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Education:

January 1999-May 2002: **Ph.D., Food Science** (focus in Food Microbiology), Department of Food Science and Technology, Virginia Polytechnic Institute and State University, Blacksburg, VA

August 1996-December 1998: **M.S., Molecular Cell Biology**, Department of Biology, Virginia Polytechnic Institute and State University, Blacksburg, VA

August 1992-May 1996: **B.S., Biology, Minor: Sociology**, Department of Biology, Virginia Polytechnic Institute and State University, Blacksburg, VA

Professional Experience:

- October 2020-Present: Associate Chair, Animal and Food Sciences Department, University of Delaware, Newark, DE
- October 2020-Present: Director, Center for Environmental and Wastewater-based Epidemiological Research, University of Delaware, Newark, DE
- May 2014-Present: Professor, Animal and Food Sciences Department, University of Delaware, Newark, DE
- September 2010-July 2014: Assistant Chair, Animal and Food Sciences Department, University of Delaware, Newark, DE
- May 2010-April 2014: Associate Professor, Microbial Food Safety, Animal and Food Sciences Department, University of Delaware, Newark, DE
- January 2004-Present: Assistant Professor, Animal and Food Sciences Department, University of Delaware, Newark, DE
- June 2002-January 2004: Microbiologist, Animal Parasitic Diseases Laboratory, Animal and Natural Resources Institute, Agricultural Research Service, United States Department of Agriculture, Beltsville, MD
- January 1999-May 2002: Research Assistant, Food Microbiology, Department of Food Science and Technology, Virginia Tech, Blacksburg, VA
- January 1999-May 2002: Food Microbiology Laboratory Instructor and Guest Lecturer, Department of Food Science and Technology, Virginia Tech, Blacksburg, VA
- August 1998-December 1998: Pathogenic Bacteriology Laboratory Instructor, Department of Biology, Virginia Tech, Blacksburg, VA
- August 1997-May 1998: General Microbiology Laboratory Instructor, Department of Biology, Virginia Tech, Blacksburg, VA
- January 1997-May 1997: General Biology Laboratory Instructor, Department of Biology, Virginia Tech, Blacksburg, VA
- August 1994-December 1998: Research Assistant, Cell Biology, Department of Biology, Virginia Tech, Blacksburg, VA

Honors:

- University of Delaware College of Agriculture and Natural Resources Excellence in Research Award (May 2020)
- Nominated Most Valuable Professor for UD Men's and Women's Basketball Teams MVP Program (February 2019)
- First Place recipient of the 2018 John N. Sofos Most-cited *JFP* Research Publication Award for paper entitled, "Comparing Human Norovirus Surrogates: Murine Norovirus and Tulane Virus" by K.A. Hirneisen and K.E. Kniel (July 2018)
- Outstanding Advisor Certificate of Appreciation, Department of Animal and Food Sciences (May 2017)
- Elmer Marth Award for dedication and exceptional contributions to the profession of the educator, International Association for Food Protection (May 2015)
- University of Delaware College of Agriculture and Natural Resources Excellence in Teaching and Advising Award (May 2015)
- CASE Professor of the Year Award Nominee (October 2014 and 2015)
- University of Delaware Excellence in Undergraduate Academic Advising and Mentoring Award Nominee (May 2014 and May 2013)
- University of Delaware College of Agriculture and Natural Resources Outstanding Advisor Award (May 2012)
- Food and Agricultural Sciences Excellence in College and University Awards Program Nominee (May 2010)
- University of Delaware College of Agriculture and Natural Resources Advisor Appreciation Nominee (May 2009)
- University of Delaware Excellence in Teaching Award Nominee (May 2008)
- University of Delaware Distance Learning Fellow (December 2007)
- DuPont Young Professional Grant Award (April 2006)
- Institute for Transforming Undergraduate Education Fellow (December 2004)
- United States Department of Agriculture Certificate of Merit (January 2004 and January 2003)
- American Society for Parasitologists' Travel Award (May 2002)
- Honorable Mention, Paper Competition, American Association for Vet. Parasitology (July 2001)
- American Association for Veterinary Parasitology Travel Award (July 2001)
- Graduate Student Assembly Travel Award (Spring 2001)
- Virginia Tech Graduate Research Development Program (Spring 2001 and Fall 1997)
- Virginia Tech Food Science & Technology Dept. Faculty Award (May 2000)

Professional Societies:

International Association for Food Protection (IAFP)

- Elected to Executive Board March 2016
 - Current Past President (Nov 2020-2021), President (2019- Oct 2020), President-Elect (2018-2019), Vice-President (2017-2018), Secretary (2016-2017)
 - Responsible for policy development
 - Serve on numerous awards committees and professional development groups
- Produce Safety and Quality Professional Development Group (member since 1999), Elected Vice-chair (2012-2014) and Chair (2014-2016)
- Virus and Parasite Professional Development Group (member since 1999), Elected Vice-chair (2007) and Chair (2009)
- Appointed member of Program Committee (2007-2010)
- Appointed member (2007) and chair (2009) of Teaching Awards Committee
- Appointed Editorial Board member of Journal of Food Protection (2008-present) and Food Protection Trends (2009-present)

Institute of Food Technologists (IFT)

- Selected for position as Student Outreach Initiation Lead for the Food Microbiology Division (2012)
- Selected for position as contributing member (2009) for Annual Meeting program
- Elected position of member at large for the Food Microbiology Division (2009)
- Elected position of secretary (2007-2011) and member at large (2011) for the Biotechnology Division
- Serve as moderator and student presentation judge for Food Microbiology Division and Biotechnology Division at IFT Annual Meeting (2009-2011)
- Serve as Food Safety and Defense Track Panel Member (2009-present)

American Society of Microbiologists (ASM)

- Appointed to ASM Press Committee (July 2013-2020)
- Member of Food Microbiology group
- Member of editorial board for Applied Environmental Microbiology (2012-present)

Textbook: *It is an honor to be a co-author on this textbook that is used around the world and is like having a conversation with a scientist rather than reading a text.*

1. K.R. Matthews, **K.E. Kniel**, and T.J. Montville. Food Microbiology: An Introduction, Fourth Edition. ASM Press, Washington, D.C. 2017.
2. T.J. Montville, K. R. Matthews, and **K.E. Kniel**. Food Microbiology: An Introduction, Third Edition. ASM Press, Washington, D.C. 2012.

Books:

1. S. Thakur and **K.E. Kniel**. Preharvest Food Safety. ASM Press, Washington, D.C. 2018.

Book Chapters: *In several of these chapters graduate students are co-authors. This is a wonderful process of refining the material that should be included in a chapter.*

1. P.Kaur Litt, **K.E. Kniel**, and M. Sharma. 2020. Bacteriophages. In Antimicrobials in Foods P.M. Davidson, J. David, T.M. Taylor (4th ed). CRC Press.
2. Q.W. Wang, S.M. Markland and **K.E. Kniel**. 2016. Outbreaks and case studies – Community and food handlers. In S.M. Hoyer and J. Cannon (Eds.) Viruses in Foods (2nd ed). Springer Nature Press.
3. S. M. Markland and **K.E. Kniel**. 2015. Human Pathogen-Plant Interactions: Concerns for Food Safety. In Advances in Botanical Research, vol 75. Elsevier.
4. S. M. Markland, D. D’Souza, **K. Kniel**. Cases of public emetic events due to foodborne virus infections in “Global Safety of Fresh Produce”, ed. J. Hoorfar. Woodhead Publishing Series in Food Science, Technology and Nutrition. 2014.
5. A.E.H. Shearer and **K.E. Kniel**. Berries in “The Produce Contamination Problem”, eds. K. Matthews. 2nd edition, Elsevier, Inc. 2013.
6. **K.E. Kniel**. Progress in intervention programs to eradicate foodborne helminth infections in “Advances in Food Microbiology”, ed. J. Sofos.. Woodhead Publishing Series in Food Science, Technology and Nutrition. 2013.
7. A.E.H. Shearer, **K.E., Kniel**, H. Chen and D.G. Hoover. High pressure effects on viruses in “High Pressure Processing of Food – Principles, Technology, and Applications”, eds. G.V. Barbosa-Cánovas, H.L.M. Lelieveld and V.M. Balasubramaniam. Springer, 2012.
8. D.H. D’Souza, **K.E. Kniel** and L. Jaykus. Hepatitis A virus in ready-to-eat foods in “Rapid Detection, Characterization, and Enumeration of Foodborne Pathogens”. Ed. J. Hoorfar. ASM Press, 2011, pp. 393-412.
9. **K.E. Kniel** and A.E.H. Shearer. Berries in “The Produce Contamination Problem”, eds G. Sapers, E. Solomon, and K. Matthews. Elsevier, Inc. 2009, pp. 271-285.
10. **K. E. Kniel**. Getting Started in Your Academic Career in “Careers in Food Science”, eds. R.W. Hartel and C.P. Klawitter. IFT Press. 2008, pp.305-316.

