Mass Emergency Mortality Composting
• **Basic Procedure**
  – Develop plan prior to emergency
  – Needs assessment
  – Secure carbon source and other equipment
  – Allow birds to consume remaining feed
  – Raise drinkers and feed lines
  – Depopulate flock
  – Prepare house
  – Create carcass and litter windrow
• Basic Procedure (cont)
  – Clean and disinfect equipment and personnel
  – Measure compost temperature daily
  – Sample to determine if any virus remains
  – Turn windrow at 7 – 14 days
  – If necessary, move windrow out of house under cover
  – Clean and disinfect house
  – Sample for virus again
• Develop plans prior to any emergency
  – “Fail to plan, plan to fail”
• Locate appropriate sources
  – MOU
• Bulking agent
• Personnel
• Equipment
• In house composting keeps all material inside the house
• Prefer to keep composting material under cover
  – Poly
  – Compost fleece
• Needs assessment first step
• Determine litter and carbon needs
  – Number of birds
  – Bird weight
  – House dimensions
  – Litter depth
• Requires
  – 12 -15 cm litter/carbon for market age chickens
  – Increase 25% for large birds or layering procedure
• Plan approach
• Assess bulking agent needs
  – Secure additional litter or bulking prior to beginning process
• Discuss plan with equipment operators
  – Construction method
  – Access to end door, litter, and carcasses
  – Windrow turning and removal
  – Turning the pile
  – House configuration and equipment
• Litter requirements based on weight of meat per square feet floor space
• Mix and pile:
  – Broilers: 0.8 inch litter per pound of meat per square foot floor space
  – Turkeys: 1.0 inch litter per pound of meat per square foot floor space
• Layering procedure:
  – Broilers: 1.0 inch litter per pound of meat per square foot floor space
• Litter requirements based on weight of meat per square feet floor space

• Mix and pile:
  – Broilers: 0.4 cm litter per kg of meat per square m floor space
  – Turkeys: 0.5 cm litter per kg of meat per square m floor space

• Layering procedure:
  – Broilers: 0.5 cm inch litter per kg of meat per square m floor space
• Take advantage of existing materials
  – Used litter
  – Straw
  – Sawdust, shavings, wood chips, mulch
  – Corn stover/silage
  – Horse bedding
  – Municipal yard waste or compost
• Exact number of people required depends on the situation
  – Skilled skid steer loader operator
  – Producer
  – State, federal, & poultry company
  – Person with experience in composting procedure
  – Labor for composting procedure
  – Personnel for cleaning and disinfecting poultry house and equipment
• **Personal Protective Equipment**
  - Gloves
  - Protective boots
  - Tyvek suits
  - Respirator (PAPR preferred)
  - Goggles

• **Hand tools**
  - Square point long handle shovels,
  - Pitchforks
  - Long handle rakes and hoes
  - Stick broom
  - Drill with feeder winch attachment,
  - Ladder
  - Hammer
  - Crowbar
  - Cutting pliers
• **Carbon Source**
  – Litter
  – Sawdust
  – Processed compost

• **Insecticide**

• **Rodenticide**

• **Composting Thermometers**

• **Water Hose or Water Supply**

• **Warning Signs**

• **Tarp, Poly or Fleece With Anchors**
• Cleaning and Disinfecting Supplies
  – Power washer
  – Hand sprayer
  – Detergent
  – Disinfectant
  – Garbage bags
  – Bucket
  – Scrub brush
  – Poly sheet or portable pool

• Communication
  – Radio
  – Cell phones
• Skid steer loader extensively used to create windrow
  – Medium size
  – 1.25 – 1.5 cu ft bucket
  – Fit under drinking lines
• Additional personnel to move birds and litter

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• Let birds consume all feed
• Raise water lines
• Raise feed lines
• Select composting procedure to match depopulation procedure
  – Concentrated = layer approach
  – Distributed = mix and pile
• Use skid steer loader or tractor to pull polyethylene sheet out of house
• Contain poly in one location for later disposal
• If the carcasses are condensed in one region or the litter is caked
• Tilling can be used to improve composting performance
• **Two primary methods**
  – Mix and Pile
  – Layering
• Start with an 8 cm minimum litter base
• Use the feed line as a guide and mix the carcasses with the litter to start the formation of the windrow.
• Continue to roll the materials from along the sides to form a windrow 3 m wide in the center of the house

Skid steer loader being used to assemble the windrow.
• Adjust the ratio of litter to carcass as needed to get uniform mix
• Carcasses placed next to each other with litter
  – Decompose, not compost
• Continue to roll and mix litter and birds into windrow.
• After one side is complete, repeat the process on the other side of the pile
• Complete capping the windrow to cover all carcasses.

• A small skid steer loader and several workers may be required to clean up all litter.
• All carcasses must be covered or capped with 5 in (12 cm) or greater layer of litter or sawdust
• Place birds one bird deep
• Cover with layer of litter
• Repeat alternating layers of birds and litter
  – Up to 3 ft (1 m) high
• Cap with sawdust or litter
• Windrow temperatures not uniform
• Turn pile to ‘re-energize’ bacteria
• Typically turn at 7 to 14 days
• Turn when temperatures drop
• Use skid steer to construct litter only windrow 10 ft to 12 ft (3.0 m to 3.5 m) wide
• Carefully load skid steer bucket loads of carcasses onto litter base
• Spread carcasses evenly on windrow prior to next layer
  – 6 – 8 inches (15 – 20 cm) thick
• Repeat as necessary, adding narrower layers
• All potentially contaminated natural material should be composted
  – Eggs or other waste
  – Any surplus litter
  – Inactivate pathogens
• Use a compost thermometer to check temperatures
• Temperature should reach 57°C or greater within 5 days
• Ventilate to release gas and moisture
Disposal: Science and Theory

Monitor Temperature
• Heat houses to 38° C for 3 days after forming windrow
• Additional heat helps to inactivate virus on surfaces
• Windrow turned
  ~14 days later
  – Based on temperature drop
• Options
  – Turn windrow inside the house
  – Move windrow outside and cover with fleece or polyethylene sheet
• Scrape along edge and return material into windrow
• Cap windrow with new material after turning
• All equipment **must** be disinfected after use

• Mobile equipment a particular challenge
  – Liquid sprayers may not provide coverage into blind holes

• Procedure
  – Power wash to remove gross material
  – Remove and dispose of fiber filters
  – Place equipment in small tent or garage
  – Direct application of Virocid or other glutaraldehyde
• After windrow removed, house needs to be cleaned
  – Power wash to remove bulk material
  – Clear vents and other less obvious areas
  – Organic matter decreases effectiveness of most disinfectants
• Disinfect after cleaning
  – Peroxygen compounds (Virkon S) often recommended