt No	Treatment Application Comment
5	Plot 210 mis-sprayed with treatment 7
10	Plot 110 mis-sprayed with btreatment 11

**Trial Comments**

11/29/12: Rye cover is 2-tiller and 3.5 inches tall.

4/18/13: No spring emergence observed. No winter annuals and no summer annuals have emerged since winter. Treatments 3 (plot 103) corn speedwell was observed in the plot.

4/24/13: Rye cover is flag to early head and 22-25 inches tall.

5/17/13: Other broadleaves include morningglory and common ragweed. All other winter annual weeds are 100% control.

6/11/13: Treatment 4 provided 80% control of horseweed and 70% control of primrose. Treatment 5 provided 75% control of horseweed. Data is very inconsistent since density of weeds was variable for treatments. Most treatments had good to excellent control of winter annuals. Treatment 11, primrose and field pansy control is poor.

Biomass of soybean plants on June 11, 2013

Glyphosate only (Trt 11)	wt in grams	No. plants	Grams/Plant
Rep1	3	16	0.1875
Rep 2	6	15	0.4
Rep 3	12	22	0.545455

No difference in soybean stands between Soy 1 and DSB 3. DSB 3 was next to soy1 and had higher levels of rye - Sprayed April 24 versus May 9 - Rye biomass in DSB 3 No extra nitrogen 4404 lbs/A and extra N 5812 lb/A (collected same time as soy 1)

Rye biomass on June 11, 2013

Plot num	Trt No	Area	Grams	lbs/A
105	5	4 rows * 1 meter	145.9	1830.738341
202	10		165.3	2074.167565
305	5		162	2032.759501

6/12/13: Treatment 11 is a monoculture of 4-10 inch Palmer amaranth. Treatment 7 has no Palmer.

7/03/13: No soybean stunting observed. Ragweed control is poor in treatments 3, 8, 9, and 10. Horseweed is present in treatments 4 and 5. Treatments were quite variable, assuming due to variable rye competition early in the season. Where large crabgrass was dense or control was poor, it influenced palmer amaranth growth.

10/21/13: Some Palmer plants seen in plots 101, 305, 311, 301, and 307. These are all different treatments and no trends observed. More lodging was observed in the untreated check than the other plots (lodging observed in plot 204,211,11 - but no trends observed).

## DuPont Fall Burndown Programs in Small Grain Cover Crop

Trial ID: Soy1-13 Cooperator: DuPont  
 Location: Field #35 Investigator: Mark VanGessel

Weed Code	SECCE	CERVU	LAMAM	STEME	VIORA							
Weed or Crop Name	Winter	Mouseear	Henbit	Common	Field							
Weed or Crop Name	Rye	Chickwd	Control	Chickwd	Pansy							
Rating Data Type	Stunting	Control	Control	Control	Control							
Rating Unit	%	%	%	%	%							
Rating Date	04/18/13	04/18/13	04/18/13	04/18/13	04/18/13							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code					
1	Express TS.....tribenuron	50 SG		0.0094 lb ai/A	Fall	A		6.3 a	90.0 a	96.7 a	100.0 a	100.0 a
	Classic.....chlorimuron	25 WG		0.0312 lb ai/A	Fall	A						
	2,4-D ester	3.8 L		0.95 lb ae/A	Fall	A						
	Crop Oil Concentrate	100 L		1 % v/v	Fall	A						
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	Spring	B						
3	Express TS.....tribenuron	50 SG		0.0094 lb ai/A	Fall	A		7.3 a	86.7 a	91.7 a	100.0 a	86.7 a
	Classic.....chlorimuron	25 WG		0.0312 lb ai/A	Fall	A						
	Clarity.....dicamba	4 L		0.125 lb ai/A	Fall	A						
	Crop Oil Concentrate	100 L		1 % v/v	Fall	A						
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	Spring	B						
4	Canopy Premix	75 DF		0.187 lb ai/A	Fall	A		11.7 a	88.3 a	93.3 a	91.7 a	85.0 a
	2,4-D ester	3.8 L		0.95 lb ae/A	Fall	A						
	Crop Oil Concentrate	100 L		1 % v/v	Fall	A						
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	Spring	B						
5	Canopy Premix	75 DF		0.187 lb ai/A	Fall	A		4.7 a	83.3 a	100.0 a	100.0 a	81.0 a
	Clarity.....dicamba	4 L		0.125 lb ai/A	Fall	A						
	Crop Oil Concentrate	100 L		1 % v/v	Fall	A						
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	Spring	B						
LSD (P=.05)								7.14	24.24	19.91	14.42	17.67
Standard Deviation								3.57	12.13	9.97	7.22	8.85
CV								47.66	13.93	10.44	7.37	10.03
Replicate F								6.183	0.906	0.776	1.000	3.918
Replicate Prob(F)								0.0349	0.4532	0.5014	0.4219	0.0815
Treatment F								2.096	0.165	0.413	1.000	2.603
Treatment Prob(F)								0.2022	0.9161	0.7502	0.4547	0.1471

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

DuPont Fall Burndown Programs in Small Grain Cover Crop												
Trial ID: Soy1-13 Cooperator: DuPont												
Location: Field #35 Investigator: Mark VanGessel												
Weed Code					SECCE	VICSS	AMASS	GGGAN	ANNBR			
Crop Code					Winter	Vetch	Pigweed	Annual	Other			
Weed or Crop Name					Rye	Species	Species	Grasses	Broadlvs			
Weed or Crop Name					Stunting	Control	GrndCovr	GrndCovr	GrndCovr			
Rating Data Type					%	%	%	%	%			
Rating Unit					01/30/13	05/17/13	05/17/13	05/17/13	05/17/13			
Rating Date												
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
1	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	14.0 a	100.0 a	1.3 a	0.3 a	0.3 a
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A					
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A					
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
2	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	14.0 a	100.0 a	0.0 a	0.0 a	0.0 a
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A					
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A					
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A					
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B					
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B					
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B					
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B					
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
3	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	11.3 a	96.7 ab	2.3 a	1.7 a	0.7 a
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A					
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A					
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
4	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A	13.3 a	100.0 a	1.0 a	0.0 a	0.7 a
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A					
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
5	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A	13.3 a	100.0 a	4.4 a	0.4 a	0.0 a
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A					
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
6	Classic.....chlorimuron	25	WG	0.023	lb ai/A	Spring	B	0.0 b	95.0 b	0.0 a	0.0 a	0.0 a
	Valor SX.....flumioxazin	51	WG	0.073	lb ai/A	Spring	B					
	Harmony SG.....thifensulfuron	50	SG	0.0073	lb ai/A	Spring	B					
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B					
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
	Prowl H2O.....pendimethalin	3.8	CS	1.9	lb ai/A	Spring	B					

University of Delaware

Weed Code						SECCE	VICSS	AMASS	GGGAN	ANNBR
Crop Code						Winter	Vetch	Pigweed	Annual	Other
Weed or Crop Name						Rye	Species	Species	Grasses	Broadlvs
Weed or Crop Name						Stunting	Control	GrndCovr	GrndCovr	GrndCovr
Rating Data Type						%	%	%	%	%
Rating Unit						01/30/13	05/17/13	05/17/13	05/17/13	05/17/13
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code				
7	Classic.....chlorimuron	25	WG	0.023 lb ai/A	Spring	B	0.0 b	98.3 ab	0.0 a	0.0 a
	Valor SX.....flumioxazin	51	WG	0.073 lb ai/A	Spring	B				
	Harmony SG.....thifensulfuron	50	SG	0.0073 lb ai/A	Spring	B				
	Clarity.....dicamba	4	L	0.125 lb ai/A	Spring	B				
	Crop Oil Concentrate	100	L	1 % v/v	Spring	B				
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	Spring	B				
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	POST	C				
	Classic.....chlorimuron	25	WG	0.0074 lb ai/A	POST	C				
	Harmony SG.....thifensulfuron	50	SG	0.0024 lb ai/A	POST	C				
8	Express TS.....tribenuron	50	SG	0.0094 lb ai/A	Fall	A	10.7 a	100.0 a	0.0 a	0.0 a
	Classic.....chlorimuron	25	WG	0.0312 lb ai/A	Fall	A				
	Clarity.....dicamba	4	L	0.125 lb ai/A	Fall	A				
	Crop Oil Concentrate	100	L	1 % v/v	Fall	A				
	Classic.....chlorimuron	25	WG	0.0116 lb ai/A	Spring	B				
	Valor SX.....flumioxazin	51	WG	0.0366 lb ai/A	Spring	B				
	Harmony SG.....thifensulfuron	50	SG	0.0038 lb ai/A	Spring	B				
	2,4-D ester	3.8	L	0.95 lb ae/A	Spring	B				
	Crop Oil Concentrate	100	L	1 % v/v	Spring	B				
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	Spring	B				
9	Canopy Premix	75	DF	0.187 lb ai/A	Fall	A	10.7 a	100.0 a	0.0 a	0.0 a
	2,4-D ester	3.8	L	0.95 lb ae/A	Fall	A				
	Crop Oil Concentrate	100	L	1 % v/v	Fall	A				
	Classic.....chlorimuron	25	WG	0.0116 lb ai/A	Spring	B				
	Valor SX.....flumioxazin	51	WG	0.0366 lb ai/A	Spring	B				
	Harmony SG.....thifensulfuron	50	SG	0.0038 lb ai/A	Spring	B				
	2,4-D ester	3.8	L	0.95 lb ae/A	Spring	B				
	Crop Oil Concentrate	100	L	1 % v/v	Spring	B				
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	Spring	B				
10	Canopy Premix	75	DF	0.187 lb ai/A	Fall	A	11.7 a	99.5 a	0.0 a	0.1 a
	Clarity.....dicamba	4	L	0.125 lb ai/A	Fall	A				
	Crop Oil Concentrate	100	L	1 % v/v	Fall	A				
	Classic.....chlorimuron	25	WG	0.0116 lb ai/A	Spring	B				
	Valor SX.....flumioxazin	51	WG	0.0366 lb ai/A	Spring	B				
	Harmony SG.....thifensulfuron	50	SG	0.0038 lb ai/A	Spring	B				
	2,4-D ester	3.8	L	0.95 lb ae/A	Spring	B				
	Crop Oil Concentrate	100	L	1 % v/v	Spring	B				
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	Spring	B				
11	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	Spring	B	0.0 b	89.3 c	3.7 a	0.3 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77 lb ae/A	POST	C				
12	Untreated Check						0.0 b	0.0 d		
LSD (P=.05)						4.29	3.95	3.38	1.70	0.85
Standard Deviation						2.54	2.32	1.97	0.99	0.50
CV						30.74	2.58	170.58	380.27	227.23
Replicate F						1.438	1.491	0.325	0.431	0.543
Replicate Prob(F)						0.2588	0.2492	0.7268	0.6563	0.5904
Treatment F						17.933	453.572	2.020	0.744	1.131
Treatment Prob(F)						0.0001	0.0001	0.0932	0.6771	0.3930

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

DuPont Fall Burndown Programs in Small Grain Cover Crop												
Trial ID: Soy1-13 Cooperator: DuPont												
Location: Field #35 Investigator: Mark VanGessel												
Trt	Treatment	Form	Form	Rate	Grow	Appl	GLXMA	GLXMA	GLXMA	AMAPA	DIGSA	AMAPA
No.	Name	Conc	Type	Rate	Unit	Stg	Soybean	Soybean	Soybean	Palmer Amaranth	Large Crabgrass	Palmer Amaranth
							Stunting %	Height Inches	Height Inches	Control %	Control %	Control %
							06/11/13	07/03/13	07/26/13	06/11/13	06/11/13	07/03/13
1	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A					
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A					
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A					
	Crop Oil Concentrate	100	L	1%	v/v	Fall	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
2	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	0.0b	18.0a	34.0b	13.3cd	0.0d
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A					
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A					
	Crop Oil Concentrate	100	L	1%	v/v	Fall	A					
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B					
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B					
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B					
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B					
	Crop Oil Concentrate	100	L	1%	v/v	Spring	B					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
3	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	1.7b	16.3a	35.3b	13.3cd	33.3cd
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A					
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A					
	Crop Oil Concentrate	100	L	1%	v/v	Fall	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
4	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A	0.0b	16.3a	32.0b	43.3b	43.3c
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A					
	Crop Oil Concentrate	100	L	1%	v/v	Fall	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
5	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A	0.0b	17.2a	35.9b	29.8bc	29.6cd
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A					
	Crop Oil Concentrate	100	L	1%	v/v	Fall	A					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
6	Classic.....chlorimuron	25	WG	0.023	lb ai/A	Spring	B	0.0b	19.0a	41.7a	93.3a	98.3a
	Valor SX.....flumioxazin	51	WG	0.073	lb ai/A	Spring	B					
	Harmony SG.....thifensulfuron	50	SG	0.0073	lb ai/A	Spring	B					
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B					
	Crop Oil Concentrate	100	L	1%	v/v	Spring	B					
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B					
	Prowl H2O.....pendimethalin	3.8	CS	1.9	lb ai/A	Spring	B					

## University of Delaware

Weed Code						GLXMA	GLXMA	GLXMA	AMAPA	DIGSA	AMAPA		
Crop Code						Soybean	Soybean	Soybean	Palmer	Large	Palmer		
Weed or Crop Name									Amaranth	Crabgrass	Amaranth		
Weed or Crop Name									Control	Control	Control		
Rating Data Type						Stunting	Height	Height	%	%	%		
Rating Unit						%	Inches	Inches					
Rating Date						06/11/13	07/03/13	07/26/13	06/11/13	06/11/13	07/03/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
7	Classic.....chlorimuron	25	WG	0.023	lb ai/A	Spring	B	10.3 a	18.3 a	32.7 b	97.3 a	91.7 ab	88.3 a
	Valor SX.....flumioxazin	51	WG	0.073	lb ai/A	Spring	B						
	Harmony SG.....thifensulfuron	50	SG	0.0073	lb ai/A	Spring	B						
	Clarity.....dicamba	4	L	0.125	lb ai/A	Spring	B						
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	C						
	Classic.....chlorimuron	25	WG	0.0074	lb ai/A	POST	C						
	Harmony SG.....thifensulfuron	50	SG	0.0024	lb ai/A	POST	C						
8	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	2.3 b	16.3 a	35.7 b	89.0 a	80.7 ab	68.3 ab
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A						
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A						
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A						
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B						
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B						
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B						
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B						
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B						
9	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A	0.0 b	18.3 a	35.7 b	76.7 a	59.0 bc	56.7 b
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A						
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A						
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B						
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B						
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B						
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B						
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B						
10	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A	0.3 b	15.6 a	35.0 b	84.5 a	85.7 ab	68.9 ab
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A						
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A						
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B						
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B						
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B						
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B						
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B						
11	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B	0.3 b	16.3 a	35.0 b	0.0 d	0.0 d	10.0 c
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	C						
12	Untreated Check								15.7 a	40.7 a	91.7 a	95.0 ab	71.7 ab
	LSD (P=.05)						3.30	3.31	4.69	28.78	37.00	25.55	
	Standard Deviation						1.92	1.94	2.76	16.90	21.72	15.00	
	CV						141.71	11.41	7.72	28.14	37.32	33.15	
	Replicate F						0.611	5.970	17.646	0.614	0.956	0.320	
	Replicate Prob(F)						0.5541	0.0093	0.0001	0.5509	0.4012	0.7298	
	Treatment F						7.772	1.027	3.168	14.492	8.284	12.866	
	Treatment Prob(F)						0.0001	0.4594	0.0122	0.0001	0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code							DIGSA	GLXMA	
Crop Code							Large	Soybean	
Weed or Crop Name							Crabgrass		
Weed or Crop Name							Control	Yield	
Rating Data Type							%	Bu/A	
Rating Unit									
Rating Date							07/03/13	10/21/13	
Trt	Treatment	Form	Form	Rate	Grow	Appl			
No.	Name	Conc	Type	Rate	Unit	Stg	Code		
1	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	0.0 d	82.4 a
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A		
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A		
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B		
2	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	58.3 abc	81.8 a
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A		
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A		
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A		
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B		
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B		
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B		
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B		
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B		
3	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A	26.7 cd	78.9 a
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A		
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A		
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B		
4	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A	33.3 cd	72.4 a
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A		
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B		
5	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A	44.3 c	74.0 a
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A		
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B		
6	Classic.....chlorimuron	25	WG	0.023	lb ai/A	Spring	B	88.3 ab	84.6 a
	Valor SX.....flumioxazin	51	WG	0.073	lb ai/A	Spring	B		
	Harmony SG.....thifensulfuron	50	SG	0.0073	lb ai/A	Spring	B		
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B		
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B		
	Prowl H2O.....pendimethalin	3.8	CS	1.9	lb ai/A	Spring	B		

						DIGSA	GLXMA
						Large	Soybean
						Crabgras	
						Control	Yield
						%	Bu/A
						07/03/13	10/21/13
Trt	Treatment	Form	Form	Rate	Grow	Appl	
No.	Name	Conc	Type	Rate	Unit	Stg	Code
7	Classic.....chlorimuron	25	WG	0.023	lb ai/A	Spring	B
	Valor SX.....flumioxazin	51	WG	0.073	lb ai/A	Spring	B
	Harmony SG.....thifensulfuron	50	SG	0.0073	lb ai/A	Spring	B
	Clarity.....dicamba	4	L	0.125	lb ai/A	Spring	B
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	C
	Classic.....chlorimuron	25	WG	0.0074	lb ai/A	POST	C
	Harmony SG.....thifensulfuron	50	SG	0.0024	lb ai/A	POST	C
8	Express TS.....tribenuron	50	SG	0.0094	lb ai/A	Fall	A
	Classic.....chlorimuron	25	WG	0.0312	lb ai/A	Fall	A
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B
9	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A
	2,4-D ester	3.8	L	0.95	lb ae/A	Fall	A
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B
10	Canopy Premix	75	DF	0.187	lb ai/A	Fall	A
	Clarity.....dicamba	4	L	0.125	lb ai/A	Fall	A
	Crop Oil Concentrate	100	L	1 %	v/v	Fall	A
	Classic.....chlorimuron	25	WG	0.0116	lb ai/A	Spring	B
	Valor SX.....flumioxazin	51	WG	0.0366	lb ai/A	Spring	B
	Harmony SG.....thifensulfuron	50	SG	0.0038	lb ai/A	Spring	B
	2,4-D ester	3.8	L	0.95	lb ae/A	Spring	B
	Crop Oil Concentrate	100	L	1 %	v/v	Spring	B
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B
11	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	Spring	B
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	POST	C
12	Untreated Check						
	LSD (P=.05)					35.74	9.88
	Standard Deviation					20.98	5.80
	CV					40.27	7.18
	Replicate F					0.080	6.173
	Replicate Prob(F)					0.9238	0.0082
	Treatment F					5.272	1.740
	Treatment Prob(F)					0.0007	0.1357

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Star of Bethlehem Control in Spring

Trial ID: Soy2-13      Cooperator:  
 Location: Trappe, MD      Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel      **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy      **City:** Georgetown      **State:** DE      **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Star of Bethlehem	OTGUM	Ornithogalum umbellatum L.

Crop 1: Non-Crop

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT      **Plot Length, Unit:** 25 FT      **Reps:** 3  
**Site Type:** Field      **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	03/29/13	04/24/13
<b>Time of Day:</b>	2:00 pm	10:30 am
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	ESpring	Heading
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	53 F	57 F
<b>% Relative Humidity:</b>	35	72
<b>Wind Velocity, Unit:</b>	4 mph	5 mph
<b>Wind Direction:</b>	West	Southwest
<b>Dew Presence (Y/N):</b>	N	N
<b>Soil Temp., Unit:</b>	52 F	55 F
<b>Soil Surf. Moisture:</b>	Dry	Dry
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry
<b>% Cloud Cover:</b>	90	100

**WEED STAGE AT EACH APPLICATION**

	A	B
<b>Weed 1 Code:</b>	OTGUM	OTGUM
<b>Growth Stage:</b>	vegetative	vegetative
<b>Height, Unit:</b>	3 in	8 in
<b>Density, Unit:</b>	20-40 m2	20-40 m2

**APPLICATION EQUIPMENT**

	A	B
<b>Appl. Equipment:</b>	Backpack	Backpack
<b>Operating Pressure:</b>	31 psi	31 psi
<b>Nozzle Type:</b>	AIRMIX	AIRMIX
<b>Nozzle Size:</b>	11002	11002
<b>Nozzle Spacing, Unit:</b>	18 in	18 in
<b>Boom Length, Unit:</b>	6 nozl	6 nozl
<b>Boom Height, Unit:</b>	20 in	20 in
<b>Ground Speed, Unit:</b>	3 mph	3 mph
<b>Carrier:</b>	water	water
<b>Spray Volume, Unit:</b>	20 gpa	20 gpa
<b>Propellant:</b>	CO2	CO2

Trial Comments

5/17/13: Plants have senesced. Looks like those treatments with some activity were not as senesced as untreated checks.

Star of Bethlehem Control in Spring						
Trial ID: Soy2-13      Cooperator:						
Location: Trappe, MD      Investigator: Mark VanGessel						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code
	Weed Code					OTGUM
	Weed or Crop Name					Star of Bethlehem
	Rating Data Type					Control %
	Rating Unit					04/24/13
	Rating Date					
1	Untreated Check					0.0 e
2	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	ESpring	A
3	Roundup WeatherMax..glyphosate	4.5	AS	2 lb ai/A	ESpring	A
4	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	Heading	B
5	Roundup WeatherMax..glyphosate	4.5	AS	2 lb ai/A	Heading	B
6	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	ESpring	A
	Banvel.....dicamba	4	EC	0.5 lb ai/A	ESpring	A
7	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	Heading	B
	Banvel.....dicamba	4	EC	0.5 lb ai/A	Heading	B
8	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	ESpring	A
	2,4-D ester	3.8	L	0.95 lb ai/A	ESpring	A
9	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	Heading	B
	2,4-D ester	3.8	L	0.95 lb ai/A	Heading	B
10	Roundup WeatherMax..glyphosate	4.5	AS	2 lb ai/A	Heading	B
	Banvel.....dicamba	4	EC	0.5 lb ai/A	Heading	B
11	PowerFlex HL....pyroxsulam	13.1	WG	0.0164 lb ai/A	ESpring	A
	Banvel.....dicamba	4	EC	0.125 lb ai/A	ESpring	A
	Nonionic Surfactant	100	L	0.25 % v/v	ESpring	A
	30% Urea Ammonium Nitrate	100	L	1 % v/v	ESpring	A
12	Maverick.....sulfosulfuron	75	WG	0.0314 lb ai/A	ESpring	A
	Nonionic Surfactant	100	L	0.25 % v/v	ESpring	A
13	Huskie Premix	2.05	EC	0.24 lb ai/A	ESpring	A
	Nonionic Surfactant	100	L	0.25 % v/v	ESpring	A
	30% Urea Ammonium Nitrate	100	L	1 % v/v	ESpring	A
14	Olympus Flex Premix	11.25	DF	0.0246 lb ai/A	ESpring	A
	Nonionic Surfactant	100	L	0.25 % v/v	ESpring	A
	Dry Ammonium Sulfate	100	D	7.5 lb/100 GAL	ESpring	A
15	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	ESpring	A
	Roundup WeatherMax..glyphosate	4.5	AS	1 lb ai/A	Heading	B
16	Roundup WeatherMax..glyphosate	4.5	AS	2 lb ai/A	ESpring	A
	Roundup WeatherMax..glyphosate	4.5	AS	2 lb ai/A	Heading	B
	LSD (P=.05)					8.98
	Standard Deviation					5.27
	CV					19.02
	Replicate F					2.289
	Replicate Prob(F)					0.1273
	Treatment F					14.463
	Treatment Prob(F)					0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Optimum Timing of PPO Herbicide Application

Trial ID: Soy3-13 Cooperator:  
 Location: Field #7 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Crabgrass Species	DIGSS	Digitaria sp.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 05/20/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4.5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Friable/Trashy  
**Soil Temperature:** 82 F **Soil Moisture:** Moist **Emergence Date:** 05/25/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Corn Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/03/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
2.	07/03/13	Reflex	2	L	1.5	pt/A

## SOIL DESCRIPTION

**% Sand:** 78 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 13 **pH:** 6.4  
**% Clay:** 9 **CEC:** 8.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B	C
<b>Application Date:</b>	05/01/13	05/21/13	06/17/13
<b>Time of Day:</b>	8:15 am	12:00 pm	11:40 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	21DPP	PRE	28DAP
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	55 F	79 F	80 F
<b>% Relative Humidity:</b>	70	65	69
<b>Wind Velocity, Unit:</b>	3 mph	3 mph	2 mph
<b>Wind Direction:</b>	Northeast	Southwest	Southwest
<b>Dew Presence (Y/N):</b>	Y	N	N
<b>Soil Temp., Unit:</b>	52 F	78 F	78 F
<b>Soil Surf. Moisture:</b>	Wet	Moist	Moist
<b>Root Zone Moisture:</b>	Wet	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Wet	Dry	Dry
<b>% Cloud Cover:</b>	0	50	96

## CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:			V3-4
Height, Unit:			7 in
Crop Health:			Good

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:			cot-5 leaf
Height, Unit:			2 in
Density, Unit:			0-20 m <sup>2</sup>
Weed 2 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:			3lf-3illr
Height, Unit:			2.5 in
Density, Unit:			0-30 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	22 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

5/22/13: Good burndown control. Primrose about 80% control. Morningglory emergence cotyledon to 1st leaf expanding some. Morningglory emergence in treatments 2 & 3 but treatments of Valor & Sharpen appear to have some activity.

6/07/13: No winter annuals. Summer annuals are emerging but mostly morningglory in cotyledon stage.

6/30/13: All treatments providing excellent control. All treatments have morningglory in cotyledon stages, including Reflex applied post. Palmer amaranth and common ragweed control is 100%.

10/22/13: Very good weed control. Plot 308 had shorter plants due to water damage earlier in the year.

Optimum Timing of PPO Herbicide Application		Trial ID: Soy3-13			Location: Field #7		Investigator: Mark VanGessel		
Crop Code					GLXMA	GLXMA			
Weed or Crop Name					Soybean	Soybean			
Rating Data Type					Stunting	Yield			
Rating Unit					%	Bu/A			
Rating Date					06/07/13	10/21/13			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check							0.0 a	47.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	21 DPP	A			
	2,4-D ester	3.8	L	0.95 lb ai/A	21 DPP	A			
	Crop Oil Concentrate	100	L	1.25 % v/v	21 DPP	A			
2	Sharpen.....saflufenacil	2.85	SC	0.0334 lb ai/A	21 DPP	A		5.7 a	43.6 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	21 DPP	A			
	2,4-D ester	3.8	L	0.95 lb ai/A	21 DPP	A			
	Crop Oil Concentrate	100	L	1.25 % v/v	21 DPP	A			
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	28 DAP	C			
3	Valor SX.....flumioxazin	51	WG	0.096 lb ai/A	21 DPP	A		5.7 a	50.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	21 DPP	A			
	2,4-D ester	3.8	L	0.95 lb ai/A	21 DPP	A			
	Crop Oil Concentrate	100	L	1.25 % v/v	21 DPP	A			
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	28 DAP	C			
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	21 DPP	A		3.3 a	45.7 a
	2,4-D ester	3.8	L	0.95 lb ai/A	21 DPP	A			
	Crop Oil Concentrate	100	L	1.25 % v/v	21 DPP	A			
	Sharpen.....saflufenacil	2.85	SC	0.0223 lb ai/A	PRE	B			
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	28 DAP	C			
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	21 DPP	A		3.3 a	55.5 a
	2,4-D ester	3.8	L	0.95 lb ai/A	21 DPP	A			
	Crop Oil Concentrate	100	L	1.25 % v/v	21 DPP	A			
	Valor SX.....flumioxazin	51	WG	0.064 lb ai/A	PRE	B			
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	28 DAP	C			
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	21 DPP	A		3.3 a	50.8 a
	2,4-D ester	3.8	L	0.95 lb ai/A	21 DPP	A			
	Crop Oil Concentrate	100	L	1.25 % v/v	21 DPP	A			
	Reflex.....fomesafen	2	L	0.25 lb ai/A	PRE	B			
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	28 DAP	C			
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	21 DPP	A		3.3 a	53.9 a
	2,4-D ester	3.8	L	0.95 lb ai/A	21 DPP	A			
	Crop Oil Concentrate	100	L	1.25 % v/v	21 DPP	A			
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B			
	Reflex.....fomesafen	2	L	0.25 lb ai/A	28 DAP	C			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	28 DAP	C			
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	21 DPP	A		11.3 a	45.9 a
	2,4-D ester	3.8	L	0.95 lb ai/A	21 DPP	A			
	Crop Oil Concentrate	100	L	1.25 % v/v	21 DPP	A			
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ai/A	28 DAP	C			
LSD (P=.05)					8.41	13.55			
Standard Deviation					4.80	7.74			
CV					106.68	15.72			
Replicate F					1.128	1.287			
Replicate Prob(F)					0.3514	0.3067			
Treatment F					1.397	0.883			
Treatment Prob(F)					0.2811	0.5438			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Added Residual Control from Dicamba or 2,4-D

Trial ID: Soy4-13 Cooperator: Monsanto  
 Location: Field #9 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Non-Crop**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 83 **% OM:** 1.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.3  
**% Clay:** 9 **CEC:** 7.1 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.1 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/23/13
<b>Time of Day:</b>	9:30 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	78 F
<b>% Relative Humidity:</b>	70
<b>Wind Velocity, Unit:</b>	6 mph
<b>Wind Direction:</b>	South
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	76 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	N/A
<b>% Cloud Cover:</b>	90

**APPLICATION EQUIPMENT**

	A	
<b>Appl. Equipment:</b>	Tractor	Trial Comments  6/13/13: Ragweed >2" observed in plots 310, and 305, but only 1 to 2 plants in these plots.  7/02/13: Valor had fair activity on redstem filaree. Treatments 3 and 12 have very poor common ragweed control.
<b>Operating Pressure:</b>	40 psi	
<b>Nozzle Type:</b>	AIRMIX	
<b>Nozzle Size:</b>	11002	
<b>Nozzle Spacing, Unit:</b>	20 in	
<b>Boom Length, Unit:</b>	6 nozl	
<b>Boom Height, Unit:</b>	20 in	
<b>Ground Speed, Unit:</b>	3 mph	
<b>Carrier:</b>	water	
<b>Spray Volume, Unit:</b>	20 gpa	
<b>Propellant:</b>	Comp. Air	

Added Residual Control from Dicamba or 2,4-D  
 Trial ID: Soy4-13 Cooperator: Monsanto  
 Location: Field #9 Investigator: Mark VanGessel

Weed Code				AMAPA	IPOHE	IPOLA	SETFA	DIGSA	IPOHE	IPOHE			
Weed or Crop Name				Palmer	Ivyleaf	Pitted	Giant	Large	Ivyleaf	Ivyleaf			
Weed or Crop Name				Amaranth	Morngrly	Morngrly	Foxtail	Crabgras	Morngrly	Morngrly			
Rating Data Type				Control	Control	Control	Control	Control	Count	Height			
Rating Unit				%	%	%	%	%	#/0.5m2	cm			
Rating Date				06/13/13	06/13/13	06/13/13	06/13/13	06/13/13	06/13/13	06/13/13			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg							
1	Clarity.....dicamba	4L		0.5lb ai/A	PRE		100.0a	83.7a	76.0bcd	94.0ab	86.7b	4.3a	3.00a
2	Clarity.....dicamba	4L		1lb ai/A	PRE		100.0a	88.7a	86.0abc	93.3ab	100.0a	4.7a	2.67a
3	2,4-D amine	3.8L		0.75lb ae/A	PRE		100.0a	86.0a	71.7cd	94.0ab	93.3ab	2.3a	2.33a
4	2,4-D amine	3.8L		1lb ae/A	PRE		93.3a	85.3a	76.0bcd	76.7b	100.0a	1.3a	2.50a
5	Valor SX.....flumioxazin	51WG		0.064lb ai/A	PRE		100.0a	86.0a	93.3a	99.0a	97.3ab	1.3a	1.67a
6	Clarity.....dicamba	4L		0.5lb ai/A	PRE		100.0a	93.3a	81.0a-d	93.3ab	100.0a	1.3a	3.00a
	Valor SX.....flumioxazin	51WG		0.064lb ai/A	PRE								
7	Clarity.....dicamba	4L		1lb ai/A	PRE		100.0a	91.7a	92.3ab	98.3a	100.0a	2.7a	2.00a
	Valor SX.....flumioxazin	51WG		0.064lb ai/A	PRE								
8	2,4-D amine	3.8L		0.75lb ae/A	PRE		100.0a	92.0a	86.0abc	100.0a	98.0ab	0.3a	2.00a
	Valor SX.....flumioxazin	51WG		0.064lb ai/A	PRE								
9	2,4-D amine	3.8L		1lb ae/A	PRE		100.0a	88.7a	86.3abc	100.0a	100.0a	1.7a	2.67a
	Valor SX.....flumioxazin	51WG		0.064lb ai/A	PRE								
10	Warrant.....acetochlor	3CS		1.13lb ai/A	PRE		86.7a	46.7c	46.7e	91.0ab	63.3c	3.0a	3.67a
11	Clarity.....dicamba	4L		0.5lb ai/A	PRE		100.0a	83.7a	83.3abc	95.7ab	100.0a	3.0a	2.25a
	Warrant.....acetochlor	3CS		1.13lb ai/A	PRE								
12	Clarity.....dicamba	4L		1lb ai/A	PRE		86.7a	64.3b	66.0d	85.7ab	100.0a	2.7a	3.00a
	Warrant.....acetochlor	3CS		1.13lb ai/A	PRE								
13	2,4-D amine	3.8L		0.75lb ae/A	PRE		100.0a	85.3a	77.0a-d	83.3ab	90.0ab	3.0a	2.67a
	Warrant.....acetochlor	3CS		1.13lb ai/A	PRE								
14	2,4-D amine	3.8L		1lb ae/A	PRE		86.7a	85.0a	77.7a-d	98.3a	98.3ab	0.7a	2.00a
	Warrant.....acetochlor	3CS		1.13lb ai/A	PRE								
15	Liberty 280.....glufosinate	2.34SL		0.53lb ai/A	PRE		0.0b	0.0d	0.0f	0.0c	0.0d	3.0a	3.50a
16	Untreated Check						0.0b	0.0d	0.0f	0.0c	0.0d	2.3a	4.00a
LSD (P=.05)							17.08	13.24	16.39	19.92	12.91	2.62	1.341
Standard Deviation							10.25	7.94	9.83	11.95	7.75	1.57	0.788
CV							12.11	10.95	14.31	14.67	9.34	66.64	29.36
Replicate F							1.508	1.377	0.890	2.991	0.364	6.129	0.582
Replicate Prob(F)							0.2377	0.2678	0.4211	0.0654	0.6982	0.0059	0.5682
Treatment F							31.952	44.537	26.158	22.099	56.751	1.760	2.079
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001	0.0915	0.0634

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code				IPOLA	IPOLA	AMAPA	AMAPA	DIGSA	DIGSA	ELEIN		
Weed or Crop Name				Pitted	Pitted	Palmer	Palmer	Large	Large	Goose-		
Weed or Crop Name				Morninglry	Morninglry	Amaranth	Amaranth	Crabgras	Crabgras	grass		
Rating Data Type				Count	Height	Count	Height	Count	Height	Count		
Rating Unit				#/0.5m2	cm	#/0.5m2	cm	#/0.5m2	cm	#/0.5m2		
Rating Date				06/13/13	06/13/13	06/13/13	06/13/13	06/13/13	06/13/13	06/13/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg							
1	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	2.3 a	4.3 a	0.0 a	4.7 a	3.5	0.0 a	
2	Clarity.....dicamba	4L		1 lb ai/A	PRE	1.7 a	3.0 a	0.0 a	0.0 a		0.3 a	
3	2,4-D amine	3.8L		0.75 lb ae/A	PRE	11.7 a	4.7 a	0.0 a	1.0 a	4.0	0.0 a	
4	2,4-D amine	3.8L		1 lb ae/A	PRE	9.7 a	4.5 a	0.0 a	1.0 a	1.0	0.0 a	
5	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE	1.0 a	3.0 a	0.0 a	0.0 a		0.0 a	
6	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	4.3 a	3.3 a	0.0 a	0.0 a		0.0 a	
	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE							
7	Clarity.....dicamba	4L		1 lb ai/A	PRE	3.3 a	3.0 a	0.0 a	0.0 a		0.0 a	
	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE							
8	2,4-D amine	3.8L		0.75 lb ae/A	PRE	5.3 a	3.5 a	0.0 a	3.7 a	2.5	0.0 a	
	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE							
9	2,4-D amine	3.8L		1 lb ae/A	PRE	3.0 a	5.0 a	0.0 a	0.0 a		0.0 a	
	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE							
10	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE	4.3 a	5.0 a	0.0 a	1.3 a	4.0	0.0 a	
11	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	3.7 a	4.0 a	0.0 a	0.0 a		0.0 a	
	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE							
12	Clarity.....dicamba	4L		1 lb ai/A	PRE	7.7 a	4.5 a	1.0 a	3.00 a	0.0 a	0.0 a	
	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE							
13	2,4-D amine	3.8L		0.75 lb ae/A	PRE	8.3 a	4.7 a	0.0 a	0.0 a		0.0 a	
	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE							
14	2,4-D amine	3.8L		1 lb ae/A	PRE	6.3 a	4.0 a	0.0 a	0.0 a		0.0 a	
	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE							
15	Liberty 280.....glufosinate	2.34SL		0.53 lb ai/A	PRE	14.3 a	3.0 a	2.0 a	8.83 a	2.3 a	10.0	0.0 a
16	Untreated Check					17.0 a	4.3 a	5.3 a	4.75 a	2.7 a	1.0	0.0 a
LSD (P=.05)						14.45	1.54	2.96	72.518	3.08	0.24	
Standard Deviation						8.67	0.90	1.77	6.990	1.85	0.14	
CV						133.32	22.5	340.54	126.45	177.59	692.82	
Replicate F						1.049	0.200	1.000	0.148	0.682	1.000	
Replicate Prob(F)						0.3626	0.8203	0.3798	0.8786	0.5134	0.3798	
Treatment F						0.866	2.060	1.850	0.550	1.998	1.000	
Treatment Prob(F)						0.6048	0.0728	0.0739	0.6900	0.0520	0.4801	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code				SETFA	SETFA	AMBEL	AMBEL	AMAPA	IPOSS
Weed or Crop Name				Giant	Giant	Common	Common	Palmer	Morninglry
Weed or Crop Name				Foxtail	Foxtail	Ragweed	Ragweed	Amaranth	Species
Rating Data Type				Count	Height	Count	Height	Control	Control
Rating Unit				#/0.5m <sup>2</sup>	cm	#/0.5m <sup>2</sup>	cm	%	%
Rating Date				06/13/13	06/13/13	06/13/13	06/13/13	07/02/13	07/02/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg			
1	Clarity.....dicamba	4L		0.5 lb ai/A	PRE				
								26.7 fg	10.0 cd
2	Clarity.....dicamba	4L		1 lb ai/A	PRE				
								70.0 b-e	43.3 ab
3	2,4-D amine	3.8L		0.75 lb ae/A	PRE				
								66.7 cde	33.3 abc
4	2,4-D amine	3.8L		1 lb ae/A	PRE		2.0		
								46.7 ef	23.3 bcd
5	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE				
								100.0 a	43.3 ab
6	Clarity.....dicamba	4L		0.5 lb ai/A	PRE				
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE				
								100.0 a	26.7 bc
7	Clarity.....dicamba	4L		1 lb ai/A	PRE				
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE				
								93.3 abc	58.3 a
8	2,4-D amine	3.8L		0.75 lb ae/A	PRE				
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE				
								96.7 ab	36.7 ab
9	2,4-D amine	3.8L		1 lb ae/A	PRE				
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE				
								100.0 a	46.7 ab
10	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE				
								63.3 de	0.0 d
11	Clarity.....dicamba	4L		0.5 lb ai/A	PRE				
	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE				
								70.2 b-e	36.7 ab
12	Clarity.....dicamba	4L		1 lb ai/A	PRE				
	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE		6.0		
								76.7 a-d	23.3 bcd
13	2,4-D amine	3.8L		0.75 lb ae/A	PRE				
	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE				
								66.7 cde	10.0 cd
14	2,4-D amine	3.8L		1 lb ae/A	PRE				
	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE				
								53.3 def	10.0 cd
15	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A	PRE				
								0.0 g	0.0 d
16	Untreated Check								
								0.0 g	0.0 d
LSD (P=.05)				7.42	7.87	0.33		27.98	25.18
Standard Deviation				4.45	3.75	0.20		16.75	15.10
CV				237.28	102.63	473.29		26.02	60.15
Replicate F				1.083	0.469	2.143		0.017	0.167
Replicate Prob(F)				0.3514	0.6506	0.1349		0.9829	0.8472
Treatment F				1.437	1.390	1.000		11.444	4.519
Treatment Prob(F)				0.1934	0.3786	0.4801		0.0001	0.0002

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code				DIGSA	IPOHE	IPOHE	IPOLA	IPOLA	AMAPA	AMAPA		
Weed or Crop Name				Large	Ivyleaf	Ivyleaf	Pitted	Pitted	Palmer	Palmer		
Weed or Crop Name				Crabgrass	Morninglry	Morninglry	Morninglry	Morninglry	Amaranth	Amaranth		
Rating Data Type				Control	Count	Height	Count	Height	Count	Height		
Rating Unit				%	#/0.5m2	Inches	#/0.5m2	Inches	#/0.5m2	Inches		
Rating Date				07/02/13	07/03/13	07/03/13	07/03/13	07/03/13	07/03/13	07/03/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow							
				Rate Unit	Stg							
1	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	10.0d	4.7a	12.33 a	3.7a	12.00 de	0.3a	6.00 a
2	Clarity.....dicamba	4L		1 lb ai/A	PRE	43.3c	4.7a	16.17 a	2.0a	10.17 ef	0.3a	7.00 a
	32,4-D amine	3.8L		0.75 lb ae/A	PRE	33.3c	3.7a	8.67 a	10.0a	18.33 bcd	0.0a	
	42,4-D amine	3.8L		1 lb ae/A	PRE	40.0c	2.3a	6.33 a	11.0a	22.33 abc	3.3a	5.50 a
5	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE	85.0a	2.3a	3.17 a	1.3a	2.79f	0.0a	
6	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	83.3a	3.0a	6.50 a	4.3a	18.33 bcd	0.3a	4.00 a
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE							
7	Clarity.....dicamba	4L		1 lb ai/A	PRE	90.0a	1.7a	6.00 a	0.7a	27.78 a	0.7a	11.00 a
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE							
	82,4-D amine	3.8L		0.75 lb ae/A	PRE	86.7a	1.0a	1.00 a	6.3a	17.78 b-e	0.0a	
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE							
	92,4-D amine	3.8L		1 lb ae/A	PRE	83.3a	3.0a	9.33 a	2.7a	13.67 de	0.0a	
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	PRE							
10	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE	66.7b	3.0a	8.33 a	4.7a	25.04 ab	0.3a	11.50 a
11	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	83.3a	4.0a	5.83 a	4.0a	12.04 de	0.0a	
	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE							
12	Clarity.....dicamba	4L		1 lb ai/A	PRE	85.0a	3.7a	14.50 a	3.3a	18.54 bcd	1.7a	7.00 a
	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE							
	132,4-D amine	3.8L		0.75 lb ae/A	PRE	81.7a	3.7a	9.50 a	10.3a	15.33 cde	0.0a	
	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE							
	142,4-D amine	3.8L		1 lb ae/A	PRE	83.3a	1.0a	12.00 a	6.0a	22.00 abc	7.0a	8.00 a
	Warrant.....acetochlor	3 CS		1.13 lb ai/A	PRE							
15	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A	PRE	0.0d	2.7a	11.00 a	11.7a	17.29 b-e	2.0a	16.67 a
16	Untreated Check					0.0d	4.7a	6.17 a	11.3a	16.00 cde	10.0a	13.00 a
LSD (P=.05)						12.12	3.15	10.564	12.77	7.963	6.71	13.025
Standard Deviation						7.27	1.89	6.268	7.66	4.703	4.03	5.013
CV						12.18	61.68	73.3	131.31	27.92	247.83	55.91
Replicate F						3.462	12.840	0.477	1.869	3.395	1.607	0.224
Replicate Prob(F)						0.0444	0.0001	0.6262	0.1718	0.0519	0.2173	0.8115
Treatment F						63.016	1.199	1.231	0.745	5.007	1.548	1.860
Treatment Prob(F)						0.0001	0.3249	0.3155	0.7224	0.0004	0.1501	0.3318

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					DIGSA	AMBEL	AMBEL
Weed or Crop Name					Large	Common	Common
Weed or Crop Name					Crabgras	Ragweed	Ragweed
Rating Data Type					Count	Count	Height
Rating Unit					#/0.5m2	#/0.5m2	Inches
Rating Date					07/03/13	07/03/13	07/03/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg	
1	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	3.7 a	0.0 a
2	Clarity.....dicamba	4L		1 lb ai/A	PRE	2.0 a	0.0 a
3	2,4-D amine	3.8L		0.75 lb ae/A	PRE	0.3 a	0.0 a
4	2,4-D amine	3.8L		1 lb ae/A	PRE	4.0 a	0.3 a 12.0
5	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE	0.0 a	0.0 a
6	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	0.0 a	0.0 a
	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE		
7	Clarity.....dicamba	4L		1 lb ai/A	PRE	0.0 a	0.0 a
	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE		
8	2,4-D amine	3.8L		0.75 lb ae/A	PRE	0.3 a	0.0 a
	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE		
9	2,4-D amine	3.8L		1 lb ae/A	PRE	0.3 a	0.0 a
	Valor SX.....flumioxazin	51WG		0.064 lb ai/A	PRE		
10	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE	1.3 a	0.0 a
11	Clarity.....dicamba	4L		0.5 lb ai/A	PRE	0.0 a	0.0 a
	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE		
12	Clarity.....dicamba	4L		1 lb ai/A	PRE	0.0 a	0.3 a 12.0
	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE		
13	2,4-D amine	3.8L		0.75 lb ae/A	PRE	0.3 a	0.0 a
	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE		
14	2,4-D amine	3.8L		1 lb ae/A	PRE	0.0 a	0.0 a
	Warrant.....acetochlor	3CS		1.13 lb ai/A	PRE		
15	Liberty 280.....glufosinate	2.34SL		0.53 lb ai/A	PRE	2.7 a	0.3 a 7.0
16	Untreated Check					3.7 a	0.0 a
LSD (P=.05)						3.63	0.42
Standard Deviation						2.18	0.25
CV						186.84	400.0
Replicate F						3.030	1.000
Replicate Prob(F)						0.0633	0.3798
Treatment F						1.450	0.867
Treatment Prob(F)						0.1878	0.6040

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Residual Herbicides for Soybeans

Trial ID: Soy5-13    Cooperator:  
 Location: Hebron    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Fall Panicum	PANDI	Panicum dichotomiflorum (L.) Michx.
3.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Soybean    GLXMA

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**MAINTENANCE**

**Field Prep./Maintenance:** An early preplant burndown treatment was applied to this field prior to initiating this trial.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/06/13	Select Max	1	EC	16	fl oz/A
2.	06/06/13	Nonionic Surfactant			0.25	% v/v
3.	07/02/13	Roundup WeatherMax	4.5	AS	36	fl oz/A
4.	07/02/13	Synchrony XP	28.4	XP	0.75	oz wt/A
5.	07/02/13	Dry Ammonium Sulfate			8.5	lb/100 gal

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/30/13
<b>Time of Day:</b>	1:00 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	86 F
<b>% Relative Humidity:</b>	53
<b>Wind Velocity, Unit:</b>	5 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	84 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	0

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	AMAPA
Growth Stage:	4-6 leaf
Height, Unit:	2.5 in
Weed 2 Code:	PANDI
Growth Stage:	vegetative
Height, Unit:	5 in
Weed 3 Code:	IPOSS
Growth Stage:	1-4 leaf
Height, Unit:	2.5 in

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

## Trial Comments

6/05/13: Optill, Canopy, and Boundary were poor on burndown of field pansy. Canopy and Boundary severely injured emerged morningglory but did not kill them. None of the treatments controlled fall panicum that was emerged at time of application.

6/13/13: OXALIS, palmer amaranth, morningglory, and field pansy plants that were emerged at time of application were controlled. Burndown activity is excellent for all treatments. Stunting was difficult to rate due to variable stand.

6/30/13: Field pansy in treatments 2, 6, 7, 8, and 12.

Residual Herbicides for Soybeans												
Trial ID: Soy5-13 Cooperator:												
Location: Hebron Investigator: Mark VanGessel												
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	GLXMA Soybean	GLXMA Soybean	GLXMA Soybean	AMAPA Palmer Amaranth Control %	IPOSS Morngrly Species Control %	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code	06/13/13	06/30/13	06/19/13	06/30/13	06/30/13
1	Untreated Check							0.0e	0.0c	17.7 a	0.0f	0.0f
2	Canopy Premix	75 DF		0.187 lb ai/A	PRE	A		0.0e	9.0a	25.7 a	100.0 a	68.3 ab
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
3	Valor XLT Premix	40.3 WG		0.091 lb ai/A	PRE	A		14.0 abc	9.0 a	27.0 a	100.0 a	66.7 abc
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
4	Authority XL Premix	70 DG		0.21 lb ai/A	PRE	A		13.3 abc	0.0c	29.0 a	95.0 a	70.0 ab
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
5	Authority First Premix	70 DF		0.28 lb ai/A	PRE	A		0.8 de	3.3 bc	27.0 a	81.7 bc	76.7 a
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
6	Authority MTZ Premix	45 DF		0.394 lb ai/A	PRE	A		8.3 cd	0.0c	24.0 a	65.0 e	56.7 bcd
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
7	Boundary Premix	6.5 EC		1.22 lb ai/A	PRE	A		13.3 abc	0.0c	29.0 a	63.3 e	46.7 de
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
8	Prefix Premix	5.3 E		1.66 lb ai/A	PRE	A		0.0e	0.0c	25.3 a	76.7 cd	53.3 cde
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
9	Prefix Premix	5.3 E		1.66 lb ai/A	PRE	A		13.3 abc	0.0c	27.7 a	70.0 de	40.0 e
	Metribuzin.....metribuzin	75 DF		0.187 lb ai/A	PRE	A						
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
10	Fierce Premix	76 WG		0.178 lb ai/A	PRE	A		16.7 ab	0.0c	27.3 a	100.0 a	53.3 cde
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
11	Fierce Premix	76 WG		0.178 lb ai/A	PRE	A		20.0 a	6.3 ab	24.7 a	100.0 a	66.0 abc
	Metribuzin.....metribuzin	75 DF		0.187 lb ai/A	PRE	A						
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
12	OpTill Premix	68 WG		0.085 lb ai/A	PRE	A		10.7 bc	3.7 bc	25.7 a	91.7 ab	60.0 bcd
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE	A						
LSD (P=.05)								7.64	4.87	6.04	11.12	14.34
Standard Deviation								4.50	2.87	3.56	6.57	8.47
CV								48.88	109.69	13.8	8.35	15.45
Replicate F								1.252	0.210	1.148	0.209	3.531
Replicate Prob(F)								0.3063	0.8119	0.3356	0.8127	0.0468
Treatment F								7.738	4.809	2.149	56.638	17.056
Treatment Prob(F)								0.0001	0.0010	0.0610	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(Soy6-13)

University of Delaware

Influence of Cultivation Timing for High Residue Cultivator

Trial ID: Soy6-13 Cooperator: PSU  
Location: Field # 35 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science  
Affiliation: University of Delaware Research & Education Center  
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Crop 1: Soybean GLXMA Variety: M48-12R2  
Planting Date: 05/29/13 Planting Method: Row- Unit Planter Depth: 1 in  
Rate: 9 Sd/row-ft Row Spacing: 30 in Seed Bed: Firm/Trashy  
Soil Temperature: 88 F Soil Moisture: Moist Emergence Date: 06/03/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 35 FT Reps: 3  
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK  
Tillage Type: No Tillage/Rye Cover

Trial Initiation Comments: Rye removed treatments were mowed with push mower ~3 weeks preplant. The whole trial was treated preplant with Roundup on 5-20-13 and rolled with roller-crimper before planting on 5-29-13. Canopy at 4 oz/A + Dual II Mag at 20 oz/A were banded at planting.

MAINTENANCE

Field Prep./Maintenance: Treatment #1 was sprayed with Roundup WeatherMax on 7-18 to maintain weed free.

SOIL DESCRIPTION

% Sand: 82 % OM: 1.3 Texture: loamy sand  
% Silt: 11 pH: 5.9  
% Clay: 7 CEC: 5.7 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book  
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown  
Distance: 0.2 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	06/27/13	07/08/13	07/19/13
Application Method:	Cultivate	Cultivate	Cultivate
Application Timing:	4WAP	5WAP	6WAP
Applic. Placement:	In-row	In-row	In-row
Soil Surf. Moisture:	Moist	Dry	Dry
Root Zone Moisture:	Moist	Moist	Moist

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	NT-cultiv	NT-cultiv	NT-cultiv
Ground Speed, Unit:	24. mph	2.4 mph	2.4 mph

**Trial Comments**

6/11/13: Very good stand of soybeans. Excellent control of winter annuals.

6/11/13 Rye biomass collected in alleys:

		grams	wt (lb/A)
Rep 1	4 rows * 1 meter	378.2	4745.615
Rep 2		461.6	5792.11
Rep 3		582.4	7307.896

Soybean biomass Sample 1 collected 6/11/13 and sample 2 on 6/17/13

No Rye	rep	trt	wt in grams	No. plants	avg1	wt in grams	No. plants	avg2
	1	No rye	18	90	0.2	7.81	21	0.371905
	2	No rye	14	80	0.175	7.3	20	0.365
	3	No rye	13	70	0.1857	6.87	20	0.3435
Rye	1	Rye	9	82	0.1098	6.4	21	0.304762
	2	Rye	12	96	0.125	7.22	23	0.313913
	3	Rye	9	73	0.123	5.27	19	0.277368

Total wt collected as not significant; but average weight per plant for both sampling dates was significant.

7/17/13: Other weeds found in abundance -  
stinkgrass # 50 in plot 211;  
goosegrass # 40 in 312; 11 in 310.

7/26/13: A lot of goosegrass in plot 310.

9/20/13: Treatment 2 is weedier than most plots, but does not stand out as a "really weedy" plot. Also no plot stands out as "really" clean. Appears to be more weeds in no rye and cultivated at 4 & 5 weeks (mostly more crabgrass).

