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EDUCATION

Doctor of Philosophy, Animal & Food Sciences. University of Delaware, Newark, DE. 2018
Master of Science, Food Science. University of Delaware, Newark, DE. 1996
Bachelor of Science, Food Science. Chemistry minor. University of Delaware, Newark, DE. 1989

PROFESSIONAL EXPERIENCE

Assistant Professor of Food Science. University of Delaware, Animal and Food Sciences, Newark, DE. 2022 to present

Scientist. University of Delaware, Animal and Food Sciences, Newark, DE. 1998 to 2022

Associate Scientist. National Food Processors Association, Washington, DC. 1996-1998

Quality Assurance Microbiology Laboratory Manager. Townsends, Inc., Millsboro, DE. 1991-1993

Quality Assurance Manager. Townsends, Inc., Hummels Wharf, PA. 1989-1991

PUBLICATIONS

Book Chapters:

Shearer, A.E.H., Kniel, K.E., Chen, H., and D.G. Hoover. 2016. High pressure effects on viruses, pp. 295-316, *In* High Pressure Processing of Food – Principles, Technology and Applications. V.M. Balasubramaniam, G.V. Barbosa-Cánovas, and H.L.M. Lelieveld (eds). Springer. New York, NY. DOI:10.1007/978-1-4939-3234-4_15

Kniel, K.E. and **A.E.H. Shearer**. 2015. Berry contamination: Outbreaks and contamination issues, *In* The Produce Contamination Problem, second ed. G. Sapers, E. Solomon, and K.R. Matthews (eds). Elsevier Inc. DOI:10.1016/B978-0-12-404611-5.00014-2

Kniel, K.E. and **A.E.H. Shearer**. 2009. Berry contamination: Outbreaks and contamination issues, *In* The Produce Contamination Problem. G. Sapers, E. Solomon, and K.R. Matthews (eds). Elsevier Inc. pp. 271-305.

Refereed Journals:

Anderson-Coughlin, BL, Vanore, A, **Shearer, A.E.H.**, Gartley, S, Joerger, RD, Sharma, M, Kniel, KE. 2023. Human norovirus surrogates persist in nontraditional sources of irrigation water in excess of 100 days., *J. Food Prot.* 86(1): 100024. https://doi.org/10.1016/j.jfp.2022.100024

Anderson-Coughlin, B.L., **Shearer, A.E.H.**, Omar, A.N., Litt, P.K., Bernberg, E., Murphy, M., Anderson, A., Sauble, L., Ames, B., Damminger, Jr., O., Ladman, B.S., Dowling, T.F., Wommack, K.E., and K.E. Kniel. 2022. Coordination of SARS-CoV-2 wastewater and clinical testing of university students demonstrates the importance of sampling duration and collection time. *Sci. Total Environ*. 830: 154619. DOI: http://dx.doi.org/10.1016/j.scitotenv.2022.154619

Shearer, A.E.H., Hoover, D.G, Abraham, D., Martinez, P., Gleason, J., Chamberlin, B., Klein, J.R., Riser, D., Buttram, J., Snider, S., and K.E. Kniel. 2022. Development and evaluation of educational web-based food safety game, *Potluck Panic!. Food Prot. Trends.* 42(2): 113-123. DOI:10.4315/FPT-21-022

Shearer, A.E.H. and K.E. Kniel. 2021. Foodborne illness outbreak investigation for One Health postsecondary education. *J. Microbiol. Biol. Edu*. 22(2): 1-12. DOI:10.1128/jmbe.00129-21

Anderson-Coughlin, B.L., **Shearer, A.E.H.**, Omar, A.N., Wommack, K.E., and K.E. Kniel. 2021. Recovery of SARS-CoV-2 from wastewater using centrifugal ultrafiltration. *Methods Protoc.* 4(32): 1-9. DOI:10.3390/mps4020032

Shearer, A.E.H. and K.E. Kniel. 2020. Effect of plant-derived proteases on infectivity of Tulane virus murine norovirus, and hepatitis A virus. *J. Food Prot*. 84(3): 418-423. DOI:10.4315/JFP-20-296

Shearer, A.E.H. and K.E. Kniel. 2020. Effect of bacteria and bacterial constituents on recovery and resistance of Tulane virus. *J. Food Prot.* 83(4): 661-667. DOI:10.4315/0362-028X.JFP-19-300

Shearer, A.E.H. and K.E. Kniel. 2018. Enhanced removal of norovirus surrogates, murine norovirus and Tulane virus, from aqueous systems by zero-valent iron. *J. Food Prot.* 81(9): 1432-1438. DOI:10.4315/0362-028X.JFP-18-054.