Publications in Refereed Journals: In most cases students are co-authors.

1. Litt, P.K., Kelly, A., Omar, A., Johnson, G., Vinyard, B.T., **Kniel, K.E.**, Sharma, M. Temporal and Agricultural Factors Influence E. coli Survival in Soil and Transfer to Cucumbers. *Appl. Environ. Microbiol.* 2021 Jan 22: AEM.02418-20. doi: 10.1128/AEM.02418-20. Online ahead of print. PMID: 33483305
2. Shearer, A.E.H. and Kniel, K.E. Effect of Plant-derived Proteases on Infectivity of Tulane Virus, Murine Norovirus, and Hepatitis A Virus. *J. Food Prot.* 2020 Oct 30. doi: 10.4315/JFP-20-296.
3. Solaiman, S., Allard, S.M., Callahan, M.T., Jiang, C., Handy, E., East, C., Haymaker, J., Bui, A., Craddock, H., Murray, R., Kulkarni, P., Anderson-Coughlin, B., Craighead, S., Gartley, S., Vanore, A., Duncan, R., Foust, D., Taabodi, M., Sapkota, A., May, E., Hashem, F., Parveen, S., Kniel, K., Sharma, M., Sapkota, A.R., Micallef, S.A. Longitudinal Assessment of the Dynamics of Escherichia coli, Total Coliforms, Enterococcus spp., and Aeromonas spp. in Alternative Irrigation Water Sources: a CONSERVE Study. *Appl Environ Microbiol.* 2020 Oct 1;86(20):e00342-20. doi: 10.1128/AEM.00342-20.
4. Johnson, N., Litt, P.K., **Kniel, K.E.**, Bais, H. Evasion of Plant Innate Defense Response by *Salmonella* on Lettuce. *Front Microbiol.* 2020;11:500. doi:10.3389/fmicb.2020.00500
5. Craighead, S., Hertrich, S., Boyd, G., Sites, J., Niemira, B., **Kniel, K.E.** Cold Atmospheric Plasma Jet Inactivates *Cryptosporidium parvum* Oocysts on Cilantro. *Journal of Food Protection.* 2020 May 1;83(5):794-800. doi: 10.4315/0362-028X.JFP-19-442.
6. Shearer, A.E.H. and **Kniel, K.E.** Effect of Bacteria and Bacterial Constituents on Recovery and Resistance of Tulane Virus. *Journal of Food Protection.* 2020 Apr 1;83(4):661-667. doi: 10.4315/0362-028X.JFP-19-300.
7. Teichman, J., Litt, P.K., Sharma, M., Nyarko, E., **Kniel, K.E.** Influence of Poultry Litter Amendment Type and Irrigation Events on Survival and Persistence of *Salmonella* Newport. *Journal of Food Protection.* 2020 May 1;83(5):821-828. doi: 10.4315/0362-028X.JFP-19-431.
8. Topalcengiz, Z., Jamsripong, S., Spanninger, P.M., Persad, A.K., Wang, F., Buchanan, R.L., LeJeune, J., **Kniel, K.E.**, Jay-Russell, M.T., Danyluk, M.D. Survival of Shiga Toxin-Producing Escherichia coli (STEC) in Various Wild Animal Feces that May Contaminate Produce. *Journal of Food Protection.* 2020;10.4315/JFP-20-046. doi:10.4315/JFP-20-046
9. Topalcengiz, Z., Spanninger, P.M., Saharuteai, J., Persad, A.K., Wang, F., Buchanan, R.L., LeJeune, J., Jay-Russell, M.T., **Kniel, K.E.**, Danyluk, M.D. The Survival of *Salmonella* spp. in Different Wild Animal Feces that may Potentially Contaminate Produce. *Journal of Food Protection.* 2020 Apr 1;83(4):651-660. doi: 10.4315/0362-028X.JFP-19-302.
10. Sharma, M., Handy, E.T., East, C.E., Kim, S., Jiang, C., Callahan, M.T., Allard, S.M., Micallef, S.A., Anderson-Coughlin, B., Gartley, S., Vanore, A., **Kniel, K.E.**, Haymaker, J.R., Duncan, R., Foust, D., White, C., Taabodi, M., Hashem, F., Parveen, S., May, E.B., Bui, A., Craddock, H., Kulkarni, P., Murray, R.T., Sapkota, A.R.. Prevalence of *Salmonella* and *Listeria monocytogenes* in non-traditional irrigation waters in the Mid-Atlantic United States is affected by water type, season, and recovery method. *PLOS One.* *In Press.*
11. Anderson-Coughlin, B.L. and **Kniel, K.E.** 2019. Recovery and Detection of Enteric Viruses from Non-Traditional Irrigation Water Sources. *Methods Protoc.* 2019 Jun 30;2(3). pii: E55. doi: 10.3390/mps2030055.
12. Panthi, S., Sapkota, A.R., Raspanti, G., Allard, S.M., Bui, A., Craddock, H.A., Murray, R., Zhu, L., East, C., Handy, E., Callahan, M.T., Haymaker, J., Kulkarni, P., Anderson, B., Craighead, S., Gartley, S., Vanore, A., Betancourt, W.Q., Duncan, R., Foust, D., Sharma, M., Micallef, S.A., Gerba, C., Parveen, S., Hashem, F., May,

- E., **Kniel, K.**, Pop, M., Ravishankar, S., Sapkota, A. 2019. Pharmaceuticals, herbicides, and disinfectants in agricultural water sources. *Environ Res.* 2019 Jul;174:1-8. doi: 10.1016/j.envres.2019.04.011. Epub 2019 Apr 17.
13. Chopyk, J., Kulkarni, P., Nasko, D.J., Bradshaw, R., **Kniel, K.E.**, Chiu, P., Sharma, M., Sapkota, A.R. 2019. Zero-valent iron sand filtration reduces concentrations of virus-like particles and modifies virome community composition in reclaimed water used for agricultural irrigation. *BMC Res Notes.* 2019 Apr 11;12(1):223. doi: 10.1186/s13104-019-4251-y.
 14. Marik, C. M., Anderson, B., Gartley, S., Craighead, S., Bradshaw, R., Kulkarni, P., Sharma, M., **Kniel, K.E.** The efficacy of zero valent iron-sand filtration on the reduction of *Escherichia coli* and *Listeria monocytogenes* in surface water for use in irrigation. *Environmental Research.* Available online 19 February 2019. DOI: 10.1016/j.envres.2019.02.028
 15. Haymaker, J., Sharma, M., Parveen, S., Hashem, F., May, E.B., Handy, E.T., White, C., East, C., Bradshaw, R., Micallef, S.A., Callahan, M.T., Allard, S., Anderson, B., Craighead, S., Gartley, S., Vanore, A., Kniel, K.E., Solaiman, S., Bui, A., Murray, R., Craddock, H.A., Kulkarni, P., Foust, D., Duncan, R., Taabodi, M., Sapkota, A.R. 2019. Prevalence of Shiga-toxigenic and atypical enteropathogenic *Escherichia coli* in untreated surface water and reclaimed water in the Mid-Atlantic U.S. *Environ Res.* 2019 May;172:630-636. doi: 10.1016/j.envres.2019.02.019. Epub 2019 Feb 13.
 16. Kulkarni, P., Raspanti, G., Bui, A., Bradshaw, R., **Kniel, K.E.**, Chiu, P., Sharma, M., Sapkota, A., Sapkota, A. Zerovalent iron-sand filtration can reduce the concentration of multiple antimicrobials in conventionally treated reclaimed water. *Environmental Research.* 2019 Feb 10;172:301-309. doi: 10.1016/j.envres.2019.02.012
 17. Zhu L, Torres M, Betancourt WQ, Sharma M, Micallef SA, Gerba C, Sapkota AR, Sapkota A, Parveen S, Hashem F, May E, **Kniel, K.E.**, Pop M, Ravishankar S. Incidence of fecal indicator and pathogenic bacteria in reclaimed and return flow waters in Arizona, USA. *Environ Res.* 2019 Mar;170:122-127. doi: 10.1016/j.envres.2018.11.048. Epub 2018 Dec 1.
 18. Riggio, G.M., Wang, Q., **Kniel, K.E.**, Gibson, K.E. Microgreens-A review of food safety considerations along the farm to fork continuum. *Int J Food Microbiol.* 2019 Feb 2;290:76-85. doi: 10.1016/j.ijfoodmicro.2018.09.027. Epub 2018 Oct 5. Review.
 19. Shearer, A.E.H., **Kniel, K.E.** Enhanced Removal of Norovirus Surrogates, Murine Norovirus and Tulane Virus, from Aqueous Systems by Zero-Valent Iron. *J Food Prot.* 2018 Sep;81(9):1432-1438. doi: 10.4315/0362-028X.JFP-18-054.
 20. **Kniel, K.E.**, Kumar, D., Thakur, S. 2018. Understanding the Complexities of Food Safety Using a "One Health" Approach. *Microbiol Spectr.* Feb;6(1). doi: 10.1128/microbiolspec.PFS-0021-2017.
 21. Nyarko, E., **Kniel, K.**, Zhou, B., Millner, P.D., Luo, Y., Handy, E.T., East, C., Sharma, M. 2018. *Listeria monocytogenes* persistence and transfer to cantaloupes in the packing environment is affected by surface type and cleanliness. *Food Control*, Volume 85: 177-185. ISSN 0956-7135.
 22. LeStrange, K., Markland, S.M., Hoover, D.G., Sharma, M., **Kniel, K.E.** 2017. An evaluation of the virulence and adherence properties of avian pathogenic *Escherichia coli*. *One Health.* 2017 Aug 21;4:22-26.
 23. Xu, S., Attinti, R., Adams, E., Wei, J., **Kniel, K.**, Zhuang, J., Jin, Y. 2017. Mutually facilitated co-transport of two different viruses through reactive porous media. *Water Res.* 2017 Oct 15;123:40-48. doi: 10.1016/j.watres.2017.06.039.
 24. Markland SM, Ingram D, **Kniel KE**, Sharma M. Water for Agriculture: the Convergence of Sustainability and Safety. *Microbiol Spectr.* 2017 May;5(3). doi: 10.1128/microbiolspec.PFS-0014-2016. Review.
 25. Markland SM, Bais H, **Kniel KE.** Human Norovirus and Its Surrogates Induce Plant Immune Response in