Influence of Cultivation Timing for High Residue Cultivator									
Trial ID: Soy6-13		Cooperator: PSU							
Location: Field # 35		Investigator: Mark VanGessel							
Weed Code	GLXMA	GLXMA	AMAPA	IPOSS	DIGSA	AMAPA	IPOSS	DIGSA	AMAPA
Crop Code	Soybean	Soybean	Palmer	Morngly	Crabgras	Palmer	Morngly	Crabgras	Palmer
Weed or Crop Name			Amaranth	Species	Species	Amaranth	Species	Species	Amaranth
Weed or Crop Name			In Row	In Row	In Row	Betw row	Betw row	Betw row	In Row
Rating Data Type	Stand Ct	Stand Ct	# 5*8"	# 5*8"	# 5*8"	# 5*20"	# 5*20"	# 5*20"	# 5*8"
Rating Unit	tll 20'	tll 20'							
Rating Date	07/17/13	07/26/13	07/17/13	07/17/13	07/17/13	07/17/13	07/17/13	07/17/13	07/26/13
Trt Treatment									
No. Name									
1 WEED-FREE CHECK	114 a	114 a	1.7 bc	0.0 a	0.7 a	20.7 a	0.3 a	11.7 a	0.0 a
2 UNCULTIVATED	121 a	121 a	0.0 c	2.0 a	0.0 a	2.7 a	3.0 a	7.0 a	0.0 a
3 CULTIVATED ONCE 4 WAP	98 a		0.7 bc	0.0 a	2.0 a	9.0 a	0.7 a	20.0 a	0.7 a
4 CULTIVATED ONCE 5 WAP	109 a		0.3 bc	0.0 a	0.0 a	3.7 a	0.3 a	1.0 a	1.0 a
5 CULTIVATED ONCE 6 WAP	114 a	113 a	0.0 c	0.0 a	1.7 a	1.3 a	2.3 a	17.7 a	0.0 a
6 CULTIVATED TWICE 4&5 WAP ___ CULTIVATED 4 WAP ___ CULTIVATED 5 WAP	107 a		0.0 c	1.0 a	1.0 a	0.0 a	2.7 a	1.0 a	0.0 a
7 CULTIVATED TWICE 4&6 WAP ___ CULTIVATED 4 WAP ___ CULTIVATED 6 WAP	101 a	104 a	5.0 a	0.0 a	0.0 a	27.0 a	0.3 a	0.7 a	0.3 a
8 CULTIVATED TWICE 5&6 WAP ___ CULTIVATED 5 WAP ___ CULTIVATED 6 WAP	101 a	97 a	0.3 bc	0.0 a	8.7 a	13.0 a	0.0 a	32.7 a	0.7 a
9 CULTIVATED THREE 4/5/6 WAP ___ CULTIVATED 4 WAP ___ CULTIVATED 5 WAP ___ CULTIVATED 6 WAP	113 a	106 a	0.3 bc	0.3 a	4.0 a	1.0 a	0.3 a	4.3 a	0.0 a
10 CULTIVATED TWICE 4&5 WAP_RYE R ___ CULTIVATED 4 WAP ___ CULTIVATED 5 WAP	108 a		1.7 bc	0.0 a	17.3 a	14.0 a	1.7 a	14.7 a	11.7 a
11 CULTIVATED TWICE 4&6 WAP_RYE R ___ CULTIVATED 4 WAP ___ CULTIVATED 6 WAP	134 a	123 a	3.0 ab	0.0 a	2.3 a	2.3 a	1.3 a	3.0 a	0.7 a
12 CULTIVATED THREE 4/5/6 WAP_RYE ___ CULTIVATED 4 WAP ___ CULTIVATED 5 WAP ___ CULTIVATED 6 WAP	123 a	123 a	1.3 bc	1.0 a	0.0 a	7.0 a	1.3 a	1.7 a	1.7 a
LSD (P=.05)	30.7	33.3	2.88	1.28	10.68	20.98	2.80	26.44	9.88
Standard Deviation	18.1	19.0	1.70	0.76	6.31	12.39	1.66	15.61	5.83
CV	16.2	16.88	142.55	209.66	200.91	146.21	138.58	162.46	419.91
Replicate F	1.304	4.571	9.467	0.048	1.162	8.001	0.801	1.897	1.290
Replicate Prob(F)	0.2915	0.0297	0.0011	0.9528	0.3315	0.0024	0.4616	0.1737	0.2954
Treatment F	0.975	0.779	2.351	2.163	1.968	1.455	1.160	1.235	0.948
Treatment Prob(F)	0.4958	0.6154	0.0423	0.0595	0.0850	0.2183	0.3665	0.3225	0.5169

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code	IPOSS	DIGSA	AMAPA	IPOSS	DIGSA	GLXMA
Crop Code						
Weed or Crop Name	Mornglry	Crabgras	Palmer	Mornglry	Crabgras	Soybean
Weed or Crop Name	Species	Species	Amaranth	Species	Species	
Rating Data Type	In Row	In Row	Betw row	Betw row	Betw row	Yield
Rating Unit	# 5'*8"	# 5'*8"	# 5'*20"	# 5'*20"	# 5'*20"	Bu/A
Rating Date	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	10/28/13
Trt Treatment						
No. Name						
1 WEED-FREE CHECK	0.3a	0.0b	1.0a	1.0a	0.3c	43.5a
2 UNCULTIVATED	2.3a	1.0b	1.3a	4.3a	8.7abc	40.0a
3 CULTIVATED ONCE 4 WAP	0.0a	2.0b	8.3a	0.7a	5.7bc	41.2a
4 CULTIVATED ONCE 5 WAP	0.0a	0.0b	2.0a	0.7a	1.3c	38.7a
5 CULTIVATED ONCE 6 WAP	0.3a	0.0b	1.0a	1.7a	0.3c	42.6a
6 CULTIVATED TWICE 4&5 WAP	0.0a	3.7b	0.7a	11.7a	4.7bc	37.9a
___ CULTIVATED 4 WAP						
___ CULTIVATED 5 WAP						
7 CULTIVATED TWICE 4&6 WAP	0.0a	0.7b	6.0a	0.0a	1.7c	37.6a
___ CULTIVATED 4 WAP						
___ CULTIVATED 6 WAP						
8 CULTIVATED TWICE 5&6 WAP	0.0a	3.0b	6.7a	0.0a	17.7a	35.3a
___ CULTIVATED 5 WAP						
___ CULTIVATED 6 WAP						
9 CULTIVATED THREE 4/5/6 WAP	0.0a	1.7b	2.0a	1.0a	4.0bc	39.5a
___ CULTIVATED 4 WAP						
___ CULTIVATED 5 WAP						
___ CULTIVATED 6 WAP						
10 CULTIVATED TWICE 4&5 WAP_RYE R	0.0a	12.0a	11.7a	0.7a	13.0ab	41.5a
___ CULTIVATED 4 WAP						
___ CULTIVATED 5 WAP						
11 CULTIVATED TWICE 4&6 WAP_RYE R	1.0a	0.0b	1.0a	1.7a	1.7c	45.6a
___ CULTIVATED 4 WAP						
___ CULTIVATED 6 WAP						
12 CULTIVATED THREE 4/5/6 WAP_RYE	0.7a	0.0b	2.3a	0.0a	0.7c	48.9a
___ CULTIVATED 4 WAP						
___ CULTIVATED 5 WAP						
___ CULTIVATED 6 WAP						
LSD (P=.05)	1.50	5.48	9.75	7.72	9.28	10.68
Standard Deviation	0.89	3.23	5.76	4.56	5.48	6.30
CV	227.88	161.67	156.98	234.47	110.18	15.37
Replicate F	3.431	1.817	5.481	1.092	2.072	16.466
Replicate Prob(F)	0.0505	0.1860	0.0117	0.3531	0.1498	0.0001
Treatment F	1.839	3.304	1.180	1.554	3.066	1.070
Treatment Prob(F)	0.1078	0.0082	0.3545	0.1824	0.0122	0.4258

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Influence of Cultivation on Herbicide Layer

Trial ID: Soy7-13 Cooperator:  
 Location: Field #4 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Vol. Pea	PIBSS	Pisum Sp.
2.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 06/26/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 9 Sd/row-ft **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 92 F **Soil Moisture:** Moist **Emergence Date:** 07/01/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** SPLIT-PLOT  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 11 **pH:** 5.7  
**% Clay:** 10 **CEC:** 6.1 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	06/27/13	07/10/13
<b>Time of Day:</b>	9:00 am	
<b>Application Method:</b>	Spray	Cultiv
<b>Application Timing:</b>	PRE	21DAP
<b>Applic. Placement:</b>	Brdcst	BanSoi
<b>Air Temp., Unit:</b>	79 F	
<b>% Relative Humidity:</b>	74	
<b>Wind Velocity, Unit:</b>	2 mph	
<b>Wind Direction:</b>	Southwest	
<b>Dew Presence (Y/N):</b>	N	
<b>Soil Temp., Unit:</b>	77 F	
<b>Soil Surf. Moisture:</b>	Dry	
<b>Root Zone Moisture:</b>	Moist	
<b>Leaf Surf. Moisture:</b>	N/A	
<b>% Cloud Cover:</b>	70	

**CROP STAGE AT EACH APPLICATION**

	A	B
<b>Crop 1 Code:</b>	GLXMA	GLXMA
<b>Growth Stage:</b>		1-2 trifol
<b>Height, Unit:</b>		5.5 in
<b>Crop Health:</b>		Good

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	PIBSS	PIBSS
Growth Stage:		vegetative
Height, Unit:		3 in
Density, Unit:		15-30 m <sup>2</sup>
Weed 2 Code:	IPOSS	IPOSS
Growth Stage:		vegetative
Height, Unit:		4 in
Density, Unit:		0-4 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Cultivatr
Operating Pressure:	40 psi	
Nozzle Type:	AIRMIX	
Nozzle Size:	11002	
Nozzle Spacing, Unit:	20 in	
Boom Length, Unit:	6 nozl	
Boom Height, Unit:	20 in	
Ground Speed, Unit:	3 mph	
Carrier:	water	
Spray Volume, Unit:	20 gpa	
Propellant:	Comp. Air	

## Trial Comments

7/10/13: The standard cultivator, high-residue cultivator, and bezzerride in-row cultivator were operated at 2.4, 3, and 1.2 mph respectively.

9/20/13: Did not appear to have late season emergence due to disruption of herbicide layers. Few more weeds in the no cultivation strip than in the cultivation strip. But overall weed control is very good.

Preplant Horseweed Control for Soybeans

Trial ID: Soy9-13    Cooperator: Monsanto  
 Location: Field #10    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel      **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown      **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
2.	Field Pansy	VIORA	Viola rafinesquii Greene
3.	Speedwell Ssp.	VERSS	Veronica Ssp.
4.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
5.	Annual Grasses	GGGAN	

**Crop 1:** Soybean      **GLXMA**      **Variety:** M48-12R2  
**Planting Date:** 05/17/13    **Planting Method:** Row- Unit Planter      **Depth:** 1 in  
**Rate:** 5      Sd/row-ft    **Row Spacing:** 15 in      **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 79      F    **Soil Moisture:** Moist      **Emergence Date:** 05/23/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field      **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/18/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
2.	07/18/13	Reflex	2	L	1.5	pt/A

**SOIL DESCRIPTION**

**% Sand:** 79    **% OM:** 2.3    **Texture:** sandy loam  
**% Silt:** 10    **pH:** 6.5  
**% Clay:** 11    **CEC:** 8.6    **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.25    **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/09/13
<b>Time of Day:</b>	9:30 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	17EPP
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	61 F
<b>% Relative Humidity:</b>	80
<b>Wind Velocity, Unit:</b>	2 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	Y
<b>Soil Temp., Unit:</b>	60 F
<b>Soil Surf. Moisture:</b>	Wet
<b>Root Zone Moisture:</b>	Wet
<b>Leaf Surf. Moisture:</b>	Moist
<b>% Cloud Cover:</b>	95

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	STEME
Growth Stage:	seed
Height, Unit:	10 in
Density, Unit:	30-50 m2
Weed 2 Code:	VIORA
Growth Stage:	flwr-seed
Height, Unit:	7 in
Density, Unit:	0-30 m2
Weed 3 Code:	VERSS
Growth Stage:	flower
Height, Unit:	8 in
Density, Unit:	10-50 m2
Weed 4 Code:	OEOLA
Growth Stage:	vegetative
Height, Unit:	9 in
Density, Unit:	0-2 m2
Weed 5 Code:	GGGAN
Growth Stage:	cot-1lf
Height, Unit:	0.2 in
Density, Unit:	50 m2

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	26 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

7/01/13: Large crabgrass density is very heavy and has out-competed other species.

Preplant Horseweed Control for Soybeans  
 Trial ID: Soy9-13 Cooperator: Monsanto  
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	ERICA	OEOLA	VIORA	AMAPA	IPOSS	DIGSA
Weed or Crop Name	Horseweed	Cutleaf EPrimrse	Field Pansy	Palmer Amaranth	Morning Species	Large Crabgrass
Rating Data Type	Control %	Control %	Control %	Control %	Control %	Control %
Rating Unit	%	%	%	%	%	%
Rating Date	06/11/13	06/11/13	06/11/13	06/11/13	06/11/13	06/11/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg
1	Roundup WeatherMax..glyphosate 2,4-D ester	4.5	AS	0.98 lb ae/A	17EPP	17EPP
		3.8L		0.95 lb ae/A	17EPP	
2	MON 76832	3	SL	1.5 lb ae/A	17EPP	17EPP
3	Roundup WeatherMax..glyphosate 2,4-D ester	4.5	AS	0.98 lb ae/A	17EPP	17EPP
		3.8L		0.95 lb ae/A	17EPP	
	Valor XLT Premix	40.3	WG	0.0756 lb ai/A	17EPP	17EPP
4	MON 76832	3	SL	1.5 lb ae/A	17EPP	17EPP
	Valor XLT Premix	40.3	WG	0.0756 lb ai/A	17EPP	17EPP
5	Roundup WeatherMax..glyphosate 2,4-D ester	4.5	AS	0.98 lb ae/A	17EPP	17EPP
		3.8L		0.95 lb ae/A	17EPP	
	Valor XLT Premix	40.3	WG	0.091 lb ai/A	17EPP	17EPP
6	Untreated Check					
LSD (P=.05)						
Standard Deviation						
CV						
Replicate F						
Replicate Prob(F)						
Treatment F						
Treatment Prob(F)						

Weed Code	DIGSA	GLXMA				
Crop Code	Large	Soybean				
Weed or Crop Name	Crabgrass					
Weed or Crop Name	Control	Yield				
Rating Data Type	%	Bu/A				
Rating Unit	%	Bu/A				
Rating Date	07/01/13	10/25/13				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg
1	Roundup WeatherMax..glyphosate 2,4-D ester	4.5	AS	0.98 lb ae/A	17EPP	17EPP
		3.8L		0.95 lb ae/A	17EPP	
2	MON 76832	3	SL	1.5 lb ae/A	17EPP	17EPP
3	Roundup WeatherMax..glyphosate 2,4-D ester	4.5	AS	0.98 lb ae/A	17EPP	17EPP
		3.8L		0.95 lb ae/A	17EPP	
	Valor XLT Premix	40.3	WG	0.0756 lb ai/A	17EPP	17EPP
4	MON 76832	3	SL	1.5 lb ae/A	17EPP	17EPP
	Valor XLT Premix	40.3	WG	0.0756 lb ai/A	17EPP	17EPP
5	Roundup WeatherMax..glyphosate 2,4-D ester	4.5	AS	0.98 lb ae/A	17EPP	17EPP
		3.8L		0.95 lb ae/A	17EPP	
	Valor XLT Premix	40.3	WG	0.091 lb ai/A	17EPP	17EPP
6	Untreated Check					
LSD (P=.05)						
Standard Deviation						
CV						
Replicate F						
Replicate Prob(F)						
Treatment F						
Treatment Prob(F)						

Means followed by same letter do not significantly differ (P=.05, LSD)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Liberty Link Soybean Weed Control

Trial ID: Soy10-13 Cooperator: Bayer  
 Location: Field #10 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947  
**Investigator:** Mark VanGessel

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

**Crop 1:** Soybean **GLXMA** **Variety:** LL499N  
**Planting Date:** 05/17/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 79 F **Soil Moisture:** Moist **Emergence Date:** 05/23/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	qt/A

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 2.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.5  
**% Clay:** 11 **CEC:** 8.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.25 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	05/17/13	06/06/13	06/17/13
<b>Time of Day:</b>	1:00 pm	8:30 am	11:20 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	14DAP	28DAP
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	77 F	69 F	80 F
<b>% Relative Humidity:</b>	34	70	69
<b>Wind Velocity, Unit:</b>	2.5 mph	6 mph	2 mph
<b>Wind Direction:</b>	East	Southeast	Southwest
<b>Dew Presence (Y/N):</b>	N	Y	N
<b>Soil Temp., Unit:</b>	75 F	67 F	78 F
<b>Soil Surf. Moisture:</b>	Dry	Dry	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Wet	Dry
<b>% Cloud Cover:</b>	0	30	96

## CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:		1-2 trifol	4-trifol
Height, Unit:		4 in	10 in
Crop Health:		Fair	Fair

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	DIGSA	DIGSA	DIGSA
Growth Stage:		3-4 tiller	
Height, Unit:		4 in	
Density, Unit:		0-50 m <sup>2</sup>	
Weed 2 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		veg-run	veg-run
Height, Unit:		4 in	7 in
Density, Unit:		0-30 m <sup>2</sup>	0-35 m <sup>2</sup>
Weed 3 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	vegetative
Height, Unit:		3 in	4 in
Density, Unit:		0-10 m <sup>2</sup>	0-2 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	21 in	26 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

6/06/13: Soybeans have some deer feeding damage.

6/12/13: Plot 308 has saturated soil and plot 307 is very wet. Prefix alone is weak on prickly sida. Authority First and Canopy are weak on grass. Leaf-burn ratings are as follows:

Leaf-burn:

	Rep 1	Rep 2	Rep 3
Treatment 6	25	20	25
Treatment 7	10	7	0

7/01/13: Ratings are based on seedling emergence since time of application. Post control was excellent.

10/22/13: A few Palmer amaranth plants and morningglory observed in treatment 7. Yields in the untreated check were good because this treatment had a POST application to prevent Palmer amaranth from producing seeds. Some standing water in the last rep and influenced final yield. Yield data from these plots was omitted.

Liberty Link Soybean Weed Control													
Trial ID: Soy10-13 Cooperator: Bayer													
Location: Field #10 Investigator: Mark VanGessel													
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	GLXMA Soybean	GLXMA Soybean	AMAPA Palmer Amaranth Control %	IPOSS Morngrly Species Control %	AMAPA Palmer Amaranth Control %	IPOSS Morngrly Species Control %	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code	06/12/13	07/01/13	06/12/13	06/12/13	07/01/13	07/01/13
1	Untreated Check							0.0d	0.0d	0.0c	0.0d	0.0c	0.0c
2	Valor XLT Premix	40.3	WG	0.091 lb ai/A	PRE	A		11.1b	15.7a	99.9a	90.8a	100.0a	92.7a
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C							
3	Canopy Premix	75	DF	0.164 lb ai/A	PRE	A		10.3bc	4.7cd	100.0a	87.7a	96.0ab	86.7ab
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C							
4	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A		0.0d	0.0d	100.0a	33.3c	97.7ab	81.0b
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C							
5	Authority First Premix	70	DF	0.232 lb ai/A	PRE	A		15.7ab	14.7ab	90.7b	89.3a	93.3ab	90.0ab
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C							
6	Reflex.....fomesafen	2	L	0.25 lb ai/A	14DAP	B		18.3a	10.3abc			91.7b	83.3ab
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	14DAP	B							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	14DAP	B							
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C							
7	Zidua.....pyoxasulfone	85	WG	0.106 lb ai/A	14DAP	B		11.7b	9.7bc			91.7b	79.3b
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	14DAP	B							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	14DAP	B							
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C							
8	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A		5.0cd	10.7ab	100.0a	60.0b	90.7b	81.0b
	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	PRE	A							
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C							
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C							
LSD (P=.05)								5.80	5.80	0.91	9.58	7.71	10.91
Standard Deviation								3.29	3.31	0.50	5.19	4.40	6.23
CV								36.48	40.36	0.61	8.62	5.33	8.39
Replicate F								0.662	0.289	0.990	0.952	13.106	2.034
Replicate Prob(F)								0.5322	0.7537	0.4085	0.4218	0.0006	0.1677
Treatment F								12.808	10.047	19795.773	153.413	174.179	71.325
Treatment Prob(F)								0.0001	0.0002	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	Yield Bu/A
	Weed Code							GLXMA
	Crop Code							Soybean
	Weed or Crop Name							
	Weed or Crop Name							
	Rating Data Type							Yield
	Rating Unit							Bu/A
	Rating Date							10/28/13
1	Untreated Check							64.2 a
2	Valor XLT Premix	40.3	WG	0.091 lb ai/A	PRE	A		48.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C		
3	Canopy Premix	75	DF	0.164 lb ai/A	PRE	A		57.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C		
4	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A		50.3 a
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C		
5	Authority First Premix	70	DF	0.232 lb ai/A	PRE	A		70.3 a
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C		
6	Reflex.....fomesafen	2	L	0.25 lb ai/A	14DAP	B		52.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	14DAP	B		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	14DAP	B		
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C		
7	Zidua.....pyoxasulfone	85	WG	0.106 lb ai/A	14DAP	B		51.3 a
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	14DAP	B		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	14DAP	B		
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C		
8	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A		57.8 a
	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	PRE	A		
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	28DAP	C		
	Dry Ammonium Sulfate	100	D	1.02 % w/v	28DAP	C		
	LSD (P=.05)							17.10
	Standard Deviation							9.76
	CV							17.32
	Replicate F							5.979
	Replicate Prob(F)							0.0133
	Treatment F							1.836
	Treatment Prob(F)							0.1579

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Morninglory Control in Soybeans

Trial ID: Soy11-13 Cooperator:  
 Location: Field #9 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Ivyleaf Morningglory	IPOHE	Ipomoea hederacea (L.) Jacq.
3.	Pitted Morningglory	IPOLA	Ipomoea lacunosa L.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 06/18/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Smooth  
**Soil Temperature:** 79 F **Soil Moisture:** Moist **Emergence Date:** 06/24/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked twice and Field Cultivated

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/09/13	Select Max	1	EC	16	fl oz/A
2.	07/09/13	Nonionic Surfactant			0.25	% v/v

**SOIL DESCRIPTION**

**% Sand:** 83 **% OM:** 1.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.3  
**% Clay:** 9 **CEC:** 7.1 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.1 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	06/18/13	07/09/13
<b>Time of Day:</b>	10:30 am	9:30 am
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	POST
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	78 F	79 F
<b>% Relative Humidity:</b>	80	88
<b>Wind Velocity, Unit:</b>	2 mph	1 mph
<b>Wind Direction:</b>	South	South
<b>Dew Presence (Y/N):</b>	N	Y
<b>Soil Temp., Unit:</b>	78 F	78 F
<b>Soil Surf. Moisture:</b>	Dry	Dry
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	N/A	Moist
<b>% Cloud Cover:</b>	100	90

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		3-trifol
Height, Unit:		7 in
Crop Health:		Good

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		10 in
Density, Unit:		0-15 m <sup>2</sup>
Weed 2 Code:	IPOHE	IPOHE
Growth Stage:		veg-run
Height, Unit:		8 in
Density, Unit:		5-15 m <sup>2</sup>
Weed 3 Code:	IPOLA	IPOLA
Growth Stage:		veg-run
Height, Unit:		10 in
Density, Unit:		5-15 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	24 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

7/15/13: Treatment 2 has noticeable chlorosis in top of the plants. Poor palmer amaranth control in trts 2, 3, 4, 6, 7, 8, 9, and 12. Trts 5, 10, and 11 were the only ones to consistently provide excellent (>95%) control of palmer amaranth.

9/06/13: Only palmer amaranth observed above soybean canopy were rated.

Morninglory Control in Soybeans

Trial ID: Soy11-13 Cooperator:  
 Location: Field #9 Investigator: Mark VanGessel

Weed Code					GLXMA	GLXMA	GLXMA	IPOSS	AMAPA		
Crop Code					Soybean	Soybean	Soybean	Morninglory	Palmer		
Weed or Crop Name								Species	Amaranth		
Weed or Crop Name								Control	Control		
Rating Data Type					Leafburn	Stunting	Stunting	%	%		
Rating Unit					%	%	%	%	%		
Rating Date					07/10/13	07/15/13	08/08/13	07/15/13	08/08/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Grow Stg	Appl Code					
1	Untreated Check						0.0c	0.0d	0.0a	0.0e	0.0d
	Select Max.....clethodim	1 EC		0.125 lb ai/A	POST	B					
	Nonionic Surfactant	100 L		0.25 % v/v	POST	B					
2	Touchdown HiTech..glyphosate	5 SL		0.78 lb ae/A	POST	B	0.0c	9.0c	0.0a	77.7c	76.0bc
	Nonionic Surfactant	100 L		0.25 % v/v	POST	B					
3	Touchdown HiTech..glyphosate	5 SL		0.78 lb ae/A	POST	B	0.0c	0.0d	0.0a	68.3d	70.0c
	LI-700	100 L		0.25 % v/v	POST	B					
4	Touchdown HiTech..glyphosate	5 SL		0.78 lb ae/A	POST	B	0.0c	0.0d	0.0a	73.3cd	76.7bc
	Agridex NIS	100 L		0.25 % v/v	POST	B					
5	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	3.3c	0.0d	0.0a	73.7cd	81.7bc
6	Roundup WeatherMax..glyphosate	4.5 AS		1 lb ae/A	POST	B	0.0c	0.0d	0.0a	76.7c	76.7bc
7	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	0.0c	0.0d	0.0a	68.3d	83.3abc
	HE-111	100 L		0.625 % v/v	POST	B					
8	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	26.7a	15.0b	4.2a	87.7b	75.0bc
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	POST	B					
9	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	24.0a	14.7b	2.3a	94.7ab	70.0c
	Resource.....flumiclorac	0.86 EC		0.0403 lb ai/A	POST	B					
10	Valor XLT Premix	40.3 WG		0.091 lb ai/A	PRE	A	0.0c	0.0d	0.0a	100.0a	100.0a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B					
11	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	18.7b	20.0a	4.7a	97.7a	90.0ab
	Reflex.....fomesafen	2 L		0.375 lb ai/A	POST	B					
12	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	16.3b	20.0a	4.0a	95.3a	82.7bc
	Reflex.....fomesafen	2 L		0.25 lb ai/A	POST	B					
LSD (P=.05)					3.80	4.22	4.62	7.19	17.27		
Standard Deviation					2.24	2.49	2.72	4.25	10.20		
CV					30.22	38.01	214.85	5.58	13.87		
Replicate F					2.804	0.166	2.265	4.648	11.580		
Replicate Prob(F)					0.0823	0.8485	0.1286	0.0207	0.0004		
Treatment F					68.056	35.374	1.532	118.097	17.515		
Treatment Prob(F)					0.0001	0.0001	0.1928	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Morninglory Control in Soybeans

Trial ID: Soy11-13 Cooperator:  
 Location: Field #9 Investigator: Mark VanGessel

Weed Code					IPOSS	AMAPA	GLXMA
Crop Code					Morninglory	Palmer	Soybean
Weed or Crop Name					Species	Amaranth	
Weed or Crop Name					Control	Control	Yield
Rating Data Type					%	%	Bu/A
Rating Unit					08/08/13	09/06/13	10/30/13
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Grow Stg	Appl Code	
1	Untreated Check						
	Select Max.....clethodim	1 EC		0.125 lb ai/A	POST	B	
	Nonionic Surfactant	100 L		0.25 % v/v	POST	B	
2	Touchdown HiTech..glyphosate	5 SL		0.78 lb ae/A	POST	B	
	Nonionic Surfactant	100 L		0.25 % v/v	POST	B	
3	Touchdown HiTech..glyphosate	5 SL		0.78 lb ae/A	POST	B	
	LI-700	100 L		0.25 % v/v	POST	B	
4	Touchdown HiTech..glyphosate	5 SL		0.78 lb ae/A	POST	B	
	Agridex NIS	100 L		0.25 % v/v	POST	B	
5	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	
6	Roundup WeatherMax..glyphosate	4.5 AS		1 lb ae/A	POST	B	
7	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	
	HE-111	100 L		0.625 % v/v	POST	B	
8	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	POST	B	
9	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	
	Resource.....flumiclorac	0.86 EC		0.0403 lb ai/A	POST	B	
10	Valor XLT Premix	40.3 WG		0.091 lb ai/A	PRE	A	
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	
11	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	
	Reflex.....fomesafen	2 L		0.375 lb ai/A	POST	B	
12	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	POST	B	
	Reflex.....fomesafen	2 L		0.25 lb ai/A	POST	B	
LSD (P=.05)					10.01	13.88	6.33
Standard Deviation					5.67	8.06	3.74
CV					7.63	12.31	12.06
Replicate F					0.524	1.730	49.208
Replicate Prob(F)					0.6042	0.2071	0.0001
Treatment F					55.281	25.069	1.838
Treatment Prob(F)					0.0001	0.0001	0.1081

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Soybean Safety from PPO Herbicides

Trial ID: Soy12-13 Cooperator:  
 Location: Field #10 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Crabgrass Species	DIGSS	Digitaria sp.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 05/17/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 79 F **Soil Moisture:** Moist **Emergence Date:** 05/23/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	qt/A
3.	06/12/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
4.	07/18/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
5.	07/18/13	Reflex	2	L	1.5	pt/A

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 2.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.5  
**% Clay:** 11 **CEC:** 8.6 **Fert. Level:** Optimum  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.25 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	04/26/13	05/17/13	06/06/13
<b>Time of Day:</b>	9:00 am	1:30 pm	8:30 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	21DPP	PRE	21DAP
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	53 F	77 F	69 F
<b>% Relative Humidity:</b>	65	34	70
<b>Wind Velocity, Unit:</b>	1 mph	2.5 mph	6 mph
<b>Wind Direction:</b>	North	East	Southeast
<b>Dew Presence (Y/N):</b>	Y	N	Y
<b>Soil Temp., Unit:</b>	51 F	75 F	67 F
<b>Soil Surf. Moisture:</b>	Dry	Dry	Dry
<b>Root Zone Moisture:</b>	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Wet	Dry	Wet
<b>% Cloud Cover:</b>	0	0	30

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:			1-2 trifol
Height, Unit:			5 in
Crop Health:			Fair

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:			3-4 tiller
Height, Unit:			4 in
Density, Unit:			0-50 m2
Weed 2 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:			veg-run
Height, Unit:			4 in
Density, Unit:			0-30 m2
Weed 3 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:			vegetative
Height, Unit:			3 in
Density, Unit:			0-10 m2

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	22 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

Trial Comments

6/03/13: Difficult to rate due to heavy animal feeding.

6/06/13: Heavy deer damage to soybeans at 21DAP application timing.

10/22/13: Good to excellent weed control. There were some issues with the planter and had some missing plants in one row. % missing plants was determined on visual evaluations. This is based on missing plants in only one row (5 rows are harvested for yield)

Soybean Safety from PPO Herbicides									
Trial ID: Soy12-13 Cooperator:									
Location: Field #10 Investigator: Mark VanGessel									
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA				
Weed or Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean				
Weed or Crop Name									
Rating Data Type	Stunting	Stunting	Leafburn	% plnts	Yield				
Rating Unit	%	%	%	missing	Bu/A				
Rating Date	06/03/13	06/11/13	06/11/13	10/22/13	10/28/13				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check							0.0c	70.8a
2	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	21 DPP	A		11.8 ab	65.7 a
3	Valor SX.....flumioxazin	51	WG	0.191 lb ai/A	PRE	B		3.3c	71.5 a
4	Reflex.....fomesafen	2	L	0.75 lb ai/A	21 DAP	C		5.8 bc	70.8 a
	Nonionic Surfactant	100	L	0.25 % v/v	21 DAP	C		9.7 b	13.3 a
5	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	21 DPP	A		2.3c	68.4 a
	Valor SX.....flumioxazin	51	WG	0.191 lb ai/A	PRE	B		11.3 b	2.7 a
6	Valor SX.....flumioxazin	51	WG	0.191 lb ai/A	PRE	B		16.3 a	70.0 a
	Reflex.....fomesafen	2	L	0.75 lb ai/A	21 DAP	C		25.0 a	11.0 a
	Nonionic Surfactant	100	L	0.25 % v/v	21 DAP	C		14.0 a	11.0 a
7	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	21 DPP	A		6.3 bc	65.4 a
	Reflex.....fomesafen	2	L	0.75 lb ai/A	21 DAP	C		10.3 b	11.3 b
	Nonionic Surfactant	100	L	0.25 % v/v	21 DAP	C		11.0 a	11.0 a
8	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	21 DPP	A		14.7 a	72.4 a
	Valor SX.....flumioxazin	51	WG	0.191 lb ai/A	PRE	B		26.7 a	14.0 a
	Reflex.....fomesafen	2	L	0.75 lb ai/A	21 DAP	C		11.7 a	11.7 a
	Nonionic Surfactant	100	L	0.25 % v/v	21 DAP	C		14.0 a	11.7 a
LSD (P=.05)									
Standard Deviation									
CV									
Replicate F									
Replicate Prob(F)									
Treatment F									
Treatment Prob(F)									

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Influence of Application Timing on Soybean Safety from PPO Herbicides

Trial ID: Soy13-13 Cooperator:  
 Location: Field #7 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 05/20/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4.5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Friable/Trashy  
**Soil Temperature:** 82 F **Soil Moisture:** Moist **Emergence Date:** 05/25/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Corn Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/24/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	07/03/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
3.	07/03/13	Reflex	2	L	1.5	pt/A

## SOIL DESCRIPTION

**% Sand:** 78 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 13 **pH:** 6.4  
**% Clay:** 9 **CEC:** 8.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B
<b>Application Date:</b>	05/01/13	05/21/13
<b>Time of Day:</b>	8:45 am	12:00 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	21DPP	PRE
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	55 F	79 F
<b>% Relative Humidity:</b>	70	65
<b>Wind Velocity, Unit:</b>	3 mph	3 mph
<b>Wind Direction:</b>	Northeast	Southwest
<b>Dew Presence (Y/N):</b>	Y	N
<b>Soil Temp., Unit:</b>	52 F	78 F
<b>Soil Surf. Moisture:</b>	Wet	Moist
<b>Root Zone Moisture:</b>	Wet	Moist
<b>Leaf Surf. Moisture:</b>	Wet	Dry
<b>% Cloud Cover:</b>	0	50

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

5/22/13: Burndown effective except for field pansy and vetch - both about 80%/ primrose about 70%.

6/30/13: Significant deer feeding in rep 3 making it too difficult to rate stunting.

10/21/13: Weed control was very good for all treatments.

## Influence of Application Timing on Soybean Safety from PPO Herbicides

Trial ID: Soy13-13 Cooperator:

Location: Field #7 Investigator: Mark VanGessel

Weed Code						GLXMA	GLXMA	IPOSS	GLXMA
Crop Code						Soybean	Soybean	Mornglry	Soybean
Weed or Crop Name								Species	
Weed or Crop Name								Control	Yield
Rating Data Type						Stunting	Stunting	%	Bu/A
Rating Unit						%	%		
Rating Date						06/07/13	06/30/13	06/30/13	10/21/13
Trt	Treatment	Form	Form	Rate	Grow	Appl			
No.	Name	Conc	Type	Rate	Unit	Stg	Code		
1	Untreated Check							0.0c	50.6a
2	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	21 DPP	A		0.0b	49.9a
3	Valor SX.....flumioxazin	51	WG	0.191 lb ai/A	21 DPP	A		60.0b	54.8a
4	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	21 DPP	A		6.3b	53.3a
	Valor SX.....flumioxazin	51	WG	0.191 lb ai/A	21 DPP	A		11.0b	53.3a
5	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	PRE	B		6.7b	50.0a
	Valor SX.....flumioxazin	51	WG	0.191 lb ai/A	PRE	B		7.0c	50.0a
6	Sharpen.....saflufenacil	2.85	SC	0.0334 lb ai/A	PRE	A		73.3b	50.5a
	Valor SX.....flumioxazin	51	WG	0.096 lb ai/A	PRE	B		88.7a	50.5a
	LSD (P=.05)							6.68	9.50
	Standard Deviation							3.67	5.22
	CV							44.09	10.14
	Replicate F							0.160	27.280
	Replicate Prob(F)							0.8539	0.0001
	Treatment F							15.862	0.457
	Treatment Prob(F)							0.0002	0.7992

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Zidua Programs in Soybean

Trial ID: Soy14-13 Cooperator: BASF  
 Location: Hebron Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Fall Panicum	PANDI	Panicum dichotomiflorum (L.) Michx.
3.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Soybean GLXMA

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**MAINTENANCE**

**Field Prep./Maintenance:** An early preplant burndown treatment was applied to this field prior to initiating this trial.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/06/13	Select Max	1	EC	16	fl oz/A
2.	06/06/13	Nonionic Surfactant			0.25	% v/v
3.	07/02/13	Roundup WeatherMax	4.5	AS	36	fl oz/A
4.	07/02/13	Synchrony XP	28.4	XP	0.75	oz wt/A
5.	07/02/13	Dry Ammonium Sulfate			8.5	lb/100 gal

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/30/13
<b>Time of Day:</b>	1:00 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	86 F
<b>% Relative Humidity:</b>	53
<b>Wind Velocity, Unit:</b>	5 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	84 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	0

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	AMAPA
Growth Stage:	4-6 leaf
Height, Unit:	2.5 in
Weed 2 Code:	PANDI
Growth Stage:	vegetative
Height, Unit:	5 in
Weed 3 Code:	IPOSS
Growth Stage:	1-4 leaf
Height, Unit:	2.5 in

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

## Trial Comments

6/05/13: Most treatments injured emerged fall panicum but none provided 100% control. Fair to good control was observed. Normally would need another active ingredient to provide acceptable control. Good to excellent burndown with all treatments.

6/13/13: Burndown control of field pansy, yellow wood sorrel, common lambsquarters, palmer amaranth, and morning glory was excellent with all treatments except Anthem alone (treatment 7) Anthem did not control field pansy or wood sorrel or morning glory. Palmer amaranth and common lambsquarters were controlled. Beans were variable in height and had problems with depth of planter units so injury was hard to rate.

6/30/13: A lot of deer feeding makes injury ratings very difficult. Treatment 7, 10 and 9 were very poor for field pansy.

Zidua Programs in Soybean		Trial ID: Soy14-13		Cooperator: BASF		Location: Hebron		Investigator: Mark VanGessel	
Weed or Crop Code						GLXMA	AMAPA	IPOSS	
Weed or Crop Name						Soybean	Palmer	Morngrly	
Weed or Crop Name							Amaranth	Species	
Rating Data Type						Injury	Control	Control	
Rating Unit						%	%	%	
Rating Date						06/13/13	06/30/13	06/30/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code			
1	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A	19.0 ab	78.3 b	50.0 d
	Sharpen.....saflufenacil	2.85	SC	0.0334 lb ai/A	PRE	A			
	Methylated Seed Oil	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
2	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A	11.7 cd	85.0 b	63.3 a-d
	Verdict Premix	5.57	EC	0.326 lb ai/A	PRE	A			
	Methylated Seed Oil	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
3	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A	19.0 ab	96.7 a	71.7 ab
	Verdict Premix	5.57	EC	0.326 lb ai/A	PRE	A			
	Metribuzin.....metribuzin	75	DF	0.234 lb ai/A	PRE	A			
	Methylated Seed Oil	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
4	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A	17.3 abc	96.7 a	60.0 bcd
	Sharpen.....saflufenacil	2.85	SC	0.0334 lb ai/A	PRE	A			
	Metribuzin.....metribuzin	75	DF	0.234 lb ai/A	PRE	A			
	Methylated Seed Oil	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
5	OpTill Premix	68	WG	0.085 lb ai/A	PRE	A	9.7 d	100.0 a	66.7 abc
	Zidua.....pyroxasulfone	85	WG	0.0664 lb ai/A	PRE	A			
	Methylated Seed Oil	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
6	OpTill Premix	68	WG	0.085 lb ai/A	PRE	A	12.3 bcd	100.0 a	70.0 ab
	Zidua.....pyroxasulfone	85	WG	0.08 lb ai/A	PRE	A			
	Methylated Seed Oil	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
7	Anthem Premix	2.15	SE	0.134 lb ai/A	PRE	A	2.3 e	86.7 b	53.3 cd
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
8	Fierce Premix	76	WG	0.178 lb ai/A	PRE	A	21.7 a	100.0 a	63.3 a-d
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
9	Sonic Premix	70	DF	0.282 lb ai/A	PRE	A	0.0 e	100.0 a	76.7 a
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
10	Authority MTZ Premix	45	DF	0.394 lb ai/A	PRE	A	10.3 d	100.0 a	75.0 ab
	Crop Oil Concentrate	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
11	Sharpen.....saflufenacil	2.85	SC	0.0334 lb ai/A	PRE	A	11.7 cd	100.0 a	75.0 ab
	Valor XLT Premix	40.3	WG	0.091 lb ai/A	PRE	A			
	Methylated Seed Oil	100	L	1 % v/v	PRE	A			
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PRE	A			
12	Untreated Check						0.0 e	0.0 c	0.0 e
LSD (P=.05)						6.78	8.39	15.41	
Standard Deviation						4.00	4.96	9.10	
CV						35.56	5.7	15.06	
Replicate F						0.849	2.573	3.801	
Replicate Prob(F)						0.4416	0.0990	0.0382	
Treatment F						10.276	98.273	15.728	
Treatment Prob(F)						0.0001	0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Overlapping Residual Herbicides in Soybean

Trial ID: Soy15-13 Cooperator: BASF  
 Location: Field #10 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 05/17/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 79 F **Soil Moisture:** Moist **Emergence Date:** 05/23/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/18/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
2.	07/18/13	Reflex	2	L	1.5	pt/A

## SOIL DESCRIPTION

**% Sand:** 79 **% OM:** 2.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.5  
**% Clay:** 11 **CEC:** 8.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.25 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B	C
<b>Application Date:</b>	04/26/13	05/17/13	06/12/13
<b>Time of Day:</b>	9:00 am	1:20 pm	9:00 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	21EPP	PRE	V2-3
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	53 F	77 F	78 F
<b>% Relative Humidity:</b>	65	34	65
<b>Wind Velocity, Unit:</b>	1 mph	2.5 mph	1 mph
<b>Wind Direction:</b>	North	East	West
<b>Dew Presence (Y/N):</b>	Y	N	N
<b>Soil Temp., Unit:</b>	50 F	75 F	76 F
<b>Soil Surf. Moisture:</b>	Dry	Dry	Wet
<b>Root Zone Moisture:</b>	Moist	Moist	Wet
<b>Leaf Surf. Moisture:</b>	Wet	Dry	Moist
<b>% Cloud Cover:</b>	0	0	100

## CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:			V2-3
Height, Unit:			6 in
Crop Health:			Fair

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:			1-6 leaf
Height, Unit:			3.5 in
Density, Unit:			5-50 m2
Weed 2 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:			vegetative
Height, Unit:			8 in
Density, Unit:			0-30 m2

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	26 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

6/11/13: Primrose is severely stunted but not controlled (~ 70%) with 2 applications of glyphosate. No treatment controlled morningglory. Heavy wildlife feeding on soybeans, as a result it was difficult to rate injury.

6/12/13: Soybeans have deer damage. Palmer amaranth height ranges from 2-10 inches.

7/01/13: Palmer amaranth control is a combination of early emerging palmer amaranth and new seedlings. However, treatments 2, 3, 4, and 7 only seedlings were present.

## Overlapping Residual Herbicides in Soybean

Trial ID: Soy15-13 Cooperator: BASF

Location: Field #10 Investigator: Mark VanGessel

Weed Code						GLXMA	GLXMA	AMAPA	DIGSA	AMAPA		
Crop Code						Soybean	Soybean	Palmer	Large	Palmer		
Weed or Crop Name								Amaranth	Crabgras	Amaranth		
Weed or Crop Name								Control	Control	Control		
Rating Data Type						Stunting	Stunting	Control	Control	Control		
Rating Unit						%	%	%	%	%		
Rating Date						06/11/13	07/01/13	06/11/13	06/11/13	07/01/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
1	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A		0.0 c	0.0 c	0.0 d	0.0 c	46.7 f
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V2-3	C						
2	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	21EPP	A		2.3 c	0.0 c	100.0 a	100.0 a	73.3 b
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V2-3	C						
3	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	21EPP	A		10.0 a	6.2 ab	95.0 a	96.7 a	86.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A						
	Prowl H2O.....pendimethalin	3.8	CS	0.71 lb ai/A	PRE	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V2-3	C						
4	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	21EPP	A		8.0 ab	8.0 ab	97.3 a	97.3 a	93.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A						
	Prowl H2O.....pendimethalin	3.8	CS	0.71 lb ai/A	PRE	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Outlook.....dimethenamid-p	6	L	0.56 lb ai/A	V2-3	C						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V2-3	C						
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A		0.0 c	0.0 c	43.3 c	30.0 b	63.3 cd
	Prowl H2O.....pendimethalin	3.8	CS	0.71 lb ai/A	PRE	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V2-3	C						
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A		0.0 c	3.3 bc			53.3 ef
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Outlook.....dimethenamid-p	6	L	0.56 lb ai/A	V2-3	C						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V2-3	C						
7	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	21EPP	A		3.3 bc	8.7 ab	95.0 a	98.3 a	94.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Outlook.....dimethenamid-p	6	L	0.56 lb ai/A	V2-3	C						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V2-3	C						
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A		3.3 bc	10.3 a	33.3 c	20.0 b	60.0 de
	Prowl H2O.....pendimethalin	3.8	CS	0.71 lb ai/A	PRE	B						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Outlook.....dimethenamid-p	6	L	0.56 lb ai/A	V2-3	C						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	V2-3	C						
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A		0.0 c	0.0 c	60.0 b	100.0 a	71.7 bc
	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	PRE	B						
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	PRE	B						
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77 lb ae/A	21EPP	A		0.0 c	0.0 c	0.0 d	0.0 c	0.0 g
LSD (P=.05)						5.34	5.80	13.31	14.03	9.29		
Standard Deviation						3.08	3.31	7.69	7.95	5.42		
CV						114.16	90.7	13.2	13.2	8.44		
Replicate F						1.053	2.375	1.106	0.819	3.878		
Replicate Prob(F)						0.3720	0.1294	0.3550	0.4623	0.0398		
Treatment F						4.167	4.938	86.346	101.410	78.399		
Treatment Prob(F)						0.0064	0.0041	0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Overlapping Residual Herbicides in Soybean

Trial ID: Soy15-13 Cooperator: BASF

Location: Field #10 Investigator: Mark VanGessel

Weed Code						DIGSA	GLXMA
Crop Code							Soybean
Weed or Crop Name						Large	
Weed or Crop Name						Crabgrass	
Rating Data Type						Control	Yield
Rating Unit						%	Bu/A
Rating Date						07/01/13	10/25/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code	
1	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		100.0 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		60.6 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	V2-3 C		
2	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	21EPP A		100.0 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		66.7 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	V2-3 C		
3	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	21EPP A		100.0 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		61.5 a
	Prowl H2O.....pendimethalin	3.8 CS		0.71 lb ai/A	PRE B		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	V2-3 C		
4	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	21EPP A		100.0 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		66.2 a
	Prowl H2O.....pendimethalin	3.8 CS		0.71 lb ai/A	PRE B		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/A	V2-3 C		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	V2-3 C		
5	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		98.3 a
	Prowl H2O.....pendimethalin	3.8 CS		0.71 lb ai/A	PRE B		62.7 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	V2-3 C		
6	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		100.0 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		64.0 a
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/A	V2-3 C		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	V2-3 C		
7	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	21EPP A		100.0 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		62.7 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/A	V2-3 C		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	V2-3 C		
8	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		100.0 a
	Prowl H2O.....pendimethalin	3.8 CS		0.71 lb ai/A	PRE B		61.9 a
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		
	Outlook.....dimethenamid-p	6 L		0.56 lb ai/A	V2-3 C		
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	V2-3 C		
9	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		86.0 b
	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	PRE B		59.3 a
	Dual Magnum.....s-metolachlor	7.62 E		1.43 lb ai/A	PRE B		
10	Roundup WeatherMax..glyphosate	4.5 AS		0.77 lb ae/A	21EPP A		0.0 c
							44.6 b
LSD (P=.05)						4.76	7.75
Standard Deviation						2.77	4.52
CV						3.14	7.41
Replicate F						1.578	6.345
Replicate Prob(F)						0.2336	0.0082
Treatment F						384.143	5.687
Treatment Prob(F)						0.0001	0.0009

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Authority and Anthem Programs for Soybean

Trial ID: Soy16-13 Cooperator: FMC  
 Location: Field #4 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Carpetweed	MOLVE	Mollugo verticillata L.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 06/26/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Smooth  
**Soil Temperature:** 92 F **Soil Moisture:** Moist **Emergence Date:** 07/01/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 11 **pH:** 5.7  
**% Clay:** 10 **CEC:** 6.1 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	06/27/13	07/15/13
<b>Time of Day:</b>	8:40 am	12:30 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	V2
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	79 F	87 F
<b>% Relative Humidity:</b>	74	61
<b>Wind Velocity, Unit:</b>	2 mph	2 mph
<b>Wind Direction:</b>	Southwest	West
<b>Dew Presence (Y/N):</b>	N	Y
<b>Soil Temp., Unit:</b>	77 F	86 F
<b>Soil Surf. Moisture:</b>	Dry	Moist
<b>Root Zone Moisture:</b>	Moist	Wet
<b>Leaf Surf. Moisture:</b>	N/A	Moist
<b>% Cloud Cover:</b>	70	20

**CROP STAGE AT EACH APPLICATION**

	A	B
<b>Crop 1 Code:</b>	GLXMA	GLXMA
<b>Growth Stage:</b>		2-trifol
<b>Height, Unit:</b>		7 in
<b>Crop Health:</b>		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		5 in
Density, Unit:		0-100 m <sup>2</sup>
Weed 2 Code:	MOLVE	MOLVE
Growth Stage:		veg-flowr
Height, Unit:		2 in
Density, Unit:		0-50 m <sup>2</sup>

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	24 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

Trial Comments			
7/24/13: Excellent weed control in all treatments.			
Ratings for % Leaf Speckling:			
	Rep 1	Rep 2	Rep 3
	Leaf Speckling %		
Treatment 7	12	12	15
Treatment 8	12	10	10
Treatment 9	12	12	12
Treatment 10	10	12	10
8/07/13: Weed control is outstanding in all treatments. No palmer amaranth, common ragweed, or grasses seen in any treated plot.			

Authority and Anthem Programs for Soybean							GLXMA	GLXMA	GLXMA	GLXMA
Trial ID: Soy16-13 Cooperator: FMC										
Location: Field #4 Investigator: Mark VanGessel										
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA						
Weed or Crop Name	Soybean	Soybean	Soybean	Soybean						
Rating Data Type	Stunting	Stunting	Stunting	Stunting						
Rating Unit	%	%	%	%						
Rating Date	07/10/13	07/24/13	08/07/13	10/28/13						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code				
1	Untreated Check						0.0b	0.0d	0.0a	26.0a
2	Authority Elite Premix	7 EC		1.53 lb ai/A	PRE	A	0.0b	7.3 abc	0.0a	28.5a
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
3	Authority Assist Premix	4 SC		0.187 lb ai/A	PRE	A	0.0b	4.7 a-d	0.0a	28.4a
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
4	Authority MTZ Premix	45 DF		0.56 lb ai/A	PRE	A	4.7a	10.7 a	0.0a	31.5a
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
5	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A	0.0b	2.3 cd	0.0a	31.2a
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
6	Valor XLT Premix	40.3 WG		0.0756 lb ai/A	PRE	A	0.0b	4.0 bcd	1.7 a	27.6a
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
7	Anthem Premix	2.15 SE		0.101 lb ai/A	V2	B	0.0b	9.0 ab	0.0a	27.4a
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V2	B				
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
8	Authority Elite Premix	7 EC		1.53 lb ai/A	PRE	A	4.0a	9.0 ab	0.0a	26.5a
	Anthem Premix	2.15 SE		0.101 lb ai/A	V2	B				
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V2	B				
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
9	Authority Assist Premix	4 SC		0.187 lb ai/A	PRE	A	0.0b	10.7 a	0.0a	29.3a
	Anthem Premix	2.15 SE		0.101 lb ai/A	V2	B				
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V2	B				
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
10	Authority MTZ Premix	45 DF		0.56 lb ai/A	PRE	A	4.7a	10.0 ab	0.0a	29.0a
	Anthem Premix	2.15 SE		0.101 lb ai/A	V2	B				
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V2	B				
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V2	B				
	Dry Ammonium Sulfate	100 D		1.02 % w/v	V2	B				
LSD (P=.05)							3.58	6.13	1.57	5.18
Standard Deviation							2.09	3.57	0.91	3.02
CV							156.59	52.79	547.72	10.56
Replicate F							1.476	0.849	1.000	5.102
Replicate Prob(F)							0.2550	0.4443	0.3874	0.0176
Treatment F							3.195	3.362	1.000	1.088
Treatment Prob(F)							0.0172	0.0137	0.4742	0.4171

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Authority Burndown in Soybean	
Trial ID: Soy17-13	Cooperator: FMC
Location: Field #10	Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science  
 Affiliation: University of Delaware Research & Education Center  
 Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Common Lambsquarters	CHEAL	Chenopodium album L.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

Crop 1: Soybean GLXMA Variety: M48-12R2  
 Planting Date: 05/17/13 Planting Method: Row- Unit Planter Depth: 1 in  
 Rate: 5 Sd/row-ft Row Spacing: 15 in Seed Bed: Firm/Trashy  
 Soil Temperature: 79 F Soil Moisture: Moist Emergence Date: 05/23/13

## SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3  
 Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK  
 Tillage Type: No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	qt/A
3.	07/18/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
4.	07/18/13	Reflex	2	L	1.5	pt/A

## SOIL DESCRIPTION

% Sand: 79 % OM: 2.3 Texture: sandy loam  
 % Silt: 10 pH: 6.5  
 % Clay: 11 CEC: 8.6 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book  
 Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown  
 Distance: 0.25 Unit: mi

## APPLICATION DESCRIPTION

	A	B
Application Date:	05/17/13	06/24/13
Time of Day:	1:40 pm	1:30 pm
Application Method:	Spray	Spray
Application Timing:	PRE	V4
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	77 F	90 F
% Relative Humidity:	34	52
Wind Velocity, Unit:	2.5 mph	2 mph
Wind Direction:	East	Southwest
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	75 F	90 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	0	25

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		4-5 trifol
Height, Unit:		11 in
Crop Health:		Fair

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	CHEAL	CHEAL
Growth Stage:		vegetative
Height, Unit:		7 in
Density, Unit:		0-15 m2
Weed 2 Code:	IPOSS	IPOSS
Growth Stage:		veg-run
Height, Unit:		8 in
Density, Unit:		5-30 m2
Weed 3 Code:	AMAPA	AMAPA
Growth Stage:		veg-eaFlwr
Height, Unit:		12 in
Density, Unit:		0-20 m2

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	35 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

6/12/13: Field pansy was in the untreated checks, but not observed in the treatments. Poor control of prickly sida with Authority MTZ or Spartan plus Metribuzin. Grass pressure is much greater in the last range than the rest of the trial.

6/24/13: Soybeans had some deer damage. Weed sizes ranged from 2-11" for common lambsquarters, 2-15" for morningglories, and 5-18" for palmer amaranth.

7/02/13: Leaf injury is based on % of leaf area in the upper canopy discolored or bronzed. Some glyphosate-resistant palmer amaranth is in the study area.

10/22/13: Treatments 2 through 8 were very "clean". There were some plant skips in the third planter unit which may have added to yield variability.

Authority Burndown in Soybean													
Trial ID: Soy17-13 Cooperator: FMC													
Location: Field #10 Investigator: Mark VanGessel													
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	GLXMA Soybean Stunting %	GLXMA Soybean Leaf Bronzing %	AMAPA Palmer Amaranth Control %	AMBEL Common Ragweed Control %	CHEAL Common Lambqtrs Control %	IPOSS Morngrly Species Control %	
							06/12/13	07/02/13	06/12/13	06/12/13	06/12/13	06/12/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	Untreated Check							0.0b	0.0d	0.0b	0.0c	0.0b	0.0e
2	Authority MTZ Premix	45 DF		0.155 lb ai/A	PRE	A		3.3b	14.0c	95.0a	0.0c	100.0a	71.7c
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A							
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B							
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B							
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B							
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B							
3	Authority MTZ Premix	45 DF		0.155 lb ai/A	PRE	A		2.3b	16.3abc	100.0a	15.0c	100.0a	73.3bc
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A							
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B							
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B							
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B							
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B							
4	Spartan.....sulfentrazone	4 F		0.075 lb ai/A	PRE	A		0.0b	14.7bc	95.0a	40.0b	100.0a	80.0ab
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A							
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A							
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B							
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B							
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B							
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B							
5	Spartan.....sulfentrazone	4 F		0.075 lb ai/A	PRE	A		0.0b	17.3a	96.7a	53.3b	100.0a	70.4cd
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A							
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A							
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B							
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B							
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B							
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B							

## University of Delaware

Weed Code						AMAPA	AMBEL	CHEAL	IPOSS				
Crop Code						GLXMA	GLXMA						
Weed or Crop Name						Soybean	Soybean	Palmer	Common				
Weed or Crop Name							Leaf	Amaranth	Common				
Rating Data Type						Stunting	Bronzing	Control	Lambqtrs				
Rating Unit						%	%	%	Control				
Rating Date						06/12/13	07/02/13	06/12/13	06/12/13				
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
6	Spartan.....sulfentrazone	4 F		0.05 lb ai/A	PRE	A		4.7 ab	15.7 abc	100.0 a	40.0 b	100.0 a	63.3 d
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A							
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A							
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B							
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B							
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B							
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B							
7	Spartan.....sulfentrazone	4 F		0.05 lb ai/A	PRE	A		9.7 a	17.0 ab	93.3 a	50.0 b	100.0 a	70.0 cd
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A							
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A							
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B							
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B							
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B							
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B							
8	Canopy Premix	75 DF		0.187 lb ai/A	PRE	A		9.0 a	0.0 d	96.7 a	100.0 a	100.0 a	86.7 a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A							
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B							
	Reflex.....fomesafen	2 L		0.25 lb ai/A	V4	B							
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B							
	LSD (P=.05)							5.56	2.38	10.44	19.99	0.00	7.49
	Standard Deviation							3.17	1.36	5.96	10.62	0.00	4.25
	CV							87.52	11.46	7.05	28.48	0.0	6.6
	Replicate F							0.484	2.904	2.841	0.065	0.000	2.290
	Replicate Prob(F)							0.6261	0.0881	0.0921	0.9379	1.0000	0.1407
	Treatment F							4.584	89.051	98.996	29.053	0.000	120.737
	Treatment Prob(F)							0.0075	0.0001	0.0001	0.0001	1.0000	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					DIGSA	AMAPA	AMBEL	IPOSS	GLXMA
Crop Code					Large	Palmer	Common	Morninglry	Soybean
Weed or Crop Name					Crabgras	Amaranth	Ragweed	Species	
Weed or Crop Name					Control	Control	Control	Control	Yield
Rating Data Type					%	%	%	%	Bu/A
Rating Unit					06/12/13	07/02/13	07/02/13	07/02/13	10/28/13
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code			
1	Untreated Check						0.0c	0.0b	69.0a
2	Authority MTZ Premix	45 DF		0.155 lb ai/A	PRE	A	70.0b	86.7 a	71.0a
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A			
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B			
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B			
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B			
3	Authority MTZ Premix	45 DF		0.155 lb ai/A	PRE	A	85.0 a	86.7 a	78.5 a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A			
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B			
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B			
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B			
4	Spartan.....sulfentrazone	4 F		0.075 lb ai/A	PRE	A	70.0b	90.0 a	75.4 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A			
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A			
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B			
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B			
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B			
5	Spartan.....sulfentrazone	4 F		0.075 lb ai/A	PRE	A	70.0b	99.0 a	70.5 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A			
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A			
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A			
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B			
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B			
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B			

## University of Delaware

Weed Code					DIGSA	AMAPA	AMBEL	IPOSS	GLXMA		
Crop Code					Large	Palmer	Common	Morninglry	Soybean		
Weed or Crop Name					Crabgras	Amaranth	Ragweed	Species			
Weed or Crop Name					Control	Control	Control	Control	Yield		
Rating Data Type					%	%	%	%	Bu/A		
Rating Unit											
Rating Date					06/12/13	07/02/13	07/02/13	07/02/13	10/28/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code					
6	Spartan.....sulfentrazone	4 F		0.05 lb ai/A	PRE	A	85.0 a	100.0 a	95.0 a	90.0 a	69.8 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A					
	Gramoxone SL....paraquat	2 SL		0.375 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A					
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B					
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B					
7	Spartan.....sulfentrazone	4 F		0.05 lb ai/A	PRE	A	65.0 b	87.3 a	100.0 a	87.0 a	72.8 a
	Metribuzin.....metribuzin	75 DF		0.234 lb ai/A	PRE	A					
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A					
	Anthem Premix	2.15 SE		0.101 lb ai/A	V4	B					
	Classic.....chlorimuron	25 WG		0.0117 lb ai/A	V4	B					
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B					
8	Canopy Premix	75 DF		0.187 lb ai/A	PRE	A	85.0 a	94.3 a	100.0 a	92.3 a	73.0 a
	Gramoxone SL....paraquat	2 SL		0.5 lb ai/A	PRE	A					
	Dry Ammonium Sulfate	100 D		1.5 % w/v	PRE	A					
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	V4	B					
	Reflex.....fomesafen	2 L		0.25 lb ai/A	V4	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	V4	B					
LSD (P=.05)					9.92	21.75	11.26	12.03	11.41		
Standard Deviation					3.82	12.42	6.43	6.87	6.51		
CV					5.76	15.43	7.58	8.82	8.98		
Replicate F					0.214	0.570	0.246	1.129	18.510		
Replicate Prob(F)					0.8185	0.5782	0.7851	0.3511	0.0001		
Treatment F					161.265	21.141	86.312	63.632	0.716		
Treatment Prob(F)					0.0007	0.0001	0.0001	0.0001	0.6608		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Cadet and Marvel Postemergence in Soybeans

Trial ID: Soy18-13 Cooperator: FMC  
 Location: Field #9 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name		Code	Scientific Name
1.	Palmer Amaranth	AM	AMAPA	Amaranthus palmeri S.Wats.
2.	Ivyleaf Morningglory	IP	IPOHE	Ipomoea hederacea (L.) Jacq.
3.	Pitted Morningglory	IP	IPOLA	Ipomoea lacunosa L.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 06/18/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Smooth  
**Soil Temperature:** 79 F **Soil Moisture:** Moist **Emergence Date:** 06/24/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked twice and Field Cultivated

**SOIL DESCRIPTION**

**% Sand:** 83 **% OM:** 1.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.3  
**% Clay:** 9 **CEC:** 7.1 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.1 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	06/18/13	07/09/13
<b>Time of Day:</b>	10:30 am	9:30 am
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	POST
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	78 F	79 F
<b>% Relative Humidity:</b>	80	88
<b>Wind Velocity, Unit:</b>	2 mph	1 mph
<b>Wind Direction:</b>	South	South
<b>Dew Presence (Y/N):</b>	N	Y
<b>Soil Temp., Unit:</b>	78 F	78 F
<b>Soil Surf. Moisture:</b>	Dry	Dry
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	N/A	Moist
<b>% Cloud Cover:</b>	100	90

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		3-trifol
Height, Unit:		7 in
Crop Health:		Good

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		8 in
Density, Unit:		0-5 m2
Weed 2 Code:	IPOHE	IPOHE
Growth Stage:		vegetative
Height, Unit:		4 in
Density, Unit:		5-15 m2
Weed 3 Code:	IPOLA	IPOLA
Growth Stage:		vegetative
Height, Unit:		6 in
Density, Unit:		5-15 m2

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	24 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

8/08/13: Giant foxtail and large crabgrass are heavy in the untreated check, but very light in treated plots.