Shearer, A.E.H., LeStrange, K., Saldaña Castañeda, R., and K.E. Kniel. 2016. Transfer of pathogens from cantaloupe rind to preparation surfaces and edible tissue as a function of cutting method. *J. Food Prot.* 79(5): 764-770. DOI:10.4315/0362-028X.JFP-15-420

Shearer, A.E.H., Hoover, D.G, and K.E. Kniel. 2014. Effect of bacterial cell-free supernatants on infectivity of norovirus surrogates. *J. Food Prot.* 77(1): 145-149. DOI:10.4315/0362-028X.JFP-13-204

Shearer, A.E.H., Snider, S. and K.E. Kniel. 2014. Implementation and assessment of novel food safety educational materials for secondary and post-secondary education. *J. Food Sci. Ed.* 13(1): 4-11. DOI:10.1111/1541-4329.12017

Shearer, A.E.H., Snider, S. and K.E. Kniel. 2013. Development, dissemination, and pre-implementation evaluation of food safety educational materials for secondary education *J. Food Sci. Ed.* 12(2): 28-37. DOI:10.1111/1541-4329.12004

Ye, M., Huang, Y., Neetoo, H., **Shearer, A. E.H.** and H. Chen. 2011. Influence of growth conditions on pressure resistance of *Vibrio parahaemolyticus* in oysters and the optimization of post-pressure treatment recovery conditions *J. Food Prot.* 74(5):751-758. DOI:10.4315/0362-028X.JFP-10-521

Shearer, A.E.H., Neetoo, H.S. and H. Chen. 2010. Effect of growth and recovery temperatures on pressure resistance of *Listeria monocytogenes*. *Int. J. Food Microbiol.* 136: 359-363. DOI:10.1016/j.ijfoodmicro.2009.10.034

Shearer, A.E.H. and K. E. Kniel. 2009. High hydrostatic pressure for development of vaccines. *J. Food Prot.* 72(7): 1500-1508. DOI:10.4315/0362-028X-72.7.1500

Kural, A.G., **Shearer, A.E.H.**, Kingsley, D.H. and H. Chen. 2008. Pressure inactivation of *Vibrio parahaemolyticus* in oysters – the influence of pressure level and treatment temperature. *Int. J. Food Microbiol.* 127: 1-5. DOI:10.1016/j.ijfoodmicro.2008.05.003

Sharma, M., **Shearer**, **A.E.H.**, Hoover, D. G., Solomon, M. B., Liu, M.N. and K. E. Kniel. 2008. Comparison of hydrostatic and hydrodynamic pressure to inactivate foodborne viruses. *Innov. Food Sci. and Emerg. Technol*. 9: 418-422. DOI:10.1016/j.ifset.2008.05.001

Kniel, K.E., **Shearer, A.E.H.**, Cascarino, J.L., Wilkins, G.C. and M.C. Jenkins. 2007. High hydrostatic pressure and UV light treatment of produce contaminated with *Eimeria acervulina* as a *Cyclospora cayetanensis* surrogate. *J. Food Prot*. 70(12): 2837-2842. DOI:10.4315/0362-028X-70.12.2837

Shearer, A.E.H., Wilkins, G.C., Jenkins, M.C. and K. E. Kniel. 2007. Effects of high hydrostatic pressure on *Eimeria acervulina* pathogenicity, immunogenicity and structural integrity. *Innov. Food Sci. and Emerg. Technol.* 8: 259-268. DOI:10.1016/j.ifset.2007.01.004

Shearer, A.E.H. and C.G. Davies. 2005. Physicochemical properties of freshly baked and stored whole wheat muffins with and without flaxseed meal. *J. Food Quality* 28: 50-66. DOI:10.1111/j.1745-4557.2005.00004.x

Strapp, C.M., **Shearer, A.E.H**. and R.D. Joerger. 2003. Survey of retail alfalfa sprouts and mushrooms for the presence of *Escherichia coli* O157:H7, *Salmonella*, and *Listeria* with BAX™, and evaluation of this polymerase chain reaction-based system with experimentally contaminated samples. *J. Food Prot.* 66(2): 182-187. DOI:10.4315/0362-028X-66.2.182