Arabidopsis thaliana and *Lactuca sativa*. Foodborne Pathog Dis. 2017 Aug;14(8):432-439. doi: 10.1089/fpd.2016.2216. Epub 2017 May 15.

26. **Kniel KE**, Spanninger P. Preharvest Food Safety Under the Influence of a Changing Climate. Microbiol Spectr. 2017 Apr;5(2). doi: 10.1128/microbiolspec.PFS-0015-2016. Review.
27. Nyarko, E., **Kniel, K.E.**, Millner, P.D., Luo, Y., Handy, E.T., Reynnells, R., East, C., Sharma, M. 2016.
28. Survival and growth of *Listeria monocytogenes* on whole cantaloupes is dependent on site of contamination and storage temperature. Int J Food Microbiol. Oct 3;234:65-70. doi: 10.1016/j.ijfoodmicro.2016.06.030.
29. Shearer, A.E., LeStrange, K., Castañeda Saldaña, R., **Kniel, K.E.** 2016. Transfer of Pathogens from Cantaloupe Rind to Preparation Surfaces and Edible Tissue as a Function of Cutting Method. J Food Prot. May;79(5):764-70.
30. Nyarko, E., **Kniel, K.E.**, Millner, P.D., Luo, Y., Handy, E.T., Reynnells, R., East, C., and Sharma, M. 2016. Survival and growth of *Listeria monocytogenes* on fresh-cut 'Athena' and 'Rocky Ford' cantaloupes during storage at 4 and 10°C. Foodborne Pathogens and Disease. 13:587-591.
31. Wang, Q. and **Kniel, K.E.** 2015. Survival and transfer of murine norovirus within a Hydroponic System during Kale and Mustard microgreen harvesting. Appl. Environ. Microbiol. Nov 13;82(2):705-13. doi: 10.1128/AEM.02990-15.
32. Markland S. M., Ferelli A. M., Craighead S.A., Bais Harsh, and **Kniel K.E.** Application of *Bacillus subtilis* to the Roots of Leafy Greens, in the Presence of *Listeria innocua* and *Salmonella Newport*, Induces Closure of Stomata. Foodborne Pathogens and Disease. October 2015, 12(10): 828-835. doi:10.1089/fpd.2015.1952.
33. Wang, Q., Markland, S., **Kniel, K.E.** 2015. Inactivation of human norovirus and its surrogates on alfalfa seeds by aqueous ozone. J. Food Prot. 78:1586-1591.
34. Markland, S.M., LeStrange, K.J., Sharma, M. **Kniel, K.E.** 2015. Old friends in new places: Exploring the role of extraintestinal *E. coli* in intestinal disease and foodborne illness. Zoonoses Pub. Health, Apr 27. doi: 10.1111/zph.12194.
35. Schmid M, Smith J, Burt D, W, Aken B, L, Antin P, B, Archibald A, L, Ashwell C, Blackshear P, J, Boschiero C, Brown C, T, Burgess S, C, Cheng H, H, Chow W, Coble D, J, Cooksey A, Crooijmans R, P, M, A, Damas J, Davis R, V, N, de Koning D, -J, Delany M, E, Derrien T, Desta T, T, Dunn I, C, Dunn M, Ellegren H, Eöry L, Erb I, Farré M, Fasold M, Fleming D, Flicek P, Fowler K, E, Frésard L, Froman D, P, Garceau V, Gardner P, P, Gheyas A, A, Griffin D, K, Groenen M, A, M, Haaf T, Hanotte O, Hart A, Häslér J, Hedges S, B, Hertel J, Howe K, Hubbard A, Hume D, A, Kaiser P, Kedra D, Kemp S, J, Klopp C, **Kniel, K. E.**, Kuo R, Lagarrigue S, Lamont S, J, Larkin D, M, Lawal R, A, Markland S, M, McCarthy F, McCormack H, A, McPherson M, C, Motegi A, Muljo S, A, Münsterberg A, Nag R, Nanda I, Neuberger M, Nitsche A, Notre Dame C, Noyes H, O'Connor R, O'Hare E, A, Oler A, J, Ommeh S, C, Pais H, Persia M, Pitel F, Preeyanon L, Prieto Barja P, Pritchett E, M, Rhoads D, D, Robinson C, M, Romanov M, N, Rothschild M, Roux P, -F, Schmidt C, J, Schneider A, -S, Schwartz M, G, Searle S, M, Skinner M, A, Smith C, A, Stadler P, F, Steeves T, E, Steinlein C, Sun L, Takata M, Ulitsky I, Wang Q, Wang Y, Warren W, C, Wood J, M, D, Wragg D, Zhou H, Third Report on Chicken Genes and Chromosomes 2015. Cytogenet Genome Res 2015;145:78-179.
36. Zhao, D., Barrientos, J.U., Wang, Q., Markland, S.M., Churey, J.J., Padilla-Zakour, O.I., Worobo, R.W., **Kniel, K.E.**, and Mararu, C.I. 2015. Efficient reduction of pathogenic *Escherichia coli* O157:H7 and *Cryptosporidium parvum* and spoilage bacterium *Acylobacillus acidoterrestris* from apple cider by combining Microfiltration with Ultraviolet treatment. Journal for Food Protection. 78:716-722.
37. Hirneisen, K., Reith, J.L., Wei, J., Hoover, D.G., Hicks, D.T., Pivarnick, L.F. and **Kniel, K.E.** 2014. Comparison of Pressure Inactivation of Caliciviruses and Picornaviruses in a Model Food System. Innovative Food Science & Emerging Technologies. Dec. 26: 102-107.