9/21/13: All treated plots are good to excellent for weed control. In reps 2 & 3, weeds above soybean canopy only seen in untreated checks. In rep 1, treatments 1, 2, 8, 9, and 10, weeds (palmer & morningglory species) and/or lambsquarters observed above soybean canopy.

Cadet and Marvel Postemergence in Soybeans												
Trial ID: Soy18-13 Cooperator: FMC												
Location: Field #9 Investigator: Mark VanGessel												
Weed Code						GLXMA	GLXMA	GLXMA	AMAPA	IPOSS	GLXMA	
Crop Code						Soybean	Soybean	Soybean	Palmer	Morngrly	Soybean	
Weed or Crop Name						Leafburn	Stunting	Stunting	Amaranth	Species	Yield	
Weed or Crop Name						%	%	%	Control	Control	Bu/A	
Rating Data Type						07/10/13	07/15/13	08/08/13	08/08/13	08/08/13	10/30/13	
Rating Unit												
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code						
1	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	0.0 d	0.0 f	0.0 a	93.3 ab	80.0 a-d	33.0 a
	Roundup PowerMax..glyphosate	4.5 AS		0.56 lb ae/A	1-3"wds	B						
	Dry Ammonium Sulfate	100 D		1.5 % w/v	1-3"wds	B						
2	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	18.7 c	9.7 de	0.0 a	100.0 a	81.0 a-d	31.3 a
	Cadet.....fluthiacet	0.91 EC		.00427 lb ai/A	1-3"wds	B						
	Roundup PowerMax..glyphosate	4.5 AS		0.56 lb ae/A	1-3"wds	B						
	Dry Ammonium Sulfate	100 D		1.5 % w/v	1-3"wds	B						
3	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	23.3 bc	13.0 cd	0.0 a	93.3 ab	66.7 bcd	36.0 a
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	1-3"wds	B						
	Roundup PowerMax..glyphosate	4.5 AS		0.56 lb ae/A	1-3"wds	B						
	Dry Ammonium Sulfate	100 D		1.5 % w/v	1-3"wds	B						
4	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	24.0 bc	5.7 e	0.0 a	100.0 a	78.3 a-d	33.0 a
	Cadet.....fluthiacet	0.91 EC		.00427 lb ai/A	1-3"wds	B						
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	1-3"wds	B						
	Dry Ammonium Sulfate	100 D		1.5 % w/v	1-3"wds	B						
5	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	26.7 b	13.0 cd	0.0 a	96.7 ab	86.7 ab	26.3 a
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	1-3"wds	B						
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	1-3"wds	B						
	Dry Ammonium Sulfate	100 D		1.5 % w/v	1-3"wds	B						
6	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	38.3 a	21.7 b	4.7 a	100.0 a	83.3 abc	27.3 a
	Cadet.....fluthiacet	0.91 EC		0.0064 lb ai/A	1-3"wds	B						
	Flexstar.....fomesafen	1.88 ME		0.162 lb ai/A	1-3"wds	B						
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	1-3"wds	B						
	Dry Ammonium Sulfate	100 D		1.5 % w/v	1-3"wds	B						
7	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	19.7 c	25.0 b	5.0 a	97.7 ab	89.3 a	30.8 a
	Ultra Blazer....acifluorfen	2 L		0.25 lb ai/A	1-3"wds	B						
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	1-3"wds	B						
	Dry Ammonium Sulfate	100 D		1.5 % w/v	1-3"wds	B						
8	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	38.3 a	25.0 b	7.3 a	88.3 abc	63.3 cd	27.3 a
	Ultra Blazer....acifluorfen	2 L		0.25 lb ai/A	1-3"wds	B						
	Select Max.....clethodim	1 EC		0.125 lb ai/A	1-3"wds	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	1-3"wds	B						
9	Dual Magnum.....s-metolachlor	7.62 E		0.716 lb ai/A	PRE	A	1.7 d	0.0 f	0.0 a	76.7 c	30.0 e	29.0 a
	Basagran.....bentazon	4 L		0.375 lb ai/A	1-3"wds	B						
	Select Max.....clethodim	1 EC		0.125 lb ai/A	1-3"wds	B						
	Crop Oil Concentrate	100 L		1.25 % v/v	1-3"wds	B						

## University of Delaware

Weed Code							GLXMA	GLXMA	GLXMA	AMAPA	IPOSS	GLXMA	
Crop Code							Soybean	Soybean	Soybean	Palmer	Morninglry	Soybean	
Weed or Crop Name										Amaranth	Species		
Weed or Crop Name										Control	Control	Yield	
Rating Data Type							Leafburn	Stunting	Stunting	%	%	Bu/A	
Rating Unit							%	%	%	%	%		
Rating Date							07/10/13	07/15/13	08/08/13	08/08/13	08/08/13	10/30/13	
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
10	Dual Magnum.....s-metolachlor	7.62	E	0.716	lb ai/A	PRE	A	40.0 a	30.0 a	1.7 a	84.0 bc	60.0 d	28.0 a
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/A	1-3"wds	B						
	Basagran.....bentazon	4	L	0.375	lb ai/A	1-3"wds	B						
	Select Max.....clethodim	1	EC	0.125	lb ai/A	1-3"wds	B						
	Crop Oil Concentrate	100	L	1.25	% v/v	1-3"wds	B						
11	Dual Magnum.....s-metolachlor	7.62	E	0.716	lb ai/A	PRE	A	26.7 b	15.7 c	4.7 a	93.3 ab	76.7 a-d	32.7 a
	Flexstar.....fomesafen	1.88	ME	0.25	lb ai/A	1-3"wds	B						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	1-3"wds	B						
	Dry Ammonium Sulfate	100	D	1.5	% w/v	1-3"wds	B						
12	Untreated Check							0.0 d	0.0 f	0.0 a	0.0 d	0.0 f	22.3 a
	LSD (P=.05)							6.71	4.18	6.06	14.14	21.86	10.39
	Standard Deviation							3.96	2.47	3.58	8.35	12.91	6.14
	CV							18.46	18.68	183.89	9.79	19.48	20.63
	Replicate F							2.245	1.015	1.306	0.457	0.365	8.312
	Replicate Prob(F)							0.1297	0.3788	0.2912	0.6393	0.6982	0.0020
	Treatment F							40.027	54.984	1.701	33.169	12.523	1.131
	Treatment Prob(F)							0.0001	0.0001	0.1391	0.0001	0.0001	0.3853

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Preemergence Programs in Soybean

Trial ID: Soy19-13 Cooperator: DuPont, Dow  
 Location: Field #36 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947  
**Investigator:** Mark VanGessel

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Carpetweed	MOLVE	Mollugo verticillata L.
2.	Annual Grasses	GGGAN	
3.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 06/18/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4.5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Smooth  
**Soil Temperature:** 79 F **Soil Moisture:** Moist **Emergence Date:** 06/25/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

## SOIL DESCRIPTION

**% Sand:** 77 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 12 **pH:** 5.4  
**% Clay:** 11 **CEC:** 6.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B
<b>Application Date:</b>	06/18/13	07/15/13
<b>Time of Day:</b>	12:30 pm	11:40 am
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	28DAP
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	80 F	87 F
<b>% Relative Humidity:</b>	78	61
<b>Wind Velocity, Unit:</b>	2 mph	2 mph
<b>Wind Direction:</b>	South	West
<b>Dew Presence (Y/N):</b>	N	Y
<b>Soil Temp., Unit:</b>	79 F	86 F
<b>Soil Surf. Moisture:</b>	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Wet
<b>Leaf Surf. Moisture:</b>	N/A	Moist
<b>% Cloud Cover:</b>	100	20

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		5-trifol
Height, Unit:		10 in
Crop Health:		Good

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	MOLVE	MOLVE
Growth Stage:		flower
Height, Unit:		9 in
Density, Unit:		0-15 m2
Weed 2 Code:	GGGAN	GGGAN
Growth Stage:		vegetative
Height, Unit:		12 in
Density, Unit:		0-30 m2
Weed 3 Code:	IPOSS	IPOSS
Growth Stage:		running
Height, Unit:		12 in
Density, Unit:		0-2 m2

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	28 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

7/09/13: Deer feeding makes stunting hard to evaluate.

7/25/13: Injury is very inconsistent due to water damage (excess) and deer feeding.

8/07/13: Very little emergence since last ratings and soybeans have canopied. Only giant foxtail was rated.

Preemergence Programs in Soybean												
Trial ID: Soy19-13 Cooperator: DuPont, Dow												
Location: Field #36 Investigator: Mark VanGessel												
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	GLXMA Soybean	GLXMA Soybean	IPOSS	SETFA	SETFA	
							Stunting %	Stunting %	Morngrly Species Control %	Giant Foxtail Control %	Giant Foxtail Control %	
							07/09/13	07/25/13	07/25/13	07/25/13	08/07/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code					
1	Envive Premix	41.3	WG	0.09	lb ai/A	PRE	A	11.3 b	7.8 a-d	66.7 cd	58.3 c	56.7 c
2	Envive Premix	41.3	WG	0.09	lb ai/A	PRE	A		4.0 c-f	95.0 a	100.0 a	99.7 a
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
3	Canopy Premix	75	DF	0.187	lb ai/A	PRE	A	9.0 b	5.0 b-f	66.7 cd	100.0 a	92.7 a
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/A	PRE	A					
4	Canopy Premix	75	DF	0.187	lb ai/A	PRE	A		1.7 def	83.3 abc	100.0 a	99.0 a
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/A	PRE	A					
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
5	Trivence Premix	61.3	WG	0.23	lb ai/A	PRE	A	10.7 b	4.3 b-f	53.3 d	66.7 bc	65.0 c
6	Trivence Premix	61.3	WG	0.23	lb ai/A	PRE	A		0.8 ef	89.7 ab	100.0 a	97.7 a
	Abundit.....glyphosate	3	SC	0.75	lb ae/A	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
7	Sonic Premix	70	DF	0.262	lb ai/A	PRE	A	17.3 ab	10.5 ab	75.8 bc	72.7 b	80.0 b
8	Sonic Premix	70	DF	0.262	lb ai/A	PRE	A		8.0 abc	100.0 a	100.0 a	100.0 a
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/A	28DAP	B					
9	Untreated Check							0.0 c	0.0 f	0.0 e	0.0 d	0.0 d
10	Sonic Premix	70	DF	0.131	lb ai/A	PRE	A	12.3 ab	9.6 abc	88.3 ab	100.0 a	100.0 a
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/A	28DAP	B					
11	Sonic Premix	70	DF	0.197	lb ai/A	PRE	A	20.7 a	11.8 a	97.3 a	100.0 a	100.0 a
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/A	28DAP	B					
12	Sonic Premix	70	DF	0.131	lb ai/A	PRE	A		6.7 a-e	98.3 a	100.0 a	99.7 a
	Firstrate.....cloransulam	84	WG	0.0157	lb ai/A	28DAP	B					
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/A	28DAP	B					
LSD (P=.05)							8.58	6.21	17.66	12.04	11.13	
Standard Deviation							4.77	3.57	10.40	7.11	6.57	
CV							41.07	60.91	13.64	8.55	7.97	
Replicate F							2.828	2.022	0.275	0.431	0.213	
Replicate Prob(F)							0.1021	0.1669	0.7625	0.6554	0.8100	
Treatment F							5.669	3.519	22.068	54.921	62.463	
Treatment Prob(F)							0.0066	0.0129	0.0001	0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Burndown and Residual Programs in Soybean

Trial ID: Soy20-13 Cooperator: DuPont, Syngenta  
 Location: Field #7 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947  
**Investigator:** Mark VanGessel

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
2.	Field Pansy	VIORA	Viola rafinesquii Greene
3.	Morningglory Species	IPOSS	Ipomoea sp.
4.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
5.	Crabgrass Species	DIGSS	Digitaria sp.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 05/20/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4.5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 82 F **Soil Moisture:** Moist **Emergence Date:** 05/25/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/03/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
2.	07/03/13	Reflex	2	L	1.5	pt/A

## SOIL DESCRIPTION

**% Sand:** 78 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 13 **pH:** 6.4  
**% Clay:** 9 **CEC:** 8.6 **Fert. Level:** Optimum  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B	C	D
<b>Application Date:</b>	05/01/13	05/21/13	06/12/13	06/24/13
<b>Time of Day:</b>	8:50 am	12:00 pm	9:20 am	1:15 pm
<b>Application Method:</b>	Spray	Spray	Spray	Spray
<b>Application Timing:</b>	21EPP	PRE	21DAP	35DAP
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	55 F	79 F	78 F	90 F
<b>% Relative Humidity:</b>	70	65	65	52
<b>Wind Velocity, Unit:</b>	3 mph	3 mph	1 mph	2 mph
<b>Wind Direction:</b>	Northeast	Southwest	West	Southwest
<b>Dew Presence (Y/N):</b>	Y	N	N	N
<b>Soil Temp., Unit:</b>	52 F	78 F	76 F	90 F
<b>Soil Surf. Moisture:</b>	Wet	Moist	Moist	Moist
<b>Root Zone Moisture:</b>	Wet	Moist	Wet	Moist
<b>Leaf Surf. Moisture:</b>	Wet	Dry	Moist	Dry
<b>% Cloud Cover:</b>	0	50	100	25

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	GLXMA	GLXMA	GLXMA	GLXMA
Growth Stage:			V2-3	V5
Height, Unit:			6 in	11 in
Crop Health:			Good	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	OEOLA	OEOLA	OEOLA	OEOLA
Growth Stage:	vegetative			
Height, Unit:	8 in			
Density, Unit:	2-8 m2			
Weed 2 Code:	VIORA	VIORA	VIORA	VIORA
Growth Stage:	seed			
Height, Unit:	7 in			
Density, Unit:	0-8 m2			
Weed 3 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:		cot-2 leaf	veg-run	veg-run
Height, Unit:		1 in	8 in	10 in
Density, Unit:		0-1 m2	0-12 m2	2-10 m2
Weed 4 Code:	AMAPA	AMAPA	AMAPA	AMAPA
Growth Stage:			vegetative	vegetative
Height, Unit:			6 in	6 in
Density, Unit:			0-30 m2	0-30 m2
Weed 5 Code:	DIGSS	DIGSS	DIGSS	DIGSS
Growth Stage:			vegetative	4f-5 tilr
Height, Unit:			7 in	6 in
Density, Unit:			0-50 m2	0-20 m2

APPLICATION EQUIPMENT				
	A	B	C	D
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	24 in	24 in	26 in	27 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air	Comp. Air

Trial Comments

5/22/13: Treatments with no residual activity - morningglory and palmer amaranth are emerging. Redstem filaree and Carolina geranium are present at low density.

Carolina geranium - plot 110 = 60%

Redstem filaree - plot 106 = 93%; 109 = 90%; 305 = 93%

6/07/13: No soybean injury was observed. Rabbitfoot clover and horseweed were also in untreated plots but these were not seen in any treated plots.

6/24/13: Soybeans had some deer damage.

6/30/13: All treatments had excellent control of winter annual species. Treatment 10 was fair for spurred anoda control. Treatments 2, 3, and 6 were none to poor control for spurred anoda. Some palmer amaranth may be resistant to glyphosate.

10/21/13: Plants in the untreated check were shorter than other treatments due to early-season weed competition from the winter annual weeds. Weed control from POST application was very good.

Burndown and Residual Programs in Soybean							OEOLA	OXAST	IPOSS	SCRAN	VICSS	VIORA
Trial ID: Soy20-13 Cooperator: DuPont, Syngenta												
Location: Field #7 Investigator: Mark VanGessel												
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	Cutleaf EPrimrse Control %	Yellow Woodsorl Control %	Morngrly Species 1=presnt 0=absent	Knawel Control %	Vetch Species Control %	Field Pansy Control %
							05/22/13	05/22/13	05/22/13	05/22/13	05/22/13	05/22/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg Code						
1	Untreated Check						0.0c	0.0b	0.7ab	0.0b	0.0b	0.0e
2	Envive Premix	41.3	WG	0.09 lb ai/A	21EPP A		98.7 a	100.0 a	0.0c	100.0 a	100.0 a	95.7 b
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	21EPP A							
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP A							
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP A							
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP A							
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP A							
3	Envive Premix	41.3	WG	0.09 lb ai/A	21EPP A		100.0 a	100.0 a	0.3bc	100.0 a	100.0 a	91.0 d
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	21EPP A							
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP A							
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	21EPP A							
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP A							
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP A							
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP A							
4	Envive Premix	41.3	WG	0.0645 lb ai/A	21EPP A		100.0 a	100.0 a	0.3bc	100.0 a	100.0 a	94.0bcd
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP A							
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP A							
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP A							
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP A							
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21DAP C							
	Synchrony XP Premix	28.4	DG	0.0066 lb ai/A	21DAP C							
	Nonionic Surfactant	100	L	0.25 % v/v	21DAP C							
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21DAP C							
5	Canopy Premix	75	DF	0.187 lb ai/A	21EPP A		100.0 a	100.0 a	-0.1c	100.0 a	100.0 a	95.0bc
	Cinch.....s-metolachlor	7.64	E	1.91 lb ai/A	21EPP A							
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP A							
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP A							
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP A							
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP A							
6	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	21EPP A		92.7 a	100.0 a	1.0a	100.0 a	100.0 a	95.7b
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP A							
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP A							
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE B							
	Valor SX.....flumioxazin	51	WG	0.032 lb ai/A	PRE B							
	Prefix Premix	5.3	E	1.33 lb ai/A	PRE B							
	Crop Oil Concentrate	100	L	1 % v/v	PRE B							
	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	35DAP D							
	Dry Ammonium Sulfate	100	D	1.2 % w/v	35DAP D							

## University of Delaware

Weed Code					OEOLA	OXAST	IPOSS	SCRAN	VICSS	VIORA	
Crop Code					Cutleaf	Yellow	Morngrly	Knawel	Vetch	Field	
Weed or Crop Name					EPrimrse	Woodsorl	Species	Control	Species	Pansy	
Weed or Crop Name					Control	Control	1=presnt	Control	Control	Control	
Rating Data Type					%	%	0=absent	%	%	%	
Rating Unit					05/22/13	05/22/13	05/22/13	05/22/13	05/22/13	05/22/13	
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code					
7	Gramoxone SL....paraquat	2	SL	1 lb ai/A	21EPP	A	100.0 a	100.0 a	1.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A					
	Crop Oil Concentrate	100	L	1 % v/v	21EPP	A					
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	21DAP	C					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21DAP	C					
8	Gramoxone SL....paraquat	2	SL	1 lb ai/A	21EPP	A	100.0 a	100.0 a	1.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A					
	Crop Oil Concentrate	100	L	1 % v/v	21EPP	A					
	Boundary Premix	6.5	EC	1.02 lb ai/A	PRE	B					
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B					
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	35DAP	D					
9	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	21EPP	A	98.3 a	100.0 a	1.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A					
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE	B					
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B					
	Boundary Premix	6.5	EC	1.02 lb ai/A	PRE	B					
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	35DAP	D					
10	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A	81.7 b	100.0 a	0.7 ab	100.0 a	91.7 cd
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A					
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP	A					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A					
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE	B					
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B					
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B					
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D					
	Dry Ammonium Sulfate	100	D	1.2 % w/v	35DAP	D					
	LSD (P=.05)						7.43	0.00	0.65	0.00	3.63
	Standard Deviation						4.33	0.00	0.38	0.00	2.12
	CV						4.97	0.0	63.86	0.0	2.46
	Replicate F						0.354	0.000	0.816	0.000	3.475
	Replicate Prob(F)						0.7067	1.0000	0.4588	1.0000	0.0529
	Treatment F						155.405	0.000	3.656	0.000	621.691
	Treatment Prob(F)						0.0001	1.0000	0.0103	1.0000	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code							POAAN	OEOLA	VIORA	AMAPA	IPOSS	DIGSA
Crop Code							Annual	Cutleaf	Field	Palmer	Morngly	Large
Weed or Crop Name							Bluegrss	EPrimrse	Pansy	Amaranth	Species	Crabgras
Weed or Crop Name							Control	Control	Control	Control	Control	Control
Rating Data Type							%	%	%	%	%	%
Rating Unit							05/22/13	06/07/13	06/07/13	06/07/13	06/07/13	06/07/13
Rating Date												
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
1	Untreated Check							0.0 c	66.7 a	66.7 a	0.0 b	0.0 d
2	Envive Premix	41.3	WG	0.09 lb ai/A	21EPP	A		99.0 a	100.0 a	100.0 a	100.0 a	88.3 abc
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	21EPP	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A						
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A						
3	Envive Premix	41.3	WG	0.09 lb ai/A	21EPP	A		100.0 a	85.0 a	100.0 a	100.0 a	91.7 abc
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	21EPP	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A						
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	21EPP	A						
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A						
4	Envive Premix	41.3	WG	0.0645 lb ai/A	21EPP	A		100.0 a	100.0 a	100.0 a	95.0 a	85.0 bc
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A						
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21DAP	C						
	Synchrony XP Premix	28.4	DG	0.0066 lb ai/A	21DAP	C						
	Nonionic Surfactant	100	L	0.25 % v/v	21DAP	C						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21DAP	C						
5	Canopy Premix	75	DF	0.187 lb ai/A	21EPP	A		100.0 a	100.0 a	100.0 a	95.0 a	93.0 ab
	Cinch.....s-metolachlor	7.64	E	1.91 lb ai/A	21EPP	A						
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A						
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A						
6	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	21EPP	A		100.0 a	100.0 a	100.0 a	100.0 a	80.7 c
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A						
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE	B						
	Valor SX.....flumioxazin	51	WG	0.032 lb ai/A	PRE	B						
	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	B						
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B						
	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	35DAP	D						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	35DAP	D						

## University of Delaware

Weed Code					POAAN	OEOLA	VIORA	AMAPA	IPOSS	DIGSA		
Crop Code					Annual	Cutleaf	Field	Palmer	Morngly	Large		
Weed or Crop Name					Bluegrss	EPrimrse	Pansy	Amaranth	Species	Crabgras		
Weed or Crop Name					Control	Control	Control	Control	Control	Control		
Rating Data Type					%	%	%	%	%	%		
Rating Unit					05/22/13	06/07/13	06/07/13	06/07/13	06/07/13	06/07/13		
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code						
7	Gramoxone SL....paraquat	2	SL	1 lb ai/A	21EPP	A	66.7 b	100.0 a	100.0 a	0.0 b	0.0 d	0.0 d
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Crop Oil Concentrate	100	L	1 % v/v	21EPP	A						
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	21DAP	C						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21DAP	C						
8	Gramoxone SL....paraquat	2	SL	1 lb ai/A	21EPP	A	100.0 a	100.0 a	100.0 a	93.3 a	81.0 c	97.3 ab
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Crop Oil Concentrate	100	L	1 % v/v	21EPP	A						
	Boundary Premix	6.5	EC	1.02 lb ai/A	PRE	B						
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B						
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	35DAP	D						
9	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	21EPP	A	99.0 a	100.0 a	100.0 a	100.0 a	81.7 bc	96.7 abc
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A						
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE	B						
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B						
	Boundary Premix	6.5	EC	1.02 lb ai/A	PRE	B						
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	35DAP	D						
10	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A	100.0 a	100.0 a	100.0 a	100.0 a	97.3 a	99.0 a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Nonionic Surfactant	100	L	0.25 % v/v	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	21EPP	A						
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE	B						
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B						
	Crop Oil Concentrate	100	L	1 % v/v	PRE	B						
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D						
	Dry Ammonium Sulfate	100	D	1.2 % w/v	35DAP	D						
LSD (P=.05)					31.30	32.46	32.37	6.77	11.70	12.34		
Standard Deviation					18.24	18.84	18.79	3.94	6.82	7.20		
CV					21.1	19.8	19.43	5.03	9.76	9.77		
Replicate F					1.032	1.101	0.944	2.786	0.736	1.681		
Replicate Prob(F)					0.3763	0.3551	0.4084	0.0883	0.4928	0.2141		
Treatment F					9.295	1.035	0.944	330.000	89.458	88.995		
Treatment Prob(F)					0.0001	0.4527	0.5141	0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code							GLXMA	GLXMA	AMAPA	IPOSS	DIGSA	GLXMA	
Crop Code							Soybean	Soybean	Palmer	Morngly	Large	Soybean	
Weed or Crop Name							Leafburn	Stunting	Amaranth	Species	Crabgras	Yield	
Weed or Crop Name							%	%	Control	Control	Control	Bu/A	
Rating Data Type							06/30/13	06/30/13	06/30/13	06/30/13	06/30/13	10/21/13	
Rating Unit													
Rating Date													
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
1	Untreated Check							0.0c	0.0b	0.0e	0.0c	0.0c	48.3b
2	Envive Premix	41.3	WG	0.09 lb ai/A	21EPP	A		0.0c	0.0b	68.8c	65.0b	66.7b	59.0a
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	21EPP	A							
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A							
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A							
	Nonionic Surfactant	100	L	0.25% v/v	21EPP	A							
	Dry Ammonium Sulfate	100	D	1.2% w/v	21EPP	A							
3	Envive Premix	41.3	WG	0.09 lb ai/A	21EPP	A		0.0c	0.0b	66.3cd	56.7b	68.3b	59.9a
	Prowl H2O.....pendimethalin	3.8	CS	0.95 lb ai/A	21EPP	A							
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A							
	Liberty 280.....glufosinate	2.34	SL	0.585 lb ai/A	21EPP	A							
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A							
	Nonionic Surfactant	100	L	0.25% v/v	21EPP	A							
	Dry Ammonium Sulfate	100	D	1.2% w/v	21EPP	A							
4	Envive Premix	41.3	WG	0.0645 lb ai/A	21EPP	A		0.0c	2.3b	83.9b	87.7a	100.0a	59.7a
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A							
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A							
	Nonionic Surfactant	100	L	0.25% v/v	21EPP	A							
	Dry Ammonium Sulfate	100	D	1.2% w/v	21EPP	A							
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21DAP	C							
	Synchrony XP Premix	28.4	DG	0.0066 lb ai/A	21DAP	C							
	Nonionic Surfactant	100	L	0.25% v/v	21DAP	C							
	Dry Ammonium Sulfate	100	D	1.2% w/v	21DAP	C							
5	Canopy Premix	75	DF	0.187 lb ai/A	21EPP	A		0.0c	0.0b	66.4cd	81.7a	63.3b	58.9a
	Cinch.....s-metolachlor	7.64	E	1.91 lb ai/A	21EPP	A							
	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A							
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A							
	Nonionic Surfactant	100	L	0.25% v/v	21EPP	A							
	Dry Ammonium Sulfate	100	D	1.2% w/v	21EPP	A							
6	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	21EPP	A		0.0c	0.0b	86.4ab	65.0b	100.0a	59.3a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A							
	Dry Ammonium Sulfate	100	D	1.2% w/v	21EPP	A							
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE	B							
	Valor SX.....flumioxazin	51	WG	0.032 lb ai/A	PRE	B							
	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	B							
	Crop Oil Concentrate	100	L	1% v/v	PRE	B							
	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	35DAP	D							
	Dry Ammonium Sulfate	100	D	1.2% w/v	35DAP	D							

## University of Delaware

Weed Code					GLXMA	GLXMA	AMAPA	IPOSS	DIGSA	GLXMA		
Crop Code					Soybean	Soybean	Palmer	Morninglry	Large	Soybean		
Weed or Crop Name					Leafburn	Stunting	Amaranth	Species	Crabgras			
Weed or Crop Name					%	%	Control	Control	Control	Yield		
Rating Data Type					%	%	%	%	%	Bu/A		
Rating Unit					06/30/13	06/30/13	06/30/13	06/30/13	06/30/13	10/21/13		
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code						
7	Gramoxone SL....paraquat	2	SL	1 lb ai/A	21EPP	A	9.0b	3.3b	53.3d	87.7a	100.0a	60.2a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Crop Oil Concentrate	100	L	1% v/v	21EPP	A						
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	21DAP	C						
	Dry Ammonium Sulfate	100	D	1.2% w/v	21DAP	C						
8	Gramoxone SL....paraquat	2	SL	1 lb ai/A	21EPP	A	15.3a	3.3b	93.3ab	89.3a	100.0a	62.5a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Crop Oil Concentrate	100	L	1% v/v	21EPP	A						
	Boundary Premix	6.5	EC	1.02 lb ai/A	PRE	B						
	Crop Oil Concentrate	100	L	1% v/v	PRE	B						
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D						
	Dry Ammonium Sulfate	100	D	1.2% w/v	35DAP	D						
9	Touchdown Total...k glyphosate	4.17	SL	0.78 lb ae/A	21EPP	A	15.3a	13.7a	98.3ab	91.0a	100.0a	61.8a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2% w/v	21EPP	A						
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE	B						
	Crop Oil Concentrate	100	L	1% v/v	PRE	B						
	Boundary Premix	6.5	EC	1.02 lb ai/A	PRE	B						
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D						
	Dry Ammonium Sulfate	100	D	1.2% w/v	35DAP	D						
10	Abundit.....glyphosate	3	SC	0.75 lb ae/A	21EPP	A	16.3a	14.7a	100.0a	92.7a	100.0a	58.7a
	2,4-D ester	3.8	L	0.475 lb ae/A	21EPP	A						
	Nonionic Surfactant	100	L	0.25% v/v	21EPP	A						
	Dry Ammonium Sulfate	100	D	1.2% w/v	21EPP	A						
	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PRE	B						
	Canopy Premix	75	DF	0.187 lb ai/A	PRE	B						
	Crop Oil Concentrate	100	L	1% v/v	PRE	B						
	Flexstar GT Premix	3.3	L	1.65 lb ai/A	35DAP	D						
	Dry Ammonium Sulfate	100	D	1.2% w/v	35DAP	D						
LSD (P=.05)					2.36	5.55	15.05	15.66	8.94	7.20		
Standard Deviation					1.38	3.24	8.53	9.13	5.21	4.20		
CV					24.61	86.72	11.9	12.74	6.52	7.13		
Replicate F					2.053	0.318	0.929	0.104	1.137	6.520		
Replicate Prob(F)					0.1574	0.7316	0.4196	0.9022	0.3429	0.0074		
Treatment F					88.491	9.228	36.107	28.742	115.389	2.612		
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0397		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Preemergence Fierce in Soybean

Trial ID: Soy21-13 Cooperator: Valent  
 Location: Field #10 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 05/17/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 **Sd/row-ft** **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 79 **F** **Soil Moisture:** Moist **Emergence Date:** 05/23/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	qt/A
3.	07/18/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
4.	07/18/13	Reflex	2	L	1.5	pt/A

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 2.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.5  
**% Clay:** 11 **CEC:** 8.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.25 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/17/13
<b>Time of Day:</b>	1:10 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	77 F
<b>% Relative Humidity:</b>	34
<b>Wind Velocity, Unit:</b>	2.5 mph
<b>Wind Direction:</b>	East
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	75 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	0

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

6/12/13: Common lambsquarters and prickly sida control was poor in treatment 5. Common lambsquarters and common ragweed was in all of the untreated checks, but except for treatment 5 none were observed in the treatments. Grass pressure is much greater in the last range than the rest of the study.

7/02/13: Extreme grass pressure in the last range made it impossible to get good weed control data.

10/22/13: Some plants missing in the row with the 3rd planter unit (not severe). May add to variability of the yield data. Last rep had lots of grass pressure. Treatment 1 had heavy weed pressure.

Preemergence Fierce in Soybean													
Trial ID: Soy21-13		Cooperator: Valent											
Location: Field #10		Investigator: Mark VanGessel											
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	GLXMA Soybean	AMAPA Palmer Amaranth Control	IPOSS Morngrly Species Control	DIGSA Large Crabgras Control	AMAPA Palmer Amaranth Control	AMBEL Common Ragweed Control	IPOSS Morngrly Species Control
					%		06/12/13	06/12/13	06/12/13	06/12/13	07/02/13	07/02/13	07/02/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg							
1	Untreated Check						0.0d	0.0b	0.0c	0.0c	0.0c	0.0a	0.0d
2	Fierce Premix	76	WG	0.142	lb ai/A	PRE	8.0b	100.0a	56.7b	80.0b	95.0a	70.0a	53.3ab
3	Fierce Premix	76	WG	0.178	lb ai/A	PRE	10.7a	100.0a	63.3b	98.3a	100.0a	80.0a	63.3a
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	PRE	5.8c	96.7a	46.7b	68.3b	75.4ab	40.0a	22.1cd
5	Prefix Premix	5.3	E	1.33	lb ai/A	PRE	0.0d	96.7a	46.7b	71.7b	86.7ab	50.0a	36.7bc
6	Canopy Premix	75	DF	0.187	lb ai/A	PRE	0.0d	90.0a	86.7a	75.0b	67.9b	70.0a	74.6a
LSD (P=.05)							1.86	13.96	19.30	17.15	25.55	53.96	23.12
Standard Deviation							1.00	7.67	10.61	9.43	13.57	23.80	12.28
CV							24.6	9.53	21.21	14.38	19.16	46.07	29.47
Replicate F							0.867	1.226	0.704	0.063	3.010	0.471	0.856
Replicate Prob(F)							0.4526	0.3339	0.5177	0.9398	0.1060	0.6553	0.4602
Treatment F							66.443	80.019	21.807	38.575	21.940	4.535	15.256
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0002	0.0840	0.0007

Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	
					Bu/A	10/28/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	
1	Untreated Check						58.5a
2	Fierce Premix	76	WG	0.142	lb ai/A	PRE	68.0a
3	Fierce Premix	76	WG	0.178	lb ai/A	PRE	64.1a
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	PRE	71.0a
5	Prefix Premix	5.3	E	1.33	lb ai/A	PRE	67.1a
6	Canopy Premix	75	DF	0.187	lb ai/A	PRE	61.4a
LSD (P=.05)							10.96
Standard Deviation							6.03
CV							9.27
Replicate F							41.914
Replicate Prob(F)							0.0001
Treatment F							1.749
Treatment Prob(F)							0.2113

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

Gramoxone plus Residual Herbicides for Soybeans

Trial ID: Soy22-13 Cooperator:  
 Location: Field #7 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 05/20/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4.5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 82 F **Soil Moisture:** Moist **Emergence Date:** 05/25/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** FACTORIAL  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	qt/A
3.	07/03/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
4.	07/03/13	Reflex	2	L	1.5	pt/A

**SOIL DESCRIPTION**

**% Sand:** 78 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 13 **pH:** 6.4  
**% Clay:** 9 **CEC:** 8.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/21/13
<b>Time of Day:</b>	12:00 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	79 F
<b>% Relative Humidity:</b>	65
<b>Wind Velocity, Unit:</b>	3 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	78 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	50

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

5/22/13: Burndown was effective for most species. Primrose about 75% injured. Wild garlic injured but still showing green tissue. Morningglory and palmer amaranth are at cotyledon to 1st leaf just emerging stage.

6/07/13: No winter annuals in the untreated checks. Morningglory, common ragweed, palmer amaranth, and large crabgrass observed in untreated checks, but most morningglory and a few crabgrass plants emerging in the treatments.

6/30/13: All treatments without Gramoxone provided excellent burndown activity.

10/21/13: Plots look good, no weeds in the plots. Height of the soybeans was very uniform.

## Gramoxone plus Residual Herbicides for Soybeans

Trial ID: Soy22-13 Cooperator:  
 Location: Field #7 Investigator: Mark VanGessel

Weed Code	GLXMA	AMBEL	IPOSS	GLXMA						
Crop Code	Soybean	Common	Morninglry	Soybean						
Weed or Crop Name	Stunting	Ragweed	Species	Yield						
Weed or Crop Name	%	Control	Control	Bu/A						
Rating Data Type	%	%	%							
Rating Unit	06/30/13	06/30/13	06/30/13	10/21/13						
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg				
1	Canopy Premix	75	DF	0.187	lb ai/A	PRE	0.0	74.0 a	81.0 a	57.1 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	No Gramoxone	2	SL							
2	Canopy Premix	75	DF	0.187	lb ai/A	PRE	.			64.0 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/A	PRE				
3	Canopy Premix	75	DF	0.187	lb ai/A	PRE	.			59.7 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE				
4	Valor XLT Premix	40.3	WG	0.091	lb ai/A	PRE	15.0	64.1 a	82.7 a	58.7 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	No Gramoxone	2	SL							
5	Valor XLT Premix	40.3	WG	0.091	lb ai/A	PRE	.			56.8 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/A	PRE				
6	Valor XLT Premix	40.3	WG	0.091	lb ai/A	PRE	.			63.7 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE				
7	Authority XL Premix	70	DG	0.21	lb ai/A	PRE	0.0	71.7 a	75.0 a	55.7 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	No Gramoxone	2	SL							
8	Authority XL Premix	70	DG	0.21	lb ai/A	PRE	.			58.4 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/A	PRE				
9	Authority XL Premix	70	DG	0.21	lb ai/A	PRE	.			61.3 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE				
10	Untreated Check						.			58.2 a
LSD (P=.05)							.	25.86	13.78	9.05
Standard Deviation							.	7.36	6.08	5.27
CV							.	10.53	7.64	8.88
Replicate F								0.172	2.042	16.667
Replicate Prob(F)								0.8529	0.2448	0.0001
Treatment F								1.491	1.320	0.855
Treatment Prob(F)								0.4015	0.3628	0.5789

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Control of Large Horseweed  
 No early burndown  
 Trial ID: Soy23-13 Cooperator:  
 Location: Dill Farm Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERCA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill

**Crop 1:** Non-Crop

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/03/13	Liberty 280	2.34	SL	32	fl oz/A
2.	07/03/13	Dry Ammonium Sulfate			3	lb/A

**SOIL DESCRIPTION**

**% Sand:** 85 **% OM:** 0.6 **Texture:** loamy sand  
**% Silt:** 10 **pH:** 6.3  
**% Clay:** 5 **CEC:** 4.3 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 1 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	05/31/13	06/06/13
<b>Time of Day:</b>	1:00 pm	10:00 am
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PPlnt	+5days
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	88 F	71 F
<b>% Relative Humidity:</b>	42	65
<b>Wind Velocity, Unit:</b>	4 mph	6 mph
<b>Wind Direction:</b>	Southwest	Southeast
<b>Dew Presence (Y/N):</b>	N	N
<b>Soil Temp., Unit:</b>	88 F	70 F
<b>Soil Surf. Moisture:</b>	Dry	Moist
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Moist
<b>% Cloud Cover:</b>	5	30

## WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	ERICA	ERICA
Growth Stage:	bolting	bolting
Height, Unit:	14 in	14 in
Density, Unit:	5-15 m <sup>2</sup>	1-10 m <sup>2</sup>
Weed 2 Code:	OEOLA	OEOLA
Growth Stage:	seed	seed
Height, Unit:	26 in	26 in
Density, Unit:	4 m <sup>2</sup>	0-2 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	32 in	32 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

## Trial Comments

6/14/13: Most horseweed plants under 10" were killed in all treatments.

6/28/13: Treatments 9 and 10 were fair to good for primrose control. All others treatments were good to excellent for primrose.

7/15/13: These ratings were taken after the total POST application of Liberty 280 on 7-3-13.

Control of Large Horseweed No early burndown Trial ID: Soy23-13 Cooperator: Location: Dill Farm Investigator: Mark VanGessel							
Weed Code					ERICA	ERICA	ERICA
Weed or Crop Name					Horse-	Horse-	Horse-
Weed or Crop Name					weed	weed	weed
Rating Data Type					Control	Control	Control
Rating Unit					%	%	%
Rating Date					06/14/13	06/28/13	07/15/13
Trt	Treatment	Form	Form	Rate	Grow	Appl	
No.	Name	Conc	Type	Rate	Stg	Code	
1	Untreated Check						0.0h 0.0e 88.7bc
2	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	PPInt	A	60.0f 68.3c 90.0abc
	Crop Oil Concentrate	100	L	1.25 % v/v	PPInt	A	
	30% Urea Ammonium Nitrate	100	L	5 % v/v	PPInt	A	
3	Gramoxone SL....paraquat	2	SL	1 lb ai/A	PPInt	A	68.3e 70.0c 86.7c
	Crop Oil Concentrate	100	L	1.25 % v/v	PPInt	A	
	30% Urea Ammonium Nitrate	100	L	5 % v/v	PPInt	A	
4	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	PPInt	A	72.7de 65.0c 97.0ab
	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	PPInt	A	
	Crop Oil Concentrate	100	L	1.25 % v/v	PPInt	A	
	30% Urea Ammonium Nitrate	100	L	5 % v/v	PPInt	A	
5	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	PPInt	A	53.3fg 53.3d 73.3d
	Canopy Premix	75	DF	0.21 lb ai/A	PPInt	A	
	Crop Oil Concentrate	100	L	1.25 % v/v	PPInt	A	
	30% Urea Ammonium Nitrate	100	L	5 % v/v	PPInt	A	
6	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	PPInt	A	84.3bc 78.7b 99.0a
	Crop Oil Concentrate	100	L	1.25 % v/v	PPInt	A	
	30% Urea Ammonium Nitrate	100	L	5 % v/v	PPInt	A	
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	+5days	B	
	Crop Oil Concentrate	100	L	1.25 % v/v	+5days	B	
	30% Urea Ammonium Nitrate	100	L	5 % v/v	+5days	B	
7	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	PPInt	A	78.7cd 81.7ab 97.7ab
	Crop Oil Concentrate	100	L	1.25 % v/v	PPInt	A	
	30% Urea Ammonium Nitrate	100	L	5 % v/v	PPInt	A	
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	+5days	B	
	Metribuzin.....metribuzin	75	DF	0.187 lb ai/A	+5days	B	
	Crop Oil Concentrate	100	L	1.25 % v/v	+5days	B	
	30% Urea Ammonium Nitrate	100	L	5 % v/v	+5days	B	
8	Liberty 280.....glufosinate	2.34	SL	0.66 lb ai/A	PPInt	A	88.3b 86.0a 98.3a
	Dry Ammonium Sulfate	100	D	2 lb ai/A	PPInt	A	
9	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	PPInt	A	96.3a 88.3a 98.3a
	Sharpen.....saflufenacil	2.85	SC	0.0334 lb ai/A	PPInt	A	
	Methylated Seed Oil	100	L	1 % v/v	PPInt	A	
	30% Urea Ammonium Nitrate	100	L	2 % v/v	PPInt	A	
10	Roundup WeatherMax..glyphosate	4.5	AS	1.12 lb ai/A	PPInt	A	50.0g 56.7d 75.0d
	Canopy Premix	75	DF	0.21 lb ai/A	PPInt	A	
LSD (P=.05)					6.67	6.73	9.55
Standard Deviation					3.89	3.92	5.57
CV					5.97	6.05	6.16
Replicate F					3.178	7.960	0.943
Replicate Prob(F)					0.0658	0.0033	0.4080
Treatment F					149.025	128.150	9.057
Treatment Prob(F)					0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Tricor and Collide for Burndown in Double-Crop Soybean

Trial ID: Soy24-13 Cooperator: UPI  
 Location: Field #32 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Crabgrass Species	DIGSS	Digitaria sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Horseweed	ERICA	Erigeron canadensis L.
4.	Horsenettle	SOLCA	Solanum carolinense L.

**Crop 1:** Soybean **GLXMA** **Variety:** H418NRR/STS  
**Planting Date:** 07/22/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 89 F **Soil Moisture:** Moist **Emergence Date:** 07/28/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Wheat Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	08/30/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	08/30/13	Harmony SG	50	DF	0.5	oz wt/A

**SOIL DESCRIPTION**

**% Sand:** 77 **% OM:** 1.5 **Texture:** sandy loam  
**% Silt:** 12 **pH:** 5.8  
**% Clay:** 11 **CEC:** 5.1 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	07/22/13
<b>Time of Day:</b>	8:30 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	3-5EPP
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	79 F
<b>% Relative Humidity:</b>	85
<b>Wind Velocity, Unit:</b>	0 mph
<b>Wind Direction:</b>	N/A
<b>Dew Presence (Y/N):</b>	Y
<b>Soil Temp., Unit:</b>	77 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Wet
<b>% Cloud Cover:</b>	70

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	DIGSS
Growth Stage:	vegetative
Height, Unit:	12 in
Density, Unit:	10 m2
Weed 2 Code:	AMAPA
Growth Stage:	veg-flower
Height, Unit:	12 in
Density, Unit:	0-10 m2
Weed 3 Code:	ERICA
Growth Stage:	bolting
Height, Unit:	12 in
Density, Unit:	0-2 m2
Weed 4 Code:	SOLCA
Growth Stage:	vegetative
Height, Unit:	12 in
Density, Unit:	0-2 m2

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	28 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

8/01/13: Due to dry weather, growth is uneven in plots and as a result, ratings were not very consistent.

8/07/13: Good to excellent burndown in all treatments of morningglory and palmer amaranth. Grass control was excellent for all glyphosate treatments. Horseweed density was low and inconsistent to rate at this time.

8/28/13: ANNGR = Large crabgrass and some goosegrass.

9/18/13: Outstanding weed control in all treated plots.

## Tricor and Collide for Burndown in Double-Crop Soybean

Trial ID: Soy24-13 Cooperator: UPI  
 Location: Field #32 Investigator: Mark VanGessel

Weed Code					GLXMA	GLXMA	GLXMA	GLXMA	ERICA	AMAPA	
Crop Code					Soybean	Soybean	Soybean	Soybean	Horse-	Palmer	
Weed or Crop Name					Stunting	Stunting	Stunting	Stunting	weed	Amaranth	
Weed or Crop Name					%	%	%	%	1=presnt	Control	
Rating Data Type					08/01/13	08/07/13	08/28/13	09/18/13	0=absent	%	
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg						
1	Untreated Check					0.0c	0.0c	0.0d	0.0c	1.0a	0.0c
2	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	0.0c	0.0c	3.3cd	2.3c	1.0a	80.0 ab
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP						
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP						
3	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	11.7 b	7.0 b	0.0d	2.3c	0.7 ab	60.0 b
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP						
	KFD-104-01	4.23 L		0.1 lb ai/A	3-5EPP						
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP						
4	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	16.7 b	7.4 b	8.0bcd	0.0c	0.7 ab	93.3 a
	Collide.....oxyfluorfen	2 EC		0.5 lb ai/A	3-5EPP						
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP						
5	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	15.0 b	10.0 b	17.0 ab	2.3c	0.3 bc	75.7 ab
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP						
	Collide.....oxyfluorfen	2 EC		0.5 lb ai/A	3-5EPP						
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP						
6	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	3-5EPP	4.5c	0.0c	17.3 ab	3.0c	0.0c	81.7 ab
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP						
	Nonionic Surfactant	100 L		0.25 % v/v	3-5EPP						
7	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	3-5EPP	11.7 b	9.7 b	10.7bc	8.7 b	0.0c	66.7 b
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP						
	KFD-104-01	4.23 L		0.1 lb ai/A	3-5EPP						
	Nonionic Surfactant	100 L		0.25 % v/v	3-5EPP						
8	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	31.7 a	31.7 a	21.7 a	15.3 a	0.0c	94.0 a
	Callisto.....mesotrione	4 SC		0.156 lb ai/A	3-5EPP						
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP						
LSD (P=.05)						5.99	5.34	9.34	4.80	0.65	24.49
Standard Deviation						3.40	3.03	5.33	2.72	0.37	13.98
CV						29.82	36.88	54.68	64.05	80.73	20.29
Replicate F						2.019	0.595	0.295	4.116	0.304	0.106
Replicate Prob(F)						0.1723	0.5660	0.7493	0.0412	0.7424	0.8998
Treatment F						28.218	35.460	7.347	11.050	4.130	14.008
Treatment Prob(F)						0.0001	0.0001	0.0008	0.0001	0.0115	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Tricor and Collide for Burndown in Double-Crop Soybean						
Trial ID: Soy24-13 Cooperator: UPI						
Location: Field #32 Investigator: Mark VanGessel						
Weed Code					GGGAN	
Crop Code					Annual	GLXMA
Weed or Crop Name					Grasses	Soybean
Weed or Crop Name					Control	Yield
Rating Data Type					%	Bu/A
Rating Unit					08/28/13	11/13/13
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	
No.	Name	Conc	Type	Rate	Unit	Stg
1	Untreated Check					
						0.0d
2	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	92.3 a
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP	17.3 a
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP	
3	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	81.7 bc
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP	16.5 ab
	KFD-104-01	4.23 L		0.1 lb ai/A	3-5EPP	
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP	
4	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	91.7 a
	Collide.....oxyfluorfen	2 EC		0.5 lb ai/A	3-5EPP	15.3 ab
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP	
5	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	86.7 ab
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP	17.3 a
	Collide.....oxyfluorfen	2 EC		0.5 lb ai/A	3-5EPP	
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP	
6	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	3-5EPP	83.3 ab
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP	16.5 ab
	Nonionic Surfactant	100 L		0.25 % v/v	3-5EPP	
7	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	3-5EPP	73.3 c
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	3-5EPP	15.3 ab
	KFD-104-01	4.23 L		0.1 lb ai/A	3-5EPP	
	Nonionic Surfactant	100 L		0.25 % v/v	3-5EPP	
8	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	3-5EPP	85.0 ab
	Callisto.....mesotrione	4 SC		0.156 lb ai/A	3-5EPP	13.4 bc
	Dry Ammonium Sulfate	100 D		1.02 % w/v	3-5EPP	
LSD (P=.05)						9.65
Standard Deviation						3.75
CV						5.51
						2.14
						7.42
						13.96
Replicate F						0.671
Replicate Prob(F)						1.780
Treatment F						0.5270
Treatment Prob(F)						0.2047
						92.437
						2.869
						0.0001
						0.0443

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Effectiveness of Mechanical Weeding and Its Impact on Root Rots								
Trial ID: Bean2-13_6tr		Cooperator: Terry Wooters						
Location: Field #f4		Investigator: Mark VanGessel						
Weed Code	Crop Code	PHSVN	AMAPA	AMAPA	IPOSS	IPOSS	DIGSA	DIGSA
Weed or Crop Name	Weed or Crop Name	PHSVN	Palmer	Palmer	Morngrly	Morngrly	Large	Large
Rating Data Type	Rating Unit	stand ct	Count	avg hght	Count	avg hght	Crabgras	Crabgras
Rating Date		#/20'row	#/0.5m2	inches	#/0.5m2	inches	Count	avg hght
		07/29/13	07/29/13	07/29/13	07/29/13	07/29/13	#/0.5m2	inches
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg	Appl Code	
1	Weed-free							43 a
2	No Rotary Hoe							38 a
	Standard Cultivation					As need C		9.3 b
								15.3 a
3	Rotary Hoe							36 a
	Rotary Hoe					PRE A		3.7 b
	Standard Cultivation					Emerge B		11.3 a
						As need C		1.3 a
4	Rotary Hoe							30 a
	Rotary Hoe					PRE A		1.3 b
	In-row Cultivator					Emerge B		13.8 a
						As need C		0.3 a
5	Untreated Check/Mulch							38 a
6	Straw Mulch							40 a
LSD (P=.05)								17.9
Standard Deviation								9.9
CV								26.28
Replicate F								0.578
Replicate Prob(F)								0.5785
Treatment F								0.604
Treatment Prob(F)								0.6992

Crop Code	PHSVN	PHSVN	PHSVN					
Weed or Crop Name	snapbean	snapbean	snapbean					
Weed or Crop Name	Plants	Plants	Beans					
Rating Data Type	Stand Ct	Wt	Wt					
Rating Unit	#/10'row	kg/10'rw	g/10'row					
Rating Date	08/19/13	08/19/13	08/19/13					
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg	Appl Code	
1	Weed-free							26.0 a
2	No Rotary Hoe							22.0 a
	Standard Cultivation					As need C		3.06 a
								2.64 a
								1375.3 a
3	Rotary Hoe							23.3 a
	Rotary Hoe					PRE A		1.67 a
	Standard Cultivation					Emerge B		950.7 ab
						As need C		
4	Rotary Hoe							21.7 a
	Rotary Hoe					PRE A		2.72 a
	In-row Cultivator					Emerge B		1072.7 ab
						As need C		
5	Untreated Check/Mulch							22.3 a
6	Straw Mulch							24.0 a
LSD (P=.05)								12.46
Standard Deviation								6.85
CV								29.5
Replicate F								0.157
Replicate Prob(F)								0.8564
Treatment F								0.167
Treatment Prob(F)								0.9692

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Effectiveness of Mechanical Weeding and Its Impact on Root Rots										
Trial ID: Bean2-13_fact		Cooperator: Terry Wooters								
Location: Field #4		Investigator: Mark VanGessel								
Crop Code	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN		
Weed or Crop Name	Snap	Snap	Snap	Snap	Snap	Snap	Snap	Snap		
Weed or Crop Name	Bean	Bean	Bean	Bean	Bean	Bean	Bean	Bean		
Rating Data Type	Plants	Root wt	Shoot wt	Root	Shoot	Plants	Total			
Rating Unit	#	grams	grams	wt/plant	wt/plant	#/lesion	severity			
Rating Date	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13		
Trt	Treatment	Grow	Appl							
No.	Name	Stg	Code							
1	No fungicide at planting Weed-free			6.0 a	2.90 bc	16.55 abc	0.4828 a	2.759 a	2.7 a	45.7 a
2	No fungicide at planting No Rotary Hoe Standard Cultivation	As need	C	6.0 a	2.49 c	14.66 bc	0.4144 a	2.444 a	2.3 a	55.0 a
3	No fungicide at planting Rotary Hoe Rotary Hoe Standard Cultivation	PRE	A B C	5.7 a	3.20 abc	17.27 ab	0.5609 a	3.067 a	1.7 a	55.0 a
4	No fungicide at planting Rotary Hoe Rotary Hoe In-row Cultivator	PRE	A B C	5.7 a	4.33 a	17.13 ab	0.7811 a	3.114 a	2.3 a	16.3 a
5	No fungicide at planting Untreated			6.0 a	2.34 c	11.88 c	0.3894 a	1.979 a	1.7 a	75.3 a
6	No fungicide at planting Mulch layer			5.4 a	2.51 c	17.98 ab	0.5095 a	3.402 a	2.0 a	26.3 a
7	Fungicide at plant (serenade) Weed-free			5.3 a	3.19 abc	20.84 a	0.6408 a	4.214 a	1.3 a	9.3 a
8	Fungicide at plant (serenade) No Rotary Hoe Standard Cultivation	As need	C	5.3 a	3.30 abc	20.17 a	0.6286 a	3.830 a	1.0 a	5.3 a
9	Fungicide at plant (serenade) Rotary Hoe Rotary Hoe Standard Cultivation	PRE	A B C	6.0 a	2.72 bc	21.09 a	0.4528 a	3.514 a	1.3 a	12.3 a
10	Fungicide at plant (serenade) Rotary Hoe Rotary Hoe In-row Cultivator	PRE	A B C	5.3 a	3.85 ab	20.38 a	0.7547 a	4.078 a	1.0 a	10.0 a
11	Fungicide at plant (serenade) Untreated			5.7 a	2.64 c	14.28 bc	0.4641 a	2.542 a	1.3 a	12.3 a
12	Fungicide at plant (serenade) Mulch layer			6.0 a	2.35 c	14.82 bc	0.3917 a	2.470 a	2.3 a	62.0 a
LSD (P=.05)		1.04		1.201		5.152	0.28139	1.7270	2.96	75.87
Standard Deviation		0.61		0.709		3.034	0.16569	1.0169	1.75	44.80
CV		10.77		23.77		17.58	30.73	32.62	99.97	139.64
Replicate F		0.845		3.640		1.916	3.494	0.909	0.436	1.987
Replicate Prob(F)		0.4437		0.0431		0.1721	0.0490	0.4180	0.6523	0.1609
Treatment F		0.681		2.302		2.881	1.994	1.451	0.319	0.922
Treatment Prob(F)		0.7409		0.0462		0.0179	0.0838	0.2229	0.9730	0.5377

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Effectiveness of Mechanical Weeding and Its Impact on Root Rots								
Trial ID: Bean2-13_fact			Cooperator: Terry Wooters					
Location: Field #4			Investigator: Mark VanGessel					
Crop Code	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN
Weed or Crop Name	Snap	Snap	Snap	Snap	Snap	Snap	Snap	Snap
Weed or Crop Name	Bean	Bean	Bean	Bean	Bean	Bean	Bean	Bean
Rating Data Type	Plants	Root wt	Shoot wt	Root	Shoot	Plants	Total	
Rating Unit	#	grams	grams	wt/plant	wt/plant	#/lesion	severity	
Rating Date	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13
Trt Treatment	Grow	Appl						
No. Name	Stg	Code						
TABLE OF R MEANS								
Replicate 1	5.8	3.15	18.57	0.5673	3.344	1.8	14.4	
Replicate 2	5.8	2.54	16.18	0.4392	2.805	1.4	31.0	
Replicate 3	5.5	3.26	17.02	0.6113	3.205	2.1	50.8	
TABLE OF A (Soil Fungicide) MEANS								
1 No fungicide at planting	5.8	2.96	15.91	0.5230	2.794	2.1	45.6	
2 Fungicide at plant (serenade)	5.6	3.01	18.60	0.5554	3.441	1.4	18.6	
TABLE OF B (Weed Control) MEANS								
1 Weed-free	5.7	3.04	18.70	0.5618	3.486	2.0	27.5	
2 No Rotary Hoe	5.7	2.89	17.42	0.5215	3.137	1.7	30.2	
2 Standard Cultivation		As need	C					
3 Rotary Hoe	5.8	2.96	19.18	0.5068	3.291	1.5	33.7	
3 Rotary Hoe		PRE	A					
3 Standard Cultivation		Emerge	B					
3 Standard Cultivation		As need	C					
4 Rotary Hoe	5.5	4.09	18.76	0.7679	3.596	1.7	13.2	
4 Rotary Hoe		PRE	A					
4 Rotary Hoe		Emerge	B					
4 In-row Cultivator		As need	C					
5 Untreated	5.8	2.49	13.08	0.4268	2.261	1.5	43.8	
6 Mulch layer	5.7	2.43	16.40	0.4506	2.936	2.2	44.2	
TABLE OF A (Soil Fungicide) B (Weed Control) MEANS								
1 No fungicide at planting	6.0	2.90	16.55	0.4828	2.759	2.7	45.7	
1 Weed-free								
2 Fungicide at plant (serenade)	5.3	3.19	20.84	0.6408	4.214	1.3	9.3	
1 Weed-free								
1 No fungicide at planting	6.0	2.49	14.66	0.4144	2.444	2.3	55.0	
2 No Rotary Hoe								
2 Standard Cultivation		As need	C					
2 Fungicide at plant (serenade)	5.3	3.30	20.17	0.6286	3.830	1.0	5.3	
2 No Rotary Hoe								
2 Standard Cultivation		As need	C					
1 No fungicide at planting	5.7	3.20	17.27	0.5609	3.067	1.7	55.0	
3 Rotary Hoe		PRE	A					
3 Rotary Hoe		Emerge	B					
3 Standard Cultivation		As need	C					

## University of Delaware

Crop Code	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN	PHSVN
Weed or Crop Name	Snap	Snap	Snap	Snap	Snap	Snap	Snap
Weed or Crop Name	Bean	Bean	Bean	Bean	Bean	Bean	Bean
Rating Data Type	Plants	Root wt	Shoot wt	Root	Shoot	Plants	Total
Rating Unit	#	grams	grams	wt/plant	wt/plant	#/lesion	severity
Rating Date	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13
Trt Treatment	Grow	Appl					
No. Name	Stg	Code					
2 Fungicide at plant (serenade)	6.0	2.72	21.09	0.4528	3.514	1.3	12.3
3 Rotary Hoe	PRE	A					
3 Rotary Hoe	Emerge	B					
3 Standard Cultivation	As need	C					
1 No fungicide at planting	5.7	4.33	17.13	0.7811	3.114	2.3	16.3
4 Rotary Hoe	PRE	A					
4 Rotary Hoe	Emerge	B					
4 In-row Cultivator	As need	C					
2 Fungicide at plant (serenade)	5.3	3.85	20.38	0.7547	4.078	1.0	10.0
4 Rotary Hoe	PRE	A					
4 Rotary Hoe	Emerge	B					
4 In-row Cultivator	As need	C					
1 No fungicide at planting	6.0	2.34	11.88	0.3894	1.979	1.7	75.3
5 Untreated							
2 Fungicide at plant (serenade)	5.7	2.64	14.28	0.4641	2.542	1.3	12.3
5 Untreated							
1 No fungicide at planting	5.4	2.51	17.98	0.5095	3.402	2.0	26.3
6 Mulch layer							
2 Fungicide at plant (serenade)	6.0	2.35	14.82	0.3917	2.470	2.3	62.0
6 Mulch layer							

## Effectiveness of Mechanical Weeding and Its Impact on Root Rots

Trial ID: Bean2-13\_fact Cooperator: Terry Wooters  
 Location: Field #f4 Investigator: Mark VanGessel

## FACTORIAL/POOLED ERROR AOV For PHSVN Snap Bean Plants # 07/24/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	11.373451				
R	2	0.636708	0.318354	0.885	0.4269	0.5
A	1	0.289314	0.289314	0.804	0.3795	0.4
B	5	0.466770	0.093354	0.260	0.9303	0.7
AB	5	2.067780	0.413556	1.150	0.3645	1.0
ERROR	22	7.912879	0.359676			

## FACTORIAL/POOLED ERROR AOV For PHSVN Snap Bean Root wt grams 07/24/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	27.469456				
R	2	3.662672	1.831336	3.640	0.0431	0.60
A	1	0.022500	0.022500	0.045	0.8345	0.49
B	5	10.753289	2.150658	4.275	0.0072	0.85
AB	5	1.963133	0.392627	0.780	0.5745	1.20
ERROR	22	11.067861	0.503085			

## FACTORIAL/POOLED ERROR AOV For PHSVN Snap Bean Shoot wt grams 07/24/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	520.108243				
R	2	35.258762	17.629381	2.007	0.1583	2.51
A	1	64.713480	64.713480	7.367	0.0127	2.05
B	5	157.305141	31.461028	3.582	0.0161	3.55
AB	5	69.579041	13.915808	1.584	0.2059	5.02
ERROR	22	193.251820	8.784174			

FACTORIAL/POOLED ERROR AOV For PHSVN Snap Bean Root wt/plant 07/24/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1.370403				
R	2	0.191847	0.095924	3.661	0.0424	0.1371
A	1	0.009457	0.009457	0.361	0.5542	0.1119
B	5	0.448045	0.089609	3.420	0.0195	0.1938
AB	5	0.144550	0.028910	1.103	0.3869	0.2741
ERROR	22	0.576504	0.026205			

FACTORIAL/POOLED ERROR AOV For PHSVN Snap Bean Shoot wt/plant 07/24/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	40.097380				
R	2	1.880828	0.940414	0.953	0.4010	0.841
A	1	3.768475	3.768475	3.818	0.0635	0.687
B	5	6.972907	1.394581	1.413	0.2585	1.190
AB	5	5.759151	1.151830	1.167	0.3566	1.682
ERROR	22	21.716018	0.987092			

FACTORIAL/POOLED ERROR AOV For PHSVN Snap Bean Plants #/lesion 07/24/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	80.750000				
R	2	2.666667	1.333333	0.436	0.6523	1.5
A	1	4.694444	4.694444	1.534	0.2286	1.2
B	5	2.250000	0.450000	0.147	0.9788	2.1
AB	5	3.805556	0.761111	0.249	0.9360	3.0
ERROR	22	67.333333	3.060606			

FACTORIAL/POOLED ERROR AOV For PHSVN Snap Bean Total severity 07/24/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	72482.750000				
R	2	7978.166667	3989.083333	1.987	0.1609	37.9
A	1	6588.027778	6588.027778	3.282	0.0837	31.0
B	5	4014.583333	802.916667	0.400	0.8435	53.6
AB	5	9744.805556	1948.961111	0.971	0.4570	75.9
ERROR	22	44157.166667	2007.143939			

Horsenettle Management in Lima Bean

Trial ID: Bean3-13 Cooperator: PictSweet  
 Location: Field #30 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Horseweed	ERICA	Erigeron canadensis L.
3.	Horsenettle	SOLCA	Solanum carolinense L.