Shearer, A.E.H., Chuyate, R., Mazzotta, A.S. and D. Gombas. 2002. Heat resistance of juice spoilage microorganisms. *J. Food Prot.* 65(8): 1271-1275. DOI:10.4315/0362-028X-65.8.1271

Shearer, A.E.H., Strapp, C. and R.D. Joerger. 2001. Evaluation of a polymerase chain reaction–based system for detection of *Salmonella* Enteritidis, *Escherichia coli* O157:H7, *Listeria* spp., and *Listeria monocytogenes* on fresh fruits and vegetables. *J. Food Prot.* 64(6): 788-795. DOI:10.4315/0362-028X-64.6.788

Shearer, A.E.H., Dunne, C.P., Sikes, A., and D.G. Hoover. 2000. Bacterial spore inhibition and inactivation in foods by pressure, chemical preservatives, and mild heat. *J. Food Prot.* 63(11): 1503-1510. DOI:10.4315/0362-028X-63.11.1503

Shearer, A.E.H., Paik, J.S., Hoover, D.G., Haynie, S.L. and M.J. Kelley. 2000. Potential of an antibacterial ultraviolet-irradiated nylon film. *Biotech. Bioeng.* 67(2): 141-146. DOI:10.1002/(SICI)1097-0290(20000120)67:23.3.CO;2-R

Synergist Activities:

CONSERVE Educational Resources (K-16). https://www.udel.edu/academics/colleges/canr/departments/animal-and-food-sciences/affiliated-centers/conserve/. With K.E. Kniel and Conserve Collaborators. 2021.

Potluck Panic! Web-based Game. https://potluckpanic.anr.udel.edu/. With K.E. Kniel, D.G. Hoover, S. Snider and NMSU Collaborators. 2017.

Foodborne Illness Outbreak Investigation. http://ag.udel.edu/foodinvestigation/. Video, case studies, presentation and other materials for secondary science education. With K.E. Kniel and S. Snider. 2010.

Pre-K to Grade 12 Food Safety Education Resources. http://canr.udel.edu/foodsafetyedresourcesk12/. With K.E. Kniel and S. Snider. 2017.

White Paper: Shearer, A.E.H. 1997. Biofilms in Food Processing, NFPA Publication.

FUNDED RESEARCH GRANTS

Stevenson, C. (NCSU, Lead), White, J. (NCSU), Arnold, N. (OSU), Kowalcyk, B (GWU), Vaughan, B. (Tuskegee University); **Shearer, A.E.H. (UD)**, Wojtala, G. (IFPTI), Kaml, C. (IFPTI). USDA-NIFA-Higher Education Challenge Grants Program (HEC) ($740,000 total; $72,869 UD portion) 09/01/2023-08/31/2026. Development of a diverse and competent food safety compliance workforce to enhance trust in a secure food system.

Shearer, A.E.H., Kniel, K.E. USDA-HATCH UD CANR Seed Grant Program ($25,025) 10/01/2019-09/30/2021. Interactions of bacteria and human norovirus and its surrogate, Tulane virus.

Kniel, K.E., **Shearer, A.E.H.**, Snider, S., Hoover, D.G., USDA-NIFA-HEC ($265,485) 12/01/2012-11/30/2015, Development and assessment of an educational module for college students for conceptual and attitudinal changes towards food safety systems. In partnership with Chamberlin, B. and Gleason, J. (NMSU) and Cotton, C. and Hashem, F. (UMES)

Kniel, K.E., **Shearer, A.E.H.,** Snider, S., USDA-CREES-Secondary Education, Two-year Postsecondary Education, and Agriculture in the K-12 Classroom Challenge Grants Program (SPECA) ($35,000) 07/01/09-06/30/11, Integrating food safety investigations into science curricula for secondary education.

PROFESSIONAL HONORS and AFFILIATIONS

University of Delaware, College of Agriculture and Natural Resources (CANR), Excellence in Service Award, 2022
University of Delaware, CANR, William F. Benton Graduate Student Award, 2017
Merit Awards: University of Delaware, 2002; National Food Processors Association, 1996, 1997
Institute of Food Technologists, 1986 to present
International Association for Food Protection, 2005 to present
American Society for Microbiology, 2014 to present
North American Colleges and Teachers of Agriculture, 2015 to 2016
American Association of Cereal Chemists, 2000 to 2001