38. Wang, Q. and **Kniel, K.E.** 2014. Effectiveness of calcium hypochlorite on viral and bacterial contamination of alfalfa seeds. *Foodborne Pathog Dis.* 2014 Oct;11(10):759-68.
39. **Kniel, K.E.** 2014. The makings of a good human norovirus surrogate. *Curr Opin Virol.* Feb;4:85-90.
40. Shearer, A.E., Hoover, D.G., **Kniel, K.E.** 2014. Effect of bacterial cell-free supernatants on infectivity of norovirus surrogates. *J. Food Prot.* Jan;77(1):145-9.
41. Shearer, A.E.H., Snider, O.S., and **Kniel, K.E.** 2014. Implementation and Assessment of Food Safety Educational Materials for Secondary and Post-secondary Education. *J. Food Science Education.* 13(1): 4-11.
42. Hirneisen, K.A., Hoover, D.G., Hicks, D.T., Pivarnik, L.F., **Kniel, K.E.**, 2012. Pressure inactivation of enteric viruses in a seafood salad-like product. *Journal of Aquatic Food Product Technology.* 21 (5): 455–467.
43. Wang, Q., Hirneisen, K.A., Markland, S. and **Kniel, K.E.** 2013. Survival of murine norovirus, Tulane virus, and hepatitis A virus on alfalfa seeds and sprouts during storage and germination. *Appl. Environ. Microbiol.* Nov;79(22):7021-7.
44. Hirneisen, K.A. and **Kniel, K.E.** 2013. Inactivation of internalized and surface contaminated enteric viruses in green onions. *Int J Food Microbiol.* Sep 2;166(2):201-6.
45. Shearer, A.E.H., Snider, O.S., and **Kniel, K.E.** 2013. Development, Dissemination, and Pre-implementation Evaluation of Food Safety Educational Materials for Secondary Education. *J. Food Science Education.* 12(2): 28-37.
46. Markland, S.M. Farkas, D.F., **Kniel, K.E.**, and Hoover, D.G. Pathogenic psychrotolerant sporeformers: an emerging challenge for low-temperature storage of minimally processed foods. *Foodborne Pathog Dis.* 2013 May;10(5):413-9.
47. Hirneisen, K.A., and **Kniel, K.E.** 2013. Norovirus Surrogate Survival on Spinach during Pre-harvest Growth. *Phytopathology Focus Issue.* Apr;103(4):389-94.
48. Hirneisen, K.A., and **Kniel, K.E.** Comparative uptake of enteric viruses into spinach and green onions. *Food Environ Virol.* 2013 Mar;5(1):24-34.
49. Hirneisen, K.A., and **Kniel, K.E.** 2013. Comparing Human Norovirus Surrogates: Murine Norovirus and Tulane Virus. *J. Food Protect.* 76:139-143.
50. Markland, S.M., Shortlidge, K.L., Hoover, D.G., Yaron, S., Patel, J., Singh, A., Shara, M. and **Kniel, K.E.** 2013. Survival of Pathogenic *Escherichia coli* on Basil, Lettuce, and Spinach. *Zoonoses and Public Health.*60: 563-571.
51. Harris, L.J., Bender, J., Bihn, E.A., Blessington, T., Danyluk, M.D., Delaquis, P., Goodridge, L., Ibekwe ,A.M., Ilic, S., **Kniel, K.**, Lejeune, J.T., Schaffner, D.W., Stoeckel, D., Suslow, T.V. 2012. A Framework for Developing Research Protocols for Evaluation of Microbial Hazards and Controls during Production That Pertain to the Quality of Agricultural Water Contacting Fresh Produce That May Be Consumed Raw. *J. Food Protection.* 75:2251-2273.
52. Hirneisen, K.A., and **Kniel, K.E.** 2012. Comparison of ELISA attachment and infectivity assays for murine norovirus. *J. Virol. Methods.* 186:14-20
53. Hirneisen, K.A., Sharma, M., and **Kniel, K.E.** 2012. Human Enteric Pathogen Internalization by Root Uptake into Food Crops. *Foodborne Path. Dis.* 9(5):396-405.
54. Ingram, D., Callahan, M., Ferguson, S., Hoover, D., Chiu, P., Shelton, D., Millner, P., Camp, M., Patel, J., **Kniel,**

- K.**, and Sharma, M. 2012. The use of zero-valent iron biosand filters to reduce *E. coli* O157:H12 in irrigation water applied to spinach plants in a field setting. *J. Appl. Micro.* 112:551-560.
55. Boyer, R.R., Sumner, S.S., Williams, R.C., **Kniel, K.E.** and McKinney, J.M. 2011. Role of O-antigen on the *Escherichia coli* O157:H7 cells hydrophobicity, charge and ability to attach to lettuce. *Int. J. Food Microbio.* 147(3):228-232.
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Published Research Abstracts: *It is essential that undergraduate and graduate students have opportunities to present their work. The abstracts listed here were nearly all presented by students.*

1. B. Anderson-Coughlin, S. Craighead, P.K. Litt, S. Kim, A. Kelly, P. Chiu, M. Sharma, **K. Kniel**. 2020. Evaluation of Zero-valent Iron Filtration in the Removal and Persistence of *Escherichia coli* in Non-traditional Irrigation Water Sources: A Conserve Study. International Association of Food Protection, A Virtual Annual Meeting, Oct 26-28, T5-03.
2. P. K. Litt, A. Kelly, A. Omar, K. McCaughan, G. Johnson, M. Sharma, **K.Kniel**. 2020. Role of Edaphic Soil Factors and Climatic Conditions in Pathogen Survival on the Farm. International Association of Food Protection, A Virtual Annual Meeting, Oct 26-28, T9-01
3. A.E.H. Shearer, D. Hoover, J. Gleason, B. Chamberlin, D. Abraham, P. Martinez, J. Klein, S. Snider, **K. Kniel**. 2020. Web-based Game Engages Post-secondary Students in Food Safety and Shifts Perceptions. International Association of Food Protection, A Virtual Annual Meeting, Oct 26-28, T18-01.
4. S. Kim, K. Eckart, A. Lower, E. Handy, C. East, P. Chiu, A. Sapkota, **K. Kniel**, M. Sharma. 2020. Effect of Source Water Type and Quality on *E. coli* Removal by Zero-valent Iron Sand Filtration: A Conserve Study. International Association of Food Protection, A Virtual Annual Meeting, Oct 26-28, P1-227.

5. A. Omar, S. Palani, P.K. Litt, K. McCaughan, A.E.M. Chirnside, **K. Kniel**. 2020. White-rot Fungi Species Used as a Biocontrol Method in Bioreactors to Inhibit *E. coli* for Pre-harvest Food Safety. International Association of Food Protection, A Virtual Annual Meeting, Oct 26-28, P3-85.
6. P.K. Litt, A. Kelly, A. Omar, K. McCaughan, M. Greenzwig, G. Johnson, M. Sharma, **K. Kniel**. 2020. Role of Biological Soil Amendments in Pathogen Persistence and Transfer to Foliar and Root Crop in a Pre-harvest Environment. International Association of Food Protection, A Virtual Annual Meeting, Oct 26-28, P3-136.
7. S. Craighead, B. Anderson-Coughlin, S. Gartley, A. Kelly, A. Omar, A. Vanore, C. Jiang, J. Haymaker, D. Foust, R. Duncan, C. White, C. East, E. Handy, S. Allard, R. Murray, M.T. Callahan, S. Solaiman, W. Betancourt, C. Gerba, S. Parveen, F. Hashem, S.A. Micallef, A. Sapkota, M. Sharma, A. Sapkota, **K. Kniel**. 2020. The Relationship between Season, Weather, Physicochemical Properties and the Presence of *Cryptosporidium* spp., *Toxoplasma gondii*, and *Giardia intestinalis* in Potential Alternative Sources of Agricultural Water: A Conserve Project. International Association of Food Protection, A Virtual Annual Meeting, Oct 26-28, P3-181.
8. B. Anderson-Coughlin, S. Craighead, S. Gartley, A. Kelly, A. Omar, A. Vanore, C. Jiang, J. Haymaker, D. Foust, R. Duncan, C. White, C. East, E. Handy, S. Allard, R. Murray, M.T. Callahan, S. Solaiman, W. Betancourt, C. Gerba, S. Parveen, F. Hashem, S.A. Micallef, A. Sapkota, M. Sharma, A. Sapkota, **K. Kniel**. 2020. Evaluation of Non-traditional Irrigation Water Sources for Atmospheric, Physicochemical, and Viral Indicators of Viral Enteric Pathogens: A Conserve Study. International Association of Food Protection, A Virtual Annual Meeting, Oct 26-28, P3-188.
9. E. Handy, C. East, R. Bradshaw, M.T. Callahan, S. Allard, S.A. Micallef, S. Craighead, B. Anderson-Coughlin, S. Gartley, **K. Kniel**, J. Haymaker, C. White, F. Hashem, S. Parveen, E. May, H. Craddock, R. Murray. 2019. Prevalence of *Salmonella enterica* and *Listeria monocytogenes* in Irrigation Waters as determined by Culture-based and Rapid Molecular Methods. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, T1-02.
10. S. Kim, R. Bradshaw, P. Kulkarni, P. Chiu, S. Allard, A. Sapkota, E. Handy, C. East, **K. Kniel**, M. Sharma. 2019. Evaluation of zero valent iron filtration to reduce *E. coli* in agricultural irrigation water in laboratory and Field Trials. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, T1-04.
11. P. Kaur Litt, A. Kelly, Q. Riley, A. Omar, G. Johnson, M. Sharma, **K. Kniel**, 2019. Pathogen persistence and transfer dynamics as influenced by biological soil amendments in a preharvest environment. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, T1-06.
12. S. Craighead, H. Chen, **K. Kniel**, 2019. The potential of pulsed UV light to inactivate *Cryptosporidium parvum* Oocysts on High-risk Commodities. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, T6-03.
13. A.E.H. Shearer and **K. Kniel**. 2019. Interactive Food Safety Investigation Challenge Engages Post-Secondary Students in One Health Concepts. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P1-75.
14. S. Solaiman, M.T. Callahan, E. Handy, C. East, S. Allard, R. Murray, A. Bui, J. Haymaker, C. White, S. Craighead, B. Anderson-Coughlin, A. Vanore, S. Gartley, S. Parveen, F. Hashem, E. May, **K. Kniel**, M. Sharma, A. Sapkota, S.A. Micallef. 2019. Distribution of Pathogenic *E. coli* in Surface and Reclaimed Water: A Conserve Study. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P1-258
15. S. Craighead, B. Anderson-Coughlin, S. Gartley, A. Kelly, A. Omar, A. Vanore, C. Jiang, W. Betancourt, C. Gerba, J. Haymaker, D. Foust, R. Duncan, C. White, S. Parveen, F. Hashem, S. Allard, A. Sapkota, **K. Kniel**. 2019. The Presence of *Cryptosporidium* spp., *Cyclospora cayetanensis*, *Toxoplasma gondii*, and *Giardia intestinalis* in Potential Alternative Sources of Agricultural Water: A Conserve Study. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P2-89