**Crop 1:** Lima Bean **PHSLU** **Variety:** Cypress  
**Planting Date:** 07/23/13 **Planting Method:** Row- Unit Planter **Depth:** 0.75 in  
**Rate:** 4 Sd/row-ft **Row Spacing:** 30 in **Seed Bed:** Medium  
**Emergence Date:** 07/28/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** FACTORIAL  
**Tillage Type:** Conventional Tillage

**Trial Initiation Comments:** The plot area was disked twice after the EPP treatments and immediately prior to planting.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/24/13	Pursuit	70	DG	2	oz wt/A
2.	07/24/13	Dual II Magnum	7.64	E	1.25	pt/A

**SOIL DESCRIPTION**

**% Sand:** 83 **% OM:** 0.8 **Texture:** loamy sand  
**% Silt:** 8 **pH:** 6.1  
**% Clay:** 9 **CEC:** 4.2 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	07/15/13	08/20/13	08/30/13
<b>Time of Day:</b>	12:10 pm	9:45 am	10:00 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PPlant	1st Trif	1st Bloom
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	87 F	75 F	74 F
<b>% Relative Humidity:</b>	61	73	76
<b>Wind Velocity, Unit:</b>	2 mph	0 mph	1 mph
<b>Wind Direction:</b>	West	N/A	Southwest
<b>Dew Presence (Y/N):</b>	Y	Y	Y
<b>Soil Temp., Unit:</b>	86 F	74 F	72 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Moist
<b>Root Zone Moisture:</b>	Wet	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Moist	Moist	Moist
<b>% Cloud Cover:</b>	20	50	50

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	PHSLU	PHSLU	PHSLU
Growth Stage:		V5	EaFlower
Height, Unit:		10 in	17 in
Crop Health:		Good	Good

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:	Running	veg-run	veg-run
Height, Unit:	15 in	8 in	10 in
Density,Unit:	5-10 m2	10-30 m2	5-10 m2
Weed 2 Code:	ERICA	ERICA	ERICA
Growth Stage:	bolting		
Height, Unit:	12 in		
Density,Unit:	0-3 m2		
Weed 3 Code:	SOLCA	SOLCA	SOLCA
Growth Stage:	vegetative	vegetative	veg-flower
Height, Unit:	12 in	4 in	8 in
Density,Unit:	5-15 m2	0-6 m2	0-10 m2

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	28 in	24 in	32 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

#### Trial Comments

08-30-13: Horsenettle height ranged from 4-11 inches.

10-15-13:

Additional plots:

Plot Trt # Horsenettle # plnts Plnts w/berries Ttl # berries berries >6 pea size scale Ttl berry wt. (grams)

Rep x	9	5	3	13	6	8.056
Rep x	10	0	0	0	0	0
Rep x	11	21	1	1	0	0.239

3 rows \* 20 ft-row area = 150 sqft.

Horsenettle Management in Lima Bean							PHSLU	IPOSS	SOLCA	SOLCA	SOLCA	SOLCA	
Trial ID: Bean3-13 Cooperator: PictSweet							Lima	Morngrly	Horse-	Horse-	Horse-	Horse-	
Location: Field #30 Investigator: Mark VanGessel							Bean	Species	nettle	nettle	nettle	nettle	
Weed Code							Stunting	Control	Plants	Berries	Berries	BerryWt	
Crop Code							%	%	#/150ft2	#/150ft2	#>6pea	g/150ft2	
Weed or Crop Name							09/14/13	09/14/13	10/15/13	10/15/13	10/15/13	10/15/13	
Weed or Crop Name													
Rating Data Type													
Rating Unit													
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code						
1	No Pre-plant							8.3 bc	66.7 a	11.0 a	0.0 a	0.0 b	0.00 a
	Basagran.....bentazon	4 L		0.5 lb ai/A		1st Trif B							
	Raptor.....imazamox	1 AS		0.0312 lb ai/A		1st Trif B							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Trif B							
2	No Pre-plant							6.3 bcd	13.3 f	11.3 a	0.0 a	0.0 b	0.00 a
	Basagran.....bentazon	4 L		1 lb ai/A		1st Trif B							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Trif B							
3	No Pre-plant							5.7 bcd	63.3 ab	9.0 a	0.0 a	0.0 b	0.00 a
	Basagran.....bentazon	4 L		0.5 lb ai/A		1st Blm C							
	Raptor.....imazamox	1 AS		0.0312 lb ai/A		1st Blm C							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Blm C							
4	No Pre-plant							10.5 bc	40.7 de	54.7 a	1.7 a	1.0 a	1.69 a
	Basagran.....bentazon	4 L		1 lb ai/A		1st Blm C							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Blm C							
5	Glyphosate	3 L		1.5 lb ae/A		PPlant A		2.3 cd	61.7 abc	17.0 a	0.0 a	0.0 b	0.00 a
	Basagran.....bentazon	4 L		0.5 lb ai/A		1st Trif B							
	Raptor.....imazamox	1 AS		0.0312 lb ai/A		1st Trif B							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Trif B							
6	Glyphosate	3 L		1.5 lb ae/A		PPlant A		7.0 bcd	43.3 cde	6.7 a	0.0 a	0.0 b	0.00 a
	Basagran.....bentazon	4 L		1 lb ai/A		1st Trif B							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Trif B							
7	Glyphosate	3 L		1.5 lb ae/A		PPlant A		13.0 b	56.7 a-d	6.3 a	0.0 a	0.0 b	0.00 a
	Basagran.....bentazon	4 L		0.5 lb ai/A		1st Blm C							
	Raptor.....imazamox	1 AS		0.0312 lb ai/A		1st Blm C							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Blm C							
8	Glyphosate	3 L		1.5 lb ae/A		PPlant A		2.3 cd	36.7 e	6.0 a	0.0 a	0.0 b	0.00 a
	Basagran.....bentazon	4 L		1 lb ai/A		1st Blm C							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Blm C							
9	No Pre-plant							9.0 bc	46.7 b-e	24.7 a	0.3 a	0.3 b	0.59 a
	Untreated Check												
10	No Pre-plant							0.0 d	0.0 f	1.0 a	0.0 a	0.0 b	0.00 a
	Sandea.....halosulfuron	75 DF		0.0314 lb ai/A		1st Trif B							
	Nonionic Surfactant	100 L		0.25 % v/v		1st Trif B							
11	No Pre-plant							50.0 a	73.3 a	1.3 a	0.0 a	0.0 b	0.00 a
	Aim.....carfentrazone	2 EW		.00312 lb ai/A		1st Trif B							
	Crop Oil Concentrate	100 L		1.25 % v/v		1st Trif B							
LSD (P=.05)							8.27	18.43	33.40	1.08	0.57	1.005	
Standard Deviation							4.84	10.78	19.61	0.63	0.33	0.590	
CV							46.51	23.62	144.79	349.17	276.25	284.79	
Replicate F							1.242	0.615	0.664	1.579	1.892	1.934	
Replicate Prob(F)							0.3111	0.5512	0.5256	0.2308	0.1768	0.1707	
Treatment F							23.955	13.256	1.811	1.880	2.541	2.346	
Treatment Prob(F)							0.0001	0.0001	0.1241	0.1102	0.0364	0.0502	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Horsenettle Management in Lima Bean

Trial ID: Bean3b-13    Cooperator: PictSweet  
 Location: Milford    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Horsenettle (between row)	SOLCA	Solanum carolinense L.
2.	Horsenettle (in row)	SOLCA	Solanum carolinense L.

**Crop 1:** Lima Bean    **PHSLU**    **Variety:** Cypress  
**Planting Date:** 07/22/13    **Planting Method:** Row- Unit Planter    **Depth:** 0.75 in  
**Row Spacing:** 30 in  
**Soil Temperature:** 90 F    **Soil Moisture:** Moist

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Conventional Tillage

**MAINTENANCE**

**Field Prep./Maintenance:** The study area was sprayed preemergence by the cooperator with 2.5 oz/A Spartan Charge, and was cultivated twice.

**Irrigation/Type:** Sprinkler - Center Pivot    **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 15    **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	09/10/13
<b>Time of Day:</b>	1:00 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	Pre-Blm
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	86 F
<b>% Relative Humidity:</b>	67
<b>Wind Velocity, Unit:</b>	4 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	85 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	15

**CROP STAGE AT EACH APPLICATION**

	A
<b>Crop 1 Code:</b>	PHSLU
<b>Growth Stage:</b>	vegetative
<b>Height, Unit:</b>	18 in
<b>Crop Health:</b>	Good

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	SOLCA
Growth Stage:	vegetative
Height, Unit:	3.5 in
Density, Unit:	0-3 m2
Weed 2 Code:	SOLCA
Growth Stage:	bud-1Flwr
Height, Unit:	7 in
Density, Unit:	0-3 m2

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

**Trial Comments**

In all reps, 20 feet of row was sampled. In rep 1, horsenettle measurements were taken in 3 rows of lima beans (~10 inches centered over the row) and 3 inter-row areas (~20 inches). In reps 2 and 3, 6 rows were sampled as well as 7 inter-row areas. Since the field was cultivated, this was done to separate plants that emerged early in the season versus those that emerged after cultivation.

Data was standardized to account for differences in sampling area between reps 1 and 2/3. Plots were 8 rows wide, and 5 foot border between each plot. Untreated check data collected in the unsprayed area on each side of the plots.

**Trial Comments cont.**

Plot #	trt	% stunting of individual		No. of plants		No. plants with berries	
		plants	10/16/13	In row	b/w row	In row	b/w row
101	basagran	30		8	15	3	2
102	sandea	50		18	32	0	0
103	raptor	40		10	8	0	0
201	sandea	50		43	61	2	0
202	raptor	60		30	43	1	0
203	basagran	50		14	28	1	0
301	raptor	50		24	36	1	0
302	basagran	40		9	13	6	0
303	sandea	50		32	20	0	0
1000	left of 101			0	2	0	1
1001	b/w 101/102			17	12	2	0
1002	b/w 102/103			29	15	2	0
1003	right of 103			8	2	1	0
2000				9	5	0	0
2001				37	19	5	0
2002				25	13	4	0
2003				0	2	0	0
3000				18	7	2	0
3001				21	9	7	0
3002				12	15	4	0
3003				1	1	0	0

Bean 3b: Milford Site		in-row	pea scale		grams	# row	length
<u>Plot #</u>	<u>trt</u>	<u># berries</u>	<u>&gt; 6</u>	<u>&lt; 6</u>	<u>Total weight</u>	<u># rows</u>	<u>of row</u>
101	basagran	97	80	17	156.66	3	20
102	sandea	0	0	0	0	3	20
103	raptor	0	0	0	0	3	20
201	sandea	5	5	0	4.91	6	20
202	raptor	3	2	1	1.67	6	20
203	basagran	2	0	2	0.63	6	20
301	raptor	4	4	0	6.17	6	20
302	basagran	25	19	6	24.83	6	20
303	sandea	0	0	0	0	6	20
1000	left of 101	0	0	0	0	2	30
1001	b/w 101/102	42	34	8	46.52	2	30
1002	b/w 102/103	23	21	2	30.96	2	30
1003	right of 103	27	13	14	22.75	2	30
2000		0	0	0	0	2	30
2001		47	32	15	63.85	2	30
2002		17	8	9	10.01	2	30
2003		0	0	0	0	2	30
3000		7	1	6	3.085	2	30
3001		82	52	30	77.37	2	30
3002		14	6	8	9.038	2	30
3003		0	0	0	0	2	30

	b/w row	pea scale		grams
<u>Plot</u>	<u>Number berries</u>	<u>&gt; 6</u>	<u>&lt; 6</u>	<u>Total weight</u>
101	23	15	8	20.7
border of 1101	3	3	0	4.91

Horsenettle Management in Lima Bean						
Trial ID: Bean3b-13 Cooperator: PictSweet						
Location: Milford Investigator: Mark VanGessel						
Weed Code	SOLCA	SOLCA	SOLCA	SOLCA	SOLCA	SOLCA
Crop Code	Horse-	Horse-	Horse-	Horse-	Horse-	Horse-
Weed or Crop Name	nettle	nettle	nettle	nettle	nettle	nettle
Weed or Crop Name	# Plants	# Plants	% plants	% plants	% plants	# berris
Rating Data Type	w/in row	b/w rows	w/ berry	w/ berry	w/ berry	w/in row
Rating Unit	20' row	20' long	w/in row	b/w row	b/w row	20' row
Rating Date	10/16/13	10/16/13	10/16/13	10/16/13	10/16/13	10/16/13
Trt Treatment	Form	Form	Rate	Grow	Appl	
No. Name	Conc	Type	Rate	Unit	Stg	Code
1 Basagran.....bentazon	4 L		1 lb ai/A	Pre-Blm	A	
Nonionic Surfactant (pink)	100 L		0.25 % v/v	Pre-Blm	A	
2 Basagran.....bentazon	4 L		0.5 lb ai/A	Pre-Blm	A	
Raptor.....imazamox	1 AS		0.0312 lb ai/A	Pre-Blm	A	
Nonionic Surfactant (blue)	100 L		0.25 % v/v	Pre-Blm	A	
3 Sandea.....halosulfuron	75 DF		0.0314 lb ai/A	Pre-Blm	A	
Nonionic Surfactant (yellow)	100 L		0.25 % v/v	Pre-Blm	A	
4 Untreated Check						
LSD (P=.05)	11.54	1.50	4.54	1.978t	0.0728	0.785t
Standard Deviation	5.77	0.75	2.27	0.990t	0.0365	0.393t
CV	16.5	13.44	42.59	59.92	264.2	82.13
Replicate F	3.000	5.652	1.418	0.874	1.719	0.487
Replicate Prob(F)	0.1250	0.0417	0.3131	0.4643	0.2569	0.6366
Treatment F	51.000	57.530	1.517	5.324	1.000	3.565
Treatment Prob(F)	0.0001	0.0001	0.3032	0.0397	0.4547	0.0867

Means followed by same letter do not significantly differ (P=.05, LSD)

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Sulfentrazone Use in Lima Bean

Trial ID: Bean6-13 Cooperator:  
 Location: Field #4 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Lima Bean **PHSLU** **Variety:** Cypress  
**Planting Date:** 06/26/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4 Sd/row-ft **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 92 F **Soil Moisture:** Moist **Emergence Date:** 07/01/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	08/08/13	Poast	1.5	L	24	fl oz/A
2.	08/08/13	Nonionic Surfactant			0.25	% v/v

## SOIL DESCRIPTION

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 11 **pH:** 5.7  
**% Clay:** 10 **CEC:** 6.1 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

## APPLICATION DESCRIPTION

	A
<b>Application Date:</b>	06/27/13
<b>Time of Day:</b>	8:20 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	78 F
<b>% Relative Humidity:</b>	75
<b>Wind Velocity, Unit:</b>	2 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	77 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	N/A
<b>% Cloud Cover:</b>	70

**APPLICATION EQUIPMENT**

	<b>A</b>
<b>Appl. Equipment:</b>	Tractor
<b>Operating Pressure:</b>	40 psi
<b>Nozzle Type:</b>	AIRMIX
<b>Nozzle Size:</b>	11002
<b>Nozzle Spacing, Unit:</b>	20 in
<b>Boom Length, Unit:</b>	6 nozl
<b>Boom Height, Unit:</b>	20 in
<b>Ground Speed, Unit:</b>	3 mph
<b>Carrier:</b>	water
<b>Spray Volume, Unit:</b>	20 gpa
<b>Propellant:</b>	Comp. Air

Trial Comments

7/15/13: Treatment 2 is providing about 70% control of palmer amaranth. All other treatments are >90% control.

Sulfentrazone Use in Lima Bean													
Trial ID: Bean6-13 Cooperator:													
Location: Field #4 Investigator: Mark VanGessel													
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	PHSLU Lima Bean BiomsRdx %	PHSLU Lima Bean Stunting %	PHSLU Lima Bean Stunting %	PHSLU Lima Bean Stunting %	AMAPA Palmer Amaranth Control %	AMAPA Palmer Amaranth Control %	PHSLU Lima Bean StdCtTtl #/20'row
							07/08/13	07/15/13	07/23/13	08/04/13	07/23/13	08/04/13	07/08/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg								
1	Untreated Check						0.0e	0.0e	0.0c	0.0c	0.0f	0.0e	65a
2	Spartan Charge Premix	3.5 F		0.0342 lb ai/A	PRE		12.3d	8.0d	0.0c	0.0c	66.7e	50.0d	64a
3	Spartan Charge Premix	3.5 F		0.077 lb ai/A	PRE		13.0d	11.7cd	2.3c	0.0c	80.0d	68.3c	64a
4	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		18.7cd	16.3bc	14.0b	2.3c	81.7d	78.3b	65a
5	Spartan Charge Premix	3.5 F		0.154 lb ai/A	PRE		30.0ab	20.7b	21.7a	13.3a	90.0c	87.0ab	59a
6	Spartan Charge Premix	3.5 F		0.205 lb ai/A	PRE		36.7a	29.0a	25.0a	10.7ab	100.0a	87.7ab	61a
7	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		23.3bc	16.3bc	14.0b	5.0bc	98.3ab	88.3a	65a
	Dual Magnum.....s-metolachlor	7.62 E		1.43 lb ai/A	PRE								
8	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		19.0cd	12.3cd	10.7b	3.2bc	95.0b	89.3a	64a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE								
9	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		18.7cd	15.0bcd	11.3b	6.7abc	100.0a	92.7a	64a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE								
	Pursuit.....imazethapyr	2 AS		0.0234 lb ai/A	PRE								
10	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		17.3cd	11.7cd	10.7b	2.3c	100.0a	93.3a	64a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE								
	Pursuit.....imazethapyr	2 AS		0.0312 lb ai/A	PRE								
LSD (P=.05)							8.06	7.08	6.47	7.75	4.76	9.51	7.1
Standard Deviation							4.70	4.13	3.77	4.48	2.77	5.54	4.2
CV							24.86	29.27	34.39	102.78	3.42	7.54	6.53
Replicate F							0.602	0.569	5.035	0.128	0.759	2.072	3.286
Replicate Prob(F)							0.5582	0.5757	0.0183	0.8804	0.4825	0.1549	0.0607
Treatment F							13.531	10.311	15.118	3.208	365.554	82.625	0.613
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0203	0.0001	0.0001	0.7708

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						PHSLU	PHSLU	PHSLU	PHSLU	PHSLU	PHSLU
Crop Code						Lima	Lima	LimaBean	LimaBean	LimaBean	LimaBean
Weed or Crop Name						2 Rows	2 Rows	Pods	Pods	Pods	Pods
Weed or Crop Name						tll not	total	total	plump	flat	dry
Rating Data Type						normal	normal	#/4plts	%	%	%
Rating Unit						07/08/13	07/08/13	09/19/13	09/19/13	09/19/13	09/19/13
Rating Date											
Trt	Treatment	Form	Form	Rate	Grow						
No.	Name	Conc	Type	Rate	Unit	Stg					
1	Untreated Check					9 d	56 a	108 a	20.3 c	79.1 a	0.6 c
2	Spartan Charge Premix	3.5 F		0.0342 lb ai/A	PRE	11 cd	53 a	61 a	48.2 ab	33.6 b	18.2 bc
3	Spartan Charge Premix	3.5 F		0.077 lb ai/A	PRE	9 d	54 a	123 a	60.9 a	19.5 bc	19.5 bc
4	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE	13 bcd	53 a	85 a	54.0 ab	15.8 c	30.2 ab
5	Spartan Charge Premix	3.5 F		0.154 lb ai/A	PRE	22 a	37 a	110 a	45.6 ab	17.7 bc	36.7 ab
6	Spartan Charge Premix	3.5 F		0.205 lb ai/A	PRE	18 ab	44 a	106 a	55.2 ab	16.7 bc	28.1 ab
7	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE	16 abc	49 a	145 a	48.5 ab	17.5 bc	34.0 ab
	Dual Magnum.....s-metolachlor	7.62 E		1.43 lb ai/A	PRE						
8	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE	12 bcd	52 a	116 a	42.6 b	12.2 c	45.3 a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE						
9	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE	16 abc	48 a	97 a	51.1 ab	13.0 c	35.9 ab
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE						
	Pursuit.....imazethapyr	2 AS		0.0234 lb ai/A	PRE						
10	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE	13 bcd	50 a	134 a	47.7 ab	11.8 c	40.5 ab
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE						
	Pursuit.....imazethapyr	2 AS		0.0312 lb ai/A	PRE						
LSD (P=.05)						6.5	11.8	45.8	17.82	17.42	22.37
Standard Deviation						3.8	6.9	26.7	10.39	10.15	13.04
CV						27.06	13.82	24.62	21.9	42.87	45.13
Replicate F						5.187	1.049	5.627	14.837	2.134	3.729
Replicate Prob(F)						0.0166	0.3708	0.0126	0.0002	0.1474	0.0441
Treatment F						3.490	1.960	2.408	3.285	12.156	3.028
Treatment Prob(F)						0.0115	0.1073	0.0538	0.0152	0.0001	0.0217

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					PHSLU	PHSLU	PHSLU	PHSLU
Crop Code					LimaBean	LimaBean	LimaBean	LimaBean
Weed or Crop Name					Pod	BeanHarv	BeanLeft	All
Weed or Crop Name					Yield	Yield	Yield	Yield
Rating Data Type					g/25'row	g/25'row	g/25'row	g/25'row
Rating Unit					09/18/13	09/18/13	09/18/13	09/18/13
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Grow Stg		
1	Untreated Check						2687.3 a	458.3 a
2	Spartan Charge Premix	3.5 F		0.0342 lb ai/A	PRE		2114.3 a	623.0 a
3	Spartan Charge Premix	3.5 F		0.077 lb ai/A	PRE		1786.3 a	683.7 a
4	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		1908.7 a	742.0 a
5	Spartan Charge Premix	3.5 F		0.154 lb ai/A	PRE		1162.3 a	427.0 a
6	Spartan Charge Premix	3.5 F		0.205 lb ai/A	PRE		1752.3 a	644.3 a
7	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		2157.3 a	887.3 a
	Dual Magnum.....s-metolachlor	7.62 E		1.43 lb ai/A	PRE			855 a
8	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		1595.3 a	648.0 a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE			717 a
9	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		2085.7 a	859.0 a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE			673 a
	Pursuit.....imazethapyr	2 AS		0.0234 lb ai/A	PRE			1532 ab
10	Spartan Charge Premix	3.5 F		0.103 lb ai/A	PRE		1930.0 a	784.7 a
	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A	PRE			772 a
	Pursuit.....imazethapyr	2 AS		0.0312 lb ai/A	PRE			1556 ab
LSD (P=.05)							1103.09	399.72
Standard Deviation							643.03	233.01
CV							33.53	34.48
Replicate F							4.274	3.457
Replicate Prob(F)							0.0303	0.0536
Treatment F							1.158	1.279
Treatment Prob(F)							0.3762	0.3127
							640.3	552.3
							373.2	322.0
							57.04	24.21
							0.747	4.500
							0.4879	0.0260
							2.043	4.511
							0.0942	0.0032

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Fall Applications for NT Crops

Trial ID: Brndwn1-13    Cooperator:  
 Location: Felton    Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Volunteer Wheat	TRZAX	Triticum aestivum L. Wiggers

Crop 1: Non-Crop

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

## APPLICATION DESCRIPTION

	A
<b>Application Date:</b>	11/17/12
<b>Time of Day:</b>	10:00 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	Fall
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	50 F
<b>% Relative Humidity:</b>	61
<b>Wind Velocity, Unit:</b>	7 mph
<b>Wind Direction:</b>	Northeast
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	48 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	15

## WEED STAGE AT EACH APPLICATION

	A
<b>Weed 1 Code:</b>	STEME
<b>Growth Stage:</b>	vegetative
<b>Height, Unit:</b>	4 in
<b>Density, Unit:</b>	20-90 m2
<b>Weed 2 Code:</b>	LAMAM
<b>Growth Stage:</b>	4-leaf
<b>Height, Unit:</b>	1.5 in
<b>Density, Unit:</b>	15-20 m2
<b>Weed 3 Code:</b>	TRZAX
<b>Growth Stage:</b>	4-leaf
<b>Height, Unit:</b>	4 in
<b>Density, Unit:</b>	0-1 m2

APPLICATION EQUIPMENT		
	<b>A</b>	
Appl. Equipment:	Backpack	Trial Comments  12/10/12: At this time, hard to see any difference between the treatments (except untreated check).  04/02/13: Speedwell appears to have been spring emergence. Horseweed has spring emergence in treatment 8. Autumn Super 51 premix appears to reduce effectiveness of Gramoxone. Poor corn speedwell control in treatments 2, 3, 4, 5, 6, and 7.
Operating Pressure:	31 psi	
Nozzle Type:	AIRMIX	
Nozzle Size:	11002	
Nozzle Spacing, Unit:	18 in	
Boom Length, Unit:	6 nozl	
Boom Height, Unit:	20 in	
Ground Speed, Unit:	3 mph	
Carrier:	water	
Spray Volume, Unit:	20 gpa	
Propellant:	CO2	

Fall Applications for NT Crops										
Trial ID: Brndwn1-13		Cooperator:								
Location: Felton		Investigator: Mark VanGessel								
Weed Code	Weed or Crop Name					LAMAM Henbit	LAMAM Henbit	STEME Common Chickwd		
Rating Data Type	Rating Unit	Rating Date				Control %	Control %	Control %		
						03/22/13	04/02/13	04/02/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code			
1	Untreated Check							0.0f	0.0d	0.0c
2	Gramoxone SL....paraquat Nonionic Surfactant	2 SL 100 L		0.5 lb ai/A 0.25 % v/v	Fall Fall	A A		8.3e	0.6d	98.3a
3	Gramoxone SL....paraquat Nonionic Surfactant Autumn.....iodosulfuron	2 SL 100 L 10 WG		0.5 lb ai/A 0.25 % v/v .00187 lb ai/A	Fall Fall Fall	A A A		28.3d	20.6c	91.7a
4	Gramoxone SL....paraquat Nonionic Surfactant Autumn Super 51 Premix	2 SL 100 L 51 WG		0.5 lb ai/A 0.25 % v/v 0.016 lb ai/A	Fall Fall Fall	A A A		100.0a	96.7a	65.0b
5	Gramoxone SL....paraquat Nonionic Surfactant Valor SX.....flumioxazin	2 SL 100 L 51 WG		0.5 lb ai/A 0.25 % v/v 0.064 lb ai/A	Fall Fall Fall	A A A		98.7a	93.3a	95.0a
6	Gramoxone SL....paraquat Nonionic Surfactant Sharpen.....saflufenacil	2 SL 100 L 2.85 SC		0.5 lb ai/A 0.25 % v/v 0.0445 lb ai/A	Fall Fall Fall	A A A		78.3b	60.0b	95.0a
7	Gramoxone SL....paraquat Nonionic Surfactant Sharpen.....saflufenacil	2 SL 100 L 2.85 SC		0.5 lb ai/A 0.25 % v/v 0.067 lb ai/A	Fall Fall Fall	A A A		73.3c	63.3b	95.0a
8	Gramoxone SL....paraquat Nonionic Surfactant Valor SX.....flumioxazin	2 SL 100 L 51 WG		0.5 lb ai/A 0.25 % v/v 0.096 lb ai/A	Fall Fall Fall	A A A		100.0a	100.0a	100.0a
LSD (P=.05)								3.48	15.95	11.37
Standard Deviation								1.99	8.96	6.49
CV								3.27	16.5	8.11
Replicate F								2.024	1.493	2.894
Replicate Prob(F)								0.1690	0.2637	0.0887
Treatment F								1352.722	66.676	83.166
Treatment Prob(F)								0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Knock-Down Herbicide Rates in the Fall

Trial ID: Brndwn3-13    Cooperator:  
 Location: Felton            Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel            **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown            **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Volunteer Wheat	TRZAX	Triticum aestivum L. Wiggers

Crop 1: Non-Crop

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field            **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	11/17/12
<b>Time of Day:</b>	10:00 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	Fall
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	50 F
<b>% Relative Humidity:</b>	61
<b>Wind Velocity, Unit:</b>	7 mph
<b>Wind Direction:</b>	Northeast
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	48 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	15

**WEED STAGE AT EACH APPLICATION**

	A
<b>Weed 1 Code:</b>	STEME
<b>Growth Stage:</b>	vegetative
<b>Height, Unit:</b>	4 in
<b>Density, Unit:</b>	20-75 m2
<b>Weed 2 Code:</b>	LAMAM
<b>Growth Stage:</b>	4-leaf
<b>Height, Unit:</b>	1.5 in
<b>Density, Unit:</b>	20-40 m2
<b>Weed 3 Code:</b>	TRZAX
<b>Growth Stage:</b>	4-leaf
<b>Height, Unit:</b>	4 in
<b>Density, Unit:</b>	1-5 m2

APPLICATION EQUIPMENT	
	<b>A</b>
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

## Trial Comments

12/10/12: Rate response with both Gramoxone and Roundup. Highest rates were approx. 85-90% control. Gramoxone alone provided good leaf burn on the volunteer barley.

03/22/13: Everything dead except henbit. Gramoxone treatments missed a few common chickweed (90 - 95% control).

## Knock-Down Herbicide Rates in the Fall

Trial ID: Brndwn3-13 Cooperator:  
Location: Felton Investigator: Mark VanGessel

Weed Code	LAMAM	LAMAM	STEME
Weed or Crop Name	Henbit	Henbit	Common
Weed or Crop Name			Chickwd
Rating Data Type	Burndown	Control	Control
Rating Unit	%	%	%
Rating Date	03/22/13	04/02/13	04/02/13
Trt Treatment	Form	Form	Rate
No. Name	Conc	Type	Unit
	Rate	Unit	Stg
	Code		
1 Untreated Check	0.0d	0.0f	0.0b
2 Gramoxone SL....paraquat	2 SL	0.375 lb ai/A	Fall A
Nonionic Surfactant	100 L	0.25 % v/v	Fall A
3 Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	Fall A
Nonionic Surfactant	100 L	0.25 % v/v	Fall A
4 Gramoxone SL....paraquat	2 SL	0.75 lb ai/A	Fall A
Nonionic Surfactant	100 L	0.25 % v/v	Fall A
5 Roundup WeatherMax..glyphosate	4.5 AS	0.56 lb ae/A	Fall A
6 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	Fall A
LSD (P=.05)	3.02	7.17	10.19
Standard Deviation	1.66	3.94	5.60
CV	3.85	6.99	8.23
Replicate F	2.984	0.357	0.841
Replicate Prob(F)	0.0963	0.7082	0.4598
Treatment F	2166.371	232.375	106.345
Treatment Prob(F)	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Bulbous Oatgrass Burndown

Trial ID: Brndwn4-13    Cooperator:  
 Location: Woodside    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Bulbous Oatgrass	ARREL	Arrhenatherum elatius var. bulbosa

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 35 FT    **Reps:** 4  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	03/29/13	05/14/13
<b>Time of Day:</b>	2:00 pm	12:30 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	Espring	Heading
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	53 F	56 F
<b>% Relative Humidity:</b>	35	34
<b>Wind Velocity, Unit:</b>	4 mph	2 mph
<b>Wind Direction:</b>	West	West
<b>Dew Presence (Y/N):</b>	N	N
<b>Soil Temp., Unit:</b>	52 F	55 F
<b>Soil Surf. Moisture:</b>	Dry	Moist
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry
<b>% Cloud Cover:</b>	90	15

**WEED STAGE AT EACH APPLICATION**

	A	B
<b>Weed 1 Code:</b>	ARREL	ARREL
<b>Growth Stage:</b>	vegetative	boot
<b>Height, Unit:</b>	4 in	16 in
<b>Density, Unit:</b>	5-10 m2	5-10 m2

**APPLICATION EQUIPMENT**

	A	B
<b>Appl. Equipment:</b>	Backpack	Backpack
<b>Operating Pressure:</b>	31 psi	31 psi
<b>Nozzle Type:</b>	AIRMIX	AIRMIX
<b>Nozzle Size:</b>	11002	11002
<b>Nozzle Spacing, Unit:</b>	18 in	18 in
<b>Boom Length, Unit:</b>	6 nozl	6 nozl
<b>Boom Height, Unit:</b>	20 in	32 in
<b>Ground Speed, Unit:</b>	3 mph	3 mph
<b>Carrier:</b>	water	water
<b>Spray Volume, Unit:</b>	20 gpa	20 gpa
<b>Propellant:</b>	CO2	CO2

## Trial Comments

The first 10 feet of the plots was not treated in the fall and bulbous oatgrass density was higher and more consistent than the back portion of the plots. Back portion of plots in Rep I was ~2 clumps /m<sup>2</sup>; Rep II and III ~1 clumps /m<sup>2</sup>; and Rep IV was sparse

04/26/13: Bulbous oatgrass control was rated in portion of the plots with no fall glyphosate.

05/14/13: Bulbous oatgrass is at boot stage but not yet heading. Treatments applied anyway.

11/21/13: Percent control based on reduction of biomass (number of plants and size/vigor of the plants); rating for front was taken in the first 10' where the bulbous oatgrass was not sprayed the previous fall with glyphosate; and back was in the portion of the plot treated last fall.

## Bulbous Oatgrass Burndown

Trial ID: Brndwn4-13 Cooperator:  
Location: Woodside Investigator: Mark VanGessel

Weed Code	ARREL	ARREL	ARREL	ARREL						
Weed or Crop Name	Bulbous	Bulbous	Bulbous	Bulbous						
Weed or Crop Name	Oatgrass	Oatgrass	Oatgrass	Oatgrass						
Rating Data Type	Control	Control	Control	Control						
Rating Unit	%	%	% front	% back						
Rating Date	04/26/13	05/14/13	11/21/13	11/21/13						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Grow Stg	Appl Code				
1	Untreated Check						0.0b	0.0b	0.0b	0.0b
2	Roundup WeatherMax..glyphosate	4.5AS		1 lb ai/A	ESpring	A	74.5 a	90.5 a	88.8 a	85.0 a
3	Roundup WeatherMax..glyphosate	4.5AS		2 lb ai/A	ESpring	A	97.3 a	89.0 a	88.8 a	88.3 a
4	Roundup WeatherMax..glyphosate	4.5AS		1 lb ai/A	Heading	B			88.8 a	90.0 a
5	Roundup WeatherMax..glyphosate	4.5AS		2 lb ai/A	Heading	B			85.0 a	88.8 a
LSD (P=.05)							42.36	5.44	7.21	5.34
Standard Deviation							24.48	3.14	4.68	3.46
CV							42.77	5.26	6.66	4.92
Replicate F							1.106	2.618	3.714	2.546
Replicate Prob(F)							0.4171	0.1457	0.0424	0.1050
Treatment F							17.266	1086.303	282.486	517.762
Treatment Prob(F)							0.0032	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Preemergence Herbicide Applications for Cucumber

Trial ID: Cuke1-13    Cooperator:  
 Location: Field #18    Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel      **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown      **State:** DE    **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Cucumber      CUMSA      **Variety:** Expedition  
**Planting Date:** 05/14/13    **Planting Method:** Row- Unit Planter      **Depth:** 0.7 in  
**Rate:** 60000    Sd/A      **Row Spacing:** 30 in      **Seed Bed:** Smooth  
**Soil Temperature:** 64 F    **Soil Moisture:** Moist      **Emergence Date:** 05/20/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT    **Plot Length, Unit:** 25 FT    **Reps:** 3  
**Site Type:** Field      **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed, Disked & Field Cultivated

**SOIL DESCRIPTION**

**% Sand:** 81    **% OM:** 1.3    **Texture:** loamy sand  
**% Silt:** 12    **pH:** 6.3  
**% Clay:** 7    **CEC:** 5.0    **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move      **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3    **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	05/14/13	06/04/13
<b>Time of Day:</b>	7:00 pm	2:25 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	POST
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	61 F	75 F
<b>% Relative Humidity:</b>	31	35
<b>Wind Velocity, Unit:</b>	2 mph	2 mph
<b>Wind Direction:</b>	Northwest	West
<b>Dew Presence (Y/N):</b>	N	N
<b>Soil Temp., Unit:</b>	61 F	74 F
<b>Soil Surf. Moisture:</b>	Moist	Wet
<b>Root Zone Moisture:</b>	Moist	Wet
<b>Leaf Surf. Moisture:</b>	Dry	Moist
<b>% Cloud Cover:</b>	15	0

**CROP STAGE AT EACH APPLICATION**

	A	B
<b>Crop 1 Code:</b>	CUMSA	CUMSA
<b>Growth Stage:</b>		2-3 leaf
<b>Height, Unit:</b>		3.5 in
<b>Crop Health:</b>		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	IPOSS	IPOSS
Growth Stage:		2-4 leaf
Height, Unit:		2.5 in
Density, Unit:		2-10 m2

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Backpack	Tractor
Operating Pressure:	31 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	21 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	Comp. Air

Trial Comments

6/13/13: Sandea POST is causing the plots to remain more upright - assuming due to shortened internodes.

Weed Code	CUMSA	CUMSA	AMAPA	IPOSS				
Crop Code	Cucumber	Cucumber	Palmer	Morngly				
Weed or Crop Name			Amaranth	Species				
Weed or Crop Name	Stunting	Stunting	Control	Control				
Rating Data Type	%	%	%	%				
Rating Unit	06/04/13	06/13/13	06/13/13	06/13/13				
Rating Date								
Trt Treatment	Form	Form	Rate	Grow				
No. Name	Conc	Type	Unit	Stg				
				Appl Code				
1 Untreated Check					0.0d	0.0f	0.0f	0.0f
2 Curbit.....ethalfuralin	3 E		0.56 lb ai/A	PRE A	0.0d	8.0e	70.0e	0.0f
3 Curbit.....ethalfuralin	3 E		0.75 lb ai/A	PRE A	3.3cd	8.0e	93.3abc	21.7de
4 Curbit.....ethalfuralin	3 E		0.94 lb ai/A	PRE A	9.7b	15.0b	95.0ab	53.3b
5 Curbit.....ethalfuralin	3 E		1.12 lb ai/A	PRE A	10.7b	13.7bcd	90.0abc	43.3bc
6 Strategy Premix	2.1 E		0.394 lb ai/A	PRE A	0.0d	9.7cde	75.0de	10.0ef
Curbit.....ethalfuralin	3 E		0.187 lb ai/A	PRE A				
7 Strategy Premix	2.1 E		0.525 lb ai/A	PRE A	0.0d	8.7de	81.7cde	33.3cd
Curbit.....ethalfuralin	3 E		0.187 lb ai/A	PRE A				
8 Curbit.....ethalfuralin	3 E		0.94 lb ai/A	PRE A	8.3bc	15.0b	95.0ab	35.0cd
Command.....clomazone	3 ME		0.187 lb ai/A	PRE A				
9 Curbit.....ethalfuralin	3 E		0.75 lb ai/A	PRE A	18.3a	25.0a	98.3ab	73.3a
Sandea.....halosulfuron	75 DF		0.0234 lb ai/A	PRE A				
10 Curbit.....ethalfuralin	3 E		0.75 lb ai/A	PRE A	17.2a	16.0b	87.7abc	84.2a
Sandea.....halosulfuron	75 DF		0.0313 lb ai/A	PRE A				
11 Curbit.....ethalfuralin	3 E		0.75 lb ai/A	PRE A	2.3d	14.0bc	86.7bcd	79.3a
Sandea.....halosulfuron	75 DF		0.0234 lb ai/A	POST B				
Nonionic Surfactant	100 L		0.25 % v/v	POST B				
12 Curbit.....ethalfuralin	3 E		0.75 lb ai/A	PRE A	0.0d	18.0b	100.0a	88.3a
Sandea.....halosulfuron	75 DF		0.0313 lb ai/A	POST B				
Nonionic Surfactant	100 L		0.25 % v/v	POST B				
LSD (P=.05)					5.69	5.25	12.69	16.85
Standard Deviation					3.35	3.09	7.47	9.89
CV					57.6	24.55	9.21	22.75
Replicate F					1.131	3.927	4.266	1.456
Replicate Prob(F)					0.3415	0.0356	0.0279	0.2568
Treatment F					12.563	12.414	39.510	32.021
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Preemergence PPO Herbicide Applications for Cucumber

Trial ID: Cuke2-13 Cooperator:  
 Location: Field #18 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Cucumber **CUMSA** **Variety:** Vlasplik  
**Planting Date:** 07/31/13 **Planting Method:** Row- Unit Planter **Depth:** 0.7 in  
**Rate:** 60000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 82 F **Soil Moisture:** Moist **Emergence Date:** 08/05/13

**Crop 2:** Cucumber **CUMSA** **Variety:** Expedition  
**Planting Date:** 07/31/13 **Planting Method:** Row- Unit Planter **Depth:** 0.7 in  
**Rate:** 60000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Smooth  
**Soil Temperature:** 82 F **Soil Moisture:** Moist **Emergence Date:** 08/05/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Chisel Plowed, Disked & Field Cultivated

**SOIL DESCRIPTION**

**% Sand:** 81 **% OM:** 1.3 **Texture:** loamy sand  
**% Silt:** 12 **pH:** 6.3  
**% Clay:** 7 **CEC:** 5.0 **Fert. Level:** Optimum

**Irrigation/Type:** Sprinkler - Lateral Move **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	07/31/13
<b>Time of Day:</b>	11:30 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	80 F
<b>% Relative Humidity:</b>	55
<b>Wind Velocity, Unit:</b>	1 mph
<b>Wind Direction:</b>	South
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	80 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	N/A
<b>% Cloud Cover:</b>	85

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

Following is sizing for grading at yield:  
2B = 1 1/4, 2A = 1 1/16, 1B = 7/8, 1A = 3/8, 3B = 1 3/4

## Preemergence PPO Herbicide Applications for Cucumber

Trial ID: Cuke2-13 Cooperator:  
 Location: Field #18 Investigator: Mark VanGessel

Weed Code	CUMSA	CUMSA	CUMSA	CUMSA	CUMSA	CUMSA	AMAPA
Crop Code	Vlaspic	Exped	Vlaspic	Exped	Vlaspic	Exped	Palmer
Weed or Crop Name	cukes	cukes	cukes	cukes	cukes	cukes	Amaranth
Weed or Crop Name	Injury	Injury	Injury	Injury	Injury	Injury	Control
Rating Data Type	%	%	%	%	%	%	%
Rating Unit	08/12/13	08/12/13	08/26/13	08/26/13	09/11/13	09/11/13	08/26/13
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Grow Stg	
1	Untreated Check						0.0d
2	Curbit.....ethalfluralin	3 E		0.56 lb ai/A	PRE		8.3 def
3	Curbit.....ethalfluralin	3 E		1.12 lb ai/A	PRE		1.7 ef
4	Spartan Charge Premix Curbit.....ethalfluralin	3.5 F 3 E		0.0684 lb ai/A 0.56 lb ai/A	PRE		15.0 cde
5	Spartan Charge Premix Curbit.....ethalfluralin	3.5 F 3 E		0.103 lb ai/A 0.56 lb ai/A	PRE		23.3 bc
6	Spartan Charge Premix Curbit.....ethalfluralin	3.5 F 3 E		0.137 lb ai/A 0.56 lb ai/A	PRE		31.7 b
7	Spartan Charge Premix Curbit.....ethalfluralin	3.5 F 3 E		0.205 lb ai/A 0.56 lb ai/A	PRE		48.3 a
8	Reflex.....fomesafen Curbit.....ethalfluralin	2 L 3 E		0.25 lb ai/A 0.56 lb ai/A	PRE		31.7 b
9	Reflex.....fomesafen Curbit.....ethalfluralin	2 L 3 E		0.187 lb ai/A 0.56 lb ai/A	PRE		25.0 bc
10	Reflex.....fomesafen Curbit.....ethalfluralin	2 L 3 E		0.125 lb ai/A 0.56 lb ai/A	PRE		20.0 bcd
11	Sharpen.....saflufenacil Curbit.....ethalfluralin	2.85 SC 3 E		0.0223 lb ai/A 0.56 lb ai/A	PRE		46.7 a
12	Chateau.....flumioxazin Curbit.....ethalfluralin	51 WG 3 E		0.032 lb ai/A 0.56 lb ai/A	PRE		15.0 cde
LSD (P=.05)							14.26
Standard Deviation							8.42
CV							37.91
Replicate F							0.744
Replicate Prob(F)							0.4869
Treatment F							10.320
Treatment Prob(F)							0.0001
							14.50
							8.56
							40.13
							2.255
							0.1286
							14.127
							0.0001
							16.02
							9.46
							34.33
							2.999
							0.0705
							14.233
							0.0001
							14.66
							8.66
							34.82
							11.575
							0.0004
							17.398
							0.0001
							15.97
							9.43
							44.97
							2.584
							0.0982
							8.661
							0.0001
							18.20
							10.75
							48.97
							2.279
							0.1260
							7.005
							0.0001
							12.30
							7.26
							8.53
							1.000
							0.3840
							43.937
							0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					IPOSS	AMAPA	IPOSS	CUMSA	CUMSA	CUMSA	CUMSA		
Crop Code					Morningly	Palmer	Morningly	CUMSA	CUMSA	CUMSA	CUMSA		
Weed or Crop Name					Species	Amaranth	Species	Exped	Exped	Exped	Exped		
Weed or Crop Name					Control	Control	Control	cukes	cukes	cukes	cukes		
Rating Data Type					%	%	%	Size	Size	Size	Size		
Rating Unit					08/26/13	09/11/13	09/11/13	3B	2B	2A	1B		
Rating Date								09/12/13	09/12/13	09/12/13	09/12/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg							
1	Untreated Check						0.0f	0.0d	0.0d	3.3a	17.3abc	3.7a	1.3d
2	Curbit.....ethalfuralin	3E		0.56 lb ai/A	PRE		88.3abc	63.3c	90.0a	4.7a	20.7ab	6.3a	3.0bcd
3	Curbit.....ethalfuralin	3E		1.12 lb ai/A	PRE		70.0e	73.3bc	80.0ab	0.3a	17.3abc	4.0a	2.3cd
4	Spartan Charge Premix Curbit.....ethalfuralin	3.5F 3E		0.0684 lb ai/A 0.56 lb ai/A	PRE		90.7abc	88.3ab	95.0a	3.3a	24.3a	4.0a	3.3bcd
5	Spartan Charge Premix Curbit.....ethalfuralin	3.5F 3E		0.103 lb ai/A 0.56 lb ai/A	PRE		93.3ab	95.0a	95.0a	0.7a	15.7a-d	3.7a	5.3bc
6	Spartan Charge Premix Curbit.....ethalfuralin	3.5F 3E		0.137 lb ai/A 0.56 lb ai/A	PRE		96.7a	91.7a	95.0a	0.0a	15.0bcd	7.3a	5.0bc
7	Spartan Charge Premix Curbit.....ethalfuralin	3.5F 3E		0.205 lb ai/A 0.56 lb ai/A	PRE		96.7a	90.0a	95.0a	0.0a	9.3cd	8.0a	5.7b
8	Reflex.....fomesafen Curbit.....ethalfuralin	2L 3E		0.25 lb ai/A 0.56 lb ai/A	PRE		81.7cd	88.3ab	53.3c	0.0a	7.0d	8.0a	9.0a
9	Reflex.....fomesafen Curbit.....ethalfuralin	2L 3E		0.187 lb ai/A 0.56 lb ai/A	PRE		71.7de	98.3a	73.3b	0.3a	14.0bcd	6.3a	6.0ab
10	Reflex.....fomesafen Curbit.....ethalfuralin	2L 3E		0.125 lb ai/A 0.56 lb ai/A	PRE		82.3bcd	96.7a	73.3b	1.0a	19.7ab	9.3a	2.3cd
11	Sharpen.....saflufenacil Curbit.....ethalfuralin	2.85SC 3E		0.0223 lb ai/A 0.56 lb ai/A	PRE		90.7abc	83.3ab	90.0a	2.7a	12.3bcd	3.7a	3.7bcd
12	Chateau.....flumioxazin Curbit.....ethalfuralin	51WG 3E		0.032 lb ai/A 0.56 lb ai/A	PRE		88.3abc	96.7a	93.3a	4.7a	16.7abc	3.3a	1.3d
LSD (P=.05)					11.30	16.03	16.44	4.54	8.97	4.27	3.03		
Standard Deviation					6.67	9.46	9.71	2.68	5.29	2.52	1.79		
CV					8.43	11.77	12.48	153.06	33.55	44.7	44.37		
Replicate F					2.074	5.744	4.737	0.244	1.238	0.909	8.617		
Replicate Prob(F)					0.1496	0.0098	0.0195	0.7856	0.3094	0.4174	0.0017		
Treatment F					46.960	25.034	24.359	1.437	2.453	2.189	4.771		
Treatment Prob(F)					0.0001	0.0001	0.0001	0.2254	0.0352	0.0568	0.0009		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						CUMSA	CUMSA	CUMSA	CUMSA	CUMSA	CUMSA	CUMSA
Crop Code						Exped	Vlaspic	Vlaspic	Vlaspic	Vlaspic	Vlaspic	Exped
Weed or Crop Name						cukes	cukes	cukes	cukes	cukes	cukes	cukes
Weed or Crop Name						Size	Size	Size	Size	Size	Size	Yield
Rating Data Type						1A	3B	2B	2A	1B	1A	kg/10'ro
Rating Unit						09/12/13	09/12/13	09/12/13	09/12/13	09/12/13	09/12/13	09/12/13
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg							
1	Untreated Check					1.3 a	0.7 b	8.3 a	3.7 a	4.0 a	2.7 a	2.01 a
2	Curbit.....ethalfluralin	3 E		0.56 lb ai/A	PRE	0.3 a	1.3 b	13.0 a	5.7 a	3.7 a	2.3 a	2.81 a
3	Curbit.....ethalfluralin	3 E		1.12 lb ai/A	PRE	1.0 a	0.3 b	12.3 a	6.7 a	2.3 a	3.7 a	1.64 a
4	Spartan Charge Premix Curbit.....ethalfluralin	3.5 F 3 E		0.0684 lb ai/A 0.56 lb ai/A	PRE PRE	0.3 a	0.7 b	16.0 a	4.3 a	7.0 a	3.3 a	2.91 a
5	Spartan Charge Premix Curbit.....ethalfluralin	3.5 F 3 E		0.103 lb ai/A 0.56 lb ai/A	PRE PRE	1.3 a	0.0 b	11.0 a	7.3 a	6.7 a	3.0 a	1.66 a
6	Spartan Charge Premix Curbit.....ethalfluralin	3.5 F 3 E		0.137 lb ai/A 0.56 lb ai/A	PRE PRE	1.3 a	0.0 b	5.0 a	3.3 a	4.7 a	3.3 a	1.58 a
7	Spartan Charge Premix Curbit.....ethalfluralin	3.5 F 3 E		0.205 lb ai/A 0.56 lb ai/A	PRE PRE	1.0 a	0.0 b	5.3 a	6.7 a	2.3 a	4.0 a	1.26 a
8	Reflex.....fomesafen Curbit.....ethalfluralin	2 L 3 E		0.25 lb ai/A 0.56 lb ai/A	PRE PRE	2.3 a	0.0 b	4.3 a	4.3 a	6.0 a	3.3 a	1.13 a
9	Reflex.....fomesafen Curbit.....ethalfluralin	2 L 3 E		0.187 lb ai/A 0.56 lb ai/A	PRE PRE	1.7 a	0.0 b	6.3 a	4.7 a	6.3 a	2.0 a	1.65 a
10	Reflex.....fomesafen Curbit.....ethalfluralin	2 L 3 E		0.125 lb ai/A 0.56 lb ai/A	PRE PRE	0.7 a	1.0 b	9.7 a	4.3 a	4.7 a	2.3 a	2.15 a
11	Sharpen.....saflufenacil Curbit.....ethalfluralin	2.85 SC 3 E		0.0223 lb ai/A 0.56 lb ai/A	PRE PRE	2.0 a	1.3 b	4.0 a	4.0 a	2.7 a	0.3 a	1.87 a
12	Chateau.....flumioxazin Curbit.....ethalfluralin	51 WG 3 E		0.032 lb ai/A 0.56 lb ai/A	PRE PRE	0.0 a	3.0 a	11.0 a	5.0 a	2.7 a	1.3 a	2.56 a
LSD (P=.05)						1.87	1.64	7.98	3.87	5.12	3.34	1.174
Standard Deviation						1.11	0.97	4.71	2.28	3.02	1.97	0.693
CV						99.6	139.38	53.17	45.66	68.41	74.75	35.81
Replicate F						3.425	0.385	5.896	4.029	0.612	4.419	0.798
Replicate Prob(F)						0.0507	0.6847	0.0089	0.0323	0.5514	0.0244	0.4627
Treatment F						1.204	2.553	2.066	0.965	1.003	0.848	2.065
Treatment Prob(F)						0.3402	0.0295	0.0711	0.5033	0.4742	0.5983	0.0712

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						CUMSA
Crop Code						Vlaspic
Weed or Crop Name						cukes
Weed or Crop Name						Yield
Rating Data Type						kg/10'ro
Rating Unit						09/12/13
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg
1	Untreated Check					0.99 a
2	Curbit.....ethalfuralin	3	E	0.56 lb	ai/A	PRE 1.55 a
3	Curbit.....ethalfuralin	3	E	1.12 lb	ai/A	PRE 1.28 a
4	Spartan Charge Premix Curbit.....ethalfuralin	3.5	F	0.0684 lb	ai/A	PRE 1.82 a
5	Spartan Charge Premix Curbit.....ethalfuralin	3.5	F	0.103 lb	ai/A	PRE 1.32 a
6	Spartan Charge Premix Curbit.....ethalfuralin	3.5	F	0.137 lb	ai/A	PRE 0.69 a
7	Spartan Charge Premix Curbit.....ethalfuralin	3.5	F	0.205 lb	ai/A	PRE 0.73 a
8	Reflex.....fomesafen Curbit.....ethalfuralin	2	L	0.25 lb	ai/A	PRE 0.72 a
9	Reflex.....fomesafen Curbit.....ethalfuralin	2	L	0.187 lb	ai/A	PRE 0.78 a
10	Reflex.....fomesafen Curbit.....ethalfuralin	2	L	0.125 lb	ai/A	PRE 1.15 a
11	Sharpen.....safufenacil Curbit.....ethalfuralin	2.85	SC	0.0223 lb	ai/A	PRE 0.84 a
12	Chateau.....flumioxazin Curbit.....ethalfuralin	51	WG	0.032 lb	ai/A	PRE 1.84 a
LSD (P=.05)						0.941
Standard Deviation						0.556
CV						48.67
Replicate F						3.442
Replicate Prob(F)						0.0500
Treatment F						1.724
Treatment Prob(F)						0.1333

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Herbicides for Watermelons and Cantalopes  
Under Plastic Application  
Trial ID: MELN1-13 Cooperator:  
Location: Dill Farm Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Watermelon **CITLA** **Variety:** 7187HQ  
**Planting Date:** 05/22/13 **Planting Method:** Transplanted- Hand  
**Rate:** 0.3 **Plt/row-ft** **Row Spacing:** 6 ft  
**Soil Temperature:** 82 **F** **Soil Moisture:** Moist

**Crop 2:** Cantalope **CUMMC** **Variety:** Aphrodite  
**Planting Date:** 05/22/13 **Planting Method:** Transplanted- Hand  
**Rate:** 0.3 **Plt/row-ft** **Row Spacing:** 6 ft  
**Soil Temperature:** 82 **F** **Soil Moisture:** Moist

**SITE AND DESIGN**

**Plot Width, Unit:** 6.67 FT **Plot Length, Unit:** 50 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Conventional Tillage

**Trial Initiation Comments:** Beds were formed prior to treatments and plastic was laid same day after treatments were applied.

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.2  
**% Clay:** 11 **CEC:** 6.2 **Fert. Level:** Optimum

**Irrigation/Type:** Trickle **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.6 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	05/14/13
<b>Time of Day:</b>	3:00 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE-TRP
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	60 F
<b>% Relative Humidity:</b>	30
<b>Wind Velocity, Unit:</b>	3 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	59 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	N/A
<b>% Cloud Cover:</b>	0

**APPLICATION EQUIPMENT**

	<b>A</b>
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	4 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

The month of June had 11.5 inches of rainfall and plots, particularly rep 1 and most of rep 2, were flooded and waterlogged for almost 2 weeks. Most plants in this area are dead or severely stunted.

Herbicides for Watermelons and Cantalopes  
 Under Plastic Application  
 Trial ID: MELN1-13    Cooperator:  
 Location: Dill Farm    Investigator: Mark VanGessel

Weed Code	CITLA	CUMMC	CITLA	CUMMC	CITLA	CUMMC	CITLA
Crop Code	Water-	Canta-	Water-	Canta-	Water-	Canta-	Water-
Weed or Crop Name	melon	loupe	melon	loupe	melon	loupe	melon
Weed or Crop Name	Injury	Injury	Injury	Injury	Injury	Injury	Injury
Rating Data Type	%	%	%	%	%	%	%
Rating Unit							
Rating Date	05/29/13	05/29/13	06/05/13	06/05/13	06/24/13	06/24/13	07/29/13
Trt Treatment	Form	Form	Rate	Grow			
No. Name	Conc	Type	Rate	Unit	Stg		
1 Untreated Check						0.0 a	0.0 a
2 Reflex.....fomesafen	2 L		0.187 lb ai/A	PRE-TRP		0.0 a	0.0 a
3 Dual II.....metolachlor	7.8 E		0.487 lb ai/A	PRE-TRP		5.3 a	17.3 a
4 Dual II.....metolachlor	7.8 E		0.73 lb ai/A	PRE-TRP		0.0 a	0.0 b
5 Dual II.....metolachlor	7.8 E		0.975 lb ai/A	PRE-TRP		0.0 a	0.0 b
6 Sandea.....halosulfuron	75 DF		0.0234 lb ai/A	PRE-TRP		2.3 a	0.0 b
7 Sinbar.....terbacil	80 W		0.2 lb ai/A	PRE-TRP		4.0 a	4.0 ab
8 Prefar.....bensulide	4 E		6 lb ai/A	PRE-TRP		0.0 a	0.0 b
LSD (P=.05)	0.00	0.00	4.03	13.47	14.27	15.25	0.00
Standard Deviation	0.00	0.00	2.30	7.69	7.94	8.49	0.00
CV	0.0	0.0	157.92	161.94	199.55	105.49	0.0
Replicate F	0.000	0.000	2.553	1.327	1.047	0.029	0.000
Replicate Prob(F)	1.0000	1.0000	0.1134	0.2967	0.3836	0.9715	1.0000
Treatment F	0.000	0.000	2.657	2.997	1.654	5.945	0.000
Treatment Prob(F)	1.0000	1.0000	0.0568	0.0382	0.2186	0.0047	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					CUMMC	IPOSS	MOLVE	LIDDU	ERAME	PANDI	CYPES	
Crop Code					Canta-	Morngrly	Carpet-	False	Stink-	Fall	Yellow	
Weed or Crop Name					loupe	Species	weed	pimprnel	grass	Panicum	Nutsedge	
Weed or Crop Name					Injury	Count	Count	Count	Count	Count	Count	
Rating Data Type					%	#/ft2	#/ft2	#/ft2	#/ft2	#/ft2	#/ft2	
Rating Unit					07/29/13	07/08/13	07/08/13	07/08/13	07/08/13	07/08/13	07/08/13	
Rating Date												
Trt Treatment	Form	Form	Rate	Grow								
No. Name	Conc	Type	Rate	Unit	Stg							
1 Untreated Check						0.0 a	0.0 a	18.9 a	0.1 a	0.1 a	0.1 a	4.0 a
2 Reflex.....fomesafen	2L		0.187 lb ai/A	PRE-TRP		3.3 a	0.0 a	6.3 a	0.3 a	0.0 a	3.0 a	13.7 a
3 Dual II.....metolachlor	7.8 E		0.487 lb ai/A	PRE-TRP		0.0 a	0.0 a	6.3 a	0.0 a	0.0 a	0.0 a	0.0 a
4 Dual II.....metolachlor	7.8 E		0.73 lb ai/A	PRE-TRP		3.3 a	0.0 a	6.7 a	0.0 a	0.0 a	0.0 a	0.0 a
5 Dual II.....metolachlor	7.8 E		0.975 lb ai/A	PRE-TRP		1.7 a	0.0 a	5.3 a	0.0 a	0.0 a	0.0 a	0.0 a
6 Sandea.....halosulfuron	75 DF		0.0234 lb ai/A	PRE-TRP		0.0 a	0.0 a	13.0 a	0.0 a	1.3 a	0.3 a	0.0 a
7 Sinbar.....terbacil	80 W		0.2 lb ai/A	PRE-TRP		32.0 a	0.3 a	0.0 a	1.0 a	0.7 a	0.7 a	0.0 a
8 Prefar.....bensulide	4 E		6 lb ai/A	PRE-TRP		0.0 a	0.3 a	15.7 a	1.0 a	0.7 a	0.0 a	0.0 a
LSD (P=.05)					23.20	0.55	14.07	1.66	1.26	1.99	15.22	
Standard Deviation					12.32	0.31	7.98	0.94	0.71	1.13	8.63	
CV					244.38	358.85	88.38	306.94	206.68	221.75	390.24	
Replicate F					0.368	0.468	0.460	0.702	1.410	0.317	1.399	
Replicate Prob(F)					0.7036	0.6366	0.6412	0.5135	0.2792	0.7338	0.2817	
Treatment F					2.387	0.729	1.835	0.665	1.450	2.520	0.943	
Treatment Prob(F)					0.1230	0.6514	0.1635	0.6981	0.2671	0.0713	0.5075	

Weed Code					MOLVE	POROL	LIDDU	ERAME	PANDI	CYPES	
Crop Code					Carpet-	Common	False	Stink-	Fall	Yellow	
Weed or Crop Name					weed	Purslane	pimprnel	grass	Panicum	Nutsedge	
Weed or Crop Name					Count	Count	Count	Count	Count	Count	
Rating Data Type					#/ft2	#/ft2	#/ft2	#/ft2	#/ft2	#/ft2	
Rating Unit					07/29/13	07/29/13	07/29/13	07/29/13	07/29/13	07/29/13	
Rating Date											
Trt Treatment	Form	Form	Rate	Grow							
No. Name	Conc	Type	Rate	Unit	Stg						
1 Untreated Check						2.0 a	0.0 a	2.0 a	0.0 a	2.3 a	3.0 a
2 Reflex.....fomesafen	2L		0.187 lb ai/A	PRE-TRP		3.0 a	0.0 a	0.3 a	0.0 a	1.7 a	6.0 a
3 Dual II.....metolachlor	7.8 E		0.487 lb ai/A	PRE-TRP		1.3 a	0.0 a	0.0 a	0.0 a	0.3 a	0.0 a
4 Dual II.....metolachlor	7.8 E		0.73 lb ai/A	PRE-TRP		0.7 a	0.3 a	0.0 a	0.0 a	0.0 a	0.0 a
5 Dual II.....metolachlor	7.8 E		0.975 lb ai/A	PRE-TRP		1.3 a	0.0 a	0.7 a	0.0 a	0.3 a	0.0 a
6 Sandea.....halosulfuron	75 DF		0.0234 lb ai/A	PRE-TRP		4.0 a	0.3 a	0.3 a	0.0 a	0.0 a	0.0 a
7 Sinbar.....terbacil	80 W		0.2 lb ai/A	PRE-TRP		1.0 a	0.0 a	0.0 a	1.0 a	0.0 a	0.0 a
8 Prefar.....bensulide	4 E		6 lb ai/A	PRE-TRP		5.0 a	1.0 a	0.0 a	1.3 a	1.0 a	0.0 a
LSD (P=.05)					6.41	1.17	1.81	1.85	2.67	6.77	
Standard Deviation					3.66	0.67	1.03	1.06	1.53	3.87	
CV					159.66	320.71	247.73	361.73	215.38	343.65	
Replicate F					0.096	1.213	1.447	0.487	5.174	2.032	
Replicate Prob(F)					0.9086	0.3266	0.2684	0.6247	0.0208	0.1679	
Treatment F					0.544	0.840	1.318	0.807	1.000	1.000	
Treatment Prob(F)					0.7879	0.5728	0.3116	0.5952	0.4706	0.4706	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Experimental PPO Herbicides for Watermelons and Cantalopes

Trial ID: MELN2-13    Cooperator:  
 Location: Dill Farm    Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel    **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy    **City:** Georgetown    **State:** DE    **Zip Code:** 19947

**Crop 1:** Watermelon    **CITLA**    **Variety:** 7187HQ  
**Planting Date:** 05/29/13    **Planting Method:** Transplanted- Hand  
**Rate:** 0.3    **Plt/row-ft**    **Row Spacing:** 8 ft  
**Soil Temperature:** 88    **F**    **Soil Moisture:** Moist

**Crop 2:** Cantalope    **CUMMC**    **Variety:** Aphrodite  
**Planting Date:** 05/29/13    **Planting Method:** Transplanted- Hand  
**Rate:** 0.3    **Plt/row-ft**    **Row Spacing:** 8 ft  
**Soil Temperature:** 88    **F**    **Soil Moisture:** Moist

## SITE AND DESIGN

**Plot Width, Unit:** 5.33 FT    **Plot Length, Unit:** 50 FT    **Reps:** 3  
**Site Type:** Field    **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Conventional Tillage

## SOIL DESCRIPTION

**% Sand:** 79    **% OM:** 1.3    **Texture:** sandy loam  
**% Silt:** 10    **pH:** 6.2  
**% Clay:** 11    **CEC:** 6.2    **Fert. Level:** Optimum

**Irrigation/Type:** Trickle    **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.6    **Unit:** mi

## APPLICATION DESCRIPTION

	A	B
<b>Application Date:</b>	05/28/13	06/25/13
<b>Time of Day:</b>	12:30 pm	2:00 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	Dir-PRE	Dir-POST
<b>Applic. Placement:</b>	BanDir	BanDir
<b>Air Temp., Unit:</b>	74 F	90 F
<b>% Relative Humidity:</b>	68	52
<b>Wind Velocity, Unit:</b>	2 mph	3 mph
<b>Wind Direction:</b>	Southwest	West
<b>Dew Presence (Y/N):</b>	N	N
<b>Soil Temp., Unit:</b>	72 F	90 F
<b>Soil Surf. Moisture:</b>	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	N/A	Dry
<b>% Cloud Cover:</b>	100	20

## CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	CITLA	CITLA
Growth Stage:		vining
Height, Unit:		18 in
Crop Health:		Fair
Crop 2 Code:	CUMMC	CUMMC
Growth Stage:		vining
Height, Unit:		18 in
Crop Health:		Fair

## APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Backpack
Operating Pressure:	25 psi	18 psi
Nozzle Type:	XRTEEJET	XRTEEJET
Nozzle Size:	95015E	11003
Nozzle Spacing, Unit:	8 in	16 in
Band Width, Unit:	32 in	16 in
Boom Length, Unit:	6 nozl	2 nozl
Boom Height, Unit:		18 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	19.6 gpa	20 gpa
Propellant:	Comp. Air	CO2

## Trial Comments

Water damage from standing water ruined 3 ranges of trial; 11.5 inches of rain in June.

Experimental PPO Herbicides for Watermelons and Cantalopes													
Trial ID: MELN2-13 Cooperator:													
Location: Dill Farm Investigator: Mark VanGessel													
Weed Code	Crop Code	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date		CITLA Water- melon Injury %	CUMMC Canta- loupe Injury %	CITLA Water- melon Injury %	CUMMC Canta- loupe Injury %	CITLA Water- melon Injury %	CUMMC Canta- loupe Injury %	
							06/06/13	06/06/13	06/24/13	06/24/13	06/29/13	06/29/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Appl Stg							
1	Untreated Check						0.0 a	0.0 a	0.0 a	0.1 b	0.0 a	0.0 a	
2	Chateau.....flumioxazin	51	WG	0.096 lb ai/A	Dir-PRE	A	0.0 a	0.0 a	0.0 a	0.0 b			
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
3	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-PRE	A	2.3 a	0.0 a	12.4 a	7.6 a			
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
4	Strategy Premix	2.1	E	0.79 lb ai/A	Dir-PRE	A	0.0 a	0.0 a	0.0 a	0.0 b			
	Curbit.....ethalfluralin	3	E	0.188 lb ai/A	Dir-PRE	A							
	Sandea.....halosulfuron	75	DF	0.035 lb ai/A	Dir-PRE	A							
5	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-PRE	A	0.0 a	0.0 a	0.0 a	1.7 b			
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	Dir-PRE	A							
6	Reflex.....fomesafen	2	L	0.375 lb ai/A	Dir-PRE	A	0.0 a	0.0 a	3.3 a	8.7 a			
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
7	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	Dir-PRE	A	0.0 a	0.0 a	0.8 a	0.4 b			
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
8	Sharpen.....saflufenacil	2.85	SC	0.111 lb ai/A	Dir-PRE	A	0.0 a	0.0 a	0.8 a	0.4 b			
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
9	Strategy Premix	2.1	E	0.79 lb ai/A	Dir-POST	B	0.0 a	0.0 a	0.8 a	0.4 b	6.0 a	12.5 a	
	Curbit.....ethalfluralin	3	E	0.188 lb ai/A	Dir-POST	B							
	Sandea.....halosulfuron	75	DF	0.035 lb ai/A	Dir-POST	B							
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	Dir-POST	B							
	Nonionic Surfactant	100	L	0.25 % v/v	Dir-POST	B							
10	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-POST	B	0.0 a	0.0 a	0.8 a	0.4 b	14.0 a	15.0 a	
	Curbit.....ethalfluralin	3	E	0.56 lb ai/A	Dir-POST	B							
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	Dir-POST	B							
	Nonionic Surfactant	100	L	0.25 % v/v	Dir-POST	B							
LSD (P=.05)							2.19	0.00	8.90	5.62	77.63	109.55	
Standard Deviation							1.28	0.00	5.00	3.16	6.11	8.62	
CV							547.72	0.0	265.35	160.77	91.65	94.05	
Replicate F							1.000	0.000	0.867	0.828	1.786	0.056	
Replicate Prob(F)							0.3874	1.0000	0.4450	0.4602	0.4090	0.8520	
Treatment F							1.000	0.000	1.759	3.251	2.643	1.738	
Treatment Prob(F)							0.4742	1.0000	0.1788	0.0303	0.3989	0.4727	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						CITLA	CUMMC	CITLA	CUMMC	CHEAL	IPOSS		
Crop Code						Water-	Canta-	Water-	Canta-	Common	Morngrly		
Weed or Crop Name						melon	loupe	melon	loupe	Lambqtrs	Species		
Weed or Crop Name						Injury	Injury	Injury	Injury	Control	Control		
Rating Data Type						%	%	%	%	%	%		
Rating Unit						07/08/13	07/08/13	07/29/13	07/29/13	07/08/13	07/08/13		
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg	Appl Code						
1	Untreated Check							0.0c	0.0a	0.0a	0.0a	0.0b	0.0c
2	Chateau.....flumioxazin	51	WG	0.096 lb ai/A	Dir-PRE	A		0.0c	2.5a	0.0a	0.0a	100.0a	95.0a
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
3	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-PRE	A		0.0c	10.0a	0.0a	0.0a	100.0a	100.0a
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
4	Strategy Premix	2.1	E	0.79 lb ai/A	Dir-PRE	A		0.0c	3.5a	0.0a	0.0a	95.0a	82.5b
	Curbit.....ethalfluralin	3	E	0.188 lb ai/A	Dir-PRE	A							
	Sandea.....halosulfuron	75	DF	0.035 lb ai/A	Dir-PRE	A							
5	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-PRE	A		0.0c	7.5a	0.0a	0.0a	100.0a	100.0a
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	Dir-PRE	A							
6	Reflex.....fomesafen	2	L	0.375 lb ai/A	Dir-PRE	A		5.0b	7.5a	0.0a	4.0a	100.0a	97.5a
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
7	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	Dir-PRE	A		0.0c	5.0a	0.0a	0.0a	100.0a	100.0a
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
8	Sharpen.....saflufenacil	2.85	SC	0.111 lb ai/A	Dir-PRE	A		0.0c	4.0a	0.0a	0.0a	100.0a	100.0a
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A							
9	Strategy Premix	2.1	E	0.79 lb ai/A	Dir-POST	B		0.0c	5.0a	0.0a	0.0a	100.0a	100.0a
	Curbit.....ethalfluralin	3	E	0.188 lb ai/A	Dir-POST	B							
	Sandea.....halosulfuron	75	DF	0.035 lb ai/A	Dir-POST	B							
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	Dir-POST	B							
	Nonionic Surfactant	100	L	0.25 % v/v	Dir-POST	B							
10	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-POST	B		14.0a	21.0a	0.0a	3.5a	100.0a	100.0a
	Curbit.....ethalfluralin	3	E	0.56 lb ai/A	Dir-POST	B							
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	Dir-POST	B							
	Nonionic Surfactant	100	L	0.25 % v/v	Dir-POST	B							
LSD (P=.05)								0.00	16.86	0.00	6.72	6.00	11.13
Standard Deviation								0.00	7.13	0.00	2.84	2.54	4.71
CV								0.0	108.02	0.0	378.64	2.83	5.38
Replicate F								0.000	1.735	0.000	0.006	0.778	0.903
Replicate Prob(F)								1.0000	0.2292	1.0000	0.9394	0.4071	0.3736
Treatment F								0.000	1.322	0.000	0.623	308.432	88.065
Treatment Prob(F)								1.0000	0.3644	1.0000	0.7505	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						PANDI	CHEAL	IPOSS	PANDI		
Crop Code											
Weed or Crop Name						Fall	Common	Morngrly	Fall		
Weed or Crop Name						Panicum	Lambqtrs	Species	Panicum		
Rating Data Type						Control	Control	Control	Control		
Rating Unit						%	%	%	%		
Rating Date						07/08/13	08/14/13	08/14/13	08/14/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Rate	Unit	Stg	Code				
1	Untreated Check							0.0e	0.0c	0.0c	0.0c
2	Chateau.....flumioxazin	51	WG	0.096 lb ai/A	Dir-PRE	A		89.0bcd	100.0a	94.0a	76.5a
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A					
3	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-PRE	A		97.0a	100.0a	100.0a	95.0a
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A					
4	Strategy Premix	2.1	E	0.79 lb ai/A	Dir-PRE	A		89.0bcd	90.0b	35.0b	77.5a
	Curbit.....ethalfluralin	3	E	0.188 lb ai/A	Dir-PRE	A					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/A	Dir-PRE	A					
5	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-PRE	A		95.0abc	100.0a	95.0a	92.5a
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	Dir-PRE	A					
6	Reflex.....fomesafen	2	L	0.375 lb ai/A	Dir-PRE	A		90.0a-d	97.5a	79.0a	70.0a
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A					
7	Sharpen.....saflufenacil	2.85	SC	0.067 lb ai/A	Dir-PRE	A		85.0d	100.0a	90.0a	35.0b
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A					
8	Sharpen.....saflufenacil	2.85	SC	0.111 lb ai/A	Dir-PRE	A		87.5cd	100.0a	100.0a	40.0b
	Curbit.....ethalfluralin	3	E	0.75 lb ai/A	Dir-PRE	A					
9	Strategy Premix	2.1	E	0.79 lb ai/A	Dir-POST	B		96.0ab	100.0a	96.0a	78.5a
	Curbit.....ethalfluralin	3	E	0.188 lb ai/A	Dir-POST	B					
	Sandea.....halosulfuron	75	DF	0.035 lb ai/A	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25 % v/v	Dir-POST	B					
10	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	Dir-POST	B		97.5a	100.0a	100.0a	87.5a
	Curbit.....ethalfluralin	3	E	0.56 lb ai/A	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75 lb ai/A	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25 % v/v	Dir-POST	B					
LSD (P=.05)								7.88	3.00	23.93	26.45
Standard Deviation								3.33	1.27	9.78	11.18
CV								4.04	1.43	12.39	17.14
Replicate F								0.288	0.778	2.010	0.090
Replicate Prob(F)								0.6082	0.4071	0.2061	0.7729
Treatment F								154.994	1222.407	24.145	14.943
Treatment Prob(F)								0.0001	0.0001	0.0005	0.0009

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Experimental Herbicides for Watermelons and Cantalopes  
 Crop Safety Evaluations  
 Trial ID: MELN3-13 Cooperator:  
 Location: Dill Farm Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Watermelon **CITLA** **Variety:** 7187HQ  
**Planting Date:** 06/25/13 **Planting Method:** Transplanted- Hand  
**Rate:** 0.3 **Plt/row-ft** **Row Spacing:** 8 ft  
**Soil Temperature:** 92 **F** **Soil Moisture:** Moist

**Crop 2:** Cantalope **CUMMC** **Variety:** Aphrodite  
**Planting Date:** 06/25/13 **Planting Method:** Transplanted- Hand  
**Rate:** 0.3 **Plt/row-ft** **Row Spacing:** 8 ft  
**Soil Temperature:** 92 **F** **Soil Moisture:** Moist

**SITE AND DESIGN**

**Plot Width, Unit:** 5.33 FT **Plot Length, Unit:** 50 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Conventional Tillage

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.2  
**% Clay:** 11 **CEC:** 6.2 **Fert. Level:** Optimum

**Irrigation/Type:** Trickle **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.6 **Unit:** mi

**APPLICATION DESCRIPTION**

	<b>A</b>
<b>Application Date:</b>	07/15/13
<b>Time of Day:</b>	12:15 PM
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	Post-Dir
<b>Applic. Placement:</b>	BanDir
<b>Air Temp., Unit:</b>	87 F
<b>% Relative Humidity:</b>	61
<b>Wind Velocity, Unit:</b>	2 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	Y
<b>Soil Temp., Unit:</b>	86 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Wet
<b>Leaf Surf. Moisture:</b>	Moist
<b>% Cloud Cover:</b>	20

## CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	CITLA
Growth Stage:	vining
Height, Unit:	18 in
Crop Health:	Fair
Crop 2 Code:	CUMMC
Growth Stage:	vining
Height, Unit:	18 in
Crop Health:	Fair

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	18 psi
Nozzle Type:	XRTEEJET
Nozzle Size:	11003
Nozzle Spacing, Unit:	16 in
Band Width, Unit:	16 in
Boom Length, Unit:	2 nozl
Boom Height, Unit:	12 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

## Trial Comments

First rep of watermelons had standing water surrounding plastic, and by 7-24-13 root rot had killed them.

8/8/13: All injury is from initial burn (leaf holes) - no stunting visible.

Experimental Herbicides for Watermelons and Cantalopes													
Crop Safety Evaluations													
Trial ID: MELN3-13    Cooperator:													
Location: Dill Farm    Investigator: Mark VanGessel													
Crop Code	CITLA	CUMMC	CITLA	CUMMC	CITLA	CUMMC	CITLA	CUMMC	CITLA				
Weed or Crop Name	Water-	Canta-	Water-	Canta-	Water-	Canta-	Water-	Canta-	Water-				
Weed or Crop Name	melon	loupe	melon	loupe	melon	loupe	melon	loupe	melon				
Rating Data Type	Lf burn	Lf burn	Injury	Injury	Injury	Injury	Injury	Injury	Yield				
Rating Unit	%	%	%	%	%	%	%	%	#/plot				
Rating Date	07/16/13	07/16/13	07/24/13	07/24/13	08/08/13	08/08/13	08/08/13	08/08/13	09/05/13				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg							
1	Untreated Check												
2	Reflex.....fomesafen	2 L		0.375 lb ai/A		Post-Dir	14.0 a	3.7 a	0.0 c	0.0 d			
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A		Post-Dir							
	Nonionic Surfactant	100 L		0.25 % v/v		Post-Dir							
3	Chateau.....flumioxazin	51 WG		0.127 lb ai/A		Post-Dir	10.0 ab	11.3 a	5.0 bc	18.0 b			
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A		Post-Dir							
	Nonionic Surfactant	100 L		0.25 % v/v		Post-Dir							
4	Dual II.....metolachlor	7.8 E		1.22 lb ai/A		Post-Dir	11.0 ab	16.0 a	8.5 ab	27.0 a			
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A		Post-Dir							
	Nonionic Surfactant	100 L		0.25 % v/v		Post-Dir							
5	Sharpen.....saflufenacil	2.85 SC		0.111 lb ai/A		Post-Dir	5.7 bc	11.7 a	7.5 b	14.3 bc			
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A		Post-Dir							
	Nonionic Surfactant	100 L		0.25 % v/v		Post-Dir							
6	No residual						4.7 bc	11.7 a	5.0 bc	10.0 c			
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A		Post-Dir							
	Nonionic Surfactant	100 L		0.25 % v/v		Post-Dir							
LSD (P=.05)							6.49	9.47	5.48	4.53	7.42	6.33	2.8
Standard Deviation							3.57	5.21	2.13	2.49	2.89	3.48	1.1
CV							47.21	44.62	32.4	16.98	346.41	45.09	9.0
Replicate F							4.249	0.560	4.121	0.430	1.000	0.197	5.870
Replicate Prob(F)							0.0462	0.5883	0.0981	0.6619	0.3632	0.8242	0.0599
Treatment F							6.054	2.189	8.853	40.280	1.000	5.801	4.594
Treatment Prob(F)							0.0078	0.1365	0.0159	0.0001	0.5000	0.0091	0.0598

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Crop Code					CITLA	CUMMC	CUMMC
Weed or Crop Name					Water-	Canta-	Canta-
Weed or Crop Name					melon	loupe	loupe
Rating Data Type					Yield	Yield	Yield
Rating Unit					lbs	Ttl#/plt	Ttl lbs
Rating Date					09/05/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg	
1	Untreated Check						
					197.0 a	13 a	102.4 a
2	Reflex.....fomesafen	2 L		0.375 lb ai/A	Post-Dir		
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A	Post-Dir	204.5 a	11 a
	Nonionic Surfactant	100 L		0.25 % v/v	Post-Dir		90.0 a
3	Chateau.....flumioxazin	51 WG		0.127 lb ai/A	Post-Dir		
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A	Post-Dir	210.2 a	9 a
	Nonionic Surfactant	100 L		0.25 % v/v	Post-Dir		76.4 a
4	Dual II.....metolachlor	7.8 E		1.22 lb ai/A	Post-Dir		
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A	Post-Dir	170.5 a	6 a
	Nonionic Surfactant	100 L		0.25 % v/v	Post-Dir		47.0 a
5	Sharpen.....saflufenacil	2.85 SC		0.111 lb ai/A	Post-Dir		
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A	Post-Dir	231.8 a	9 a
	Nonionic Surfactant	100 L		0.25 % v/v	Post-Dir		70.7 a
6	No residual						
	Gramoxone SL....paraquat	2 SL		0.6 lb ai/A	Post-Dir	169.8 a	10 a
	Nonionic Surfactant	100 L		0.25 % v/v	Post-Dir		86.2 a
LSD (P=.05)					41.25	4.2	35.49
Standard Deviation					16.05	2.3	19.51
CV					8.13	24.58	24.76
Replicate F					1.453	1.000	2.702
Replicate Prob(F)					0.2820	0.4019	0.1153
Treatment F					4.478	3.035	2.864
Treatment Prob(F)					0.0628	0.0636	0.0737

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Evaluation of Grain Sorghum Weed Control Programs

Trial ID: Milo1-13 Cooperator: Bayer  
 Location: Field #36 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Sorghum **SORVU** **Variety:** DG742C  
**Planting Date:** 06/18/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4 **Sd/row-ft** **Row Spacing:** 15 in **Seed Bed:** Medium  
**Soil Temperature:** 79 **F** **Soil Moisture:** Moist **Emergence Date:** 06/25/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/18/13	Dual II Magnum	7.64	E	1.25	pt/A

## SOIL DESCRIPTION

**% Sand:** 77 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 12 **pH:** 5.4  
**% Clay:** 11 **CEC:** 6.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

## APPLICATION DESCRIPTION

	A
<b>Application Date:</b>	07/15/13
<b>Time of Day:</b>	11:20 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	POST
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	87 F
<b>% Relative Humidity:</b>	61
<b>Wind Velocity, Unit:</b>	2 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	Y
<b>Soil Temp., Unit:</b>	86 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Wet
<b>Leaf Surf. Moisture:</b>	Moist
<b>% Cloud Cover:</b>	20

## CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	SORVU
Growth Stage:	V7
Height, Unit:	17 in
Crop Health:	Fair

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	IPOSS
Growth Stage:	veg-run
Height, Unit:	10 in
Density, Unit:	0-5 m2

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	34 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

8/07/13: Weed density was very sparse. Hard to tell, but looked like PGR's safened Huskie in 2 of the 3 reps.

Evaluation of Grain Sorghum Weed Control Programs						
Trial ID: Milo1-13 Cooperator: Bayer						
Location: Field #36 Investigator: Mark VanGessel						
Weed Code	SORVU	SORVU	SORVU	IPOSS	SORVU	
Crop Code	Grain	Grain	Grain	Morngrly	Grain	
Weed or Crop Name	Sorghum	Sorghum	Sorghum	Species	Sorghum	
Weed or Crop Name	Stunting	Leafburn	Stunting	Control	Yield	
Rating Data Type	%	%	%	%	Bu/A	
Rating Unit	07/25/13	07/25/13	08/07/13	08/07/13	11/11/13	
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1	Untreated Check					
2	Huskie Premix	2.05 EC		0.208 lb ai/A	POST A	
	Atrazine 4L	4 L		0.5 lb ai/A	POST A	
	Dry Ammonium Sulfate	100 D		0.6 % w/v	POST A	
3	Huskie Premix	2.05 EC		0.256 lb ai/A	POST A	
	Atrazine 4L	4 L		0.5 lb ai/A	POST A	
	Dry Ammonium Sulfate	100 D		0.6 % w/v	POST A	
4	Huskie Premix	2.05 EC		0.256 lb ai/A	POST A	
	Atrazine 4L	4 L		0.5 lb ai/A	POST A	
	Dry Ammonium Sulfate	100 D		0.6 % w/v	POST A	
	Nonionic Surfactant	100 L		0.25 % v/v	POST A	
5	Huskie Premix	2.05 EC		0.208 lb ai/A	POST A	
	Atrazine 4L	4 L		0.5 lb ai/A	POST A	
	2,4-D amine	3.8 L		0.119 lb ae/A	POST A	
	Dry Ammonium Sulfate	100 D		0.6 % w/v	POST A	
6	Huskie Premix	2.05 EC		0.208 lb ai/A	POST A	
	Atrazine 4L	4 L		0.5 lb ai/A	POST A	
	Banvel.....dicamba	4 EC		0.125 lb ai/A	POST A	
	Dry Ammonium Sulfate	100 D		0.6 % w/v	POST A	
7	Huskie Premix	2.05 EC		0.208 lb ai/A	POST A	
	Atrazine 4L	4 L		0.5 lb ai/A	POST A	
	Starane Ultra...fluroxypyr	2.8 EC		0.0656 lb ai/A	POST A	
	Dry Ammonium Sulfate	100 D		0.6 % w/v	POST A	
8	Marksman Premix	3.2 SC		0.8 lb ai/A	POST A	
	Nonionic Surfactant	100 L		0.25 % v/v	POST A	
9	Paramount.....quinclorac	75 DF		0.375 lb ai/A	POST A	
	Atrazine 4L	4 L		1 lb ai/A	POST A	
	Crop Oil Concentrate	100 L		1 % v/v	POST A	
10	Permit.....halosulfuron	75 DF		0.0314 lb ai/A	POST A	
	Banvel.....dicamba	4 EC		0.125 lb ai/A	POST A	
	Nonionic Surfactant	100 L		0.25 % v/v	POST A	
LSD (P=.05)				5.63	3.77	7.14
Standard Deviation				3.28	2.20	4.16
CV				33.04	26.68	73.88
Replicate F				0.189	1.084	0.256
Replicate Prob(F)				0.8296	0.3592	0.7770
Treatment F				5.547	34.490	2.632
Treatment Prob(F)				0.0010	0.0001	0.0385
				6.65	3.88	4.42
				0.648	1.362	0.5351
				192.271	0.433	0.0001
				0.8994		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Preplant Sorghum Weed Control

Trial ID: Milo2-13 Cooperator: Valent  
 Location: Field #36 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Sorghum **SORVU** **Variety:** DG742C  
**Planting Date:** 06/18/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 79 F **Soil Moisture:** Moist **Emergence Date:** 06/25/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage

**SOIL DESCRIPTION**

**% Sand:** 77 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 12 **pH:** 5.4  
**% Clay:** 11 **CEC:** 6.6 **Fert. Level:** Optimum  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

**APPLICATION DESCRIPTION**

	<b>A</b>
<b>Application Date:</b>	06/04/13
<b>Time of Day:</b>	1:40 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	7EPP
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	74 F
<b>% Relative Humidity:</b>	35
<b>Wind Velocity, Unit:</b>	2 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	72 F
<b>Soil Surf. Moisture:</b>	Wet
<b>Root Zone Moisture:</b>	Wet
<b>Leaf Surf. Moisture:</b>	Moist
<b>% Cloud Cover:</b>	0

**APPLICATION EQUIPMENT**

	<b>A</b>
<b>Appl. Equipment:</b>	Tractor
<b>Operating Pressure:</b>	40 psi
<b>Nozzle Type:</b>	AIRMIX
<b>Nozzle Size:</b>	11002
<b>Nozzle Spacing, Unit:</b>	20 in
<b>Boom Length, Unit:</b>	6 nozl
<b>Boom Height, Unit:</b>	20 in
<b>Ground Speed, Unit:</b>	3 mph
<b>Carrier:</b>	water
<b>Spray Volume, Unit:</b>	20 gpa
<b>Propellant:</b>	Comp. Air

**Trial Comments**

7/09/13: Field was planted when wet. Sorghum stand is very poor due to compaction.

7/10/13: Total number of plants in the center three rows were counted; and number of plants at least 33% shorter than the untreated check were counted.

7/15/13: Plots nearest the woods look better than other two sets (1, 3, 5 or 6)  
 Weed control was very good except for some fall panicum. Heavy rains have resulted in poor stands and very uneven plant growth. Injury is difficult to evaluate.

Preplant Sorghum Weed Control												
Trial ID: Milo2-13 Cooperator: Valent												
Location: Field #36 Investigator: Mark VanGessel												
Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	SORVU Grain Sorghum Stunting %	SORVU Grain Sorghum Stunting %	SORVU Grain Sorghum Stunting %	IPOSS Mornglry Species Control %	SETFA Giant Foxtail Control %	AMAPA Palmer Amaranth Control %
							07/09/13	07/15/13	08/07/13	07/09/13	07/09/13	08/07/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg						
1	Untreated Check						0.0b	0.0c	0.0c	0.0c	0.0d	0.0b
2	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		12.3 a	15.0 a	5.7 ab	82.7 ab	97.3 a	100.0 a
	Fierce Premix	76 WG		0.142 lb ai/A	7EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
3	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		11.7 a	11.7 ab	8.0 a	65.0b	83.3 b	86.7 a
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	7EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
4	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		11.1 a	8.3 abc	0.0c	68.3 ab	100.0 a	100.0 a
	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	7EPP							
	Callisto.....mesotrione	4 SC		0.094 lb ai/A	7EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
5	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		15.0 a	5.7 bc	0.0c	86.7 a	69.3 c	100.0 a
	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	7EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
6	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		16.6 a	10.0 ab	2.3 bc	81.7 ab	90.0 ab	100.0 a
	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	7EPP							
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7 EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
LSD (P=.05)							6.73	8.61	5.47	18.79	12.21	18.35
Standard Deviation							3.49	4.73	3.01	10.33	6.71	9.94
CV							31.34	56.03	112.71	16.13	9.15	12.25
Replicate F							3.941	0.270	0.055	0.307	0.237	0.900
Replicate Prob(F)							0.0714	0.7684	0.9464	0.7426	0.7935	0.4402
Treatment F							8.435	3.613	3.911	29.741	93.976	48.825
Treatment Prob(F)							0.0071	0.0398	0.0317	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					IPOSS	DIGSA	SETFA	SORVU	SORVU	SORVU		
Crop Code					Morngrly	Large	Giant	SORVU	SORVU	SORVU		
Weed or Crop Name					Species	Crabgras	Foxtail	Grain	Grain	Grain		
Weed or Crop Name					Control	Control	Control	Sorghum	Sorghum	Sorghum		
Rating Data Type					%	%	%	Total	Stndcts	Yield		
Rating Unit					%	%	%	StndCts	>33%sm	Bu/A		
Rating Date					08/07/13	08/07/13	08/07/13	07/10/13	07/10/13	11/11/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg						
1	Untreated Check						0.0b	0.0b	0.0c	51.7 a	10.0 a	34.6 b
2	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		43.3 ab	98.3 a	93.3 a	54.3 a	12.7 a	53.4 a
	Fierce Premix	76 WG		0.142 lb ai/A	7EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
3	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		43.7 ab	83.3 a	58.3 b	51.3 a	10.7 a	47.8 a
	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	7EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
4	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		40.0 ab	86.7 a	61.7 b	57.0 a	9.3 a	55.6 a
	Bicep II Magnum Premix	5.5 L		2.47 lb ai/A	7EPP							
	Callisto.....mesotrione	4 SC		0.094 lb ai/A	7EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
5	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		83.3 a	16.7 b	23.3 c	64.0 a	15.7 a	53.1 a
	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	7EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
6	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	7EPP		86.7 a	96.7 a	95.0 a	53.3 a	12.0 a	53.2 a
	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	7EPP							
	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7 EPP							
	Dry Ammonium Sulfate	100 D		1.5 % w/v	7EPP							
	Nonionic Surfactant	100 L		0.25 % v/v	7EPP							
LSD (P=.05)							48.95	23.35	30.29	20.40	7.89	10.85
Standard Deviation							26.50	12.83	16.65	11.21	4.33	5.96
CV							53.54	20.18	30.12	20.28	36.98	12.02
Replicate F							0.825	0.413	0.621	0.658	0.234	2.678
Replicate Prob(F)							0.4688	0.6724	0.5568	0.5389	0.7959	0.1171
Treatment F							4.389	34.491	15.480	0.536	0.840	5.132
Treatment Prob(F)							0.0266	0.0001	0.0002	0.7453	0.5506	0.0137

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Evaluating Weed Control for Grain Sorghum

Trial ID: Milo3-13 Cooperator:  
 Location: Field #36 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Sorghum **SORVU** **Variety:** DG742C  
**Planting Date:** 06/18/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Medium  
**Soil Temperature:** 79 F **Soil Moisture:** Moist **Emergence Date:** 06/25/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

## SOIL DESCRIPTION

**% Sand:** 77 **% OM:** 2.1 **Texture:** sandy loam  
**% Silt:** 12 **pH:** 5.4  
**% Clay:** 11 **CEC:** 6.6 **Fert. Level:** Optimum  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.5 **Unit:** mi

## APPLICATION DESCRIPTION

	A
Application Date:	06/18/13
Time of Day:	12:30 pm
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	80 F
% Relative Humidity:	78
Wind Velocity, Unit:	2 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	79 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	N/A
% Cloud Cover:	100

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

7/09/13: Poor stand of sorghum due to crusting issues.

7/10/13: Total number of plants in the center 3 rows, and then number of plants under 11 inches in height.

7/15/13: Excellent weed control in all treatments except untreated check. Stands were better and crop growth better (less injury) in rep 3 than either rep 1 or 2.

Evaluating Weed Control for Grain Sorghum													
Trial ID: Milo3-13		Cooperator:											
Location: Field #36		Investigator: Mark VanGessel											
Crop Code	SORVU	SORVU	SORVU	SORVU	SORVU	SORVU	SORVU	SORVU	SORVU	SORVU			
Weed or Crop Name	Grain	Grain	Grain	Grain	Grain	Grain	Grain	Grain	Grain	Grain			
Weed or Crop Name	Sorghum	Sorghum	Sorghum	Sorghum	Sorghum	Sorghum	Sorghum	Sorghum	Sorghum	Sorghum			
Rating Data Type	Injury	Stunting	BiomsRdx	Stunting	Total #	# under	Yield						
Rating Unit	%	%	%	%	PltsMidl	11"	Bu/A						
Rating Date	07/09/13	07/15/13	07/15/13	08/07/13	07/10/13	07/10/13	11/11/13						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg							
1	Untreated Check												
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/A	PRE	23.3b	11.7bc	18.3bc	4.7ab	56.3a	7.3a	80.5a
3	Lumax EZ Premix	3.67	SC	1.98	lb ai/A	PRE	36.7ab	15.7b	20.0ab	8.0a	52.0a	8.7a	81.3a
	Bicep II Magnum Premix	5.5	L	0.55	lb ai/A	PRE							
4	Lumax EZ Premix	3.67	SC	1.48	lb ai/A	PRE	30.0b	15.0b	20.0ab	4.0ab	56.7a	4.0a	76.7a
	Bicep II Magnum Premix	5.5	L	1.1	lb ai/A	PRE							
5	Lumax EZ Premix	3.67	SC	0.99	lb ai/A	PRE	36.7ab	12.0bc	17.3bc	9.7a	50.7a	5.0a	76.9a
	Bicep II Magnum Premix	5.5	L	1.65	lb ai/A	PRE							
6	Lumax EZ Premix	3.67	SC	4.95	lb ai/A	PRE	56.7a	30.7a	38.3a	8.8a	49.0a	7.7a	71.7a
7	Lumax EZ Premix	3.67	SC	2.47	lb ai/A	PRE	40.0ab	16.7ab	16.3bc	8.0a	50.7a	6.3a	82.8a
	Atrazine 4L	4	L	0.625	lb ai/A	PRE							
8	Bicep II Magnum Premix	5.5	L	2.75	lb ai/A	PRE	0.0c	0.0c	0.0c	0.0b	60.7a	2.7a	75.4a
LSD (P=.05)		22.00		14.40			18.34	6.93	21.99		5.23	17.72	
Standard Deviation		12.56		8.22			10.47	3.93	12.56		2.99	10.12	
CV		44.99		64.72			64.28	72.99	23.13		54.33	13.55	
Replicate F		0.185		3.264			2.020	2.177	9.858		2.072	0.787	
Replicate Prob(F)		0.8332		0.0686			0.1696	0.1530	0.0021		0.1628	0.4741	
Treatment F		7.362		4.287			4.100	2.879	0.343		1.888	2.859	
Treatment Prob(F)		0.0008		0.0099			0.0119	0.0475	0.9201		0.1475	0.0448	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## POST Weed Control in Peas

Trial ID: Pea01-13 Cooperator:  
 Location: Field #4a Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Pea **PIBSS** **Variety:** Bolero  
**Planting Date:** 05/06/13 **Planting Method:** Drilled **Depth:** 1 in  
**Rate:** 220 lb/A **Row Spacing:** 7 in **Seed Bed:** Smooth  
**Soil Temperature:** 58 F **Soil Moisture:** Moist **Emergence Date:** 05/15/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/06/13	Dual II Magnum	7.64	E	0.67	pt/A

## SOIL DESCRIPTION

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 11 **pH:** 5.7  
**% Clay:** 10 **CEC:** 6.1 **Fert. Level:** Medium

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

## APPLICATION DESCRIPTION

	A
<b>Application Date:</b>	05/31/13
<b>Time of Day:</b>	11:00 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	POST
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	86 F
<b>% Relative Humidity:</b>	48
<b>Wind Velocity, Unit:</b>	5 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	85 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	0

## CROP STAGE AT EACH APPLICATION

	A
<b>Crop 1 Code:</b>	PIBSS
<b>Growth Stage:</b>	4-lf pairs
<b>Height, Unit:</b>	3 in
<b>Crop Health:</b>	Good

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

## Trial Comments

6/17/13: Preemergence application of Dual provided excellent weed control. Addition of 0.5 lb ai Thistrol improved Palmer amaranth control from almost none to 70% based on applications in the border area.

## POST Weed Control in Peas

Trial ID: Pea01-13 Cooperator:  
Location: Field #4a Investigator: Mark VanGessel

Crop Code					PIBSS	PIBSS
Weed or Crop Name					Pea	Pea
Rating Data Type					Stunting	Stunting
Rating Unit					%	%
Rating Date					06/06/13	06/17/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	
1	Untreated Check					
2	Basagran.....bentazon	4 L		0.5 lb ai/A POST	0.0 b	0.0 c
3	Basagran.....bentazon	4 L		0.75 lb ai/A POST	0.0 b	0.0 c
4	Basagran.....bentazon	4 L		0.5 lb ai/A POST	2.3 b	3.3 c
	Nonionic Surfactant	100 L		0.25 % v/v POST		
5	Basagran.....bentazon	4 L		0.5 lb ai/A POST	3.1 b	10.7 b
	Nonionic Surfactant	100 L		0.125 % v/v POST		
6	Raptor.....imazamox	1 AS		.0234 lb ai/A POST	2.3 b	0.0 c
	Nonionic Surfactant	100 L		0.25 % v/v POST		
	Basagran.....bentazon	4 L		0.187 lb ai/A POST		
7	Basagran.....bentazon	4 L		0.5 lb ai/A POST	12.3 a	10.7 b
	Thistrol.....MCPB	2 L		0.5 lb ai/A POST		
8	Basagran.....bentazon	4 L		0.5 lb ai/A POST	13.4 a	15.0 a
	Thistrol.....MCPB	2 L		0.75 lb ai/A POST		
LSD (P=.05)					4.59	3.83
Standard Deviation					2.58	2.15
CV					61.59	43.33
Replicate F					3.077	1.728
Replicate Prob(F)					0.0834	0.2191
Treatment F					13.649	24.770
Treatment Prob(F)					0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pea Tolerance to Experimental Herbicides - Early Planted

Trial ID: Pea02a-13 Cooperator:  
 Location: Field #4a Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Pea **PIBSS** **Variety:** Strike  
**Planting Date:** 04/03/13 **Planting Method:** Drilled **Depth:** 1 in  
**Rate:** 220 lb/A **Row Spacing:** 7 in **Seed Bed:** Smooth  
**Soil Temperature:** 51 F **Soil Moisture:** Moist **Emergence Date:** 04/15/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 11 **pH:** 5.7  
**% Clay:** 10 **CEC:** 6.1 **Fert. Level:** Medium  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

**APPLICATION DESCRIPTION**

	<b>A</b>
<b>Application Date:</b>	04/04/13
<b>Time of Day:</b>	12:00 pm
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	46 F
<b>% Relative Humidity:</b>	35
<b>Wind Velocity, Unit:</b>	2 mph
<b>Wind Direction:</b>	Southwest
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	46 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	N/A
<b>% Cloud Cover:</b>	30

**APPLICATION EQUIPMENT**

	<b>A</b>
<b>Appl. Equipment:</b>	Tractor
<b>Operating Pressure:</b>	40 psi
<b>Nozzle Type:</b>	AIRMIX
<b>Nozzle Size:</b>	11002
<b>Nozzle Spacing, Unit:</b>	20 in
<b>Boom Length, Unit:</b>	6 nozl
<b>Boom Height, Unit:</b>	20 in
<b>Ground Speed, Unit:</b>	3 mph
<b>Carrier:</b>	water
<b>Spray Volume, Unit:</b>	20 gpa
<b>Propellant:</b>	Comp. Air

**Trial Comments**

6/06/13: Treatments 3, 9 and 11 had poor ragweed control. Treatments 4 and 5 had poor ragweed and lambsquarters control. Treatment 6 had fair ragweed and lambsquarters control. Treatments with Dual looked good for weed control. Stand problems and weed pressure was quite variable.

Pea Tolerance to Experimental Herbicides - Early Planted

Trial ID: Pea02a-13 Cooperator:  
 Location: Field #4a Investigator: Mark VanGessel

Crop Code	PIBSS	PIBSS	PIBSS
Weed or Crop Name	Pea	Pea	Pea
Rating Data Type	Injury	Injury	Injury
Rating Unit	%	%	%
Rating Date	04/23/13	04/28/13	05/17/13
Trt Treatment	Form	Form	Rate
No. Name	Conc	Type	Unit
	Rate	Stg	Stg
1 Untreated Check	0.0 c	0.0 d	0.0 c
2 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE
3 Zidua.....pyroxasulfone	85 WG	0.053 lb ai/A	PRE
4 Sharpen.....saflufenacil	2.85 SC	0.0165 lb ai/A	PRE
5 Sharpen.....saflufenacil	2.85 SC	0.0334 lb ai/A	PRE
6 Sharpen.....saflufenacil	2.85 SC	0.05 lb ai/A	PRE
7 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE
Sharpen.....saflufenacil	2.85 SC	0.0165 lb ai/A	PRE
8 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE
Reflex.....fomesafen	2 L	0.25 lb ai/A	PRE
9 Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE
Pursuit.....imazethapyr	2 AS	0.0234 lb ai/A	PRE
10 Reflex.....fomesafen	2 L	0.25 lb ai/A	PRE
11 Reflex.....fomesafen	2 L	0.375 lb ai/A	PRE
12 Reflex.....fomesafen	2 L	0.75 lb ai/A	PRE
LSD (P=.05)	4.36	4.80	14.82
Standard Deviation	2.58	2.84	7.68
CV	42.73	26.88	67.98
Replicate F	2.768	0.925	0.484
Replicate Prob(F)	0.0847	0.4115	0.6355
Treatment F	13.407	23.114	5.086
Treatment Prob(F)	0.0001	0.0001	0.0203

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pea Tolerance to Experimental Herbicides  
 Late Planted Peas  
 Trial ID: Pea3-13 Cooperator:  
 Location: Field # 4a Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Pea **PIBSS** **Variety:** Bolero  
**Planting Date:** 05/06/13 **Planting Method:** Drilled **Depth:** 1 in  
**Rate:** 220 lb/A **Row Spacing:** 7 in **Seed Bed:** Smooth  
**Soil Temperature:** 58 F **Soil Moisture:** Moist **Emergence Date:** 05/15/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** Disked Twice

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.6 **Texture:** sandy loam  
**% Silt:** 11 **pH:** 5.7  
**% Clay:** 10 **CEC:** 6.1 **Fert. Level:** Medium  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
Application Date:	05/06/13
Time of Day:	9:00 am
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	54 F
% Relative Humidity:	94
Wind Velocity, Unit:	4 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	Y
Soil Temp., Unit:	54 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	100

**APPLICATION EQUIPMENT**

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

**Trial Comments**

6/17/13: All treatments provided excellent control of Palmer amaranth. Pea stand was variable due to problems with the planter and made it difficult to rate injury.

## Pea Tolerance to Experimental Herbicides

Late Planted Peas

Trial ID: Pea3-13    Cooperator:

Location: Field # 4a    Investigator: Mark VanGessel

Crop Code					PIBSS Pea	PIBSS Pea	PIBSS Pea
Weed or Crop Name					Stunting	Stunting	Stunting
Rating Data Type					%	%	%
Rating Unit							
Rating Date					05/27/13	06/06/13	06/17/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg		
1	Untreated Check				0.0 b	0.0 a	0.0 b
2	Dual Magnum.....s-metolachlor	7.62 E		0.95 lb ai/A PRE	4.7 b	4.7 a	9.7 a
3	Dual Magnum.....s-metolachlor Reflex.....fomesafen	7.62 E 2 L		0.95 lb ai/A PRE 0.25 lb ai/A PRE	12.3 a	7.0 a	0.0 b
4	Dual Magnum.....s-metolachlor Pursuit.....imazethapyr	7.62 E 2 AS		0.95 lb ai/A PRE 0.0234 lb ai/A PRE	15.0 a	7.3 a	9.7 a
5	Reflex.....fomesafen	2 L		0.25 lb ai/A PRE	2.3 b	0.0 a	5.7 ab
6	Pursuit.....imazethapyr	2 AS		0.0234 lb ai/A PRE	11.3 a	2.3 a	4.7 ab
LSD (P=.05)					5.70	6.82	6.44
Standard Deviation					3.13	3.69	3.54
CV					41.18	103.79	71.57
Replicate F					0.633	0.934	0.217
Replicate Prob(F)					0.5508	0.4279	0.8083
Treatment F					11.313	2.386	4.508
Treatment Prob(F)					0.0007	0.1215	0.0207

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(Pmkn1-13)

University of Delaware

Influence of Straw Mulch on Weed Control in Cucurbits

Trial ID: Pmkn1-13 Cooperator:  
Location: Field #18 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**Crop 1:** Pumpkin **CUUPE** **Variety:** Magician  
**Planting Date:** 06/21/13 **Planting Method:** Hand seeded **Depth:** 1 in  
**Rate:** 1 3 ft row **Row Spacing:** 10 ft **Seed Bed:** Medium  
**Soil Temperature:** 80 F **Soil Moisture:** Moist **Emergence Date:** 06/28/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 4  
**Site Type:** Field **Study Design:** SPLIT-PLOT  
**Tillage Type:** No-Till Rye Cover or Roto-tilled and cultipacked

**Trial Initiation Comments:** 50 lb/A Nitrogen applied to high-residue plots 3-13-13 (see timing B) (30 gal/A of a 50:50 mix of 30% UAN:water).  
60 lb/A Nitrogen applied to all rye plots 4-17-13. Stale seedbed plots roto-tilled and

**MAINTENANCE**

**Field Prep./Maintenance:** Roundup WeatherMax sprayed on stale seedbed plots 3-13-13. Roundup WeatherMax sprayed on tillage plots 4-17-13. 60 lb/A Nitrogen was applied to entire pumpkin crop on 7-25-13.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/15/13	Aim	2	EC	2	fl oz/A
2.	07/15/13	Nonionic Surfactant			0.25	% v/v

**SOIL DESCRIPTION**

**% Sand:** 80 **% OM:** 0.9 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.1  
**% Clay:** 10 **CEC:** 4.3 **Fert. Level:** Medium

**Irrigation/Type:** Trickle **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.3 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	06/21/13	03/13/13
<b>Time of Day:</b>	1:00 PM	2:00 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	Pre	Spring
<b>Applic. Placement:</b>	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	80 F	51 F
<b>% Relative Humidity:</b>	56	38
<b>Wind Velocity, Unit:</b>	3 mph	5 mph
<b>Wind Direction:</b>	Southeast	West
<b>Dew Presence (Y/N):</b>	N	N
<b>Soil Temp., Unit:</b>	80 F	50 F
<b>Soil Surf. Moisture:</b>	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Dry
<b>% Cloud Cover:</b>	40	75

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	18 in	20 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

7/17/13: Leaf burn rating from application of Aim + Poast +COC applied with 2 nozzle hooded sprayer for weed control in row middles. Plot 411 has 3-4 plants affected by virus?

7-23-13: Pumpkins planted in conventional tillage and stale seedbed 30-50% larger than those in rye. Note that drip tape was not tied off so nitrogen application was not efficiently delivered. Rye crop depleted soil nitrogen in rye cover plots. Herbicides did not reduce pumpkin size.

Aim at 2 fl.oz/A poor/weak on primrose and horsenettle. Poor to no control of horseweed. Most Palmer plants over 6" appear to be injured but will survive.