16. B. Anderson-Coughlin, S. Craighead, A. Kelly, S. Gartley, A. Vanore, C. Jiang, W. Betancourt, J. Haymaker, C. White, D. Foust, R. Duncan, S. Allard, M.T. Callahan, C. Gerba, S. Parveen, F. Hashem, S.A. Micallef, A. Sapkota, **K. Kniel**. 2019. Optimization and Evaluation of a Viradel Method for Viral Detection in Environmental Source Waters: A Conserve Study. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P2-95
17. S. Allard, M. Suri, S. Solaiman, M.T. Callahan, C. White, P. Goeringer, D. Pee, J. Haymaker, F. Hashem, E. May, S. Parveen, **K. Kniel**, M. Sharma, S.A. Micallef, R. Rosenberg Goldstein, A. Sapkota. 2019. Comparison of Mid-Atlantic Grower Perceptions and Nontraditional Conserve Study. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P2-160.
18. Kelly, B. Anderson-Coughlin, R. Miranda, D.W. Schaffner, **K. Kniel**. 2019. Evaluation of Viral Infectivity during the Frozen Storage of Berries. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P2-204.
19. Omar, S. Palani, P. Kaur Litt, A.E.M. Chirnside, **K. Kniel**. 2019. Establishing Baseline Inhibition of Escherichia coli in Aqueous Dairy Manure Prior to Treatment by a Fungal Biocontrol Agent. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P2-228.
20. P. Kaur Litt, A. Kelly, Q. Riley, A. Omar, G. Johnson, M. Sharma, **K. Kniel**. 2019. Bacterial Survival as a Factor of Variation in Extrinsic and Intrinsic Soil Parameters with Biological Soil Amendments of Animal Origin
 - a. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P2-236.
21. P. Kaur Litt, N. Johnson, H. Bais, M. Sharma, **K. Kniel**. 2019. Application of Rhizobacteria as a Biocontrol by Tackling Plant-Pathogen Interactions. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P2-237.
22. L. Zhu, M. Torres, W. Betancourt, M. Sharma, S. A. Micallef, C. Gerba, A. Sapkota, A. Sapkota, S. Parveen, F. Hashem, E. May, **K. Kniel**, M. Pop and S. Ravishankar. 2019. Incidence of Fecal Indicator and Pathogenic Bacteria in Reclaimed and Return Flow Waters in Arizona, United States. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P3-164.
23. J. Haymaker, M. Sharma, S. Parveen, F. Hashem, E. May, E. Handy, C. White, C. East, R. Bradshaw, S.A. Micallef, M.T. Callahan, S. Allard, B. Anderson, S. Craighead, S. Gartley, A. Vanore, **K. Kniel**, S. Solaiman, A. Bui, R. Murray, H. Craddock, P. Kulkarni, A. Sapkota. 2019. Evaluation of Nontraditional Irrigation Water Sources for Shiga Toxin-producing and Atypical Enteropathogenic Escherichia coli in the United States Mid-Atlantic Region. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P3-167.
24. White, F. Hashem, S. Parveen, E. May, J. Haymaker, E. Handy, C. East, S. Allard, S.A. Micallef, M. Sharma, **K. Kniel**, A. Sapkota. 2019. Presence of Salmonella and Listeria monocytogenes in Reclaimed and Surface Irrigation Water Sources on Maryland's Eastern Shore: A Conserve Study. International Association for Food Protection Annual Meeting, July 21-24, Louisville, KY, P3-168.
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26. Craighead, S., Anderson, B., Vanore, A., Gartley, S., Betancourt, W., Haymaker, J., White, C., Foust, D., Duncan, R., Allard, S., Callahan, M.T., Gerba, C., Parveen, S., Hashem, F., Micallef, S., Sapkota, A., **Kniel, K.E.** 2018. The prevalence of human enteric viruses and protozoa in non-traditional agricultural water. American Society for Microbiology Microbe Meeting, June, Atlanta, GA.

27. Handy, E., East, C.L., Calahan, M.T., Solaiman, S., Micallef, S.A., Allard, S., Murray, R., Bui, A., Sapkota, A.R., Craighead, S., Anderson, B., Vanore, A., Gartley, S., **Kniel, K.E.**, Parveen, S., White, C., Haymaker, J., Hashem, F., May, E., Colavecchio, A., Goodridsge, L., Sharma, M. 2018. Phylogenetic diversity of *E. coli* isolated from mid-Atlantic irrigation water sources: a CONSERVE project. American Society for Microbiology Microbe Meeting, June, Atlanta, GA.
28. Shearer, A.E.H. and **Kniel, K.E.** 2018. Effect of Bacterial Lipopolysaccharide and Peptidoglycan on the Resistance of Human Norovirus Surrogate, Tulane Virus, to Heat and Chlorine. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-101.
29. Craighead, S., Anderson, B., Vanore, A., Gartley, S., Betancout, W., Gerba, C., Foust, D., Duncan, R., White, C., May, E., Parveen, S., Hashem, F., Allard, S., Callahan, M.T., Micallef, S.A., Sapkota, A., and **Kniel, K.E.** 2018. A Comparison of the Prevalence of Protozoan Parasites in Potential Alternative Sources of Agricultural Water. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-123.
30. Craighead, S., Huang, R., Chen, H., and **Kniel, K.E.** 2018. The Use of Pulsed Light to Inactivate *Cryptosporidium parvum* oocysts on Mesclun Lettuce. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-124.
31. Gartley, S., Ramos, T., Nyarko, E., Souza, T., Jay-Russell, M., Chen, Y., Rivadeneira, P., Aminabadi, P., Bell, R.L., Ingram, D., Van Doren, J., and **Kniel, K.E.** 2018. Manure Pathogen Survey of Salmonella and Shiga Toxin-producing *Escherichia coli* in Untreated Poultry and Cattle Manure of the Mid-Atlantic Region. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-143.
32. Jay-Russell, M., Chen, Y., Rivadeneira, P., Pouillot, R., Aminabadi, R., Pandey, P., Bel, R.L., Oryang, D., Ingram, D., **Kniel, K.E.**, and Van Doren, J. 2018. Prevalence and Levels of Shiga Toxin-producing *Escherichia coli* and *Salmonella* in Untreated Cattle and Poultry Manure in the West Coast of United States. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-157.
33. Solaiman, S., Callahan, M.T., Allard, S., Handy, E., East, C., Kulkarni, P., Murray, R., Bui, A., Haymaker, J., Gartley, S., May, E., Hashem, F., Parveen, S., **Kniel, K.E.**, Sharma, M. Sapkota, A., Micallef, S.A. 2018. Prevalence of Fecal Indicator Bacteria in Surface and Recycled Water: A Conserve Study. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-206.
34. Marik, C., Anderson, B., Gartley, S., Craighead, S., Bradshaw, R., Klykarni, P., Chui, P., Sharma, M., and **Kniel, K.E.** 2018. Reduction of Enteric Pathogens in Irrigation Water by Zero-valent Iron and Sand Filtration. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-208.
35. Bui, A., Allard, S., Solaiman, S., Callahan, M.T., Craddock, H., Murray, R., Haymaker, J., Foust, D., Duncan, R., Taabodi, M., Gartley, S., Vanore, A., May, E., Hashem, F., Parveen, S., **Kniel, K.**, Sharma, M., Handy, E., East, C., Micallef, S.A., Sapkota, A. 2018. Prevalence of Generic *Escherichia coli* in Mid-Atlantic Surface and Recycled Irrigation Water Sources and Comparison to Food Safety Modernization Act Water Quality Standards: A Conserve Study. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-212.
36. Anderson, B., Craighead, S. Allard, S., Panthi, S., Vanore, A., Gartley, S., Haymaker, J., Foust, D., Duncan, R., White, C., Callahan, M.T., Murray, R., Solaiman, S., Hashem, F., Parveen, S., Sapkota, A., Micallef, S.A., Sharma, M., Gerba, C., Betancourt, W., Sapkota, A., and **Kniel, K.E.** 2018. Presence of Viral, Bacterial, and Chemical Indicators in Recycled, Surface, and Processing Water Used for Crop Irrigation. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-214.
37. Handy, E., East, C., Kulkarni, P., Bradshaw, R., Callahan, M.T., Allard, S., Micallef, S.A., Craighead, S., Anderson, B., Vanore, A., Gartley, S., Haymaker, J., Hashem, F., Parveen, S., May, E., **Kniel, K.E.**, Sapkota, A., Sharma, M. 2018. Prevalence of *Salmonella* spp., *Listeria monocytogenes*, and *Escherichia coli* in Irrigation

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38. White, C., Hashem, F., Parveen, S., May, E., Haymaker, J., Handy, E., East, C., Allard, S., Micallef, S.A., Sharma, M., **Kniel, K.E.** and Sapkota., A. 2018. Occurrence of Salmonella and Listeria monocytogenes in Alternative Irrigation Water Sources on the Eastern Shore of Maryland: A Conserve Study. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P1-218.
39. Aminadadi, P., Ramos, T., Gartley, S., Wei, X., Zwieniecka, A., **Kniel, K.E.** and Jay-Russell, M. 2018. Interlaboratory Validation of a Streamlined Method for the Enumeration of Salmonella and Shiga Toxin-producing Escherichia coli in Cattle and Poultry Manure Samples. International Association for Food Protection Annual Meeting, July 8-11, Salt Lake City, UT. P2-184.
40. C. Marik, S. Craighead, S. Gartley, A. Vanore, T Ramos, M. Sharma, G. Johnson, **K. Kniel.** Factors that contribute to *Salmonella* Persistence in Field Soil Samples. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P1-37.
41. T. De Melo Ramos, S. Craighead, P. Spaninger, C. Marik, S. Gartley, A. Vanore, G. Johnson, M. Sharma, **K. Kniel.** Persistence and Transmission of *E. coli* and *Salmonella* spp. in a watermelon field amended with poultry litter: Year Two. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. T7-06.
42. T. Ramos, M. Coelho, P. Spaninger, S. Craighead, J. Teichman, G Johnson, M. Sharma, **K. Kniel.** Food safety risks with watermelons grown using poultry litter. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P2-99.
43. S. Gartley, A. Vanore, S. Craighead, M. Sharma, **K. Kniel.** Evaluation of *Listeria monocytogenes* Survival and Infectivity in Nontraditional Agricultural Waters. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P3-224.
44. P. Kulkarni, G. Raspanti, A. Bui, R. Bradshaw, E. Handy, C. Coppock, **K. Kniel,** M. Sharma, A. Sapkota, A. Sapkota. Zero-valent Iron-Biosand Filtration is Capable of Reducing Antimicrobial and Generic *E. coli* Concentrations in Unbuffered Conventionally Treated Reclaimed Water: A CONSERVE Project. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P3-216.
45. S. Allard, S. Solaiman, M.T. Callahan, E. Handy, C. East, H. Craddock-Kelbick, R. Murray, A. Bui, J. Haymaker, D. Foust, S. Gartley, A. Vanore, S. Parveen, F. Hashem, M. Taabodi, E. May, **K. Kniel,** M. Sharma. Generic *E. coli* Levels in Surface and Non-traditional Irrigation Water in the Mid-Atlantic in Relation to FSMA Water Quality Standards: A CONSERVE Study. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P3-218.
46. S. Solaiman, M.T. Callahan, S. Allard, E. Handy, C. East, E. May, F. Hashem, S. Parveen, **K. Kniel,** M. Sharma, A. Sapkota, S. Micallef. Assessment of Indicator Bacteria and Aeromonas spp. in Surface and Nontraditional Irrigation Water: A Conserve Study. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P3-229.
47. E. Handy, C. East, M.T. Callahan, S. Allard, H. Craddock, S. Micallef, **K. Kniel,** F. Hashem, S. Parveen, E. May, J. Haymaker, A. Sapkota, M. Sharma. Prevalence of *Escherichia coli*, *Salmonella* spp., and *Listeria monocytogenes* in Nontraditional Irrigation Waters in the Mid-Atlantic United States: A CONSERVE Project. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. T7-04.
48. Shearer and **K. Kniel.** Effect of Plant Proteases on Infectivity of Tulane Virus, Murine Norovirus, and Hepatitis A Virus. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P1-08.

49. Vanore, A. Shearer, S. Gartley, **K. Kniel**. Persistence of Murine Norovirus in Vegetable Wash and Brackish Tidal Surface Waters. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P1-09.
50. S. Craighead, A. Shearer, S. Hertrich, G. Boyd, J. Sites, B. Niemira, **K. Kniel**. The Use of an Atmospheric Cold Plasma Jet to Inactivate *Cryptosporidium parvum* Oocysts on Cilantro. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P1-21.
51. Shearer, D. Hoover, J. Gleason, B. Chamberlin, D. Abraham, P. Martinez, J. Klein, J. Buttram, S. Snider, **K. Kniel**. Assessment of Potluck Panic, an On-line Game for Post-secondary Food Safety Education. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P2-104.
52. E. Nyarko, **K. Kniel**, B. Zhou, C. East, E. Handy, Y. Luo, P. Millner, M. Sharma. Practices and Conditions Which Promote Persistence of *Listeria monocytogenes* on Equipment Surfaces and Transfer to Cantaloupes in the Packing Environment. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P3-92.
53. T.R. De Souza, L.A. do Vale, **K. Kniel**, R. Hilsdorf Piccoli. Essential Oils in the Control of Planktonic and Sessile Cells of *Staphylococcus aureus*. International Association for Food Protection Annual Meeting, July 9-12, 2017, Tampa, FL. P3-144.
54. P. Spaninger, N. Navarro-Gonzalez, **K. Kniel**, M. Jay-Russell. Effects of Distance on Risk Associated with Wildlife Encroachment in Field-grown Leafy Greens. IAFP Annual Meeting, St. Louis, MO, August 1, 2016, P1-06.
55. M.T. Callahan, P. Spaninger, J. Todd-Searle, S. Marine, J. Beaulieu, M. Melendez, W. Kline, D. Schhaffner, **K. Kniel**, C. Walsh, K. Everts, R. Buchanan, S.A. Micallef. Rainfall Promotes Growth of Fecal Coliforms in Soil and on Leafy Greens during Production in the Mid-Atlantic Region of the United States. IAFP Annual Meeting, St. Louis, MO, August 1, P1-16.
56. E. Nyarko, **K. Kniel**, R. Reynnells, C. Roberts, E. Handy, Y. Juo, P. Millner, M. Sharma. Survival of *Listeria monocytogenes* on 'Athena' and 'Rocky Ford' Cantaloupes Stored at 4°C, 10°C, and 25°C. IAFP Annual Meeting, St. Louis, MO, August 2, 2016, P2-97.
57. E. Nyarko, **K. Kniel**, R. Reynnells, C. Roberts, E. Handy, Y. Juo, P. Millner, M. Sharma. Growth of *Listeria monocytogenes* on Fresh-cut Pieces of Cantaloupe from Two Different Varieties during Storage. IAFP Annual Meeting, St. Louis, MO, August 2, 2016, P2-98.
58. T. Ramos, M. Coelho, P. Spaninger, S. Craighead, J. Teichmann, G. Johnson, M. Sharma, **K. Kniel**. Food Safety Risks with Watermelons Grown Using Poultry Litter. IAFP Annual Meeting, St. Louis, MO, August 2, 2016, P2-99.
59. S. Craighead, J. Teichmann, P. Thomas, S. Markland, H. Bais, **K. Kniel**. Investigating the Use of *Bacillus subtilis* as a Biocontrol Agent for *Listeria monocytogenes* on Caramel Apples and Stainless Steel Surfaces. IAFP Annual Meeting, St. Louis, MO, August 2, 2016, P2-106.
60. A.E.H. Shearer and **K. Kniel**. Retention of Tulane Virus and Murine Norovirus by Zero-Valent Iron Treated by Various Elution Buffers. IAFP Annual Meeting, St. Louis, MO, August 2, 2016, P2-158.
61. J. Teichmann, Q. Wang, **K. Kniel**. The Potential Binding of Tulane Virus to Human Intestinal Caco-2 Cells. American Society for Microbiology Annual Meeting, Boston, MA, June 19, 2016, P-137.
62. E. Handy, R. Reynnells, M.T. Callahan, C. Roberts, S. Markland, **K. Kniel**, M. Sharma. Survival of *Escherichia coli* O157:H7, *Salmonella* Typhimurium, Murine Norovirus, and Tulane Virus on Foliar Surfaces of Spinach Plants, IAFP Annual Meeting, Portland, OR, July 26, 2015, P1-185.