Biomass taken in May was collected randomly, not by nitrogen amount.

rye biomass taken in pumpkin 1 trial in field #22 in May

<u>Rep/Plot</u>	<u>Location</u>	<u>Area</u>	<u>grams</u>	<u>lbs/A</u>
Rep 1	rolled rye	4 rows * 1 meter	98	1229.694019
Rep 2			137	1719.062047
Rep 3			234	2936.208168
Rep 4			152	1907.280519

rye biomass taken in Pumpkin 1 trial on June 21st (at planting)

107	Low N	4 rows * 1 meter	57	715.2301947
110	Nitrogen 2X		73	915.9965652
207	Low N		62	777.9696855
210	Nitrogen 2X		82	1028.927649
304	Nitrogen 2X		59	740.325991
310	Low N		73	915.9965652
401	Low N		102	1279.885612
407	Nitrogen 2X		97	1217.146121

No significant differences in amount of rye between treatments collected on June 21 (at planting)

Influence of Straw Mulch on Weed Control in Cucurbits								
Trial ID: Pmkn1-13    Cooperator:								
Location: Field #18    Investigator: Mark VanGessel								
Weed Code	CUUMA	AMAPA	GGGAN	AMAPA	IPOSS	GGGAN	AMBEL	
Crop Code	Pumpkin	Palmer	Annual	Palmer	Mornglry	Annual	Common	
Weed or Crop Name	LeafBurn	Amaranth	Grasses	Amaranth	Species	Grasses	Ragweed	
Weed or Crop Name		Control	Control	Control	Control	Control	Control	
Rating Data Type	%	%	%	%	%	%	%	
Rating Unit	07/17/13	07/15/13	07/15/13	09/12/13	09/12/13	09/12/13	09/13/13	
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
1	Conventionally tilled soil Untreated Check						6.3 a	0.0 f
2	Conventionally tilled soil Curbit	3 E		0.94 lb ai/A	PRE		8.8 a	68.8 e
3	Conventionally tilled soil Strategy Premix Curbit	2.1 E		0.79 lb ai/A	PRE		9.8 a	71.3 e
		3 E		0.34 lb ai/A	PRE			
4	Stale-seed bed Untreated Check						8.3 a	100.0 a
5	Stale-seed bed Curbit	3 E		0.94 lb ai/A	PRE		10.0 a	100.0 a
6	Stale-seed bed Strategy Premix Curbit	2.1 E		0.79 lb ai/A	PRE		11.3 a	100.0 a
		3 E		0.34 lb ai/A	PRE			
7	No-till Low rye residues Untreated Check						14.3 a	70.0 e
8	No-till Low rye residues Curbit	3 E		0.94 lb ai/A	PRE		13.0 a	80.0 cd
9	No-till Low rye residues Strategy Premix Curbit	2.1 E		0.79 lb ai/A	PRE		12.0 a	83.3 bc
		3 E		0.34 lb ai/A	PRE			
10	No-till High rye residues 30% Urea Ammonium Nitrate Untreated Check	3.25 L		50 lb ai/A	Spring		9.5 a	74.5 de
11	No-till High rye residues 30% Urea Ammonium Nitrate Curbit	3.25 L		50 lb ai/A	Spring		12.3 a	83.8 bc
		3 E		0.94 lb ai/A	PRE			
12	No-till High rye residues 30% Urea Ammonium Nitrate Strategy Premix Curbit	3.25 L		50 lb ai/A	Spring		12.5 a	90.0 b
		2.1 E		0.79 lb ai/A	PRE			
		3 E		0.34 lb ai/A	PRE			
LSD (P=.05)							8.73	7.94
Standard Deviation							6.05	5.50
CV							56.8	7.16
Replicate F							1.044	0.422
Replicate Prob(F)							0.3859	0.7387
Treatment F							0.576	95.428
Treatment Prob(F)							0.8341	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Influence of Straw Mulch on Weed Control in Cucurbits								
Trial ID: Pmkn1-13    Cooperator:								
Location: Field #18    Investigator: Mark VanGessel								
Weed Code	Crop Code	CUUMA	CUUMA	CUUMA	CUUMA	CUUMA	CUUMA	CUUMA
Weed or Crop Name		Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin
Rating Data Type		plants	size	size	size	size	orange	green
Rating Unit		#/30ft	# small	# med	# large	# x lg	#	#
Rating Date		09/10/13	09/09/13	09/09/13	09/09/13	09/09/13	09/09/13	09/09/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
1	Conventionally tilled soil Untreated Check						8.3 a	2.8 a
2	Conventionally tilled soil Curbit	3 E		0.94 lb ai/A	PRE		9.3 a	2.3 a
3	Conventionally tilled soil Strategy Premix Curbit	2.1 E	3 E	0.79 lb ai/A	PRE		9.0 a	3.3 a
4	Stale-seed bed Untreated Check						7.5 a	3.0 a
5	Stale-seed bed Curbit	3 E		0.94 lb ai/A	PRE		7.3 a	3.3 a
6	Stale-seed bed Strategy Premix Curbit	2.1 E	3 E	0.79 lb ai/A	PRE		9.3 a	1.0 a
7	No-till Low rye residues Untreated Check						7.8 a	3.0 a
8	No-till Low rye residues Curbit	3 E		0.94 lb ai/A	PRE		8.0 a	2.3 a
9	No-till Low rye residues Strategy Premix Curbit	2.1 E	3 E	0.79 lb ai/A	PRE		8.5 a	2.8 a
10	No-till High rye residues 30% Urea Ammonium Nitrate Untreated Check	3.25 L		50 lb ai/A	Spring		7.3 a	2.3 a
11	No-till High rye residues 30% Urea Ammonium Nitrate Curbit	3.25 L	3 E	50 lb ai/A	Spring		7.5 a	2.8 a
12	No-till High rye residues 30% Urea Ammonium Nitrate Strategy Premix Curbit	3.25 L	2.1 E	50 lb ai/A	Spring		8.0 a	2.3 a
	LSD (P=.05)						2.27	2.60
	Standard Deviation						1.57	1.80
	CV						19.37	70.28
	Replicate F						0.774	0.589
	Replicate Prob(F)						0.5170	0.6266
	Treatment F						0.872	0.478
	Treatment Prob(F)						0.5752	0.9034
							2.41	1.701
							3.09	1.125
							1.73	0.285
							4.25	2.259
							1.27	8.790
							2.14	0.1859
							0.3529	0.8362
							0.930	0.0999
							1.480	0.0002
							1.267	1.267
							0.5248	0.1861
							0.0274	0.2857

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Safety with Alternative Herbicides  
 Herbicide Options for Between Rows  
 Trial ID: Veg2-13 Cooperator: PA Vegetable Growers  
 Location: Dill Farm Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

<b>Crop 1:</b> Pepper	CPSAN	<b>Variety:</b> snapper bell
<b>Planting Date:</b> 05/21/13	<b>Planting Method:</b> Transplanted- Hand	
<b>Crop 2:</b> Pepper	CPSAN	<b>Variety:</b> El Jefe jalapeno
<b>Planting Date:</b> 05/21/13	<b>Planting Method:</b> Transplanted- Hand	
<b>Crop 3:</b> Pepper	CPSAN	<b>Variety:</b> Carmen Sweet banana
<b>Planting Date:</b> 05/21/13	<b>Planting Method:</b> Transplanted- Hand	
<b>Crop 4:</b> Tomato	LYPES	<b>Variety:</b> Biltmore
<b>Planting Date:</b> 05/21/13	<b>Planting Method:</b> Transplanted- Hand	
<b>Crop 5:</b> Eggplant	SOLME	<b>Variety:</b> Nadia, Fairy Tale
<b>Planting Date:</b> 05/21/13	<b>Planting Method:</b> Transplanted- Hand	
<b>Soil Temperature:</b> 82 F	<b>Soil Moisture:</b> Moist	

**SITE AND DESIGN**

**Plot Width, Unit:** 5.33 FT **Plot Length, Unit:** 60 FT **Reps:** 4  
**Site Type:** Field **Study Design:** FACTORIAL  
**Tillage Type:** Conventional Tillage

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 1.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.2  
**% Clay:** 11 **CEC:** 6.2 **Fert. Level:** Optimum

**Irrigation/Type:** Trickle **Frequency:** as needed  
**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.6 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	05/14/13	06/17/13
<b>Time of Day:</b>	11:00 am	1:00 pm
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PTrnsplt	POSTTns
<b>Applic. Placement:</b>	BtwnRow	BtwnRow
<b>Air Temp., Unit:</b>	58 F	79 F
<b>% Relative Humidity:</b>	33	74
<b>Wind Velocity, Unit:</b>	5 mph	4 mph
<b>Wind Direction:</b>	Northwest	Southwest
<b>Dew Presence (Y/N):</b>	N	N
<b>Soil Temp., Unit:</b>	57 F	78 F
<b>Soil Surf. Moisture:</b>	Moist	Wet
<b>Root Zone Moisture:</b>	Moist	Wet
<b>Leaf Surf. Moisture:</b>	Dry	Moist
<b>% Cloud Cover:</b>	0	25

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	18 psi	18 psi
Nozzle Type:	XRTEEJET	XRTEEJET
Nozzle Size:	11003	11003
Nozzle Spacing, Unit:	16 in	16 in
Boom Length, Unit:	2 nozl	2 nozl
Boom Height, Unit:	12 in	12 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

#### Trial Comments

June - reps 1 & 2 and peppers in rep 3 flooded and dying due to root rot. 10.5 inches of rain this month.

7/17/13: No weeds in the 3rd rep except carpetweed. Also, eggplant species seem to be stunted more by location than by herbicide injury. Those trts on the outside rows of the beds were smaller than the interior rows possibly due to heavier water running off from drive rows. i.e. plots 301,305,405.

8/21/13: Tomato in plots 401 and 403 were covered by ivyleaf morningglory vines and likely reduced sunlight to ripen tomatoes.

Crop Safety with Alternative Herbicides						
Herbicide Options for Between Rows						
Trial ID: Veg2-13 Cooperator: PA Vegetable Growers						
Location: Dill Farm Investigator: Mark VanGessel						
Weed Code	CPSAN	CPSAN	CPSAN	LYPES	SOLME	SOLME
Crop Code	Jalapeno	Bell	Sw banan	Biltmore	Nadia	FairyTal
Weed or Crop Name	pepper	pepper	pepper	tomato	eggplant	eggplant
Weed or Crop Name	Injury	Injury	Injury	Injury	Injury	Injury
Rating Data Type	%	%	%	%	%	%
Rating Unit	05/29/13	05/29/13	05/29/13	05/29/13	05/29/13	05/29/13
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code
1	Pre-transplant					
	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	PT	Trnsplt A
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	PT	Trnsplt A
2	Pre-transplant					
	Sharpen.....saflufenacil	2.85	SC	0.111 lb ai/A	PT	Trnsplt A
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	PT	Trnsplt A
3	10 to 14 days post-transplant					
	Chateau.....flumioxazin	51	WG	0.127 lb ai/A	POST	Tns B
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	POST	Tns B
4	10 to 14 days post-transplant					
	Sharpen.....saflufenacil	2.85	SC	0.111 lb ai/A	POST	Tns B
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	POST	Tns B
5	Untreated					
	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	PT	Trnsplt A
	LSD (P=.05)	0.00		0.00	2.41	6.32 3.76
	Standard Deviation	0.00		0.00	1.57	4.10 2.44
	CV	0.0		0.0	447.21	105.1 56.69
	Replicate F	0.000		0.000	1.000	0.742 1.021
	Replicate Prob(F)	1.0000		1.0000	0.4262	0.5472 0.4176
	Treatment F	0.000		0.000	1.000	6.798 27.463
	Treatment Prob(F)	1.0000		1.0000	0.4449	0.0043 0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						CPSAN	CPSAN	CPSAN	LYPES	SOLME	SOLME		
Crop Code						Jalapeno	Bell	Sw banan	Biltmore	Nadia	FairyTal		
Weed or Crop Name						pepper	pepper	pepper	tomato	eggplant	eggplant		
Weed or Crop Name						Injury	Injury	Injury	Injury	Injury	Injury		
Rating Data Type						%	%	%	%	%	%		
Rating Unit						06/05/13	06/05/13	06/05/13	06/05/13	06/05/13	06/05/13		
Rating Date													
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
1	Pre-transplant							0.0 a	0.0 a	0.0 a	0.0 a	11.0 a	15.8 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	PT	rsplt	A					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	rsplt	A					
2	Pre-transplant							0.0 a	0.0 a	0.0 a	0.0 a	8.0 a	4.3 b
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	PT	rsplt	A					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	rsplt	A					
3	10 to 14 days post-transplant							0.0 a	0.0 a	0.0 a	0.0 a	0.0 b	0.0 c
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	POST	Tns	B					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns	B					
4	10 to 14 days post-transplant							0.0 a	0.0 a	0.0 a	0.0 a	0.0 b	0.0 c
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	POST	Tns	B					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns	B					
5	Untreated							0.0 a	0.0 a	0.0 a	0.0 a	0.0 b	0.0 c
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	rsplt	A					
	LSD (P=.05)							0.00	0.00	0.00	0.00	5.50	3.77
	Standard Deviation							0.00	0.00	0.00	0.00	3.57	2.45
	CV							0.0	0.0	0.0	0.0	93.9	61.19
	Replicate F							0.000	0.000	0.000	0.000	1.236	0.645
	Replicate Prob(F)							1.0000	1.0000	1.0000	1.0000	0.3397	0.6006
	Treatment F							0.000	0.000	0.000	0.000	8.859	31.064
	Treatment Prob(F)							1.0000	1.0000	1.0000	1.0000	0.0014	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						CPSAN	CPSAN	CPSAN	LYPES	SOLME	SOLME		
Crop Code						Jalapeno	Bell	Sw banan	Biltmore	Nadia	FairyTal		
Weed or Crop Name						pepper	pepper	pepper	tomato	eggplant	eggplant		
Weed or Crop Name						Injury	Injury	Injury	Injury	Injury	Injury		
Rating Data Type						%	%	%	%	%	%		
Rating Unit						06/24/13	06/24/13	06/24/13	06/24/13	06/24/13	06/24/13		
Rating Date													
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
1	Pre-transplant							0.0 a	3.8 a	2.5 a	0.0 a	2.5 a	7.5 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	PT	rsplt	A					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	rsplt	A					
2	Pre-transplant							0.0 a	0.0 a	0.0 a	0.0 a	5.5 a	7.5 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	PT	rsplt	A					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	rsplt	A					
3	10 to 14 days post-transplant							2.5 a	2.5 a	0.0 a	3.0 a	2.0 a	8.8 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	POST	Tns	B					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns	B					
4	10 to 14 days post-transplant							2.5 a	0.0 a	0.0 a	0.0 a	0.0 a	6.8 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	POST	Tns	B					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns	B					
5	Untreated							0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	rsplt	A					
	LSD (P=.05)							5.07	6.45	3.45	4.13	6.36	9.22
	Standard Deviation							3.29	4.18	2.24	2.68	4.13	5.98
	CV							329.14	334.66	447.21	447.21	206.36	98.05
	Replicate F							0.615	0.643	1.000	1.000	0.814	3.282
	Replicate Prob(F)							0.6181	0.6021	0.4262	0.4262	0.5104	0.0585
	Treatment F							0.692	0.714	1.000	1.000	1.204	1.358
	Treatment Prob(F)							0.6114	0.5980	0.4449	0.4449	0.3592	0.3054

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						SOLME	SOLME	CPSAN	CPSAN	CPSAN	LYPES		
Crop Code						Nadia	Nadia	Jalapeno	Bell	Sw banan	Biltmore		
Weed or Crop Name						eggplant	eggplant	pepper	pepper	pepper	tomato		
Weed or Crop Name						Injury	Injury	Injury	Injury	Injury	Injury		
Rating Data Type						%	%	%	%	%	%		
Rating Unit													
Rating Date						07/17/13	07/17/13	07/24/13	07/24/13	07/24/13	07/24/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl							
No.	Name	Conc	Type	Rate	Unit	Stg	Code						
1	Pre-transplant							0.0 a	6.0 a	0.0	0.0	0.0	0.0 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	PT	nsplt A						
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	nsplt A						
2	Pre-transplant							11.0 a	3.5 a	0.0	0.0	0.0	3.5 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	PT	nsplt A						
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	nsplt A						
3	10 to 14 days post-transplant							0.0 a	0.0 a	0.0	0.0	0.0	0.0 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	POST	Tns B						
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns B						
4	10 to 14 days post-transplant							7.5 a	9.0 a	15.0	0.0	0.0	0.0 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	POST	Tns B						
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns B						
5	Untreated							0.0 a	0.0 a	0.0	0.0	0.0	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	nsplt A						
	LSD (P=.05)						13.28	21.57	.	.	.	.	6.14
	Standard Deviation						4.79	7.77	.	.	.	.	2.21
	CV						129.34	210.05	.	.	.	.	316.23
	Replicate F						2.310	0.280					1.000
	Replicate Prob(F)						0.2032	0.6248					0.3739
	Treatment F						2.376	0.503					1.000
	Treatment Prob(F)						0.2113	0.7388					0.5000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						SOLME	SOLME	CHEAL	IPOHE	SIDSP	PANDI
Crop Code						Nadia	FairyTal	Common	Ivyleaf	Prickly	Fall
Weed or Crop Name						eggplant	eggplant	Lambqtrs	Morninglry	Sida	Panicum
Weed or Crop Name						Injury	Injury	Control	Control	Control	Control
Rating Data Type						%	%	%	%	%	%
Rating Unit						07/24/13	07/24/13	07/17/13	07/17/13	07/17/13	07/17/13
Rating Date											
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Rate	Unit	Stg	Code				
1	Pre-transplant										
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	PT	nsplt	A			
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	nsplt	A			
									95.0		100.0
2	Pre-transplant										
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	PT	nsplt	A			
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	nsplt	A			
									90.0		90.0
3	10 to 14 days post-transplant										
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	POST	Tns	B			
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns	B			
									100.0		100.0
4	10 to 14 days post-transplant										
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	POST	Tns	B			
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns	B			
									90.0		100.0
5	Untreated										
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	nsplt	A			
									0.0		0.0
LSD (P=.05)						7.02	6.14	.	.	.	.
Standard Deviation						2.53	2.21	.	.	.	.
CV						114.99	316.23	.	.	.	.
Replicate F						1.000	1.000				
Replicate Prob(F)						0.3739	0.3739				
Treatment F						7.563	1.000				
Treatment Prob(F)						0.0377	0.5000				

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						SOLME	SOLME	SOLME	SOLME	LYPES	LYPES		
Crop Code						Nadia	Nadia	FairyTal	FairyTal	Biltmore	Biltmore		
Weed or Crop Name						eggplant	eggplant	eggplant	eggplant	tomato	tomato		
Weed or Crop Name						Ttl Yld	Ttl Yld	Ttl Yld	Ttl Yld	Ttl Yld	Ttl Yld		
Rating Data Type						#/8plts	lb/8plts	#/8 plts	lb/8plts	#/8plts	lb/8plts		
Rating Unit													
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Unit	Stg	Appl Code						
1	Pre-transplant							45 a	44.0 a	455 a	40.0 a	117 a	44.2 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	PT	Trnsplt A						
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	Trnsplt A						
2	Pre-transplant							41 a	42.1 a	549 a	46.7 a	105 a	39.6 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	PT	Trnsplt A						
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	Trnsplt A						
3	10 to 14 days post-transplant							47 a	44.9 a	485 a	42.3 a	124 a	47.3 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/A	POST	Tns B						
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns B						
4	10 to 14 days post-transplant							37 a	38.6 a	434 a	39.1 a	122 a	48.4 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/A	POST	Tns B						
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	POST	Tns B						
5	Untreated							37 a	35.5 a	510 a	46.7 a	112 a	39.4 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/A	PT	Trnsplt A						
LSD (P=.05)						18.1	14.49	75.9	7.06	36.9	21.70		
Standard Deviation						6.5	5.22	27.3	2.54	13.3	7.82		
CV						15.92	12.72	5.62	5.92	11.49	17.86		
Replicate F						9.361	16.815	80.629	51.631	0.184	0.001		
Replicate Prob(F)						0.0377	0.0148	0.0009	0.0020	0.6903	0.9806		
Treatment F						0.981	1.125	5.518	3.998	0.678	0.583		
Treatment Prob(F)						0.5071	0.4560	0.0634	0.1041	0.6422	0.6930		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## Comparison of Herbicide-Resistant Soybeans for No-Till Weed Management

Trial ID: DSB1A-13 Cooperator: Delaware Soybean Board  
 Location: Field #10 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.

**Crop 1:** Soybean **GLXMA** **Variety:** RT4996N-STS & LL499N  
**Planting Date:** 07/17/13 **Planting Method:** Row- Cone System **Depth:** 1 in  
**Rate:** 5 **Sd/row-ft** **Row Spacing:** 14 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 93 **F** **Soil Moisture:** Moist-Wet **Emergence Date:** 07/21/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** FACTORIAL  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	qt/A
3.	06/27/13	Gramoxone SL	2	SL	2	qt/A
4.	06/27/13	Crop Oil Concentrate			1	% v/v

## SOIL DESCRIPTION

**% Sand:** 79 **% OM:** 2.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.5  
**% Clay:** 11 **CEC:** 8.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.25 **Unit:** mi

## APPLICATION DESCRIPTION

	A	B	C
<b>Application Date:</b>	07/17/13	08/14/13	08/26/13
<b>Time of Day:</b>	2:00 pm	11:30 am	10:30 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	4 WAP	6 WAP
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	93 F	70 F	74 F
<b>% Relative Humidity:</b>	65	44	60
<b>Wind Velocity, Unit:</b>	2 mph	6 mph	2 mph
<b>Wind Direction:</b>	Northeast	Northwest	Southwest
<b>Dew Presence (Y/N):</b>	N	Y	Y
<b>Soil Temp., Unit:</b>	93 F	70 F	73 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Dry
<b>Root Zone Moisture:</b>	Wet	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Moist	Moist
<b>% Cloud Cover:</b>	10	35	30

## CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:		4-5 trifol	EaFlowr
Height, Unit:		9 in	12 in
Crop Health:		Fair	Fair-Good

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		running	running
Height, Unit:		21 in	24 in
Density, Unit:		2-8 m2	2-8 m2

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	26 in	28 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

Groundhog hole in plot 115.

08/07/13: Standing water in back half of plots 314 to 318.

10/22/13: Grass pressure was heavier in the back half of the site and to the right side, so grass control ratings were variable. Some stunting observed on the left side of the trial plot number (plots-%stunting: 101-40, 102-10, 104-10, 110-25; 201-15; 210-15; 102-10; 211-20; 203-12; 112-15; 113-20)

The following plots had standing water and thus some stunting: 310, 311, 312, 314-318.

Comparison of Herbicide-Resistant Soybeans for No-Till Weed Management										
Trial ID: DSB1A-13 Cooperator: Delaware Soybean Board										
Location: Field #10 Investigator: Mark VanGessel										
Weed Code						GLXMA	GLXMA	AMAPA	IPOSS	IPOSS
Crop Code						Soybean	Soybean	Palmer	Mornglry	Mornglry
Weed or Crop Name						Stunting	Stunting	Amaranth	Species	Species
Weed or Crop Name						%	%	Control	Control	Control
Rating Data Type						08/01/13	08/07/13	08/07/13	08/07/13	08/13/13
Rating Unit										
Rating Date										
Trt	Treatment	Form	Form	Rate	Grow	Appl				
No.	Name	Conc	Type	Rate	Unit	Stg	Code			
1	Total POST (28 DAP)									
	Conventional Soys									
	Reflex.....fomesafen	2L		0.25 lb ai/A		4 WAP	B			
	Basagran.....bentazon	4L		0.75 lb ai/A		4 WAP	B			
	Select Max.....clethodim	1 EC		0.125 lb ai/A		4 WAP	B			
	Nonionic Surfactant	100L		0.25 % v/v		4 WAP	B			
2	Total POST (28 DAP)									
	Roundup Ready Soys									
	Glyphosate	3L		0.75 lb ae/A		4 WAP	B			
3	Total POST (28 DAP)									
	Liberty-Link Soys									
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A		4 WAP	B			
	Dry Ammonium Sulfate	100 D		1.2 % w/v		4 WAP	B			
4	Total POST (28 DAP)									
	STS Soys									
	Synchrony XP Premix	28.4 DG		0.0133 lb ai/A		4 WAP	B			
	Select Max.....clethodim	1 EC		0.125 lb ai/A		4 WAP	B			
	Crop Oil Concentrate	100L		1 % v/v		4 WAP	B			
5	PRE fb POST (28 DAP)							0.0b	2.3b	99.0a
	Conventional Soys									
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/A		PRE	A			
	Prowl.....pendimethalin	3.3 EC		0.72 lb ai/A		PRE	A			
	Metribuzin.....metribuzin	75 DF		0.14 lb ai/A		PRE	A			
	Reflex.....fomesafen	2L		0.25 lb ai/A		4 WAP	B			
	Basagran.....bentazon	4L		0.75 lb ai/A		4 WAP	B			
	Select Max.....clethodim	1 EC		0.125 lb ai/A		4 WAP	B			
	Nonionic Surfactant	100L		0.25 % v/v		4 WAP	B			
6	PRE fb POST (28 DAP)							11.3 a	10.7 a	92.3 bc
	Roundup Ready Soys									
	Valor XLT Premix	40.3 WG		0.0756 lb ai/A		PRE	A			
	Glyphosate	3L		0.75 lb ae/A		4 WAP	B			
7	PRE fb POST (28 DAP)							3.3b	2.3b	95.7 ab
	Liberty-Link Soys									
	Prefix Premix	5.3 E		1.33 lb ai/A		PRE	A			
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A		4 WAP	B			
	Dry Ammonium Sulfate	100 D		1.2 % w/v		4 WAP	B			

Weed Code						GLXMA	GLXMA	AMAPA	IPOSS	IPOSS
Crop Code						Soybean	Soybean	Palmer	Mornglry	Mornglry
Weed or Crop Name						Stunting	Stunting	Amaranth	Species	Species
Weed or Crop Name						%	%	Control	Control	Control
Rating Data Type						08/01/13	08/07/13	08/07/13	08/07/13	08/13/13
Rating Unit										
Rating Date										
Trt	Treatment	Form	Form	Rate	Grow	Appl				
No.	Name	Conc	Type	Rate	Unit	Stg	Code			
8	PRE fb POST (28 DAP)						11.0 a			
	STS Soys									
	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A				
	Synchrony XP Premix	28.4	DG	0.0133 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1	EC	0.125 lb ai/A	4 WAP	B				
	Crop Oil Concentrate	100	L	1% v/v	4 WAP	B				
9	PRE fb LPOST (42 DAP)									
	Conventional Soys									
	Dual Magnum.....s-metolachlor	7.62	E	1.24 lb ai/A	PRE	A				
	Prowl.....pendimethalin	3.3	EC	0.72 lb ai/A	PRE	A				
	Metribuzin.....metribuzin	75	DF	0.14 lb ai/A	PRE	A				
	Reflex.....fomesafen	2	L	0.25 lb ai/A	4 WAP	B				
	Basagran.....bentazon	4	L	0.75 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1	EC	0.125 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100	L	0.25% v/v	4 WAP	B				
10	PRE fb LPOST (42 DAP)									
	Roundup Ready Soys									
	Valor XLT Premix	40.3	WG	0.0756 lb ai/A	PRE	A				
	Glyphosate	3	L	0.75 lb ae/A	4 WAP	B				
11	PRE fb LPOST (42 DAP)									
	Liberty-Link Soys									
	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/A	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.2% w/v	4 WAP	B				
12	PRE fb LPOST (42 DAP)									
	STS Soys									
	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A				
	Synchrony XP Premix	28.4	DG	0.0133 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1	EC	0.125 lb ai/A	4 WAP	B				
	Crop Oil Concentrate	100	L	1% v/v	4 WAP	B				
13	Reduced PRE fb POST (28 DAP)						2.3 b	0.0 b	89.7 c	60.0 c
	Conventional Soys									
	Dual Magnum.....s-metolachlor	7.62	E	0.83 lb ai/A	PRE	A				
	Prowl.....pendimethalin	3.3	EC	0.483 lb ai/A	PRE	A				
	Metribuzin.....metribuzin	75	DF	0.094 lb ai/A	PRE	A				
	Reflex.....fomesafen	2	L	0.25 lb ai/A	4 WAP	B				
	Basagran.....bentazon	4	L	0.75 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1	EC	0.125 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100	L	0.25% v/v	4 WAP	B				
14	Reduced PRE fb POST (28 DAP)						12.0 a	9.7 a	94.7 b	78.3 a
	Roundup Ready Soys									
	Valor XLT Premix	40.3	WG	0.0504 lb ai/A	PRE	A				
	Glyphosate	3	L	0.75 lb ae/A	4 WAP	B				

						GLXMA	GLXMA	AMAPA	IPOSS	IPOSS
						Soybean	Soybean	Palmer Amaranth	Morninglry Species	Morninglry Species
						Stunting %	Stunting %	Control %	Control %	Control %
						08/01/13	08/07/13	08/07/13	08/07/13	08/13/13
Trt	Treatment	Form	Form	Rate	Grow	Appl				
No.	Name	Conc	Type	Rate	Unit	Stg	Code			
15	Reduced PRE fb POST (28 DAP)									
	Liberty-Link Soys									
	Prefix Premix	5.3	E	0.86 lb ai/A	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/A	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.2% w/v	4 WAP	B				
16	Reduced PRE fb POST (28 DAP)									
	STS Soys									
	Prefix Premix	5.3	E	0.86 lb ai/A	PRE	A				
	Synchrony XP Premix	28.4	DG	0.0133 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1	EC	0.125 lb ai/A	4 WAP	B				
	Crop Oil Concentrate	100	L	1% v/v	4 WAP	B				
17	Untreated Check									
	Liberty-Link Soys									
18	Liberty-Link Soys									
	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.62 lb ai/A	6 WAP	C				
	Select Max.....clethodim	1	EC	0.125 lb ai/A	if Needed	C				
	Dry Ammonium Sulfate	100	D	1.2% w/v	6WAP	C				
	LSD (P=.05)						5.28	4.39	3.64	9.77
	Standard Deviation						2.94	2.47	2.05	5.49
	CV						58.78	69.04	2.17	7.95
	Replicate F						0.521	0.634	9.780	1.765
	Replicate Prob(F)						0.6079	0.5471	0.0030	0.2128
	Treatment F						10.421	10.595	5.935	4.596
	Treatment Prob(F)						0.0004	0.0003	0.0044	0.0120

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						AMAPA	IPOSS	AMAPA	IPOSS	DIGSA
Crop Code						Palmer	Morngly	Palmer	Morngly	Large
Weed or Crop Name						Amaranth	Species	Amaranth	Species	Crabgras
Weed or Crop Name						Control	Control	Control	Control	Control
Rating Data Type						%	%	%	%	%
Rating Unit						08/26/13	08/26/13	09/13/13	09/13/13	09/13/13
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code				
1	Total POST (28 DAP) Conventional Soys							89.3 a-e	66.5 f	80.6 b
	Reflex.....fomesafen	2L		0.25 lb ai/A	4 WAP	B				
	Basagran.....bentazon	4L		0.75 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100L		0.25 % v/v	4 WAP	B				
2	Total POST (28 DAP) Roundup Ready Soys							65.0 f	71.5 f	100.0 a
	Glyphosate	3L		0.75 lb ae/A	4 WAP	B				
3	Total POST (28 DAP) Liberty-Link Soys							82.7 de	90.7 abc	98.3 a
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A	4 WAP	B				
	Dry Ammonium Sulfate	100D		1.2 % w/v	4 WAP	B				
4	Total POST (28 DAP) STS Soys							80.0 e	75.5 def	93.1 a
	Synchrony XP Premix	28.4 DG		0.0133 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B				
	Crop Oil Concentrate	100L		1 % v/v	4 WAP	B				
5	PRE fb POST (28 DAP) Conventional Soys							99.0 ab	78.3 c-f	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/A	PRE	A				
	Prowl.....pendimethalin	3.3 EC		0.72 lb ai/A	PRE	A				
	Metribuzin.....metribuzin	75 DF		0.14 lb ai/A	PRE	A				
	Reflex.....fomesafen	2L		0.25 lb ai/A	4 WAP	B				
	Basagran.....bentazon	4L		0.75 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100L		0.25 % v/v	4 WAP	B				
6	PRE fb POST (28 DAP) Roundup Ready Soys							93.0 a-d	89.5 a-d	99.2 a
	Valor XLT Premix	40.3 WG		0.0756 lb ai/A	PRE	A				
	Glyphosate	3L		0.75 lb ae/A	4 WAP	B				
7	PRE fb POST (28 DAP) Liberty-Link Soys							100.0 a	94.3 a	100.0 a
	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A				
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A	4 WAP	B				
	Dry Ammonium Sulfate	100D		1.2 % w/v	4 WAP	B				

						AMAPA	IPOSS	AMAPA	IPOSS	DIGSA	
						Palmer Amaranth Control %	Morngly Species Control %	Palmer Amaranth Control %	Morngly Species Control %	Large Crabgras Control %	
						08/26/13	08/26/13	09/13/13	09/13/13	09/13/13	
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Rate	Unit	Stg	Code				
8	PRE fb POST (28 DAP)							100.0 a	86.0 a-e	93.3 a	
	STS Soys										
	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A					
	Synchrony XP Premix	28.4 DG		0.0133 lb ai/A	4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B					
	Crop Oil Concentrate	100 L		1 % v/v	4 WAP	B					
9	PRE fb LPOST (42 DAP)							100.0 a	79.3 b-f	99.2 a	
	Conventional Soys										
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/A	PRE	A					
	Prowl.....pendimethalin	3.3 EC		0.72 lb ai/A	PRE	A					
	Metribuzin.....metribuzin	75 DF		0.14 lb ai/A	PRE	A					
	Reflex.....fomesafen	2 L		0.25 lb ai/A	4 WAP	B					
	Basagran.....bentazon	4 L		0.75 lb ai/A	4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B					
	Nonionic Surfactant	100 L		0.25 % v/v	4 WAP	B					
10	PRE fb LPOST (42 DAP)							100.0 a	80.0 b-f	100.0 a	
	Roundup Ready Soys										
	Valor XLT Premix	40.3 WG		0.0756 lb ai/A	PRE	A					
	Glyphosate	3 L		0.75 lb ae/A	4 WAP	B					
11	PRE fb LPOST (42 DAP)							100.0 a	88.3 a-d	95.0 a	
	Liberty-Link Soys										
	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A					
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A	4 WAP	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	4 WAP	B					
12	PRE fb LPOST (42 DAP)							96.7 abc	89.0 a-d	93.0 a	
	STS Soys										
	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A					
	Synchrony XP Premix	28.4 DG		0.0133 lb ai/A	4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B					
	Crop Oil Concentrate	100 L		1 % v/v	4 WAP	B					
13	Reduced PRE fb POST (28 DAP)							86.7 cde	76.7 c-f	93.3 a	
	Conventional Soys										
	Dual Magnum.....s-metolachlor	7.62 E		0.83 lb ai/A	PRE	A					
	Prowl.....pendimethalin	3.3 EC		0.483 lb ai/A	PRE	A					
	Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	PRE	A					
	Reflex.....fomesafen	2 L		0.25 lb ai/A	4 WAP	B					
	Basagran.....bentazon	4 L		0.75 lb ai/A	4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B					
	Nonionic Surfactant	100 L		0.25 % v/v	4 WAP	B					
14	Reduced PRE fb POST (28 DAP)							87.7 b-e	73.3 ef	100.0 a	
	Roundup Ready Soys										
	Valor XLT Premix	40.3 WG		0.0504 lb ai/A	PRE	A					
	Glyphosate	3 L		0.75 lb ae/A	4 WAP	B					

						AMAPA	IPOSS	AMAPA	IPOSS	DIGSA
						Palmer Amaranth Control %	Mornglry Species Control %	Palmer Amaranth Control %	Mornglry Species Control %	Large Crabgras Control %
						08/26/13	08/26/13	09/13/13	09/13/13	09/13/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code				
15	Reduced PRE fb POST (28 DAP) Liberty-Link Soys							92.7 a-d	94.7 a	100.0 a
	Prefix Premix	5.3 E		0.86 lb ai/A	PRE	A				
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A	4 WAP	B				
	Dry Ammonium Sulfate	100 D		1.2% w/v	4 WAP	B				
16	Reduced PRE fb POST (28 DAP) STS Soys							100.0 a	97.3 a	95.0 a
	Prefix Premix	5.3 E		0.86 lb ai/A	PRE	A				
	Synchrony XP Premix	28.4 DG		0.0133 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B				
	Crop Oil Concentrate	100 L		1% v/v	4 WAP	B				
17	Untreated Check Liberty-Link Soys						0.0 b	0.0 b	0.0 g	0.0 c
18	Liberty-Link Soys						98.3 a	55.0 a	99.7 ab	93.0 ab
	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A				
	Liberty 280.....glufosinate	2.34 SL		0.62 lb ai/A	6 WAP	C				
	Select Max.....clethodim	1 EC		0.125 lb ai/A	if Needed	C				
	Dry Ammonium Sulfate	100 D		1.2% w/v	6WAP	C				
LSD (P=.05)						7.17	12.42	12.20	14.24	9.26
Standard Deviation						2.04	3.54	7.32	8.54	5.55
CV						4.15	12.86	8.38	10.79	6.1
Replicate F						1.000	1.000	1.383	6.463	1.228
Replicate Prob(F)						0.5000	0.5000	0.2659	0.0046	0.3077
Treatment F						3481.000	363.000	31.642	19.363	52.475
Treatment Prob(F)						0.0003	0.0027	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						SIDSP	AMAPA	IPOSS	DIGSA	GLXMA		
Crop Code						Prickly	Palmer	Morngrly	Large	Soybean		
Weed or Crop Name						Sida	Amaranth	Species	Crabgrass			
Weed or Crop Name						1=presnt	Control	Control	Control	Yield		
Rating Data Type						0=absent	%	%	%	Bu/A		
Rating Unit						09/13/13	10/22/13	10/22/13	10/22/13	11/13/13		
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code					
1	Total POST (28 DAP) Conventional Soys							0.0 a	73.3 bcd	50.0 c	73.3 c	15.9 a
	Reflex.....fomesafen	2L		0.25 lb ai/A		4 WAP	B					
	Basagran.....bentazon	4L		0.75 lb ai/A		4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A		4 WAP	B					
	Nonionic Surfactant	100L		0.25 % v/v		4 WAP	B					
2	Total POST (28 DAP) Roundup Ready Soys							0.3 a	35.8 e	50.0 c	100.0 a	25.5 a
	Glyphosate	3L		0.75 lb ae/A		4 WAP	B					
3	Total POST (28 DAP) Liberty-Link Soys							0.3 a	65.0 cd	85.0 ab	100.0 a	25.6 a
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A		4 WAP	B					
	Dry Ammonium Sulfate	100D		1.2 % w/v		4 WAP	B					
4	Total POST (28 DAP) STS Soys							0.3 a	55.0 d	75.0 b	100.0 a	21.1 a
	Synchrony XP Premix	28.4 DG		0.0133 lb ai/A		4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A		4 WAP	B					
	Crop Oil Concentrate	100L		1 % v/v		4 WAP	B					
5	PRE fb POST (28 DAP) Conventional Soys							0.3 a	100.0 a	88.3 ab	100.0 a	25.4 a
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/A		PRE	A					
	Prowl.....pendimethalin	3.3 EC		0.72 lb ai/A		PRE	A					
	Metribuzin.....metribuzin	75 DF		0.14 lb ai/A		PRE	A					
	Reflex.....fomesafen	2L		0.25 lb ai/A		4 WAP	B					
	Basagran.....bentazon	4L		0.75 lb ai/A		4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A		4 WAP	B					
	Nonionic Surfactant	100L		0.25 % v/v		4 WAP	B					
6	PRE fb POST (28 DAP) Roundup Ready Soys							0.0 a	90.2 ab	100.0 a	100.0 a	26.8 a
	Valor XLT Premix	40.3 WG		0.0756 lb ai/A		PRE	A					
	Glyphosate	3L		0.75 lb ae/A		4 WAP	B					
7	PRE fb POST (28 DAP) Liberty-Link Soys							0.0 a	100.0 a	93.3 a	100.0 a	30.5 a
	Prefix Premix	5.3 E		1.33 lb ai/A		PRE	A					
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A		4 WAP	B					
	Dry Ammonium Sulfate	100D		1.2 % w/v		4 WAP	B					

Weed Code						SIDSP	AMAPA	IPOSS	DIGSA	GLXMA	
Crop Code						Prickly	Palmer	Morngrly	Large	Soybean	
Weed or Crop Name						Sida	Amaranth	Species	Crabgrass		
Weed or Crop Name						1=presnt	Control	Control	Control	Yield	
Rating Data Type						0=absent	%	%	%	Bu/A	
Rating Unit						09/13/13	10/22/13	10/22/13	10/22/13	11/13/13	
Rating Date											
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Rate	Stg	Code					
8	PRE fb POST (28 DAP)						0.0 a	97.7 a	100.0 a	99.5 a	27.1 a
	STS Soys										
	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A					
	Synchrony XP Premix	28.4 DG		0.0133 lb ai/A	4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B					
	Crop Oil Concentrate	100 L		1 % v/v	4 WAP	B					
9	PRE fb LPOST (42 DAP)						0.3 a	100.0 a	89.0 ab	90.0 ab	26.2 a
	Conventional Soys										
	Dual Magnum.....s-metolachlor	7.62 E		1.24 lb ai/A	PRE	A					
	Prowl.....pendimethalin	3.3 EC		0.72 lb ai/A	PRE	A					
	Metribuzin.....metribuzin	75 DF		0.14 lb ai/A	PRE	A					
	Reflex.....fomesafen	2 L		0.25 lb ai/A	4 WAP	B					
	Basagran.....bentazon	4 L		0.75 lb ai/A	4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B					
	Nonionic Surfactant	100 L		0.25 % v/v	4 WAP	B					
10	PRE fb LPOST (42 DAP)						0.0 a	100.0 a	86.7 ab	100.0 a	25.4 a
	Roundup Ready Soys										
	Valor XLT Premix	40.3 WG		0.0756 lb ai/A	PRE	A					
	Glyphosate	3 L		0.75 lb ae/A	4 WAP	B					
11	PRE fb LPOST (42 DAP)						0.0 a	100.0 a	93.3 a	100.0 a	27.9 a
	Liberty-Link Soys										
	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A					
	Liberty 280.....glufosinate	2.34 SL		0.53 lb ai/A	4 WAP	B					
	Dry Ammonium Sulfate	100 D		1.2 % w/v	4 WAP	B					
12	PRE fb LPOST (42 DAP)						0.3 a	93.3 a	98.0 a	90.0 ab	22.4 a
	STS Soys										
	Prefix Premix	5.3 E		1.33 lb ai/A	PRE	A					
	Synchrony XP Premix	28.4 DG		0.0133 lb ai/A	4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B					
	Crop Oil Concentrate	100 L		1 % v/v	4 WAP	B					
13	Reduced PRE fb POST (28 DAP)						0.0 a	83.3 abc	85.0 ab	100.0 a	24.5 a
	Conventional Soys										
	Dual Magnum.....s-metolachlor	7.62 E		0.83 lb ai/A	PRE	A					
	Prowl.....pendimethalin	3.3 EC		0.483 lb ai/A	PRE	A					
	Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	PRE	A					
	Reflex.....fomesafen	2 L		0.25 lb ai/A	4 WAP	B					
	Basagran.....bentazon	4 L		0.75 lb ai/A	4 WAP	B					
	Select Max.....clethodim	1 EC		0.125 lb ai/A	4 WAP	B					
	Nonionic Surfactant	100 L		0.25 % v/v	4 WAP	B					
14	Reduced PRE fb POST (28 DAP)						0.3 a	95.0 a	93.3 a	100.0 a	28.9 a
	Roundup Ready Soys										
	Valor XLT Premix	40.3 WG		0.0504 lb ai/A	PRE	A					
	Glyphosate	3 L		0.75 lb ae/A	4 WAP	B					

Weed Code						SIDSP	AMAPA	IPOSS	DIGSA	GLXMA		
Crop Code						Prickly	Palmer	Morngrly	Large	Soybean		
Weed or Crop Name						Sida	Amaranth	Species	Crabgrass			
Weed or Crop Name						1=presnt	Control	Control	Control	Yield		
Rating Data Type						0=absent	%	%	%	Bu/A		
Rating Unit						09/13/13	10/22/13	10/22/13	10/22/13	11/13/13		
Rating Date												
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
15	Reduced PRE fb POST (28 DAP)							0.0 a	88.3 ab	100.0 a	100.0 a	22.2 a
	Liberty-Link Soys											
	Prefix Premix	5.3	E	0.86 lb ai/A	PRE	A						
	Liberty 280.....glufosinate	2.34	SL	0.53 lb ai/A	4 WAP	B						
	Dry Ammonium Sulfate	100	D	1.2% w/v	4 WAP	B						
16	Reduced PRE fb POST (28 DAP)							0.7 a	100.0 a	100.0 a	87.3 b	25.1 a
	STS Soys											
	Prefix Premix	5.3	E	0.86 lb ai/A	PRE	A						
	Synchrony XP Premix	28.4	DG	0.0133 lb ai/A	4 WAP	B						
	Select Max.....clethodim	1	EC	0.125 lb ai/A	4 WAP	B						
	Crop Oil Concentrate	100	L	1% v/v	4 WAP	B						
17	Untreated Check							0.3 a	0.0 f	0.0 d	0.0 d	24.3 a
	Liberty-Link Soys											
18	Liberty-Link Soys							0.0 a	100.0 a	95.0 a	100.0 a	22.0 a
	Prefix Premix	5.3	E	1.33 lb ai/A	PRE	A						
	Liberty 280.....glufosinate	2.34	SL	0.62 lb ai/A	6 WAP	C						
	Select Max.....clethodim	1	EC	0.125 lb ai/A	if Needed	C						
	Dry Ammonium Sulfate	100	D	1.2% w/v	6WAP	C						
	LSD (P=.05)							0.69	18.71	17.62	11.93	10.72
	Standard Deviation							0.41	11.22	10.51	7.15	6.36
	CV							224.03	13.67	12.77	7.85	25.63
	Replicate F							0.430	2.360	0.002	1.108	11.276
	Replicate Prob(F)							0.6538	0.1111	0.9980	0.3426	0.0004
	Treatment F							0.734	18.033	17.646	33.290	0.808
	Treatment Prob(F)							0.7478	0.0001	0.0001	0.0001	0.6702

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Comparison of Herbicide-Resistant Soybeans for No-Till Weed Management

Trial ID: DSB1A-13 Cooperator: Delaware Soybean Board  
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	AMAPA	IPOSS	DIGSA	SIDSP	AMAPA	IPOSS
Crop Code						
Weed or Crop Name	Palmer	Mornglry	Large	Prickly	Palmer	Mornglry
Weed or Crop Name	Amaranth	Species	Crabgras	Sida	Amaranth	Species
Rating Data Type	Control	Control	Control	1=presnt	Control	Control
Rating Unit	%	%	%	0=absent	%	%
Rating Date	09/13/13	09/13/13	09/13/13	09/13/13	10/22/13	10/22/13
Trt Treatment	Form	Form	Rate	Grow	Appl	
No. Name	Conc	Type	Rate	Unit	Stg	Code
TABLE OF R MEANS						
Replicate 1	89.7	77.0	94.8	0.3	80.8	86.4
Replicate 2	94.3	86.3	96.7	0.3	89.4	86.5
Replicate 3	92.1	86.3	97.2	0.1	88.0	87.2
TABLE OF A (Weed Management Approach) MEANS						
1 Ttl POST 28DAP	79.2	76.0	93.0	0.3	57.3	65.0
2 PRE fb PO 28DAP	98.0	87.1	98.1	0.1	97.0	95.4
3 PRE fb LP 42DAP	99.2	84.2	96.8	0.2	98.3	91.8
4 RedPRfb PO28DAP	91.8	85.5	97.1	0.3	91.7	94.6
TABLE OF B (Soybean Traits) MEANS						
1 Convent. Soys	93.8	75.2	93.3	0.2	89.2	78.1
1 Reflex	2L	0.25 lb ai/A	4 WAP B			
1 Basagran	4L	0.75 lb ai/A	4 WAP B			
1 Select Max	1 EC	0.125 lb ai/A	4 WAP B			
1 Nonionic Surf.	100L	0.25 % v/v	4 WAP B			
2 Roundup Soys	86.4	78.6	99.8	0.2	80.3	82.5
2 Glyphosate	3L	0.75 lb ae/A	4 WAP B			
3 Liberty Soys	93.8	92.0	98.3	0.1	88.3	92.9
3 Liberty 280	2.34 SL	0.53 lb ai/A	4 WAP B			
3 Ammonium Sulf.	100D	1.2 % w/v	4 WAP B			
4 STS Soys	94.2	87.0	93.6	0.3	86.5	93.3
4 Synchrony XP	28.4 DG	0.0133 lb ai/A	4 WAP B			
4 Select Max	1 EC	0.125 lb ai/A	4 WAP B			
4 Crop Oil Conc.	100L	1 % v/v	4 WAP B			
TABLE OF A (Weed Management Approach) B (Soybean Traits) MEANS						
1 Ttl POST 28DAP	89.3	66.5	80.6	0.0	73.3	50.0
1 Convent. Soys						
1 Reflex	2L	0.25 lb ai/A	4 WAP B			
1 Basagran	4L	0.75 lb ai/A	4 WAP B			
1 Select Max	1 EC	0.125 lb ai/A	4 WAP B			
1 Nonionic Surf.	100L	0.25 % v/v	4 WAP B			
2 PRE fb PO 28DAP	99.0	78.3	100.0	0.3	100.0	88.3
1 Convent. Soys						
1 Reflex	2L	0.25 lb ai/A	4 WAP B			
1 Basagran	4L	0.75 lb ai/A	4 WAP B			
1 Select Max	1 EC	0.125 lb ai/A	4 WAP B			
1 Nonionic Surf.	100L	0.25 % v/v	4 WAP B			

## University of Delaware

Weed Code							AMAPA	IPOSS	DIGSA	SIDSP	AMAPA	IPOSS	
Crop Code							Palmer	Mornglry	Large	Prickly	Palmer	Mornglry	
Weed or Crop Name							Amaranth	Species	Crabgras	Sida	Amaranth	Species	
Weed or Crop Name							Control	Control	Control	1=presnt	Control	Control	
Rating Data Type							%	%	%	0=absent	%	%	
Rating Unit							09/13/13	09/13/13	09/13/13	09/13/13	10/22/13	10/22/13	
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code						
3	PRE fb LP 42DAP							100.0	79.3	99.2	0.3	100.0	89.0
1	Convent. Soys												
1	Reflex	2L		0.25 lb ai/A		4 WAP B							
1	Basagran	4L		0.75 lb ai/A		4 WAP B							
1	Select Max	1 EC		0.125 lb ai/A		4 WAP B							
1	Nonionic Surf.	100L		0.25 % v/v		4 WAP B							
4	RedPRfb PO28DAP							86.7	76.7	93.3	0.0	83.3	85.0
1	Convent. Soys												
1	Reflex	2L		0.25 lb ai/A		4 WAP B							
1	Basagran	4L		0.75 lb ai/A		4 WAP B							
1	Select Max	1 EC		0.125 lb ai/A		4 WAP B							
1	Nonionic Surf.	100L		0.25 % v/v		4 WAP B							
1	Til POST 28DAP							65.0	71.5	100.0	0.3	35.8	50.0
2	Roundup Soys												
2	Glyphosate	3L		0.75 lb ae/A		4 WAP B							
2	PRE fb PO 28DAP							93.0	89.5	99.2	0.0	90.2	100.0
2	Roundup Soys												
2	Glyphosate	3L		0.75 lb ae/A		4 WAP B							
3	PRE fb LP 42DAP							100.0	80.0	100.0	0.0	100.0	86.7
2	Roundup Soys												
2	Glyphosate	3L		0.75 lb ae/A		4 WAP B							
4	RedPRfb PO28DAP							87.7	73.3	100.0	0.3	95.0	93.3
2	Roundup Soys												
2	Glyphosate	3L		0.75 lb ae/A		4 WAP B							
1	Til POST 28DAP							82.7	90.7	98.3	0.3	65.0	85.0
3	Liberty Soys												
3	Liberty 280	2.34 SL		0.53 lb ai/A		4 WAP B							
3	Ammonium Sulf.	100 D		1.2 % w/v		4 WAP B							
2	PRE fb PO 28DAP							100.0	94.3	100.0	0.0	100.0	93.3
3	Liberty Soys												
3	Liberty 280	2.34 SL		0.53 lb ai/A		4 WAP B							
3	Ammonium Sulf.	100 D		1.2 % w/v		4 WAP B							
3	PRE fb LP 42DAP							100.0	88.3	95.0	0.0	100.0	93.3
3	Liberty Soys												
3	Liberty 280	2.34 SL		0.53 lb ai/A		4 WAP B							
3	Ammonium Sulf.	100 D		1.2 % w/v		4 WAP B							
4	RedPRfb PO28DAP							92.7	94.7	100.0	0.0	88.3	100.0
3	Liberty Soys												
3	Liberty 280	2.34 SL		0.53 lb ai/A		4 WAP B							
3	Ammonium Sulf.	100 D		1.2 % w/v		4 WAP B							
1	Til POST 28DAP							80.0	75.5	93.1	0.3	55.0	75.0
4	STS Soys												
4	Synchrony XP	28.4 DG		0.0133 lb ai/A		4 WAP B							
4	Select Max	1 EC		0.125 lb ai/A		4 WAP B							
4	Crop Oil Conc.	100L		1 % v/v		4 WAP B							

## University of Delaware

Weed Code						AMAPA	IPOSS	DIGSA	SIDSP	AMAPA	IPOSS		
Crop Code						Palmer	Mornglry	Large	Prickly	Palmer	Mornglry		
Weed or Crop Name						Amaranth	Species	Crabgras	Sida	Amaranth	Species		
Weed or Crop Name						Control	Control	Control	1=presnt	Control	Control		
Rating Data Type						%	%	%	0=absent	%	%		
Rating Unit													
Rating Date						09/13/13	09/13/13	09/13/13	09/13/13	10/22/13	10/22/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
2	PRE fb PO 28DAP							100.0	86.0	93.3	0.0	97.7	100.0
4	STS Soys												
4	Synchrony XP	28.4	DG	0.0133	lb ai/A	4	WAP B						
4	Select Max	1	EC	0.125	lb ai/A	4	WAP B						
4	Crop Oil Conc.	100	L	1%	v/v	4	WAP B						
3	PRE fb LP 42DAP							96.7	89.0	93.0	0.3	93.3	98.0
4	STS Soys												
4	Synchrony XP	28.4	DG	0.0133	lb ai/A	4	WAP B						
4	Select Max	1	EC	0.125	lb ai/A	4	WAP B						
4	Crop Oil Conc.	100	L	1%	v/v	4	WAP B						
4	RedPRfb PO28DAP							100.0	97.3	95.0	0.7	100.0	100.0
4	STS Soys												
4	Synchrony XP	28.4	DG	0.0133	lb ai/A	4	WAP B						
4	Select Max	1	EC	0.125	lb ai/A	4	WAP B						
4	Crop Oil Conc.	100	L	1%	v/v	4	WAP B						

Weed Code						DIGSA	GLXMA
Crop Code						Large	Soybean
Weed or Crop Name						Crabgras	
Weed or Crop Name						Control	Yield
Rating Data Type						%	Bu/A
Rating Unit						10/22/13	11/13/13
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code
TABLE OF R MEANS							
Replicate 1						95.2	18.8
Replicate 2						95.0	27.5
Replicate 3						98.6	28.7
TABLE OF A (Weed Management Approach) MEANS							
1 Ttl POST 28DAP						93.3	22.0
2 PRE fb PO 28DAP						99.9	27.4
3 PRE fb LP 42DAP						95.0	25.5
4 RedPRfb PO28DAP						96.8	25.2
TABLE OF B (Soybean Traits) MEANS							
1 Convent. Soys						90.8	23.0
1 Reflex 2L 0.25 lb ai/A 4 WAP B							
1 Basagran 4L 0.75 lb ai/A 4 WAP B							
1 Select Max 1 EC 0.125 lb ai/A 4 WAP B							
1 Nonionic Surf. 100L 0.25 % v/v 4 WAP B							
2 Roundup Soys						100.0	26.7
2 Glyphosate 3L 0.75 lb ae/A 4 WAP B							
3 Liberty Soys						100.0	26.5
3 Liberty 280 2.34 SL 0.53 lb ai/A 4 WAP B							
3 Ammonium Sulf. 100 D 1.2 % w/v 4 WAP B							
4 STS Soys						94.2	23.9
4 Synchrony XP 28.4 DG 0.0133 lb ai/A 4 WAP B							
4 Select Max 1 EC 0.125 lb ai/A 4 WAP B							
4 Crop Oil Conc. 100L 1 % v/v 4 WAP B							
TABLE OF A (Weed Management Approach) B (Soybean Traits) MEANS							
1 Ttl POST 28DAP						73.3	15.9
1 Convent. Soys							
1 Reflex 2L 0.25 lb ai/A 4 WAP B							
1 Basagran 4L 0.75 lb ai/A 4 WAP B							
1 Select Max 1 EC 0.125 lb ai/A 4 WAP B							
1 Nonionic Surf. 100L 0.25 % v/v 4 WAP B							
2 PRE fb PO 28DAP						100.0	25.4
1 Convent. Soys							
1 Reflex 2L 0.25 lb ai/A 4 WAP B							
1 Basagran 4L 0.75 lb ai/A 4 WAP B							
1 Select Max 1 EC 0.125 lb ai/A 4 WAP B							
1 Nonionic Surf. 100L 0.25 % v/v 4 WAP B							