63. S. Markland, S. Craighead, **K.E. Kniel**, Plant-microbe Interactions Associated with Noroviruses and Leafy Greens, IAFP Annual Meeting, Portland, OR, July 26, 2015, P1-186.
64. P. Spaninger, R. Hodge, B. Pantuliano, M. Sharma, **K.E. Kniel**, Comparative Analysis of Generic and Pathogenic *E. coli* following a Synthetic Gastric Juice Challenge, IAFP Annual Meeting, Portland, OR, July 27, 2015, P2-166.
65. A.E.H. Shearer, R. Castañeda Saldaña, P.E. Pantuliano, **K.E. Kniel**, Effect of Zero-valent Iron on Tulane Virus and Murine Norovirus, IAFP Annual Meeting, Portland, OR, July 28, 2015, P3-108.
66. S. Craighead, S. Markland, **K. Kniel**, H. Bais, *Bacillus subtilis* Increases Crop Yield and Reduces Contamination by *Listeria monocytogenes* on Cantaloupes, IAFP Annual Meeting, Portland, OR, July 28, 2015, P3-163.
67. Q. Wang and **K. Kniel**, Survival and Transfer of Murine Norovirus within a Hydroponic System during Kale and Mustard Microgreen Harvesting, IAFP Annual Meeting, Portland, OR, July 28, 2015, P3-197.
68. A.E.H. Shearer, S. Snider, and **K.E. Kniel**. Reaching the Secondary Education Community With Cross Curricular Case Based Food Safety Educational Materials, Food Safety Educational Conference, Arlington, VA, December 2014.
69. S. Markland, H. Bais, **K. E. Kniel**. Effects of Plant Growth Promoting Rhizobacteria on the Immune Response of Romaine Lettuce and Spinach toward Human Bacterial Pathogens, IAFP Annual Meeting, Indianapolis, IN, August 2014, P1-85
70. Q. Wang, S. Markland, **K.E. Kniel**, Inactivation of Human Norovirus and Its Surrogates on Alfalfa Seeds by Aqueous Ozone, IAFP Annual Meeting, Indianapolis, IN, August 2014, P1-100.
71. P. Spaninger, R. Castaneda, P.B. Pantuliano, **K.E. Kniel**, A Longitudinal Comparison of *E. coli*, *Salmonella* and Enteric Viruses on Wildlife Feces to Evaluate Potential Microbial Niches, IAFP Annual Meeting, Indianapolis, IN, August 2014, P1-134
72. E. Handy, P. Millner, D. Ingram, **K.E. Kniel**, M. Sharma, Presence of Extra-intestinal Pathogenic *Escherichia coli* (ExPEC) in Agricultural Environments, IAFP Annual Meeting, Indianapolis, IN, August 2014, P2-29
73. A.E.H. Shearer and **K.E. Kniel**, Effect of Plant Proteases on Infectivity of Tulane Virus, IAFP Annual Meeting, Indianapolis, IN, August 2014, P3-34
74. S. M. Markland, H. P. Bais, and **K. E. Kniel**. Investigation of biocontrol and plant response to reduce interactions of enteric pathogens on leafy greens, American Phytopathological Society, Austin, TX, August 2013, 718-P
75. Q. Wang and **K. Kniel**. Effectiveness of Calcium Hypochlorite on Bacterial and Viral Contamination of Alfalfa Seeds, IAFP Annual Meeting, Charlotte, NC, July 2013, T8-07
76. J. Usaga, D. Zhao, Q. Wang, S. Markland, O. Padilla-Zakour, R. Worobo, **K. Kniel**, C. Moraru. Efficient Reduction of *Cryptosporidium parvum* Oocysts from Apple Cider by Combining Microfiltration with Ultraviolet Treatment, IAFP Annual Meeting, Charlotte, NC, July 2013, P1-28
77. K. Shortlidge, S. Markland, K. LeStrange, M. Sharma, **K. Kniel**. Investigation of Adherence Strategies of Environmental *Escherichia coli* to Food Samples and Human Epithelial Cells, IAFP Annual Meeting, Charlotte, NC, July 2013, P2-38
78. S. Ferguson, C. Roberts, E. Handy, Q. Wang, S. Markland, J. Barak, **K. Kniel**, M. Sharma, Comparative Survival of *Escherichia coli* O157:H7, *Salmonella* Typhimurium, and Murine Norovirus on Spinach Plants, IAFP Annual Meeting, Charlotte, NC, July 2013, P3-89

79. S. Markland, H. Bais, **K. Kniel**, Utilization of Plant Growth Promoting Rhizobacteria to Inhibit Growth of Foodborne Pathogens on Plants, IAFP Annual Meeting, Charlotte, NC, July 2013, P3-120
80. R. Brown, P. Spaninger, K. Shortlidge, A. Marie Ferelli, **K. Kniel**, Comparative Transmission from Contaminated Irrigation Water on Field-grown Spinach and Lettuce, IAFP Annual Meeting, Charlotte, NC, July 2013, P3-128.
81. A.E.H. Shearer, A. Ferelli, K. Shortlidge, R. Brown, **K. Kniel**, Consumer Cantaloupe Preparation Strategies for Reduced Contamination Risk of Edible Tissue, IAFP Annual Meeting, Charlotte, NC, July 2013, P3-152
82. P. Spaninger, K. Shortlidge, A. Ferelli, R. Brown, S. Markland, **K. Kniel**, The Effects of Contaminated Irrigation Water on Bacterial Persistence and Transmission of Coliforms on Tomatoes, IAFP Annual Meeting, Charlotte, NC, July 2013, P3-126
83. Q. Wang, S. Markland, **K. E. Kniel**. Nonthermal inactivation of *Cryptosporidium parvum* oocysts in fruit and vegetable juices. IFT Annual Meeting, Chicago, IL, June 2013. 204-110.
84. K. Shortlidge, P. Spaninger, S. Markland, R. Brown, A. Fereklli, K. LeStrange, L. Cook, **K. Kniel**, Influence of fecally contaminated irrigation water and growing events on microbial loads of field grown tomatoes. IFT Annual Meeting, Chicago, IL, June 2013, 205-05
85. K.C. Shenge, **K.E. Kniel**, P. Spaninger, F. Hashem, C. Cotton, S. Micallef, S. Pagadala, M. Danyluk, J. LeJeune, R. Buchanan. Observing relationships between microbial contamination in water and microbial contamination on tomatoes. United Fresh Meeting, San Diego, CA May 2013.
86. R. Banjeree, A. Singh, M.T. Callahan, C. Roberts, D. Ingram, J. Patel, D. G. Hoover, **K.E. Kniel**, M. Sharma. The use of zero-valent iron filtration to reduce *Escherichia coli* and *Listeria innocua* in irrigation water. IAFP Annual Meeting, Providence, RI, July 2012. P3-32.
87. S. Markland, K. Shortlidge, L. Cook, K. LeStrange, M. Sharma, **K. Kniel**. A comparison of *Escherichia coli* persistence on basil plants and soil using drip and overhead irrigation. IAFP Annual Meeting, Providence, RI, July 2012. P3-123.
88. K. LeStrange, S. Markland, K. Shortlidge, D.G. Hoover, **K.E. Kniel**. Evaluation of virulence profiles of environmental avian pathogenic *Escherichia coli* O157 isolates. IAFP Annual Meeting, Providence, RI, July 2012. P3-141.
89. Q. Wang, K. Hirneisen, S. Markland, **K.E. Kniel**. Enteric virus survival on alfalfa seeds and sprouts. IAFP Annual Meeting, Providence, RI, July 2012. P3-44.
90. A.E.H. Shearer, D.G. Hoover, **K.E. Kniel**. Antiviral effects of cell-free bacterial supernatants. IAFP Annual Meeting, Providence, RI, July 2012. P3-98.
91. K. Hirneisen and **K.E. Kniel**. Mechanisms of inactivation affect the relationship between viral attachment and infectivity. IAFP Annual Meeting, Providence, RI, July 2012. P1-114.
92. K. Hirneisen and **K.E. Kniel**. Norovirus Survival on Spinach during Pre-harvest Growth. IAFP Annual Meeting, Providence, RI, July 2012. T4-01.
93. K. Hirneisen and **K.E. Kniel**. Comparative Uptake of Enteric Viruses into Spinach and Green Onions. APS Human Pathogens on Plants Workshop, Hyattsville, MD, February 2012.
94. K. Hirneisen, S. Markland, Q. Wang, **K.E. Kniel**. Enteric Virus Survival on Alfalfa Seeds and Sprouts. APS Human Pathogens on Plants Workshop, Hyattsville, MD, February 2012.