							DIGSA	GLXMA
Weed Code							Large	Soybean
Crop Code							Crabgrass	Yield
Weed or Crop Name							Control	Bu/A
Weed or Crop Name							%	
Rating Data Type							10/22/13	11/13/13
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code	
3	PRE fb LP 42DAP							90.0
1	Convent. Soys							26.2
1	Reflex	2L		0.25 lb ai/A		4 WAP B		
1	Basagran	4L		0.75 lb ai/A		4 WAP B		
1	Select Max	1 EC		0.125 lb ai/A		4 WAP B		
1	Nonionic Surf.	100L		0.25 % v/v		4 WAP B		
4	RedPRfb PO28DAP							100.0
1	Convent. Soys							24.5
1	Reflex	2L		0.25 lb ai/A		4 WAP B		
1	Basagran	4L		0.75 lb ai/A		4 WAP B		
1	Select Max	1 EC		0.125 lb ai/A		4 WAP B		
1	Nonionic Surf.	100L		0.25 % v/v		4 WAP B		
1	Til POST 28DAP							100.0
2	Roundup Soys							25.5
2	Glyphosate	3L		0.75 lb ae/A		4 WAP B		
2	PRE fb PO 28DAP							100.0
2	Roundup Soys							26.8
2	Glyphosate	3L		0.75 lb ae/A		4 WAP B		
3	PRE fb LP 42DAP							100.0
2	Roundup Soys							25.4
2	Glyphosate	3L		0.75 lb ae/A		4 WAP B		
4	RedPRfb PO28DAP							100.0
2	Roundup Soys							28.9
2	Glyphosate	3L		0.75 lb ae/A		4 WAP B		
1	Til POST 28DAP							100.0
3	Liberty Soys							25.6
3	Liberty 280	2.34 SL		0.53 lb ai/A		4 WAP B		
3	Ammonium Sulf.	100 D		1.2 % w/v		4 WAP B		
2	PRE fb PO 28DAP							100.0
3	Liberty Soys							30.5
3	Liberty 280	2.34 SL		0.53 lb ai/A		4 WAP B		
3	Ammonium Sulf.	100 D		1.2 % w/v		4 WAP B		
3	PRE fb LP 42DAP							100.0
3	Liberty Soys							27.9
3	Liberty 280	2.34 SL		0.53 lb ai/A		4 WAP B		
3	Ammonium Sulf.	100 D		1.2 % w/v		4 WAP B		
4	RedPRfb PO28DAP							100.0
3	Liberty Soys							22.2
3	Liberty 280	2.34 SL		0.53 lb ai/A		4 WAP B		
3	Ammonium Sulf.	100 D		1.2 % w/v		4 WAP B		
1	Til POST 28DAP							100.0
4	STS Soys							21.1
4	Synchrony XP	28.4 DG		0.0133 lb ai/A		4 WAP B		
4	Select Max	1 EC		0.125 lb ai/A		4 WAP B		
4	Crop Oil Conc.	100L		1 % v/v		4 WAP B		

Weed Code						DIGSA	
Crop Code						Large	GLXMA
Weed or Crop Name						Crabgras	Soybean
Weed or Crop Name						Control	Yield
Rating Data Type						%	Bu/A
Rating Unit							
Rating Date						10/22/13	11/13/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code
2	PRE fb PO 28DAP						
4	STS Soys						
4	Synchrony XP	28.4	DG	0.0133	lb ai/A	4 WAP B	
4	Select Max	1	EC	0.125	lb ai/A	4 WAP B	
4	Crop Oil Conc.	100	L	1%	v/v	4 WAP B	
3	PRE fb LP 42DAP						
4	STS Soys						
4	Synchrony XP	28.4	DG	0.0133	lb ai/A	4 WAP B	
4	Select Max	1	EC	0.125	lb ai/A	4 WAP B	
4	Crop Oil Conc.	100	L	1%	v/v	4 WAP B	
4	RedPRfb PO28DAP						
4	STS Soys						
4	Synchrony XP	28.4	DG	0.0133	lb ai/A	4 WAP B	
4	Select Max	1	EC	0.125	lb ai/A	4 WAP B	
4	Crop Oil Conc.	100	L	1%	v/v	4 WAP B	
						99.5	27.1
						90.0	22.4
						87.3	25.1

## Comparison of Herbicide-Resistant Soybeans for No-Till Weed Management

Trial ID: DSB1A-13 Cooperator: Delaware Soybean Board Location: Field #10

Investigator: Mark VanGessel

## FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 09/13/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	6222.350564				
R	2	166.665871	83.332935	1.523	0.2344	5.3
A	3	3000.975064	1000.325021	18.283	0.0001	6.2
B	3	507.940144	169.313381	3.094	0.0417	6.2
AB	9	905.323113	100.591457	1.838	0.1020	12.3
ERROR	30	1641.446372	54.714879			

## FACTORIAL/POOLED ERROR AOV For IPOSS Mornnglry Species Control % 09/13/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	6887.388316				
R	2	906.892235	453.446118	6.394	0.0049	6.1
A	3	870.093971	290.031324	4.090	0.0151	7.0
B	3	2120.641601	706.880534	9.968	0.0001	7.0
AB	9	862.264937	95.807215	1.351	0.2536	14.0
ERROR	30	2127.495572	70.916519			

## FACTORIAL/POOLED ERROR AOV For DIGSA Large Crabgrass Control % 09/13/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	2078.067729				
R	2	52.045593	26.022797	0.920	0.4096	3.8
A	3	181.314844	60.438281	2.136	0.1165	4.4
B	3	393.624130	131.208043	4.638	0.0088	4.4
AB	9	602.302386	66.922487	2.365	0.0372	8.9
ERROR	30	848.780777	28.292693			

## FACTORIAL/POOLED ERROR AOV For SIDSP Prickly Sida 1=presnt 0=absent 09/13/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	7.312500				
R	2	0.375000	0.187500	1.134	0.3350	0.3
A	3	0.229167	0.076389	0.462	0.7108	0.3
B	3	0.395833	0.131944	0.798	0.5046	0.3
AB	9	1.354167	0.150463	0.910	0.5292	0.7
ERROR	30	4.958333	0.165278			

## FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 10/22/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	21162.865874				
R	2	668.676209	334.338104	2.619	0.0894	8.2
A	3	13541.117558	4513.705853	35.362	0.0001	9.4
B	3	584.257247	194.752416	1.526	0.2280	9.4
AB	9	2539.532566	282.170285	2.211	0.0500	18.8
ERROR	30	3829.282294	127.642743			

## FACTORIAL/POOLED ERROR AOV For IPOSS Mornnglry Species Control % 10/22/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	14270.312500				
R	2	6.125000	3.062500	0.032	0.9681	7.0
A	3	7614.229167	2538.076389	26.913	0.0001	8.1
B	3	2081.229167	693.743056	7.356	0.0008	8.1
AB	9	1739.520833	193.280093	2.049	0.0681	16.2
ERROR	30	2829.208333	94.306944			

## FACTORIAL/POOLED ERROR AOV For DIGSA Large Crabgrass Control % 10/22/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	4295.094167				
R	2	127.526938	63.763469	1.178	0.3216	5.3
A	3	282.758605	94.252868	1.742	0.1796	6.1
B	3	739.508371	246.502790	4.556	0.0096	6.1
AB	9	1522.037691	169.115299	3.125	0.0090	12.3
ERROR	30	1623.262561	54.108752			

## FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 11/13/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	2373.018037				
R	2	934.213389	467.106695	15.417	0.0001	4.0
A	3	181.560112	60.520037	1.997	0.1356	4.6
B	3	122.845266	40.948422	1.351	0.2764	4.6
AB	9	225.429507	25.047723	0.827	0.5970	9.2
ERROR	30	908.969764	30.298992			

Comparing Different Programs for No-Till Soybeans

Trial ID: DSB2-13 Cooperator:  
Location: Field #7 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science  
Affiliation: University of Delaware Research & Education Center  
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Field Pansy	VIORA	Viola rafinesquii Greene
4.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.
5.	Annual Grasses	GGGAN	
6.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

Crop 1: Soybean GLXMA Variety: M48-12R2  
Planting Date: 05/20/13 Planting Method: Row- Unit Planter Depth: 1 in  
Rate: 4.5 Sd/row-ft Row Spacing: 15 in Seed Bed: Friable/Trashy  
Soil Temperature: 82 F Soil Moisture: Moist Emergence Date: 05/25/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3  
Site Type: Field Study Design: FACTORIAL  
Tillage Type: No Tillage/Corn Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/03/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
2.	07/03/13	Reflex	2	L	1.5	pt/A

SOIL DESCRIPTION

% Sand: 78 % OM: 2.1 Texture: sandy loam  
% Silt: 13 pH: 6.4  
% Clay: 9 CEC: 8.6 Fert. Level: Optimum  
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book  
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown  
Distance: 0.2 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	11/29/12	04/24/13	05/13/13	05/21/13
Time of Day:	11:30 am	11:20 am	9:30 am	12:00 pm
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	Fall	4WPP	10DPP	PRE
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	45 F	59 F	56 F	79 F
% Relative Humidity:	45	69	40	65
Wind Velocity, Unit:	2 mph	2 mph	4 mph	3 mph
Wind Direction:	West	Southwest	West	Southwest
Dew Presence (Y/N):	Y	Y	N	N
Soil Temp., Unit:	43 F	58 F	55 F	78 F
Soil Surf. Moisture:	Moist	Dry	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Moist	Moist	Moist	Dry
% Cloud Cover:	0	10	40	50

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	CERVU	CERVU	CERVU	CERVU
Growth Stage:	vegetative	1aFlr-seed		
Height, Unit:	1.5 in	5 in		
Density, Unit:	20-50 m <sup>2</sup>	90-200 m <sup>2</sup>		
Weed 2 Code:	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:	vegetative			
Height, Unit:	2 in			
Density, Unit:	50-100 m <sup>2</sup>			
Weed 3 Code:	VIORA	VIORA	VIORA	VIORA
Growth Stage:	vegetative	flower	flwr-seed	
Height, Unit:	1.5 in	7.5 in	8 in	
Density, Unit:	2-10 m <sup>2</sup>	30-50 m <sup>2</sup>	0-50 m <sup>2</sup>	
Weed 4 Code:	EROCI	EROCI	EROCI	EROCI
Growth Stage:		flower	flower	
Height, Unit:		8 in	10 in	
Density, Unit:		0-3 m <sup>2</sup>	0-5 m <sup>2</sup>	
Weed 5 Code:	GGGAN	GGGAN	GGGAN	GGGAN
Growth Stage:			cot-2 leaf	3-4 leaf
Height, Unit:			0.5 in	1.5 in
Density, Unit:			30-80 m <sup>2</sup>	0-30 m <sup>2</sup>
Weed 6 Code:	AMAPA	AMAPA	AMAPA	AMAPA
Growth Stage:			cot-7 leaf	vegetative
Height, Unit:			0.4 in	2 in
Density, Unit:			20-100 m <sup>2</sup>	0-50 m <sup>2</sup>

APPLICATION EQUIPMENT				
	A	B	C	D
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	24 in	24 in	24 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air	Comp. Air

#### Trial Comments

1/30/13: Fall burndowns look similar at this point for control of weeds present at time of application.

4/18/13: No spring emergence of the winter annual weeds. Some morningglory seedlings starting to emerge. Treated plots are clean except for field pansy and some wild garlic. Untreated plots have 90% ground cover with weeds.

5/19/13: Other summer annual broadleaves are common ragweed or morningglory species.

6/07/13: Spurred anoda (ANVCR) present in treatments 5, 8, 10, 14, and 15. Shepherdspurse and yellow woodsorrel were also present in untreated checks but not seen in any treatment. Other winter annuals have senesced.

7/03/13: Poor spurred anoda (ANVCR) control.

10/21/13: Treatments 1 and 9 had noticeably shorter soybeans than other treatments and had more Palmer amaranth present.

## Comparing Different Programs for No-Till Soybeans

Trial ID: DSB2-13 Cooperator:  
 Location: Field #7 Investigator: Mark VanGessel

Weed Code						ALLVI	EROCI	CERVU	VICSS	VIORA	
Crop Code											
Weed or Crop Name						Wild	Redstem	Mouseear	Vetch	Field	
Weed or Crop Name						Garlic	Filaree	Chickwd	Species	Pansy	
Rating Data Type						Control	Control	Control	Control	Control	
Rating Unit						%	%	%	%	%	
Rating Date						04/18/13	04/18/13	04/18/13	04/18/13	04/18/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code					
1	Fall__None No Spring Burndown						0.0c	0.0b	0.0b	0.0b	0.0c
2	Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	4 WPP B 4 WPP B 4 WPP B		0.0c	0.0b	0.0b	0.0b	0.0c
3	Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	10 DPP C 10 DPP C 10 DPP C		0.0c	0.0b	0.0b	0.0b	0.0c
4	Fall__None Spring__Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Boundary Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5AS 3.8L 2SL 6.5EC 100L 100L		0.77 lb ae/A 0.71 lb ae/A 0.75 lb ai/A 1.02 lb ai/A 1.25 % v/v 2.5 % v/v	4 WPP B 4 WPP B PRE D PRE D PRE D PRE D		0.0c	0.0b	0.0b	0.0b	0.0c
5	Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5AS 3.8L		0.77 lb ae/A 0.71 lb ae/A	Fall A Fall A		50.0b	100.0a	100.0a	100.0a	75.0b
6	Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.71 lb ae/A 0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	Fall A Fall A 4 WPP B 4 WPP B 4 WPP B		50.0b	100.0a	100.0a	100.0a	75.0b
7	Roundup WeatherMax..glyphosate 2,4-D ester Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.71 lb ae/A 0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	Fall A Fall A 10 DPP C 10 DPP C 10 DPP C		50.0b	100.0a	100.0a	100.0a	75.0b

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						ALLVI	EROCI	CERVU	VICSS	VIORA	
						Wild Garlic Control %	Redstem Filaree Control %	Mouseear Chickwd Control %	Vetch Species Control %	Field Pansy Control %	
						04/18/13	04/18/13	04/18/13	04/18/13	04/18/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code					
8	Roundup WeatherMax..glyphosate 2,4-D ester Spring__Double Knock	4.5AS 3.8L		0.77 lb ae/A 0.71 lb ae/A	Fall Fall	A A	50.0 b	100.0 a	100.0 a	100.0 a	75.0 b
	Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Boundary Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5AS 3.8L 2SL 6.5EC 100L 100L		0.77 lb ae/A 0.71 lb ae/A 0.75 lb ai/A 1.02 lb ai/A 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D					
9	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix No Spring Burndown	4.5AS 3.8L 29.5WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	A A A	67.1 a	100.0 a	100.0 a	100.0 a	97.8 a
10	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix Early Spring Pre-Plant	4.5AS 3.8L 29.5WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	A A A	67.2 a	100.0 a	100.0 a	100.0 a	97.9 a
	Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	4 WPP 4 WPP 4 WPP	B B B					
11	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix Ten Days Pre-Plant	4.5AS 3.8L 29.5WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	A A A	67.2 a	100.0 a	100.0 a	100.0 a	97.9 a
	Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	10 DPP 10 DPP 10 DPP	C C C					
12	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix Spring__Double Knock	4.5AS 3.8L 29.5WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	A A A	67.3 a	100.0 a	100.0 a	100.0 a	98.0 a
	Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Boundary Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5AS 3.8L 2SL 6.5EC 100L 100L		0.77 lb ae/A 0.71 lb ae/A 0.75 lb ai/A 1.02 lb ai/A 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D					
13	Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin No Spring Burndown	4.5AS 3.8L 51WG		0.77 lb ae/A 0.71 lb ae/A 0.096 lb ai/A	Fall Fall Fall	A A A	72.3 a	100.0 a	100.0 a	100.0 a	97.5 a

## University of Delaware

						ALLVI	EROCI	CERVU	VICSS	VIORA
Weed Code						Wild	Redstem	Mouseear	Vetch	Field
Crop Code						Garlic	Filaree	Chickwd	Species	Pansy
Weed or Crop Name						Control	Control	Control	Control	Control
Weed or Crop Name						%	%	%	%	%
Rating Data Type						04/18/13	04/18/13	04/18/13	04/18/13	04/18/13
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	Appl Code			
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	72.3 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A			
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A			
	Early Spring Pre-Plant									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B			
	2,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B			
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	4 WPP	B			
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	72.4 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A			
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A			
	Ten Days Pre-Plant									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	10 DPP	C			
	2,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C			
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	10 DPP	C			
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	72.4 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A			
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A			
	Spring__Double Knock									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B			
	2,4-D ester	3.8	L	0.71	lb ae/A	4 WPP	B			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE	D			
	Boundary Premix	6.5	EC	1.02	lb ai/A	PRE	D			
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D			
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D			
LSD (P=.05)						13.03	0.00	0.00	0.00	4.10
Standard Deviation						7.69	0.00	0.00	0.00	2.42
CV						16.24	0.0	0.0	0.0	3.58
Replicate F						6.285	0.000	0.000	0.000	16.231
Replicate Prob(F)						0.0069	1.0000	1.0000	1.0000	0.0001
Treatment F						44.166	0.000	0.000	0.000	878.727
Treatment Prob(F)						0.0001	1.0000	1.0000	1.0000	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Comparing Different Programs for No-Till Soybeans											
Trial ID: DSB2-13 Cooperator:											
Location: Field #7 Investigator: Mark VanGessel											
Weed Code						CERVU	ERICA	EROCI	OEOLA		
Crop Code											
Weed or Crop Name						Mouseear	Horse-	Redstem	Cutleaf		
Weed or Crop Name						Chickwd	weed	Filaree	EPrimse		
Rating Data Type						GrndCovr	GrndCovr	GrndCovr	GrndCovr	GrndCovr	
Rating Unit						%	%	%	%	%	
Rating Date						05/19/13	05/19/13	05/19/13	05/19/13	05/19/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg						
1	Fall__None No Spring Burndown					96.3 a	10.67 a	11.7 a	1.7 a	11.7 a	13.3 a
5	Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/A 0.71 lb ae/A	Fall Fall	16.3 b	6.00 a	0.0 b	0.0 a	0.0 a	0.0 a
9	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix No Spring Burndown	4.5 AS 3.8 L 29.5 WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	15.3 b	0.67 a	0.0 b	0.0 a	0.0 a	0.0 a
13	Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin No Spring Burndown	4.5 AS 3.8 L 51 WG		0.77 lb ae/A 0.71 lb ae/A 0.096 lb ai/A	Fall Fall Fall	5.0 b	0.83 a	0.0 b	0.0 a	0.0 a	0.3 a
LSD (P=.05)						21.46	8.266	5.77	2.88	10.40	14.24
Standard Deviation						10.74	4.137	2.89	1.44	5.20	7.13
CV						32.31	91.1	98.97	346.41	178.43	208.56
Replicate F						2.268	2.126	1.000	1.000	1.000	1.109
Replicate Prob(F)						0.1847	0.2004	0.4219	0.4219	0.4219	0.3891
Treatment F						46.655	3.996	12.250	1.000	3.769	2.584
Treatment Prob(F)						0.0001	0.0702	0.0057	0.4547	0.0783	0.1488

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code					VICSS	VIORA	AMASS	ANNBR	GGGAN	
Crop Code					Vetch	Field	Pigweed	Annual	Annual	
Weed or Crop Name					Species	Pansy	Species	Broadlvs	Grasses	
Weed or Crop Name					GrndCovr	GrndCovr	GrndCovr	GrndCovr	GrndCovr	
Rating Data Type					%	%	%	%	%	
Rating Unit					05/19/13	05/19/13	05/19/13	05/19/13	05/19/13	
Rating Date										
Trt Treatment	Form	Form	Rate	Grow						
No. Name	Conc	Type	Rate	Unit	Stg					
1 Fall__None No Spring Burndown						9.7 a	36.7 a	0.3 a	0.7 a	0.33 a
5 Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/A 0.71 lb ae/A	Fall Fall		0.0 a	5.7 b	5.7 a	1.0 a	1.00 a
9 Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix No Spring Burndown	4.5 AS 3.8 L 29.5 WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall		0.0 a	0.3 b	10.3 a	0.3 a	4.00 a
13 Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin No Spring Burndown	4.5 AS 3.8 L 51 WG		0.77 lb ae/A 0.71 lb ae/A 0.096 lb ai/A	Fall Fall Fall		0.0 a	1.0 b	1.3 a	0.7 a	0.83 a
LSD (P=.05)						9.28	11.87	16.63	1.10	5.113
Standard Deviation						4.65	5.94	8.32	0.55	2.559
CV						192.24	54.43	188.41	82.92	165.99
Replicate F						1.000	0.824	2.174	3.545	1.339
Replicate Prob(F)						0.4219	0.4829	0.1949	0.0963	0.3304
Treatment F						3.247	25.519	0.906	0.727	1.267
Treatment Prob(F)						0.1022	0.0008	0.4915	0.5720	0.3669

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Comparing Different Programs for No-Till Soybeans											
Trial ID: DSB2-13 Cooperator:											
Location: Field #7 Investigator: Mark VanGessel											
Weed Code	EROCI	OEOLA	VIORA	AMAPA	IPOSS						
Crop Code	Redstem	Cutleaf	Field	Palmer	Morngly						
Weed or Crop Name	Filaree	EPrimrse	Pansy	Amaranth	Species						
Weed or Crop Name	Control	Control	Control	Control	Control						
Rating Data Type	%	%	%	%	%						
Rating Unit	%	%	%	%	%						
Rating Date	06/07/13	06/07/13	06/07/13	06/07/13	06/07/13						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code					
1	Fall__None No Spring Burndown						0.0b	33.3b	0.0e	0.0e	0.0e
2	Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	4 WPP 4 WPP 4 WPP	B B B	100.0a	100.0a	78.3bc	66.0bcd	83.3ab
3	Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	10 DPP 10 DPP 10 DPP	C C C	100.0a	100.0a	74.3cd	99.0a	91.7a
4	Fall__None Spring__Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Boundary Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5AS 3.8L 2SL 6.5EC 100L 100L		0.77 lb ae/A 0.71 lb ae/A 0.75 lb ai/A 1.02 lb ai/A 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D	100.0a	100.0a	100.0a	94.0ab	80.0ab
5	Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5AS 3.8L		0.77 lb ae/A 0.71 lb ae/A	Fall Fall	A A	100.0a	86.7a	63.3d	47.7cd	30.4cde
6	Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.71 lb ae/A 0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	Fall Fall 4 WPP 4 WPP 4 WPP	A A B B B	100.0a	100.0a	96.7a	96.7ab	82.7ab
7	Roundup WeatherMax..glyphosate 2,4-D ester Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.71 lb ae/A 0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	Fall Fall 10 DPP 10 DPP 10 DPP	A A C C C	100.0a	100.0a	96.7a	91.7ab	63.3abc

## University of Delaware

						EROCI	OEOLA	VIORA	AMAPA	IPOSS	
						Redstem Filaree Control %	Cutleaf EPrimrse Control %	Field Pansy Control %	Palmer Amaranth Control %	Morngly Species Control %	
						06/07/13	06/07/13	06/07/13	06/07/13	06/07/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code					
8	Roundup WeatherMax..glyphosate 2,4-D ester Spring__Double Knock	4.5AS 3.8L		0.77 lb ae/A 0.71 lb ae/A	Fall Fall	A A	100.0 a	100.0 a	100.0 a	98.3 a	71.0 ab
	Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Boundary Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5AS 3.8L 2SL 6.5EC 100L 100L		0.77 lb ae/A 0.71 lb ae/A 0.75 lb ai/A 1.02 lb ai/A 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D					
9	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix No Spring Burndown	4.5AS 3.8L 29.5WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	A A A	100.0 a	94.3 a	90.0 ab	45.7 cd	48.8 bcd
10	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix Early Spring Pre-Plant	4.5AS 3.8L 29.5WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	A A A	100.0 a	100.0 a	100.0 a	72.7 abc	76.0 ab
	Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	4 WPP 4 WPP 4 WPP	B B B					
11	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix Ten Days Pre-Plant	4.5AS 3.8L 29.5WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	A A A	100.0 a	100.0 a	100.0 a	97.3 ab	70.0 ab
	Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5AS 3.8L 40.3WG		0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	10 DPP 10 DPP 10 DPP	C C C					
12	Roundup WeatherMax..glyphosate 2,4-D ester Canopy EX Premix Spring__Double Knock	4.5AS 3.8L 29.5WG		0.77 lb ae/A 0.71 lb ae/A 0.0406 lb ai/A	Fall Fall Fall	A A A	100.0 a	100.0 a	100.0 a	100.0 a	79.0 ab
	Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL....paraquat Boundary Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5AS 3.8L 2SL 6.5EC 100L 100L		0.77 lb ae/A 0.71 lb ae/A 0.75 lb ai/A 1.02 lb ai/A 1.25 % v/v 2.5 % v/v	4 WPP 4 WPP PRE PRE PRE PRE	B B D D D D					
13	Roundup WeatherMax..glyphosate 2,4-D ester Valor SX.....flumioxazin No Spring Burndown	4.5AS 3.8L 51WG		0.77 lb ae/A 0.71 lb ae/A 0.096 lb ai/A	Fall Fall Fall	A A A	100.0 a	100.0 a	100.0 a	40.0 d	13.3 de

## University of Delaware

Weed Code						EROCI	OEOLA	VIORA	AMAPA	IPOSS
Crop Code						Redstem	Cutleaf	Field	Palmer	Morning
Weed or Crop Name						Filaree	EPrimrse	Pansy	Amaranth	Species
Weed or Crop Name						Control	Control	Control	Control	Control
Rating Data Type						%	%	%	%	%
Rating Unit						06/07/13	06/07/13	06/07/13	06/07/13	06/07/13
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code			
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	100.0 a	100.0 a	96.7 a
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A			
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A			
	Early Spring Pre-Plant									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B			
	2,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B			
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	4 WPP	B			
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A			96.7 ab
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A			61.7 abc
	Ten Days Pre-Plant									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	10 DPP	C			
	2,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C			
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	10 DPP	C			
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	100.0 a	100.0 a	97.3 a
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A			96.7 ab
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A			78.3 ab
	Spring__Double Knock									
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B			
	2,4-D ester	3.8	L	0.71	lb ae/A	4 WPP	B			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE	D			
	Boundary Premix	6.5	EC	1.02	lb ai/A	PRE	D			
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D			
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D			
LSD (P=.05)						0.00	26.25	12.87	32.15	35.81
Standard Deviation						0.00	15.74	7.72	19.28	21.41
CV						0.0	16.63	8.87	25.1	34.05
Replicate F						0.000	0.993	0.157	1.068	2.533
Replicate Prob(F)						1.0000	0.3824	0.8557	0.3565	0.0975
Treatment F						0.000	3.386	33.368	6.949	4.611
Treatment Prob(F)						1.0000	0.0022	0.0001	0.0001	0.0002

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						DIGSA	GLXMA	AMAPA	DIGSA	IPOSS		
Crop Code						Large	Soybean	Palmer	Large	Morning		
Weed or Crop Name						Crabgrass	Average	Amaranth	Crabgrass	Species		
Weed or Crop Name						Control	Height	Control	Control	Control		
Rating Data Type						%	Inches	%	%	%		
Rating Unit						06/07/13	07/03/13	07/03/13	07/03/13	07/03/13		
Rating Date												
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
1	Fall__None No Spring Burndown							0.0e	15.7 a			
2	Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5 AS 3.8 L 40.3 WG		0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	4 WPP B 4 WPP B 4 WPP B			56.7 bcd	18.3 a	53.3 de	43.3 d	60.0 ab
3	Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5 AS 3.8 L 40.3 WG		0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	10 DPP C 10 DPP C 10 DPP C			85.7 ab	16.7 a	91.7 ab	70.0 bc	76.7 a
4	Fall__None Spring__Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL...paraquat Boundary Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 2 SL 6.5 EC 100 L 100 L		0.77 lb ae/A 0.71 lb ae/A 0.75 lb ai/A 1.02 lb ai/A 1.25 % v/v 2.5 % v/v	4 WPP B 4 WPP B PRE D PRE D PRE D PRE D			98.3 a	16.3 a	66.7 cde	85.0 ab	16.7 d
5	Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/A 0.71 lb ae/A	Fall A Fall A			53.3 cd	13.3 a	0.0 f	0.0 e	0.0 d
6	Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5 AS 3.8 L 4.5 AS 3.8 L 40.3 WG		0.77 lb ae/A 0.71 lb ae/A 0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	Fall A Fall A 4 WPP B 4 WPP B 4 WPP B			80.0 abc	15.7 a	96.7 a	71.7 abc	68.2 ab
7	Roundup WeatherMax..glyphosate 2,4-D ester Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5 AS 3.8 L 4.5 AS 3.8 L 40.3 WG		0.77 lb ae/A 0.71 lb ae/A 0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	Fall A Fall A 10 DPP C 10 DPP C 10 DPP C			90.0 a	16.3 a	86.7 abc	75.0 ab	53.2 bc



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						DIGSA	GLXMA	AMAPA	DIGSA	IPOSS							
						Large	Soybean	Palmer	Large	Morning							
						Crabgrass	Average	Amaranth	Crabgrass	Species							
						Control	Height	Control	Control	Control							
						%	Inches	%	%	%							
						06/07/13	07/03/13	07/03/13	07/03/13	07/03/13							
Trt	Treatment	Form	Form	Rate	Grow	Appl											
No.	Name	Conc	Type	Rate	Unit	Stg	Code										
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	85.7	ab	15.0	a	73.3	bcd	76.7	ab	63.3	ab
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A										
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A										
	Early Spring Pre-Plant																
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B										
	2,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B										
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	4 WPP	B										
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	95.7	a	15.3	a	90.0	ab	84.3	ab	68.2	ab
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A										
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A										
	Ten Days Pre-Plant																
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	10 DPP	C										
	2,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C										
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	10 DPP	C										
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A	96.7	a	16.3	a	78.3	abc	88.3	ab	38.2	c
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A										
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A										
	Spring__Double Knock																
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B										
	2,4-D ester	3.8	L	0.71	lb ae/A	4 WPP	B										
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE	D										
	Boundary Premix	6.5	EC	1.02	lb ai/A	PRE	D										
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D										
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D										
LSD (P=.05)						29.78	3.01	21.63	22.57	18.49							
Standard Deviation						17.81	1.81	12.91	13.47	10.92							
CV						23.66	11.32	20.63	21.59	23.59							
Replicate F						2.859	0.313	2.628	0.391	3.835							
Replicate Prob(F)						0.0741	0.7339	0.0906	0.6801	0.0373							
Treatment F						7.321	1.305	19.667	16.006	20.078							
Treatment Prob(F)						0.0001	0.2590	0.0001	0.0001	0.0001							

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						GLXMA	GLXMA
Crop Code						Soybean	Soybean
Weed or Crop Name						Average	Yield
Weed or Crop Name						Height	Bu/A
Rating Data Type						Inches	
Rating Unit							
Rating Date						07/26/13	10/21/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code	
1	Fall__None No Spring Burndown						27.0 d 58.3 a
2	Fall__None Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5 AS 3.8 L 40.3 WG		0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	4 WPP B 4 WPP B 4 WPP B		34.7 abc 69.5 a
3	Fall__None Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5 AS 3.8 L 40.3 WG		0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	10 DPP C 10 DPP C 10 DPP C		34.3 abc 68.2 a
4	Fall__None Spring__Double Knock Roundup WeatherMax..glyphosate 2,4-D ester Gramoxone SL...paraquat Boundary Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 3.8 L 2 SL 6.5 EC 100 L 100 L		0.77 lb ae/A 0.71 lb ae/A 0.75 lb ai/A 1.02 lb ai/A 1.25 % v/v 2.5 % v/v	4 WPP B 4 WPP B PRE D PRE D PRE D PRE D		36.3 abc 64.6 a
5	Roundup WeatherMax..glyphosate 2,4-D ester No Spring Burndown	4.5 AS 3.8 L		0.77 lb ae/A 0.71 lb ae/A	Fall A Fall A		35.7 abc 67.5 a
6	Roundup WeatherMax..glyphosate 2,4-D ester Early Spring Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5 AS 3.8 L 4.5 AS 3.8 L 40.3 WG		0.77 lb ae/A 0.71 lb ae/A 0.77 lb ae/A 0.95 lb ae/A 0.091 lb ai/A	Fall A Fall A 4 WPP B 4 WPP B 4 WPP B		35.0 abc 63.2 a
7	Roundup WeatherMax..glyphosate 2,4-D ester Ten Days Pre-Plant Roundup WeatherMax..glyphosate 2,4-D ester Valor XLT Premix	4.5 AS 3.8 L 4.5 AS 3.8 L 40.3 WG		0.77 lb ae/A 0.71 lb ae/A 0.77 lb ae/A 0.475 lb ae/A 0.091 lb ai/A	Fall A Fall A 10 DPP C 10 DPP C 10 DPP C		36.0 abc 64.2 a

						GLXMA	GLXMA
						Soybean	Soybean
						Average	Yield
						Height	Bu/A
						Inches	
						07/26/13	10/21/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Spring__Double Knock						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B
	2,4-D ester	3.8	L	0.71	lb ae/A	4 WPP	B
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE	D
	Boundary Premix	6.5	EC	1.02	lb ai/A	PRE	D
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Canopy EX Premix	29.5	WG	0.0406	lb ai/A	Fall	A
	No Spring Burndown						
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Canopy EX Premix	29.5	WG	0.0406	lb ai/A	Fall	A
	Early Spring Pre-Plant						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B
	2,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	4 WPP	B
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Canopy EX Premix	29.5	WG	0.0406	lb ai/A	Fall	A
	Ten Days Pre-Plant						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	10 DPP	C
	2,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	10 DPP	C
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Canopy EX Premix	29.5	WG	0.0406	lb ai/A	Fall	A
	Spring__Double Knock						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B
	2,4-D ester	3.8	L	0.71	lb ae/A	4 WPP	B
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE	D
	Boundary Premix	6.5	EC	1.02	lb ai/A	PRE	D
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A
	No Spring Burndown						

						GLXMA	GLXMA
						Soybean	Soybean
						Average	Yield
						Height	Bu/A
						Inches	
						07/26/13	10/21/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A
	Early Spring Pre-Plant						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B
	2,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	4 WPP	B
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A
	Ten Days Pre-Plant						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	10 DPP	C
	2,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C
	Valor XLT Premix	40.3	WG	0.091	lb ai/A	10 DPP	C
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	Fall	A
	2,4-D ester	3.8	L	0.71	lb ae/A	Fall	A
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/A	Fall	A
	Spring__Double Knock						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/A	4 WPP	B
	2,4-D ester	3.8	L	0.71	lb ae/A	4 WPP	B
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/A	PRE	D
	Boundary Premix	6.5	EC	1.02	lb ai/A	PRE	D
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D
LSD (P=.05)						4.30	9.73
Standard Deviation						2.58	5.83
CV						7.57	8.82
Replicate F						1.094	3.997
Replicate Prob(F)						0.3480	0.0289
Treatment F						2.626	1.112
Treatment Prob(F)						0.0119	0.3878

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Comparing Different Programs for No-Till Soybeans  
 Trial ID: DSB2-13 Cooperator:  
 Location: Field #7 Investigator: Mark VanGessel

Weed Code	ALLVI	EROCI	CERVU	VICSS	VIORA	EROCI
Crop Code						
Weed or Crop Name	Wild	Redstem	Mouseear	Vetch	Field	Redstem
Weed or Crop Name	Garlic	Filaree	Chickwd	Species	Pansy	Filaree
Rating Data Type	Control	Control	Control	Control	Control	Control
Rating Unit	%	%	%	%	%	%
Rating Date	04/18/13	04/18/13	04/18/13	04/18/13	04/18/13	06/07/13
Trt Treatment	Form	Form	Rate	Grow	Appl	
No. Name	Conc	Type	Rate	Unit	Stg	Code
TABLE OF R MEANS						
Replicate 1	52.1	75.0	75.0	75.0	69.5	93.8
Replicate 2	42.5	75.0	75.0	75.0	68.5	93.8
Replicate 3	47.5	75.0	75.0	75.0	64.9	93.8
TABLE OF A (Fall Treatment) MEANS						
1 FALL_NONE	0.0	0.0	0.0	0.0	0.0	75.0
2 Roundup WthrMax	4.5 AS	0.77 lb ae/A	Fall	A		
22,4-D ester	3.8 L	0.71 lb ae/A	Fall	A		
3 Roundup WthrMax	4.5 AS	0.77 lb ae/A	Fall	A		
32,4-D ester	3.8 L	0.71 lb ae/A	Fall	A		
3 Canopy EX	29.5 WG	0.0406 lb ai/A	Fall	A		
4 Roundup WthrMax	4.5 AS	0.77 lb ae/A	Fall	A		
42,4-D ester	3.8 L	0.71 lb ae/A	Fall	A		
4 Valor SX	51 WG	0.096 lb ai/A	Fall	A		
TABLE OF B (Burndown Treatments) MEANS						
1 NO SPRING BURND	47.3	75.0	75.0	75.0	67.6	75.0
2 EARLY SPRING PR	47.4	75.0	75.0	75.0	67.6	100.0
2 Roundup WthrMax	4.5 AS	0.77 lb ae/A	4 WPP	B		
22,4-D ester	3.8 L	0.95 lb ae/A	4 WPP	B		
2 Valor XLT	40.3 WG	0.091 lb ai/A	4 WPP	B		
3 TEN DAYS PRE-PL	47.4	75.0	75.0	75.0	67.6	100.0
3 Roundup WthrMax	4.5 AS	0.77 lb ae/A	10 DPP	C		
32,4-D ester	3.8 L	0.475 lb ae/A	10 DPP	C		
3 Valor XLT	40.3 WG	0.091 lb ai/A	10 DPP	C		
4 SPRING__DOUBLE	47.4	75.0	75.0	75.0	67.7	100.0
4 Roundup WthrMax	4.5 AS	0.77 lb ae/A	4 WPP	B		
42,4-D ester	3.8 L	0.71 lb ae/A	4 WPP	B		
4 Gramoxone SL	2 SL	0.75 lb ai/A	PRE	D		
4 Boundary	6.5 EC	1.02 lb ai/A	PRE	D		
4 Crop Oil Conc.	100 L	1.25 % v/v	PRE	D		
4 30% UAN	100 L	2.5 % v/v	PRE	D		
TABLE OF A (Fall Treatment) B (Burndown Treatments) MEANS						
1 FALL_NONE	0.0	0.0	0.0	0.0	0.0	0.0
1 NO SPRING BURND						
2 Roundup WthrMax	4.5 AS	0.77 lb ae/A	Fall	A		
22,4-D ester	3.8 L	0.71 lb ae/A	Fall	A		
1 NO SPRING BURND						

## University of Delaware

Weed Code						ALLVI	EROCI	CERVU	VICSS	VIORA	EROCI
Crop Code											
Weed or Crop Name						Wild	Redstem	Mouseear	Vetch	Field	Redstem
Weed or Crop Name						Garlic	Filaree	Chickwd	Species	Pansy	Filaree
Rating Data Type						Control	Control	Control	Control	Control	Control
Rating Unit						%	%	%	%	%	%
Rating Date						04/18/13	04/18/13	04/18/13	04/18/13	04/18/13	06/07/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	Appl Code				
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	67.1	100.0	100.0	100.0
	32,4-D ester	3.8	L	0.71	lb ae/A	Fall	A				
3	Canopy EX	29.5	WG	0.0406	lb ai/A	Fall	A				
1	NO SPRING BURND										
4	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	72.3	100.0	100.0	100.0
	42,4-D ester	3.8	L	0.71	lb ae/A	Fall	A				
4	Valor SX	51	WG	0.096	lb ai/A	Fall	A				
1	NO SPRING BURND										
1	FALL__NONE							0.0	0.0	0.0	100.0
2	EARLY SPRING PR										
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B				
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B				
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B				
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	50.0	100.0	100.0	75.0
	22,4-D ester	3.8	L	0.71	lb ae/A	Fall	A				
2	EARLY SPRING PR										
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B				
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B				
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B				
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	67.2	100.0	100.0	100.0
	32,4-D ester	3.8	L	0.71	lb ae/A	Fall	A				
3	Canopy EX	29.5	WG	0.0406	lb ai/A	Fall	A				
2	EARLY SPRING PR										
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B				
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B				
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B				
4	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	72.3	100.0	100.0	100.0
	42,4-D ester	3.8	L	0.71	lb ae/A	Fall	A				
4	Valor SX	51	WG	0.096	lb ai/A	Fall	A				
2	EARLY SPRING PR										
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B				
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B				
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B				
1	FALL__NONE							0.0	0.0	0.0	100.0
3	TEN DAYS PRE-PL										
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	10 DPP	C				
	32,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C				
3	Valor XLT	40.3	WG	0.091	lb ai/A	10 DPP	C				
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	50.0	100.0	100.0	75.0
	22,4-D ester	3.8	L	0.71	lb ae/A	Fall	A				
3	TEN DAYS PRE-PL										
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	10 DPP	C				
	32,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C				
3	Valor XLT	40.3	WG	0.091	lb ai/A	10 DPP	C				

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Weed Code						ALLVI	EROCI	CERVU	VICSS	VIORA	EROCI	
Crop Code						Wild	Redstem	Mouseear	Vetch	Field	Redstem	
Weed or Crop Name						Garlic	Filaree	Chickwd	Species	Pansy	Filaree	
Weed or Crop Name						Control	Control	Control	Control	Control	Control	
Rating Data Type						%	%	%	%	%	%	
Rating Unit						04/18/13	04/18/13	04/18/13	04/18/13	04/18/13	06/07/13	
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code						
3	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall A	A	67.2	100.0	100.0	100.0	97.9	100.0
	32,4-D ester	3.8 L		0.71 lb ae/A	Fall A	A						
3	Canopy EX	29.5 WG		0.0406 lb ai/A	Fall A	A						
	3 TEN DAYS PRE-PL											
3	Roundup WthrMax	4.5 AS		0.77 lb ae/A	10 DPP C	C						
	32,4-D ester	3.8 L		0.475 lb ae/A	10 DPP C	C						
3	Valor XLT	40.3 WG		0.091 lb ai/A	10 DPP C	C						
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall A	A	72.4	100.0	100.0	100.0	97.6	100.0
	42,4-D ester	3.8 L		0.71 lb ae/A	Fall A	A						
4	Valor SX	51 WG		0.096 lb ai/A	Fall A	A						
	3 TEN DAYS PRE-PL											
3	Roundup WthrMax	4.5 AS		0.77 lb ae/A	10 DPP C	C						
	32,4-D ester	3.8 L		0.475 lb ae/A	10 DPP C	C						
3	Valor XLT	40.3 WG		0.091 lb ai/A	10 DPP C	C						
1	FALL__NONE						0.0	0.0	0.0	0.0	0.0	100.0
4	SPRING__DOUBLE											
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	4 WPP B	B						
	42,4-D ester	3.8 L		0.71 lb ae/A	4 WPP B	B						
4	Gramoxone SL	2 SL		0.75 lb ai/A	PRE D	D						
4	Boundary	6.5 EC		1.02 lb ai/A	PRE D	D						
4	Crop Oil Conc.	100 L		1.25 % v/v	PRE D	D						
4	30% UAN	100 L		2.5 % v/v	PRE D	D						
2	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall A	A	50.0	100.0	100.0	100.0	75.0	100.0
	22,4-D ester	3.8 L		0.71 lb ae/A	Fall A	A						
4	SPRING__DOUBLE											
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	4 WPP B	B						
	42,4-D ester	3.8 L		0.71 lb ae/A	4 WPP B	B						
4	Gramoxone SL	2 SL		0.75 lb ai/A	PRE D	D						
4	Boundary	6.5 EC		1.02 lb ai/A	PRE D	D						
4	Crop Oil Conc.	100 L		1.25 % v/v	PRE D	D						
4	30% UAN	100 L		2.5 % v/v	PRE D	D						
3	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall A	A	67.3	100.0	100.0	100.0	98.0	100.0
	32,4-D ester	3.8 L		0.71 lb ae/A	Fall A	A						
3	Canopy EX	29.5 WG		0.0406 lb ai/A	Fall A	A						
	4 SPRING__DOUBLE											
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	4 WPP B	B						
	42,4-D ester	3.8 L		0.71 lb ae/A	4 WPP B	B						
4	Gramoxone SL	2 SL		0.75 lb ai/A	PRE D	D						
4	Boundary	6.5 EC		1.02 lb ai/A	PRE D	D						
4	Crop Oil Conc.	100 L		1.25 % v/v	PRE D	D						
4	30% UAN	100 L		2.5 % v/v	PRE D	D						
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall A	A	72.4	100.0	100.0	100.0	97.6	100.0
	42,4-D ester	3.8 L		0.71 lb ae/A	Fall A	A						
4	Valor SX	51 WG		0.096 lb ai/A	Fall A	A						
	4 SPRING__DOUBLE											
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	4 WPP B	B						
	42,4-D ester	3.8 L		0.71 lb ae/A	4 WPP B	B						
4	Gramoxone SL	2 SL		0.75 lb ai/A	PRE D	D						
4	Boundary	6.5 EC		1.02 lb ai/A	PRE D	D						
4	Crop Oil Conc.	100 L		1.25 % v/v	PRE D	D						
4	30% UAN	100 L		2.5 % v/v	PRE D	D						



## University of Delaware

Weed Code						OEOLA	VIORA	AMAPA	IPOSS	DIGSA	GLXMA		
Crop Code						Cutleaf	Field	Palmer	Morning	Large	Soybean		
Weed or Crop Name						EPrimrse	Pansy	Amaranth	Species	Crabgrass	Average		
Weed or Crop Name						Control	Control	Control	Control	Control	Height		
Rating Data Type						%	%	%	%	%	Inches		
Rating Unit						06/07/13	06/07/13	06/07/13	06/07/13	06/07/13	07/03/13		
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code						
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	94.3	90.0	45.7	48.8	40.0	14.7
	32,4-D ester	3.8	L	0.71	lb ae/A	Fall	A						
3	Canopy EX	29.5	WG	0.0406	lb ai/A	Fall	A						
1	NO SPRING BURND												
4	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	100.0	100.0	40.0	13.3	51.8	16.0
	42,4-D ester	3.8	L	0.71	lb ae/A	Fall	A						
4	Valor SX	51	WG	0.096	lb ai/A	Fall	A						
1	NO SPRING BURND												
1	FALL__NONE							100.0	78.3	66.0	83.3	56.7	18.3
2	EARLY SPRING PR												
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B						
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B						
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B						
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	100.0	96.7	96.7	82.7	80.0	15.7
	22,4-D ester	3.8	L	0.71	lb ae/A	Fall	A						
2	EARLY SPRING PR												
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B						
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B						
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B						
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	100.0	100.0	72.7	76.0	80.0	16.0
	32,4-D ester	3.8	L	0.71	lb ae/A	Fall	A						
3	Canopy EX	29.5	WG	0.0406	lb ai/A	Fall	A						
2	EARLY SPRING PR												
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B						
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B						
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B						
4	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	100.0	96.7	86.7	76.7	85.7	15.0
	42,4-D ester	3.8	L	0.71	lb ae/A	Fall	A						
4	Valor SX	51	WG	0.096	lb ai/A	Fall	A						
2	EARLY SPRING PR												
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B						
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B						
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B						
1	FALL__NONE							100.0	74.3	99.0	91.7	85.7	16.7
3	TEN DAYS PRE-PL												
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	10 DPP	C						
	32,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C						
3	Valor XLT	40.3	WG	0.091	lb ai/A	10 DPP	C						
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	100.0	96.7	91.7	63.3	90.0	16.3
	22,4-D ester	3.8	L	0.71	lb ae/A	Fall	A						
3	TEN DAYS PRE-PL												
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	10 DPP	C						
	32,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C						
3	Valor XLT	40.3	WG	0.091	lb ai/A	10 DPP	C						

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Weed Code						OEOLA	VIORA	AMAPA	IPOSS	DIGSA	GLXMA		
Crop Code						Cutleaf	Field	Palmer	Morninglry	Large	Soybean		
Weed or Crop Name						EPrimrse	Pansy	Amaranth	Species	Crabgras	Average		
Weed or Crop Name						Control	Control	Control	Control	Control	Height		
Rating Data Type						%	%	%	%	%	Inches		
Rating Unit						06/07/13	06/07/13	06/07/13	06/07/13	06/07/13	07/03/13		
Rating Date													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	Appl Code						
3	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall	A		100.0	100.0	97.3	70.0	91.7	18.0
	32,4-D ester	3.8 L		0.71 lb ae/A	Fall	A							
3	Canopy EX	29.5 WG		0.0406 lb ai/A	Fall	A							
	3 TEN DAYS PRE-PL												
3	Roundup WthrMax	4.5 AS		0.77 lb ae/A	10 DPP	C							
	32,4-D ester	3.8 L		0.475 lb ae/A	10 DPP	C							
3	Valor XLT	40.3 WG		0.091 lb ai/A	10 DPP	C							
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall	A		100.0	100.0	96.7	61.7	95.7	15.3
	42,4-D ester	3.8 L		0.71 lb ae/A	Fall	A							
4	Valor SX	51 WG		0.096 lb ai/A	Fall	A							
	3 TEN DAYS PRE-PL												
3	Roundup WthrMax	4.5 AS		0.77 lb ae/A	10 DPP	C							
	32,4-D ester	3.8 L		0.475 lb ae/A	10 DPP	C							
3	Valor XLT	40.3 WG		0.091 lb ai/A	10 DPP	C							
1	FALL__NONE							100.0	100.0	94.0	80.0	98.3	16.3
4	SPRING__DOUBLE												
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	4 WPP	B							
	42,4-D ester	3.8 L		0.71 lb ae/A	4 WPP	B							
4	Gramoxone SL	2 SL		0.75 lb ai/A	PRE	D							
4	Boundary	6.5 EC		1.02 lb ai/A	PRE	D							
4	Crop Oil Conc.	100 L		1.25 % v/v	PRE	D							
4	30% UAN	100 L		2.5 % v/v	PRE	D							
2	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall	A		100.0	100.0	98.3	71.0	100.0	16.3
	22,4-D ester	3.8 L		0.71 lb ae/A	Fall	A							
4	SPRING__DOUBLE												
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	4 WPP	B							
	42,4-D ester	3.8 L		0.71 lb ae/A	4 WPP	B							
4	Gramoxone SL	2 SL		0.75 lb ai/A	PRE	D							
4	Boundary	6.5 EC		1.02 lb ai/A	PRE	D							
4	Crop Oil Conc.	100 L		1.25 % v/v	PRE	D							
4	30% UAN	100 L		2.5 % v/v	PRE	D							
3	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall	A		100.0	100.0	100.0	79.0	99.0	15.3
	32,4-D ester	3.8 L		0.71 lb ae/A	Fall	A							
3	Canopy EX	29.5 WG		0.0406 lb ai/A	Fall	A							
	4 SPRING__DOUBLE												
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	4 WPP	B							
	42,4-D ester	3.8 L		0.71 lb ae/A	4 WPP	B							
4	Gramoxone SL	2 SL		0.75 lb ai/A	PRE	D							
4	Boundary	6.5 EC		1.02 lb ai/A	PRE	D							
4	Crop Oil Conc.	100 L		1.25 % v/v	PRE	D							
4	30% UAN	100 L		2.5 % v/v	PRE	D							
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	Fall	A		100.0	97.3	96.7	78.3	96.7	16.3
	42,4-D ester	3.8 L		0.71 lb ae/A	Fall	A							
4	Valor SX	51 WG		0.096 lb ai/A	Fall	A							
	4 SPRING__DOUBLE												
4	Roundup WthrMax	4.5 AS		0.77 lb ae/A	4 WPP	B							
	42,4-D ester	3.8 L		0.71 lb ae/A	4 WPP	B							
4	Gramoxone SL	2 SL		0.75 lb ai/A	PRE	D							
4	Boundary	6.5 EC		1.02 lb ai/A	PRE	D							
4	Crop Oil Conc.	100 L		1.25 % v/v	PRE	D							
4	30% UAN	100 L		2.5 % v/v	PRE	D							



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Weed Code						AMAPA	DIGSA	IPOSS	GLXMA	GLXMA		
Crop Code						Palmer	Large	Mornglry	Soybean	Soybean		
Weed or Crop Name						Amaranth	Crabgras	Species	Average	Yield		
Weed or Crop Name						Control	Control	Control	Height	Bu/A		
Rating Data Type						%	%	%	Inches			
Rating Unit						07/03/13	07/03/13	07/03/13	07/26/13	10/21/13		
Rating Date												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	Appl Code					
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	11.9	29.9	0.0	32.7	65.1
	32,4-D ester	3.8	L	0.71	lb ae/A	Fall	A					
3	Canopy EX	29.5	WG	0.0406	lb ai/A	Fall	A					
1	NO SPRING BURND											
4	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	0.0	0.0	0.0	36.7	63.8
	42,4-D ester	3.8	L	0.71	lb ae/A	Fall	A					
4	Valor SX	51	WG	0.096	lb ai/A	Fall	A					
1	NO SPRING BURND											
1	FALL__NONE							53.3	43.3	60.0	34.7	69.5
2	EARLY SPRING PR											
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B					
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B					
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B					
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	96.7	71.7	68.2	35.0	63.2
	22,4-D ester	3.8	L	0.71	lb ae/A	Fall	A					
2	EARLY SPRING PR											
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B					
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B					
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B					
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	50.0	50.0	70.0	33.0	66.9
	32,4-D ester	3.8	L	0.71	lb ae/A	Fall	A					
3	Canopy EX	29.5	WG	0.0406	lb ai/A	Fall	A					
2	EARLY SPRING PR											
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B					
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B					
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B					
4	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	73.3	76.7	63.3	34.3	72.2
	42,4-D ester	3.8	L	0.71	lb ae/A	Fall	A					
4	Valor SX	51	WG	0.096	lb ai/A	Fall	A					
2	EARLY SPRING PR											
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	4 WPP	B					
	22,4-D ester	3.8	L	0.95	lb ae/A	4 WPP	B					
2	Valor XLT	40.3	WG	0.091	lb ai/A	4 WPP	B					
1	FALL__NONE							91.7	70.0	76.7	34.3	68.2
3	TEN DAYS PRE-PL											
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	10 DPP	C					
	32,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C					
3	Valor XLT	40.3	WG	0.091	lb ai/A	10 DPP	C					
2	Roundup WthrMax	4.5	AS	0.77	lb ae/A	Fall	A	86.7	75.0	53.2	36.0	64.2
	22,4-D ester	3.8	L	0.71	lb ae/A	Fall	A					
3	TEN DAYS PRE-PL											
3	Roundup WthrMax	4.5	AS	0.77	lb ae/A	10 DPP	C					
	32,4-D ester	3.8	L	0.475	lb ae/A	10 DPP	C					
3	Valor XLT	40.3	WG	0.091	lb ai/A	10 DPP	C					

## University of Delaware

Weed Code						AMAPA	DIGSA	IPOSS	GLXMA	GLXMA		
Crop Code						Palmer	Large	Morninglry	Soybean	Soybean		
Weed or Crop Name						Amaranth	Crabgras	Species	Average	Yield		
Weed or Crop Name						Control	Control	Control	Height	Bu/A		
Rating Data Type						%	%	%	Inches			
Rating Unit						07/03/13	07/03/13	07/03/13	07/26/13	10/21/13		
Rating Date												
Trt	Treatment	Form	Form	Rate	Grow	Appl						
No.	Name	Conc	Type	Rate	Unit	Stg	Code					
3	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	Fall	A	78.3	76.7	73.3	32.3	71.9
	32,4-D ester	3.8 L		0.71 lb	ae/A	Fall	A					
3	Canopy EX	29.5 WG		0.0406 lb	ai/A	Fall	A					
	3 TEN DAYS PRE-PL											
3	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	10 DPP	C					
	32,4-D ester	3.8 L		0.475 lb	ae/A	10 DPP	C					
3	Valor XLT	40.3 WG		0.091 lb	ai/A	10 DPP	C					
4	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	Fall	A	90.0	84.3	68.2	32.7	63.4
	42,4-D ester	3.8 L		0.71 lb	ae/A	Fall	A					
4	Valor SX	51 WG		0.096 lb	ai/A	Fall	A					
	3 TEN DAYS PRE-PL											
3	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	10 DPP	C					
	32,4-D ester	3.8 L		0.475 lb	ae/A	10 DPP	C					
3	Valor XLT	40.3 WG		0.091 lb	ai/A	10 DPP	C					
1	FALL__NONE							66.7	85.0	16.7	36.3	64.6
4	SPRING__DOUBLE											
4	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	4 WPP	B					
	42,4-D ester	3.8 L		0.71 lb	ae/A	4 WPP	B					
4	Gramoxone SL	2 SL		0.75 lb	ai/A	PRE	D					
4	Boundary	6.5 EC		1.02 lb	ai/A	PRE	D					
4	Crop Oil Conc.	100 L		1.25 %	v/v	PRE	D					
4	30% UAN	100 L		2.5 %	v/v	PRE	D					
2	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	Fall	A	78.3	93.3	53.2	37.0	68.0
	22,4-D ester	3.8 L		0.71 lb	ae/A	Fall	A					
4	SPRING__DOUBLE											
4	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	4 WPP	B					
	42,4-D ester	3.8 L		0.71 lb	ae/A	4 WPP	B					
4	Gramoxone SL	2 SL		0.75 lb	ai/A	PRE	D					
4	Boundary	6.5 EC		1.02 lb	ai/A	PRE	D					
4	Crop Oil Conc.	100 L		1.25 %	v/v	PRE	D					
4	30% UAN	100 L		2.5 %	v/v	PRE	D					
3	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	Fall	A	83.3	91.7	53.3	33.0	64.2
	32,4-D ester	3.8 L		0.71 lb	ae/A	Fall	A					
3	Canopy EX	29.5 WG		0.0406 lb	ai/A	Fall	A					
	4 SPRING__DOUBLE											
4	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	4 WPP	B					
	42,4-D ester	3.8 L		0.71 lb	ae/A	4 WPP	B					
4	Gramoxone SL	2 SL		0.75 lb	ai/A	PRE	D					
4	Boundary	6.5 EC		1.02 lb	ai/A	PRE	D					
4	Crop Oil Conc.	100 L		1.25 %	v/v	PRE	D					
4	30% UAN	100 L		2.5 %	v/v	PRE	D					
4	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	Fall	A	78.3	88.3	38.2	34.0	67.9
	42,4-D ester	3.8 L		0.71 lb	ae/A	Fall	A					
4	Valor SX	51 WG		0.096 lb	ai/A	Fall	A					
	4 SPRING__DOUBLE											
4	Roundup WthrMax	4.5 AS		0.77 lb	ae/A	4 WPP	B					
	42,4-D ester	3.8 L		0.71 lb	ae/A	4 WPP	B					
4	Gramoxone SL	2 SL		0.75 lb	ai/A	PRE	D					
4	Boundary	6.5 EC		1.02 lb	ai/A	PRE	D					
4	Crop Oil Conc.	100 L		1.25 %	v/v	PRE	D					
4	30% UAN	100 L		2.5 %	v/v	PRE	D					

## Comparing Different Programs for No-Till Soybeans

Trial ID: DSB2-13 Cooperator:  
 Location: Field #7 Investigator: Mark VanGessel

## FACTORIAL/POOLED ERROR AOV For ALLVI Wild Garlic Control % 04/18/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	41247.411999				
R	2	743.842738	371.921369	8.571	0.0011	4.8
A	3	39201.694886	13067.231629	301.131	0.0001	5.5
B	3	0.026356	0.008785	0.000	1.0000	5.5
AB	9	0.032781	0.003642	0.000	1.0000	11.0
ERROR	30	1301.815237	43.393841			

## FACTORIAL/POOLED ERROR AOV For EROCI Redstem Filaree Control % 04/18/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	90000.000000				
R	2	0.000000	0.000000	0.000	1.0000	0.0
A	3	90000.000000	30000.000000	0.000	1.0000	0.0
B	3	0.000000	0.000000	0.000	1.0000	0.0
AB	9	0.000000	0.000000	0.000	0.0000	0.0
ERROR	30	0.000000	0.000000			

## FACTORIAL/POOLED ERROR AOV For CERVU Mouseear Chickwd Control % 04/18/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	90000.000000				
R	2	0.000000	0.000000	0.000	1.0000	0.0
A	3	90000.000000	30000.000000	0.000	1.0000	0.0
B	3	0.000000	0.000000	0.000	1.0000	0.0
AB	9	0.000000	0.000000	0.000	0.0000	0.0
ERROR	30	0.000000	0.000000			

## FACTORIAL/POOLED ERROR AOV For VICSS Vetch Species Control % 04/18/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	90000.000000				
R	2	0.000000	0.000000	0.000	1.0000	0.0
A	3	90000.000000	30000.000000	0.000	1.0000	0.0
B	3	0.000000	0.000000	0.000	1.0000	0.0
AB	9	0.000000	0.000000	0.000	0.0000	0.0
ERROR	30	0.000000	0.000000			

## FACTORIAL/POOLED ERROR AOV For VIORA Field Pansy Control % 04/18/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	77621.724568				
R	2	190.335451	95.167725	22.119	0.0001	1.5
A	3	77302.247199	25767.415733	5988.966	0.0001	1.7
B	3	0.030086	0.010029	0.002	0.9998	1.7
AB	9	0.037368	0.004152	0.001	1.0000	3.5
ERROR	30	129.074465	4.302482			

## FACTORIAL/POOLED ERROR AOV For EROCI Redstem Filaree Control % 06/07/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	28125.000000				
R	2	0.000000	0.000000	0.000	1.0000	0.0
A	3	5625.000000	1875.000000	0.000	1.0000	0.0
B	3	5625.000000	1875.000000	0.000	1.0000	0.0
AB	9	16875.000000	1875.000000	0.000	0.0000	0.0
ERROR	30	0.000000	0.000000			

## FACTORIAL/POOLED ERROR AOV For OEOLA Cutleaf EPrimrse Control % 06/07/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	20512.979167				
R	2	492.041667	246.020833	0.993	0.3824	11.4
A	3	2114.729167	704.909722	2.845	0.0543	13.1
B	3	4128.062500	1376.020833	5.553	0.0037	13.1
AB	9	6344.187500	704.909722	2.845	0.0151	26.2
ERROR	30	7433.958333	247.798611			

## FACTORIAL/POOLED ERROR AOV For VIORA Field Pansy Control % 06/07/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	31637.666667				
R	2	18.666667	9.333333	0.157	0.8557	5.6
A	3	9782.333333	3260.777778	54.711	0.0001	6.4
B	3	9363.166667	3121.055556	52.367	0.0001	6.4
AB	9	10685.500000	1187.277778	19.921	0.0001	12.9
ERROR	30	1788.000000	59.600000			

## FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 06/07/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	50705.312500				
R	2	794.000000	397.000000	1.068	0.3565	13.9
A	3	2471.229167	823.743056	2.215	0.1068	16.1
B	3	32355.729167	10785.243056	29.006	0.0001	16.1
AB	9	3929.687500	436.631944	1.174	0.3461	32.1
ERROR	30	11154.666667	371.822222			

## FACTORIAL/POOLED ERROR AOV For IPOSS Mornglry Species Control % 06/07/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	46876.923136				
R	2	2322.881346	1161.440673	2.714	0.0825	14.9
A	3	742.066133	247.355378	0.578	0.6340	17.2
B	3	25680.200700	8560.066900	20.002	0.0001	17.2
AB	9	5293.149078	588.127675	1.374	0.2432	34.5
ERROR	30	12838.625881	427.954196			

## FACTORIAL/POOLED ERROR AOV For DIGSA Large Crabgras Control % 06/07/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	45537.000729				
R	2	1814.186815	907.093407	3.063	0.0616	12.4
A	3	3796.992038	1265.664013	4.274	0.0126	14.3
B	3	27585.314998	9195.104999	31.053	0.0001	14.3
AB	9	3457.167612	384.129735	1.297	0.2792	28.7
ERROR	30	8883.339266	296.111309			

## FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Average Height Inches 07/03/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	163.916667				
R	2	2.041667	1.020833	0.313	0.7339	1.3
A	3	12.083333	4.027778	1.234	0.3148	1.5
B	3	18.916667	6.305556	1.931	0.1458	1.5
AB	9	32.916667	3.657407	1.120	0.3793	3.0
ERROR	30	97.958333	3.265278			

## FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 07/03/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	62260.841822				
R	2	820.854590	410.427295	2.704	0.0832	8.9
A	3	1072.576530	357.525510	2.356	0.0917	10.3
B	3	51634.481277	17211.493759	113.400	0.0001	10.3
AB	9	4179.634357	464.403817	3.060	0.0101	20.5
ERROR	30	4553.295068	151.776502			

## FACTORIAL/POOLED ERROR AOV For DIGSA Large Crabgrass Control % 07/03/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	56634.422577				
R	2	132.999840	66.499920	0.407	0.6695	9.2
A	3	1309.202888	436.400963	2.668	0.0655	10.7
B	3	46770.958810	15590.319603	95.326	0.0001	10.7
AB	9	3514.858668	390.539852	2.388	0.0356	21.3
ERROR	30	4906.402370	163.546746			

## FACTORIAL/POOLED ERROR AOV For IPOSS Mornglry Species Control % 07/03/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	43066.063956				
R	2	857.069190	428.534595	4.798	0.0156	6.8
A	3	719.060542	239.686847	2.684	0.0644	7.9
B	3	35676.698912	11892.232971	133.151	0.0001	7.9
AB	9	3133.827963	348.203107	3.899	0.0023	15.8
ERROR	30	2679.407348	89.313578			

## FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Average Height Inches 07/26/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	475.916667				
R	2	14.541667	7.270833	1.094	0.3480	1.9
A	3	74.916667	24.972222	3.756	0.0211	2.1
B	3	27.083333	9.027778	1.358	0.2745	2.1
AB	9	159.916667	17.768519	2.673	0.0208	4.3
ERROR	30	199.458333	6.648611			

## FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 10/21/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1861.012491				
R	2	272.125202	136.062601	3.997	0.0289	4.2
A	3	28.055051	9.351684	0.275	0.8432	4.9
B	3	119.565959	39.855320	1.171	0.3373	4.9
AB	9	420.012192	46.668021	1.371	0.2447	9.7
ERROR	30	1021.254087	34.041803			

Rye Cover Crop Management for NT Soybean

Trial ID: DSB3-13 Cooperator:  
 Location: Field #35 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Rye	SECCE	Secale cereale L.

**Crop 1:** Soybean **GLXMA** **Variety:** M48-12R2  
**Planting Date:** 05/20/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 4.5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Friable/Trashy  
**Soil Temperature:** 82 F **Soil Moisture:** Moist **Emergence Date:** 05/25/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** FACTORIAL  
**Tillage Type:** No Tillage Rye cover

**Trial Initiation Comments:** Rye was established in the fall.

**MAINTENANCE**

**Field Prep./Maintenance:** March 13, 2013, plots with spring N applications recieved 30 gal/A of a 50:50 mix of 30% UAN:water.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/03/13	Roundup WeatherMax	4.5	AS	22	fl oz/A
2.	07/03/13	Reflex	2	L	1.5	pt/A

**SOIL DESCRIPTION**

**% Sand:** 82 **% OM:** 1.3 **Texture:** loamy sand  
**% Silt:** 11 **pH:** 5.9  
**% Clay:** 7 **CEC:** 5.7 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.2 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	12/13/12	03/13/12	05/09/13
<b>Time of Day:</b>	1:00 pm	2:00 pm	10:00 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	Fall	SpringN	Spring
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	49 F	51 F	61 F
<b>% Relative Humidity:</b>	48	38	80
<b>Wind Velocity, Unit:</b>	4 mph	5 mph	2 mph
<b>Wind Direction:</b>	Northeast	West	West
<b>Dew Presence (Y/N):</b>	N	N	Y
<b>Soil Temp., Unit:</b>	47 F	50 F	60 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Wet
<b>Root Zone Moisture:</b>	Moist	Moist	Wet
<b>Leaf Surf. Moisture:</b>	Dry	Dry	Wet
<b>% Cloud Cover:</b>	15	75	95

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	SECCE	SECCE	SECCE
Growth Stage:	tillering	tillered	heading
Height, Unit:	6 in	8 in	55 in
Density, Unit:	200 m2	200 m2	200 m2

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Backpack	Backpack	Tractor
Operating Pressure:	31 psi	25 psi	40 psi
Nozzle Type:	AIRMIX	XRTEEJET	AIRMIX
Nozzle Size:	11002	11003	11002
Nozzle Spacing, Unit:	18 in	18 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	24 in	26 in	72 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	25 gpa	20 gpa
Propellant:	CO2	CO2	Comp. Air

### Trial Comments

1/30/13: No stunting of rye observed.

3/13/13, plots with spring N applications recieved 30 gal/A of a 50:50 mix of 30% UAN:water.

5/09/13: Rye with no N approx 50" tall; Rye with N approx 60" tall.

5/19/13: No emergence since last fall from either winter annuals or summer annuals.

6/11/13: Primrose was only winter annual in treatments 1 and 2. Usually treatments w/ spring N have about 30% more biomass than no spring N.

10/21/13: No treatment stood out as being different than the others. Everything looked similar.

### Biomass data collected on June 11

Rye Biomass - no significant differences between treatments

Plot	Trt No	Description	Area	grams	lbs/A
101	11	No Nitrogen	4 rows * 1 meter	363.6	4562.415769
102	2	Spring N		423.3	5311.525288
209	11	No Nitrogen		374.4	4697.933069
211	2	Spring N		504.1	6325.395459
301	11	No Nitrogen		315	3952.587918
310	2	Spring N		462.1	5798.383737

Soybean biomass - no significant differences between treatments

Plot	Trt No	Description	wt grams	No. plants	wt/plant
101	11	No Nitrogen	6	18	0.3333
102	2	Spring N	8	19	0.4211
209	11	No Nitrogen	3	12	0.25
211	2	Spring N	8	24	0.3333
301	11	No Nitrogen	5	19	0.2632
310	2	Spring N	4	20	0.2

No difference in soybean stands between Soy 1 and DSB 3. DSB 3 was next to soy1 and had higher levels of rye - Sprayed April 24 versus May 9 - Rye biomass in Soy 1 averaged 1979 lb/A (collected same time as soy 1)

Rye Cover Crop Management for NT Soybean												
Trial ID: DSB3-13 Cooperator:												
Location: Field #35 Investigator: Mark VanGessel												
Weed Code	GLXMA	LAMAM	CERVU	OEOLA	VICSS	VIORA						
Crop Code	Soybean	Henbit	Mouseear	Cutleaf	Vetch	Field						
Weed or Crop Name	Stunting	Control	Chickwd	EPrimrse	Species	Pansy						
Weed or Crop Name	%	%	Control	Control	Control	Control						
Rating Data Type	%	%	%	%	%	%						
Rating Unit	05/19/13	05/19/13	05/19/13	05/19/13	05/19/13	05/19/13						
Rating Date	05/19/13	05/19/13	05/19/13	05/19/13	05/19/13	05/19/13						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code						
3	Harmony Extra SG Premix	50 SG		0.0187 lb ai/A	Fall	A	0.0 b	68.3 a	81.7 b	67.5 a	75.0	76.7 a
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	A						
	Dry Ammonium Sulfate	100 D		2.4 % w/v	Fall	A						
	Roundup WeatherMax..glyphosate	4.5 AS		1.12 lb ae/A	Spring	C						
	No Spring Nitrogen											
5	2,4-D amine	3.8 L		0.237 lb ae/A	Fall	A	9.0 a	80.0 a	78.3 b	60.0 a	85.0	78.3 a
	Clarity.....dicamba	4 L		0.125 lb ai/A	Fall	A						
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	A						
	Roundup WeatherMax..glyphosate	4.5 AS		1.12 lb ae/A	Spring	C						
	No Spring Nitrogen											
7	Harmony Extra SG Premix	50 SG		0.0187 lb ai/A	Fall	A	8.7 a	78.3 a	95.0 a	100.0 a	78.3	85.0 a
	2,4-D amine	3.8 L		0.237 lb ae/A	Fall	A						
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	A						
	Dry Ammonium Sulfate	100 D		2.4 % w/v	Fall	A						
	Roundup WeatherMax..glyphosate	4.5 AS		1.12 lb ae/A	Spring	C						
	No Spring Nitrogen											
LSD (P=.05)							5.29	22.98	12.24	256.75	.	8.66
Standard Deviation							2.33	10.14	5.40	20.21	.	3.33
CV							39.62	13.42	6.35	26.65	.	4.17
Replicate F							0.082	0.351	0.286	0.500		9.000
Replicate Prob(F)							0.9231	0.7235	0.7656	0.6082		0.0540
Treatment F							14.347	1.162	8.000	2.214		5.250
Treatment Prob(F)							0.0150	0.4000	0.0400	0.4292		0.1048

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



## University of Delaware

Weed Code						GLXMA	GLXMA	GLXMA	AMAPA	OEOLA		
Crop Code						Soybean	Soybean	Soybean	Palmer	Cutleaf		
Weed or Crop Name									Amaranth	EPrimrse		
Weed or Crop Name									Control	Control		
Rating Data Type						Stunting	Height	Height	%	%		
Rating Unit						%	Inches	Inches				
Rating Date						06/11/13	07/03/13	07/26/13	06/11/13	06/11/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code					
8	Harmony Extra SG Premix	50	SG	0.0187	lb ai/A	Fall	A	2.3 a	19.3 a	33.3 a	78.3 bc	93.3 ab
	2,4-D amine	3.8	L	0.237	lb ae/A	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C					
	50# Nitrogen					Spring						
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/A	Spring	B					
9	Untreated							3.3 a	18.3 a	34.0 a	100.0 a	90.0 ab
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C					
	Envive Premix	41.3	WG	0.0774	lb ai/A	Spring	C					
	No Spring Nitrogen											
10	Untreated							0.0 a	18.0 a	36.3 a	100.0 a	100.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C					
	Envive Premix	41.3	WG	0.0774	lb ai/A	Spring	C					
	50# Nitrogen					Spring						
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/A	Spring	B					
11	Harmony Extra SG Premix	50	SG	0.0187	lb ai/A	Fall	A	3.3 a	19.0 a	35.7 a	100.0 a	100.0 a
	2,4-D amine	3.8	L	0.237	lb ae/A	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C					
	Envive Premix	41.3	WG	0.0774	lb ai/A	Spring	C					
	No Spring Nitrogen											
12	Harmony Extra SG Premix	50	SG	0.0187	lb ai/A	Fall	A	0.0 a	18.0 a	31.7 a	100.0 a	100.0 a
	2,4-D amine	3.8	L	0.237	lb ae/A	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C					
	Envive Premix	41.3	WG	0.0774	lb ai/A	Spring	C					
	50# Nitrogen					Spring						
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/A	Spring	B					
LSD (P=.05)						6.01	2.94	5.26	16.04	16.07		
Standard Deviation						3.55	1.73	3.11	9.47	9.49		
CV						145.19	9.13	9.13	10.89	10.58		
Replicate F						5.566	21.474	48.119	3.584	3.245		
Replicate Prob(F)						0.0111	0.0001	0.0001	0.0449	0.0582		
Treatment F						1.180	1.108	0.726	3.645	3.613		
Treatment Prob(F)						0.3542	0.4000	0.7028	0.0047	0.0050		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.



## University of Delaware

						AMAPA	DIGSA	GLXMA
						Palmer	Large	Soybean
						Amaranth	Crabgrass	
						Control	Control	Yield
						%	%	Bu/A
						07/03/13	07/03/13	10/21/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code	
8	Harmony Extra SG Premix	50	SG	0.0187	lb ai/A	Fall	A	
	2,4-D amine	3.8	L	0.237	lb ae/A	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C	
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/A	Spring	B	
9	Untreated							
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C	
	Envive Premix	41.3	WG	0.0774	lb ai/A	Spring	C	
	No Spring Nitrogen							
10	Untreated							
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C	
	Envive Premix	41.3	WG	0.0774	lb ai/A	Spring	C	
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/A	Spring	B	
11	Harmony Extra SG Premix	50	SG	0.0187	lb ai/A	Fall	A	
	2,4-D amine	3.8	L	0.237	lb ae/A	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C	
	Envive Premix	41.3	WG	0.0774	lb ai/A	Spring	C	
	No Spring Nitrogen							
12	Harmony Extra SG Premix	50	SG	0.0187	lb ai/A	Fall	A	
	2,4-D amine	3.8	L	0.237	lb ae/A	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/A	Spring	C	
	Envive Premix	41.3	WG	0.0774	lb ai/A	Spring	C	
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/A	Spring	B	
LSD (P=.05)						27.79	25.54	11.08
Standard Deviation						16.36	15.04	6.55
CV						29.85	23.3	8.7
Replicate F						2.666	0.685	7.464
Replicate Prob(F)						0.0929	0.5149	0.0034
Treatment F						13.353	11.968	1.598
Treatment Prob(F)						0.0001	0.0001	0.1681

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rye Cover Crop Management for NT Soybean  
 Trial ID: DSB3-13 Cooperator:  
 Location: Field #35 Investigator: Mark VanGessel

Weed Code	GLXMA	GLXMA	GLXMA	AMAPA	OEOLA	AMAPA	DIGSA
Crop Code	Soybean	Soybean	Soybean	Palmer	Cutleaf	Palmer	Large
Weed or Crop Name				Amaranth	EPrimrse	Amaranth	Crabgras
Weed or Crop Name				Control	Control	Control	Control
Rating Data Type	Stunting	Height	Height	%	%	%	%
Rating Unit	%	Inches	Inches				
Rating Date	06/11/13	07/03/13	07/26/13	06/11/13	06/11/13	07/03/13	07/03/13
Trt Treatment	Form	Form	Rate	Grow	Appl		
No. Name	Conc	Type	Rate	Unit	Stg	Code	
TABLE OF R MEANS							
Replicate 1	0.0	21.5	40.0	84.2	87.1	49.2	60.4
Replicate 2	4.8	18.6	34.6	83.8	86.7	51.7	66.3
Replicate 3	2.5	16.9	27.6	92.9	95.4	63.6	67.0
TABLE OF A (Herbicide) MEANS							
1 Untreated	1.2	20.0	33.8	82.5	75.0	15.0	18.3
1 Roundup WthrMax	4.5 AS	1.12 lb ae/A	Spring C				
2 Harmony Extra S	50 SG	0.0187 lb ai/A	Fall A	4.0	18.7	34.3	82.5
2 Nonionic Surf.	100 L	0.25 % v/v	Fall A				
2 Ammonium Sulf.	100 D	2.4 % w/v	Fall A				
2 Roundup WthrMax	4.5 AS	1.12 lb ae/A	Spring C				
3 2,4-D amine	3.8 L	0.237 lb ae/A	Fall A	1.7	19.5	35.0	77.5
3 Clarity	4 L	0.125 lb ai/A	Fall A				
3 Nonionic Surf.	100 L	0.25 % v/v	Fall A				
3 Roundup WthrMax	4.5 AS	1.12 lb ae/A	Spring C				
4 Harmony Extra S	50 SG	0.0187 lb ai/A	Fall A	4.5	19.2	32.3	79.2
4 2,4-D amine	3.8 L	0.237 lb ae/A	Fall A				
4 Nonionic Surf.	100 L	0.25 % v/v	Fall A				
4 Ammonium Sulf.	100 D	2.4 % w/v	Fall A				
4 Roundup WthrMax	4.5 AS	1.12 lb ae/A	Spring C				
5 Untreated	1.7	18.2	35.2	100.0	95.0	92.5	85.8
5 Roundup WthrMax	4.5 AS	1.12 lb ae/A	Spring C				
5 Envive	41.3 WG	0.0774 lb ai/A	Spring C				
6 Harmony Extra S	50 SG	0.0187 lb ai/A	Fall A	1.7	18.5	33.7	100.0
6 2,4-D amine	3.8 L	0.237 lb ae/A	Fall A				
6 Nonionic Surf.	100 L	0.25 % v/v	Fall A				
6 Ammonium Sulf.	100 D	2.4 % w/v	Fall A				
6 Roundup WthrMax	4.5 AS	1.12 lb ae/A	Spring C				
6 Envive	41.3 WG	0.0774 lb ai/A	Spring C				
TABLE OF B (Spring Nitrogen) MEANS							
1 No Spring N	3.2	19.6	34.1	85.0	88.1	45.2	54.4
2 50# Nitrogen			Spring	1.7	18.4	34.1	88.9
2 30% UAN	3.25 L	50 lb ai/A	Spring B				
TABLE OF A (Herbicide) B (Spring Nitrogen) MEANS							
1 Untreated	0.0	21.0	34.7	76.7	70.0	0.0	0.0
1 Roundup WthrMax	4.5 AS	1.12 lb ae/A	Spring C				
1 No Spring N							

## University of Delaware

Weed Code						GLXMA	GLXMA	GLXMA	AMAPA	OEOLA	AMAPA	DIGSA	
Crop Code						Soybean	Soybean	Soybean	Palmer	Cutleaf	Palmer	Large	
Weed or Crop Name									Amaranth	EPrimrse	Amaranth	Crabgras	
Weed or Crop Name									Control	Control	Control	Control	
Rating Data Type						Stunting	Height	Height	%	%	%	%	
Rating Unit						%	Inches	Inches	%	%	%	%	
Rating Date						06/11/13	07/03/13	07/26/13	06/11/13	06/11/13	07/03/13	07/03/13	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code							
2	Harmony Extra S	50	SG	0.0187 lb ai/A	Fall	A	5.7	20.0	34.3	81.7	80.0	19.4	70.0
2	Nonionic Surf.	100	L	0.25 % v/v	Fall	A							
2	Ammonium Sulf.	100	D	2.4 % w/v	Fall	A							
2	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C							
1	No Spring N												
3	2,4-D amine	3.8	L	0.237 lb ae/A	Fall	A	0.0	20.3	34.3	71.7	100.0	23.3	68.3
3	Clarity	4	L	0.125 lb ai/A	Fall	A							
3	Nonionic Surf.	100	L	0.25 % v/v	Fall	A							
3	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C							
1	No Spring N												
4	Harmony Extra S	50	SG	0.0187 lb ai/A	Fall	A	6.7	19.0	31.3	80.0	88.3	43.3	21.2
4	2,4-D amine	3.8	L	0.237 lb ae/A	Fall	A							
4	Nonionic Surf.	100	L	0.25 % v/v	Fall	A							
4	Ammonium Sulf.	100	D	2.4 % w/v	Fall	A							
4	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C							
1	No Spring N												
5	Untreated						3.3	18.3	34.0	100.0	90.0	85.0	78.3
5	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C							
5	Envive	41.3	WG	0.0774 lb ai/A	Spring	C							
1	No Spring N												
6	Harmony Extra S	50	SG	0.0187 lb ai/A	Fall	A	3.3	19.0	35.7	100.0	100.0	100.0	88.3
6	2,4-D amine	3.8	L	0.237 lb ae/A	Fall	A							
6	Nonionic Surf.	100	L	0.25 % v/v	Fall	A							
6	Ammonium Sulf.	100	D	2.4 % w/v	Fall	A							
6	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C							
6	Envive	41.3	WG	0.0774 lb ai/A	Spring	C							
1	No Spring N												
1	Untreated						2.3	19.0	33.0	88.3	80.0	30.0	36.7
1	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C							
2	50# Nitrogen				Spring								
2	30% UAN	3.25	L	50 lb ai/A	Spring	B							
2	Harmony Extra S	50	SG	0.0187 lb ai/A	Fall	A	2.3	17.3	34.3	83.3	78.3	46.7	81.7
2	Nonionic Surf.	100	L	0.25 % v/v	Fall	A							
2	Ammonium Sulf.	100	D	2.4 % w/v	Fall	A							
2	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C							
2	50# Nitrogen				Spring								
2	30% UAN	3.25	L	50 lb ai/A	Spring	B							
3	2,4-D amine	3.8	L	0.237 lb ae/A	Fall	A	3.3	18.7	35.7	83.3	96.7	53.3	76.7
3	Clarity	4	L	0.125 lb ai/A	Fall	A							
3	Nonionic Surf.	100	L	0.25 % v/v	Fall	A							
3	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C							
2	50# Nitrogen				Spring								
2	30% UAN	3.25	L	50 lb ai/A	Spring	B							

## University of Delaware

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date						GLXMA Soybean  Stunting % 06/11/13	GLXMA Soybean  Height Inches 07/03/13	GLXMA Soybean  Height Inches 07/26/13	AMAPA  Palmer Amaranth Control % 06/11/13	OEOLA  Cutleaf EPrimrse Control % 06/11/13	AMAPA  Palmer Amaranth Control % 07/03/13	DIGSA  Large Crabgras Control % 07/03/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code							
4	Harmony Extra S	50	SG	0.0187	lb ai/A	Fall	A	2.3	19.3	33.3	78.3	93.3	56.7	63.3
4	2,4-D amine	3.8	L	0.237	lb ae/A	Fall	A							
4	Nonionic Surf.	100	L	0.25	% v/v	Fall	A							
4	Ammonium Sulf.	100	D	2.4	% w/v	Fall	A							
4	Roundup WthrMax	4.5	AS	1.12	lb ae/A	Spring	C							
	250# Nitrogen					Spring								
	230% UAN	3.25	L	50	lb ai/A	Spring	B							
5	Untreated							0.0	18.0	36.3	100.0	100.0	100.0	93.3
5	Roundup WthrMax	4.5	AS	1.12	lb ae/A	Spring	C							
5	Envive	41.3	WG	0.0774	lb ai/A	Spring	C							
	250# Nitrogen					Spring								
	230% UAN	3.25	L	50	lb ai/A	Spring	B							
6	Harmony Extra S	50	SG	0.0187	lb ai/A	Fall	A	0.0	18.0	31.7	100.0	100.0	100.0	96.7
6	2,4-D amine	3.8	L	0.237	lb ae/A	Fall	A							
6	Nonionic Surf.	100	L	0.25	% v/v	Fall	A							
6	Ammonium Sulf.	100	D	2.4	% w/v	Fall	A							
6	Roundup WthrMax	4.5	AS	1.12	lb ae/A	Spring	C							
6	Envive	41.3	WG	0.0774	lb ai/A	Spring	C							
	250# Nitrogen					Spring								
	230% UAN	3.25	L	50	lb ai/A	Spring	B							



Weed Code						GLXMA Soybean		
Crop Code								
Weed or Crop Name								
Weed or Crop Name								
Rating Data Type								
Rating Unit								
Rating Date						Yield Bu/A 10/21/13		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code	
2	Harmony Extra S	50	SG	0.0187 lb ai/A	Fall	A		76.7
2	Nonionic Surf.	100	L	0.25 % v/v	Fall	A		
2	Ammonium Sulf.	100	D	2.4 % w/v	Fall	A		
2	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C		
1	No Spring N							
3	2,4-D amine	3.8	L	0.237 lb ae/A	Fall	A		75.6
3	Clarity	4	L	0.125 lb ai/A	Fall	A		
3	Nonionic Surf.	100	L	0.25 % v/v	Fall	A		
3	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C		
1	No Spring N							
4	Harmony Extra S	50	SG	0.0187 lb ai/A	Fall	A		70.3
4	2,4-D amine	3.8	L	0.237 lb ae/A	Fall	A		
4	Nonionic Surf.	100	L	0.25 % v/v	Fall	A		
4	Ammonium Sulf.	100	D	2.4 % w/v	Fall	A		
4	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C		
1	No Spring N							
5	Untreated							78.8
5	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C		
5	Envive	41.3	WG	0.0774 lb ai/A	Spring	C		
1	No Spring N							
6	Harmony Extra S	50	SG	0.0187 lb ai/A	Fall	A		78.9
6	2,4-D amine	3.8	L	0.237 lb ae/A	Fall	A		
6	Nonionic Surf.	100	L	0.25 % v/v	Fall	A		
6	Ammonium Sulf.	100	D	2.4 % w/v	Fall	A		
6	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C		
6	Envive	41.3	WG	0.0774 lb ai/A	Spring	C		
1	No Spring N							
1	Untreated							67.2
1	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C		
2	50# Nitrogen				Spring			
2	30% UAN	3.25	L	50 lb ai/A	Spring	B		
2	Harmony Extra S	50	SG	0.0187 lb ai/A	Fall	A		75.1
2	Nonionic Surf.	100	L	0.25 % v/v	Fall	A		
2	Ammonium Sulf.	100	D	2.4 % w/v	Fall	A		
2	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C		
2	50# Nitrogen				Spring			
2	30% UAN	3.25	L	50 lb ai/A	Spring	B		
3	2,4-D amine	3.8	L	0.237 lb ae/A	Fall	A		78.0
3	Clarity	4	L	0.125 lb ai/A	Fall	A		
3	Nonionic Surf.	100	L	0.25 % v/v	Fall	A		
3	Roundup WthrMax	4.5	AS	1.12 lb ae/A	Spring	C		
2	50# Nitrogen				Spring			
2	30% UAN	3.25	L	50 lb ai/A	Spring	B		



## Rye Cover Crop Management for NT Soybean

Trial ID: DSB3-13 Cooperator:  
 Location: Field #35 Investigator: Mark VanGessel

## FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 06/11/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	580.888889				
R	2	140.222222	70.111111	5.566	0.0111	3.0
A	5	60.555556	12.111111	0.962	0.4624	4.2
B	1	18.777778	18.777778	1.491	0.2350	2.5
AB	5	84.222222	16.844444	1.337	0.2856	6.0
ERROR	22	277.111111	12.595960			

## FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Height Inches 07/03/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	232.000000				
R	2	129.166667	64.583333	21.474	0.0001	1.5
A	5	14.000000	2.800000	0.931	0.4801	2.1
B	1	13.444444	13.444444	4.470	0.0461	1.2
AB	5	9.222222	1.844444	0.613	0.6908	2.9
ERROR	22	66.166667	3.007576			

## FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Height Inches 07/26/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1219.888889				
R	2	930.055556	465.027778	48.119	0.0001	2.6
A	5	32.222222	6.444444	0.667	0.6526	3.7
B	1	0.000000	0.000000	0.000	1.0000	2.1
AB	5	45.000000	9.000000	0.931	0.4799	5.3
ERROR	22	212.611111	9.664141			

## FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 06/11/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	6213.888889				
R	2	643.055556	321.527778	3.584	0.0449	8.0
A	5	3180.555556	636.111111	7.091	0.0004	11.3
B	1	136.111111	136.111111	1.517	0.2310	6.5
AB	5	280.555556	56.111111	0.625	0.6821	16.0
ERROR	22	1973.611111	89.709596			

## FACTORIAL/POOLED ERROR AOV For OEOLA Cutleaf EPrimse Control % 06/11/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	6147.222222				
R	2	584.722222	292.361111	3.245	0.0582	8.0
A	5	3222.222222	644.444444	7.153	0.0004	11.4
B	1	100.000000	100.000000	1.110	0.3035	6.6
AB	5	258.333333	51.666667	0.574	0.7196	16.1
ERROR	22	1981.944444	90.088384			

## FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 07/03/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	46367.923563				
R	2	1427.582642	713.791321	2.793	0.0830	13.5
A	5	34898.880862	6979.776172	27.315	0.0001	19.1
B	1	3341.190316	3341.190316	13.076	0.0015	11.1
AB	5	1078.678835	215.735767	0.844	0.5330	27.1
ERROR	22	5621.590909	255.526860			

## FACTORIAL/POOLED ERROR AOV For DIGSA Large Crabgrass Control % 07/03/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	34828.512368				
R	2	309.951792	154.975896	0.718	0.4988	12.4
A	5	24341.735522	4868.347104	22.554	0.0001	17.6
B	1	3728.397605	3728.397605	17.273	0.0004	10.2
AB	5	1699.563812	339.912762	1.575	0.2086	24.9
ERROR	22	4748.863636	215.857438			

## FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 10/21/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	2335.054046				
R	2	639.499280	319.749640	7.463	0.0034	5.5
A	5	380.403184	76.080637	1.776	0.1596	7.8
B	1	83.915335	83.915335	1.959	0.1756	4.5
AB	5	288.685857	57.737171	1.348	0.2817	11.1
ERROR	22	942.550390	42.843200			

Texas Panicum Control in Soybeans

Trial ID: DSB4-13 Cooperator: Delaware Soybean Board  
 Location: McDowell Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Texas Panicum	PANTE	Panicum texanum Buckl.

**Crop 1:** Soybean **GLXMA**  
**Planting Date:** 07/22/13 **Planting Method:** Drilled **Depth:** 1 in  
**Row Spacing:** 7 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 90 F **Soil Moisture:** Moist **Emergence Date:** 07/27/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Wheat Stubble

**MAINTENANCE**

**Field Prep./Maintenance:** Farmer sprayed preplant burndown of glyphosate plus Cadet.

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 6 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	08/01/13	08/20/13	08/30/13
<b>Time of Day:</b>	11:00 am	10:00 am	10:00 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	28DAP	42DAP
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	75 F	75 F	74 F
<b>% Relative Humidity:</b>	82	73	76
<b>Wind Velocity, Unit:</b>	6 mph	0 mph	1 mph
<b>Wind Direction:</b>	South	N/A	Southwest
<b>Dew Presence (Y/N):</b>	Y	Y	Y
<b>Soil Temp., Unit:</b>	74 F	74 F	72 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Moist
<b>Root Zone Moisture:</b>	Moist	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Moist	Moist	Moist
<b>% Cloud Cover:</b>	100	50	50

**CROP STAGE AT EACH APPLICATION**

	A	B	C
<b>Crop 1 Code:</b>	GLXMA	GLXMA	GLXMA
<b>Growth Stage:</b>	unifoliate	V3	V4
<b>Height, Unit:</b>	3 in	7 in	9 in
<b>Crop Health:</b>	Good	Good	Good

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	24 in	26 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2

## Trial Comments

8/30/13: No texas panicum emergence after planting. No injury observed except tank contamination with Prowl treatment 3.

10/17/13: Texas panicum emerged late in this trial. Population was not very uniform. Injury (stunted plants and delayed maturity) with Prowl is approximately 60%.

Crop Code							PANTE
Weed or Crop Name							Texas
Weed or Crop Name							Panicum
Rating Data Type							Control
Rating Unit							%
Rating Date							10/17/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check No residual						0.0f
2	Command.....clomazone	3	ME	0.75 lb ai/A	PRE	A	50.0de
3	Prowl.....pendimethalin	3.3	EC	0.74 lb ai/A	PRE	A	0.0f
4	Dual Magnum.....s-metolachlor	7.62	E	1.43 lb ai/A	PRE	A	43.3e
5	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	PRE	A	43.3e
6	Roundup PowerMax..glyphosate	4.5	AS	1 lb ae/A	28 DAP	B	66.7bc
7	Roundup PowerMax..glyphosate	4.5	AS	1 lb ae/A	28 DAP	B	80.0ab
	Roundup PowerMax..glyphosate	4.5	AS	1 lb ae/A	42 DAP	C	
8	Roundup PowerMax..glyphosate	4.5	AS	1 lb ae/A	28 DAP	B	60.0cd
	Select Max.....clethodim	1	EC	0.094 lb ai/A	28 DAP	B	
9	Select Max.....clethodim	1	EC	0.094 lb ai/A	28 DAP	B	68.3bc
	Crop Oil Concentrate	100	L	1.25 % v/v	28 DAP	B	
	Dry Ammonium Sulfate	100	D	2.04 % w/v	28 DAP	B	
10	Zidua.....pyroxasulfone	85	WG	0.106 lb ai/A	28 DAP	B	86.7a
	Roundup PowerMax..glyphosate	4.5	AS	1 lb ae/A	28 DAP	B	
LSD (P=.05)							15.51
Standard Deviation							9.04
CV							18.14
Replicate F							4.352
Replicate Prob(F)							0.0287
Treatment F							32.807
Treatment Prob(F)							0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Herbicide-Resistant Soybeans for Palmer Amaranth Control

Trial ID: DSB6-13 Cooperator: Delaware Soybean Board  
 Location: Field #10 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

**Crop 1:** Soybean **GLXMA** **Variety:** RT4996N-STS & LL499N  
**Planting Date:** 07/17/13 **Planting Method:** Row- Cone System **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 14 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 93 F **Soil Moisture:** Moist-Wet **Emergence Date:** 07/21/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/26/13	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/26/13	2,4-D ester	3.8	L	1	qt/A
3.	06/27/13	Gramoxone SL	2	SL	2	qt/A
4.	06/27/13	Crop Oil Concentrate			1	% v/v

**SOIL DESCRIPTION**

**% Sand:** 79 **% OM:** 2.3 **Texture:** sandy loam  
**% Silt:** 10 **pH:** 6.5  
**% Clay:** 11 **CEC:** 8.6 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.25 **Unit:** mi

**APPLICATION DESCRIPTION**

	A	B	C
<b>Application Date:</b>	07/17/13	08/14/13	08/26/13
<b>Time of Day:</b>	2:00 pm	11:30 am	10:30 am
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	4 WAP	6 WAP
<b>Applic. Placement:</b>	Brdcst	Brdcst	Brdcst
<b>Air Temp., Unit:</b>	93 F	70 F	74 F
<b>% Relative Humidity:</b>	65	44	60
<b>Wind Velocity, Unit:</b>	2 mph	6 mph	2 mph
<b>Wind Direction:</b>	Northeast	Northwest	Southwest
<b>Dew Presence (Y/N):</b>	N	Y	Y
<b>Soil Temp., Unit:</b>	93 F	70 F	73 F
<b>Soil Surf. Moisture:</b>	Moist	Moist	Dry
<b>Root Zone Moisture:</b>	Wet	Moist	Moist
<b>Leaf Surf. Moisture:</b>	Dry	Moist	Moist
<b>% Cloud Cover:</b>	10	35	30

## CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:		4-5 trifol	EaFlowr
Height, Unit:		9 in	12 in
Crop Health:		Fair	Fair-Good

## WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		running	running
Height, Unit:		21 in	24 in
Density, Unit:		3-8 m2	2-8 m2
Weed 2 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	flower
Height, Unit:		18 in	18 in
Density, Unit:		0-12 m2	0-4 m2

## APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	34 in	34 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

## Trial Comments

8/01/13: Plots 107, 201, 207, 208, 301, 302, 307, and 308 have poor burndown control of large crabgrass.

## Herbicide-Resistant Soybeans for Palmer Amaranth Control

Trial ID: DSB6-13 Cooperator: Delaware Soybean Board

Location: Field #10 Investigator: Mark VanGessel

Weed Code					GLXMA	GLXMA	AMAPA	IPOSS	AMAPA	IPOSS
Crop Code					Soybean	Soybean	Palmer	Morngly	Palmer	Morngly
Weed or Crop Name					Stunting	Stunting	Amaranth	Species	Amaranth	Species
Weed or Crop Name					%	%	Control	Control	Control	Control
Rating Data Type					08/01/13	08/07/13	08/07/13	08/07/13	08/13/13	08/13/13
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Grow Stg	Appl Code				
1	Roundup Ready Soys Untreated Check						0.0b	0.0d	0.0b	
2	Roundup Ready Soys Glyphosate	3L		0.75 lb ae/A	4 WAP	B	0.0b	0.0d	0.0b	
3	Liberty-Link Soys Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100D		0.53 lb ai/A 1.2% w/v	4 WAP	B B	0.0b	0.0d	0.0b	
4	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3L		0.096 lb ai/A 0.75 lb ae/A	PRE 4 WAP	A B	10.7 a	10.3 a	86.7 ab	73.3 a
5	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100D		1.33 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE 4 WAP	A B B	5.7 bc	2.3 b	91.0 ab	71.7 a
6	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3L		0.096 lb ai/A 0.75 lb ae/A	PRE 6 WAP	A C	10.7 a	9.0 a	94.7 a	71.7 a
7	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100D		1.33 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE 6 WAP	A C C	7.3 abc	2.3 b	94.0 ab	70.0 a
8	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3L		0.064 lb ai/A 0.75 lb ae/A	PRE 4 WAP	A B	10.3 ab	10.0 a	88.3 ab	73.3 a
9	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100D		0.86 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE 4 WAP	A B B	7.0 abc	0.0b	86.0b	71.7 a
10	Liberty-Link Soys Valor SX.....flumioxazin Liberty 280.....glufosinate Dry Ammonium Sulfate	51 WG 2.34 SL 100D		0.096 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE 4 WAP	A B B	10.3 ab	3.3 b	86.7 ab	72.7 a

## University of Delaware

Weed Code					GLXMA	GLXMA	AMAPA	IPOSS	AMAPA	IPOSS
Crop Code					Soybean	Soybean	Palmer	Morngly	Palmer	Morngly
Weed or Crop Name					Stunting	Stunting	Amaranth	Species	Amaranth	Species
Weed or Crop Name					%	%	Control	Control	Control	Control
Rating Data Type					08/01/13	08/07/13	08/07/13	08/07/13	08/13/13	08/13/13
Rating Unit										
Rating Date										
Trt	Treatment	Form	Form	Rate	Grow	Appl				
No.	Name	Conc	Type	Rate	Unit	Stg	Code			
11	Roundup Ready Soys									
	Dual Magnum.....s-metolachlor	7.62 E		0.477 lb ai/A	PRE	A	4.0cd	0.0b	66.7c	0.0b
	Reflex.....fomesafen	2 L		0.375 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1 EC		0.0625 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100 L		0.25 % v/v	4 WAP	B				
12	Roundup Ready Soys									
	Dual Magnum.....s-metolachlor	7.62 E		0.477 lb ai/A	PRE	A	0.0d	0.0b	66.7c	0.0b
	Cobra.....lactofen	2 EC		0.195 lb ai/A	4 WAP	B				
	Select Max.....clethodim	1 EC		0.0625 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100 L		0.25 % v/v	4 WAP	B				
LSD (P=.05)							4.99	3.33	8.58	6.58
Standard Deviation							2.88	1.96	5.06	3.89
CV							39.33	63.2	7.99	9.25
Replicate F							1.616	4.137	0.735	0.449
Replicate Prob(F)							0.2295	0.0306	0.4908	0.6443
Treatment F							4.868	13.702	180.452	273.399
Treatment Prob(F)							0.0035	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## University of Delaware

Weed Code						AMAPA	IPOSS	AMAPA	IPOSS		
Crop Code											
Weed or Crop Name						Palmer	Mornglry	Palmer	Mornglry		
Weed or Crop Name						Amaranth	Species	Amaranth	Species		
Rating Data Type						Control	Control	Control	Control		
Rating Unit						%	%	%	%		
Rating Date						08/26/13	08/26/13	09/06/13	09/06/13		
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Rate	Unit	Stg	Code				
1	Roundup Ready Soys Untreated Check							0.0b	0.0b	0.0g	0.0f
2	Roundup Ready Soys Glyphosate	3 L		0.75 lb ae/A		4 WAP B				40.0f	66.7 de
3	Liberty-Link Soys Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.53 lb ai/A 1.2% w/v		4 WAP B 4 WAP B				50.0ef	75.7 cd
4	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.096 lb ai/A 0.75 lb ae/A	PRE	A 4 WAP B				63.3de	83.3 bc
5	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		1.33 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE	A 4 WAP B 4 WAP B				91.7 ab	93.3 ab
6	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.096 lb ai/A 0.75 lb ae/A	PRE	A 6 WAP C	91.7 a	10.0 b	85.0 abc	68.3 cde	
7	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		1.33 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE	A 6 WAP C 6 WAP C	93.3 a	46.7 a	93.0 ab	96.3 ab	
8	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.064 lb ai/A 0.75 lb ae/A	PRE	A 4 WAP B			73.3 cd	93.3 ab	
9	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		0.86 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE	A 4 WAP B 4 WAP B			100.0 a	100.0 a	
10	Liberty-Link Soys Valor SX.....flumioxazin Liberty 280.....glufosinate Dry Ammonium Sulfate	51 WG 2.34 SL 100 D		0.096 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE	A 4 WAP B 4 WAP B			81.0 bc	97.3 ab	

## University of Delaware

						AMAPA	IPOSS	AMAPA	IPOSS
Weed Code						Palmer	Morningly	Palmer	Morningly
Crop Code						Amaranth	Species	Amaranth	Species
Weed or Crop Name						Control	Control	Control	Control
Rating Data Type						%	%	%	%
Rating Unit						08/26/13	08/26/13	09/06/13	09/06/13
Rating Date									
Trt	Treatment	Form	Form	Rate	Grow	Appl			
No.	Name	Conc	Type	Rate	Unit	Stg	Code		
11	Roundup Ready Soys							63.3 de	73.3 cd
	Dual Magnum.....s-metolachlor	7.62 E		0.477 lb ai/A	PRE	A			
	Reflex.....fomesafen	2 L		0.375 lb ai/A	4 WAP	B			
	Select Max.....clethodim	1 EC		0.0625 lb ai/A	4 WAP	B			
	Nonionic Surfactant	100 L		0.25 % v/v	4 WAP	B			
12	Roundup Ready Soys							63.3 de	56.7 e
	Dual Magnum.....s-metolachlor	7.62 E		0.477 lb ai/A	PRE	A			
	Cobra.....lactofen	2 EC		0.195 lb ai/A	4 WAP	B			
	Select Max.....clethodim	1 EC		0.0625 lb ai/A	4 WAP	B			
	Nonionic Surfactant	100 L		0.25 % v/v	4 WAP	B			
LSD (P=.05)						4.63	30.22	17.43	16.62
Standard Deviation						2.04	13.33	10.29	9.79
CV						3.31	70.59	15.36	12.99
Replicate F						2.000	0.438	0.400	0.618
Replicate Prob(F)						0.2500	0.6732	0.6754	0.5486
Treatment F						2054.000	10.188	21.833	23.908
Treatment Prob(F)						0.0001	0.0269	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Burndown for Double Cropped Soybeans  
 Palmer amaranth Management  
 Trial ID: DSB7-13 Cooperator: DE Soybean Board  
 Location: Field #32 Investigator: Mark VanGessel

**GENERAL TRIAL INFORMATION**

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

**CROP AND WEED DESCRIPTION**

Weed	Common Name	Code	Scientific Name
1.	Crabgrass Species	DIGSS	Digitaria sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Horseweed	ERICA	Erigeron canadensis L.
4.	Horsenettle	SOLCA	Solanum carolinense L.

**Crop 1:** Soybean **GLXMA** **Variety:** H418NRR/STS  
**Planting Date:** 07/22/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 89 F **Soil Moisture:** Moist **Emergence Date:** 07/28/13

**SITE AND DESIGN**

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Wheat Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	08/26/13	Flexstar GT	3.3	L	4	pt/A

**SOIL DESCRIPTION**

**% Sand:** 77 **% OM:** 1.5 **Texture:** sandy loam  
**% Silt:** 12 **pH:** 5.8  
**% Clay:** 11 **CEC:** 5.1 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

**APPLICATION DESCRIPTION**

	A
<b>Application Date:</b>	07/22/13
<b>Time of Day:</b>	12:30 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	PRE
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	87 F
<b>% Relative Humidity:</b>	61
<b>Wind Velocity, Unit:</b>	1 mph
<b>Wind Direction:</b>	West
<b>Dew Presence (Y/N):</b>	N
<b>Soil Temp., Unit:</b>	85 F
<b>Soil Surf. Moisture:</b>	Dry
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Dry
<b>% Cloud Cover:</b>	60

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	DIGSS
Growth Stage:	vegetative
Height, Unit:	12 in
Density, Unit:	10 m <sup>2</sup>
Weed 2 Code:	AMAPA
Growth Stage:	veg-flower
Height, Unit:	12 in
Density, Unit:	0-10 m <sup>2</sup>
Weed 3 Code:	ERICA
Growth Stage:	bolting
Height, Unit:	12 in
Density, Unit:	0-2 m <sup>2</sup>
Weed 4 Code:	SOLCA
Growth Stage:	vegetative
Height, Unit:	12 in
Density, Unit:	2-10 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	28 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

8/01/13: Due to dry weather, ratings were not very consistent.

8/07/13: Only weeds present at time of application were rated. Treatment 10 is weak on primrose and treatments 9 and 6 are weak on horseweed. Horsenettle was present throughout the study area but was not rated, however, treatments 7 and 8 appeared to have the most activity and treatments 5, 6 and 10 had the least effect on horsenettle. Palmer amaranth, common ragweed, primrose, large crabgrass and fall panicum were in the untreated checks.

8/30/13: Control for burndown applications was excellent. Weed ground cover at time of POST treatments was less than 5% for all treated plots.

Burndown for Double Cropped Soybeans Palmer amaranth Management Trial ID: DSB7-13 Cooperator: DE Soybean Board Location: Field #32 Investigator: Mark VanGessel													
Weed Code				GLXMA	GLXMA	GLXMA	GLXMA	AMAPA	GGGAN	GLXMA			
Crop Code				Soybean	Soybean	Soybean	Soybean	Palmer	Annual	Soybean			
Weed or Crop Name								Amaranth	Grasses	Yield			
Weed or Crop Name								Control	Control	Bu/A			
Rating Data Type				Stunting	Stunting	Stunting	Stunting	%	%				
Rating Unit				%	%	%	%	%	%				
Rating Date				08/01/13	08/07/13	08/30/13	09/18/13	08/07/13	08/07/13	11/14/13			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg							
1	Untreated Check						0.0c	0.0c	0.0b	0.0c	0.0c	0.0b	14.7a
2	Canopy Premix	75 DF		0.187 lb ai/A	PRE		7.3 ab	2.3 bc	6.3 a	8.7 a	100.0 a	96.7 a	19.5 a
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	PRE								
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE								
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE								
3	Valor XLT Premix	40.3 WG		0.091 lb ai/A	PRE		10.3 a	0.0 c	0.0 b	2.3 bc	100.0 a	92.7 a	22.8 a
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	PRE								
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE								
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE								
4	Authority XL Premix	70 DG		0.21 lb ai/A	PRE		8.0 a	8.0 a	7.3 a	5.0 ab	100.0 a	89.3 a	22.7 a
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	PRE								
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE								
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE								
5	Goal 2XL.....oxyfluorfen	2 E		0.5 lb ai/A	PRE		2.3 bc	4.7 abc	0.0 b	0.0 c	100.0 a	91.7 a	22.8 a
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	PRE								
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE								
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE								
6	Cobra.....lactofen	2 EC		0.195 lb ai/A	PRE		6.7 ab	2.3 bc	0.0 b	0.0 c	100.0 a	98.3 a	22.0 a
	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	PRE								
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE								
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE								
7	Canopy Premix	75 DF		0.187 lb ai/A	PRE		8.3 a	9.7 a	10.7 a	8.0 a	100.0 a	96.0 a	20.0 a
	Liberty 280.....glufosinate	2.34 SL		0.66 lb ai/A	PRE								
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE								
	Dry Ammonium Sulfate	100 D		1.2 % w/v	PRE								
8	Liberty 280.....glufosinate	2.34 SL		0.66 lb ai/A	PRE		0.0 c	5.7 ab	0.0 b	0.0 c	96.7 b	92.3 a	20.5 a
	Dry Ammonium Sulfate	100 D		1.2 % w/v	PRE								
9	Roundup PowerMax..glyphosate	4.5 AS		1.12 lb ai/A	PRE		0.0 c	2.3 bc	0.0 b	0.0 c	100.0 a	100.0 a	22.0 a
	Dry Ammonium Sulfate	100 D		1.2 % w/v	PRE								
10	Gramoxone SL....paraquat	2 SL		0.75 lb ai/A	PRE		0.0 c	0.0 c	0.0 b	0.0 c	100.0 a	91.7 a	19.9 a
	Crop Oil Concentrate	100 L		1.25 % v/v	PRE								
	30% Urea Ammonium Nitrate	100 L		2 % v/v	PRE								
LSD (P=.05)				5.00	5.48	5.58	3.70	3.13	14.38	5.33			
Standard Deviation				2.92	3.19	3.26	2.15	1.83	8.38	3.10			
CV				67.83	91.2	133.78	89.76	2.04	9.88	15.01			
Replicate F				1.070	0.913	1.287	2.349	1.000	2.740	0.573			
Replicate Prob(F)				0.3640	0.4192	0.3004	0.1241	0.3874	0.0914	0.5736			
Treatment F				6.229	3.441	4.670	8.042	894.333	38.430	1.873			
Treatment Prob(F)				0.0005	0.0123	0.0027	0.0001	0.0001	0.0001	0.1230			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

## POST Weed Control in Double-Cropped Soybeans

Trial ID: DSB8-13 Cooperator: DE Soybean Board; UPI  
 Location: Field #32 Investigator: Mark VanGessel

## GENERAL TRIAL INFORMATION

**Study Director:** Mark VanGessel **Title:** Extension Specialist, Weed Science  
**Affiliation:** University of Delaware Research & Education Center  
**Address:** 16483 County Seat Hwy **City:** Georgetown **State:** DE **Zip Code:** 19947

## CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horsenettle	SOLCA	Solanum carolinense L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
3.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.

**Crop 1:** Soybean **GLXMA** **Variety:** ML4263N-LL  
**Planting Date:** 07/22/13 **Planting Method:** Row- Unit Planter **Depth:** 1 in  
**Rate:** 5 Sd/row-ft **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy  
**Soil Temperature:** 89 F **Soil Moisture:** Moist **Emergence Date:** 07/28/13

## SITE AND DESIGN

**Plot Width, Unit:** 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3  
**Site Type:** Field **Study Design:** RANDOMIZED COMPLETE BLOCK  
**Tillage Type:** No Tillage/Wheat Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/22/13	Gramoxone SL	2	SL	3	pt/A
2.	07/22/13	Boundary	7.8	EC	1.5	pt/A
3.	07/22/13	Crop Oil Concentrate			1	% v/v
4.	07/22/13	30% UAN			2	% v/v

## SOIL DESCRIPTION

**% Sand:** 77 **% OM:** 1.5 **Texture:** sandy loam  
**% Silt:** 12 **pH:** 5.8  
**% Clay:** 11 **CEC:** 5.1 **Fert. Level:** Optimum

**Overall Moisture Conditions:** See Temperature & Rainfall Charts at front of book  
**Closest Weather Station:** Univ. of Delaware Research & Education Center, Georgetown  
**Distance:** 0.4 **Unit:** mi

## APPLICATION DESCRIPTION

	A
<b>Application Date:</b>	08/20/13
<b>Time of Day:</b>	10:00 am
<b>Application Method:</b>	Spray
<b>Application Timing:</b>	POST
<b>Applic. Placement:</b>	Brdcst
<b>Air Temp., Unit:</b>	75 F
<b>% Relative Humidity:</b>	73
<b>Wind Velocity, Unit:</b>	0 mph
<b>Wind Direction:</b>	N/A
<b>Dew Presence (Y/N):</b>	Y
<b>Soil Temp., Unit:</b>	74 F
<b>Soil Surf. Moisture:</b>	Moist
<b>Root Zone Moisture:</b>	Moist
<b>Leaf Surf. Moisture:</b>	Moist
<b>% Cloud Cover:</b>	50

## CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	GLXMA
Growth Stage:	V4
Height, Unit:	9 in
Crop Health:	Good

## WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	SOLCA
Growth Stage:	vegetative
Height, Unit:	8 in
Density, Unit:	0-10 m <sup>2</sup>
Weed 2 Code:	OEOLA
Growth Stage:	rosette
Height, Unit:	1.5 in
Density, Unit:	0-50 m <sup>2</sup>
Weed 3 Code:	EROCL
Growth Stage:	3-4 leaf
Height, Unit:	1 in
Density, Unit:	0-10 m <sup>2</sup>

## APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	26 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

## Trial Comments

8/29/13: Soybeans were not Roundup-Ready nor STS, so treatments 2 and 8 were not rated for injury. Treatment 7 was too high of a rate. Weed control was excellent from the burndown application. Not enough weeds present at time of POST application to rate.

9/18/13: Weed control was excellent for all plots, including the untreated check.

POST Weed Control in Double-Cropped Soybeans									
Trial ID: DSB8-13 Cooperator: DE Soybean Board; UPI									
Location: Field #32 Investigator: Mark VanGessel									
Crop Code	GLXMA Soybean	GLXMA Soybean	GLXMA Soybean	GLXMA Soybean	GLXMA Soybean	GLXMA Soybean			
Weed or Crop Name	Stunting %	Chloross %	LfBurn %	Stunting %	Stunting %	Yield Bu/A			
Rating Data Type	08/23/13	08/23/13	08/23/13	08/29/13	09/18/13	11/14/13			
Rating Unit									
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg				
1	Untreated Check					17.3 a			
2	Roundup PowerMax..glyphosate Dry Ammonium Sulfate	4.5 AS 100 D		1.12 lb ae/A 1.2 % w/v	POST POST				
3	Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.53 lb ai/A 1.2 % w/v	POST POST	18.1 a			
4	Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.66 lb ai/A 1.2 % w/v	POST POST	19.1 a			
5	Ultra Blazer....acifluorfen Nonionic Surfactant	2 L 100 L		0.375 lb ai/A 0.25 % v/v	POST POST	16.7 a			
6	Storm Premix Nonionic Surfactant	4 EC 100 L		0.75 lb ai/A 0.25 % v/v	POST POST	21.6 a			
7	Raptor.....imazamox Crop Oil Concentrate 30% Urea Ammonium Nitrate	1 AS 100 L 100 L		0.0625 lb ai/A 1.25 % v/v 2.5 % v/v	POST POST POST				
8	Synchrony XP Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	28.4 DG 100 L 100 L		0.0133 lb ai/A 1.25 % v/v 2.5 % v/v	POST POST POST	17.6 a			
9	Ultra Blazer....acifluorfen KFD-104-01 Nonionic Surfactant	2 L 4.23 L 100 L		0.375 lb ai/A 0.1 lb ai/A 0.25 % v/v	POST POST POST	16.5 a			
10	Storm Premix KFD-104-01 Nonionic Surfactant	4 EC 4.23 L 100 L		0.75 lb ai/A 0.1 lb ai/A 0.25 % v/v	POST POST POST	19.0 a			
LSD (P=.05)				4.31	2.14	7.08	5.05	4.24	6.16
Standard Deviation				2.42	1.18	3.98	2.84	2.39	3.52
CV				26.63	60.61	27.48	38.24	47.71	19.3
Replicate F				2.980	1.000	0.509	1.929	0.326	7.434
Replicate Prob(F)				0.0890	0.4019	0.6138	0.1877	0.7278	0.0063
Treatment F				44.173	49.000	55.199	21.788	17.222	0.670
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.6946

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.