95. S. Markland, **K.E. Kniel**, P.Setlow, and G. Hoover. Inactivation of superdormant spores of *Bacillus weihenstephanensis* with ozone. IAFP Annual Meeting, Milwaukee, WI, August 2011. P1-91.
96. C. Mudd, M.T. Callahan, S. Ferguson, D.T. Ingram, D. Shelton, J. Patel, D.G. Hoover, J. Wei, **K.E. Kniel**, and M. Sharma. The use of zero-valent iron and biosand filtration to inactivate *E. coli* O157:H7 in irrigation water. IAFP Annual Meeting, Milwaukee, WI, August 2011. P2-62.
97. K. Hirneisen, J. Wei, and **K.E. Kniel**. Correlating attachment and infection of norovirus using an ELISA-based system. IAFP Annual Meeting, Milwaukee, WI, August 2011. P2-124.
98. A.E.H. Shearer, S. Snider and **K.E. Kniel**. Implementation and assessment of interactive food safety educational materials in secondary science. IAFP Annual Meeting, Milwaukee, WI, August 2011. P3-94.
99. K. Lestrangle, C. Boettger, J. Wei, D.G. Hoover, **K.E. Kniel**. Isolation and characterization of avian pathogenic *E. coli* from Delmarva poultry. IAFP Annual Meeting, Milwaukee, WI, August 2011. P3-148.
100. **K. Kniel**, J. Wei, D. Shelton, J. Patel, D.G. Hoover, and M. Sharma. Optimization for the removal of *Salmonella*, *E. coli* O157:H7 and *E. coli* Oa57:H12 from water using zero-valent iron. IAFP Annual Meeting, Milwaukee, WI, August 2011. P3-25.
101. J. Wei, Y. Jim, T. Sims, **K.E. Kniel**. Internalization of murine norovirus-1 to Romaine lettuce. IAFP Annual Meeting, Anaheim, CA, August 2010. T4-06.
102. K. Hirneisen and **K.E. Kniel**. Hydroponic internalization of enteric viruses into green onions and spinach. IAFP Annual Meeting, Anaheim, CA, August 2010. T4-07.
103. D. Ingram, C. Mudd, S. Ferguson, D. Hoover, **K.E. Kniel**, and M. Sharma. The effect of total organic carbon content and repeated irrigation on the persistence of *E. coli* O157:H7 on baby spinach. IAFP Annual Meeting, Anaheim, CA, August 2010. T4-09.
104. A.E.H. Shearer, O.S. Snider and **K.E. Kniel**. Development of an interactive food safety curriculum for secondary science education. IAFP Annual Meeting, Anaheim, CA, August 2010. P1-86.
105. S.M. Markland, **K. E. Kniel**, P.Setlow, and D.G. Hoover. Reduced-temperature growth studies of *Bacillus cereus* and *Bacillus weihenstephanensis*. IAFP Annual Meeting, Anaheim, CA, August 2010. P2-56.
106. J. Wei and **K.E. Kniel**. *Salmonella* survival and migration in soil in the presence of poultry litter. IAFP Annual Meeting, Anaheim, CA, August 2010. P2-114.
107. K. Gloska, K. Hirneisen, and **K.E. Kniel**. Effect of broad spectrum fertilizers on human picornaviruses IAFP Annual Meeting. Grapevine, TX. July 2009. P1-82.
108. J. Wei, Y. Jin, T. Sims and **K.E. Kniel**. Fate of Murine Norovirus-1 during dairy manure based composting. IAFP Annual Meeting. Grapevine, TX. July 2009. P1-84.
109. J. Wei and **K.E. Kniel**. Attachment of Norovirus in manure and biosolids to lettuce. IAFP Annual Meeting. Grapevine, TX. July 2009. T5-12.
110. D.T. Ingram, C. Mudd, S. Ferguson, **K.E. Kniel** and M. Sharma. Survival of Enterohemorrhagic and Avian Pathogenic *Escherichia coli* from spinach plants after overhead irrigation with (currently acceptable) contamination levels. IAFP Annual Meeting. Grapevine, TX. July 2009. P3-09.
111. K.A. Hirneisen, H. Chen, R.W. Worobo, K.R. Matthews and **K.E. Kniel**, Internalization of Enteric Viruses in Spinach and Green Onions. Annual Meeting. Grapevine, TX. July 2009. P3-17.

112. S.M. Markland, K. A. Hirnesen, **K. E. Kniel**. Ozone Inactivation of Norovirus Surrogates on Fresh Produce. IAFP Annual Meeting. Grapevine, TX. July 2009. P3-30.
113. A.E.H. Shearer and **K.E. Kniel**. Recovery and Infectivity of Norovirus in Bacterial Biofilms on Stainless Steel. IAFP Annual Meeting. Grapevine, TX. July 2009. P3-105.
114. K. A. Hirneisen, B. Jackson, E. Black, K. Schmidt, D.G. Hoover and **K.E. Kniel**. Pressure-mediated heat stabilization of Aichi virus, a human foodborne virus. IFT Annual Meeting, Anaheim, CA. June 2009.
115. R. Attinti, J. Wei, **K. Kniel**, T. Sims, and Y. Jin. Virus (MS2, Î.X174 and Aichi) transport through sand columns and their interaction force measurements by atomic force microscopy. USDA National Water Conference. St. Louis, MO. February 2009.
116. J. Wei, Y. Jin, T. Sims, and **K.E. Kniel**. Survival of Human Adenovirus 41 in Applied Manure and Biosolids. USDA National Water Conference. St. Louis, MO. February 2009. T1-06.
117. Black, K.A. Hirneisen, D.G. Hoover, and **K.E. Kniel**. Inactivation of *Escherichia coli* O157:H7 on raw and frozen ground beef by high pressure processing. IAFP Annual Mtg., Columbus, OH. August 2008. P2-49.
118. K.A. Hirneisen, D.G. Hoover, D. Hicks, L. Pivarnick, and **K.E. Kniel**. Effects of Protein and Fat on Viral Inactivation through High Pressure Processing in Seafood Salad. IAFP Annual Mtg., Columbus, OH. August 2008. T2-12.
119. A.J. Laycock, M. Sharma, and **K.E. Kniel**. Addressing potential contaminants in soil for the study of pathogenic *E. coli* O157 and O8 strains. IAFP Annual Mtg., Columbus, OH. August 2008. P3-23.
120. A.E.H. Shearere, J. Wei, and **K.E. Kniel**. Influence of Biofilm-forming Bacteria on Association of Hepatitis A Virus with Lettuce. IAFP Annual Mtg., Columbus, OH. August 2008. P1-12.
121. J. Wei and **K.E. Kniel**. Survival of Murine Norovirus 1 in Manure and Biosolids. IAFP Annual Mtg., Columbus, OH. August 2008.
122. Derevianko, L. Schoonover, A. Laycock, **K.E. Kniel**. Ozonating Apple Cider to reduce *E. coli* O157:H7 and *Cryptosporidium parvum*. IAFP Annual Mtg., Columbus, OH. August 2008. T1-07.
123. Laycock, M. Sharma, and **K.E. Kniel**. Survival of *Salmonella* Heidelberg in Hummus. IFT Annual Mtg., New Orleans, LA. June 2008.
124. A.E.H. Shearer, G. Wilkins, M.C. Jenkins, **K.E. Kniel**. Effect of High-hydrostatic Pressure on Pathogenicity and Structural Integrity of *Eimeria acervulina*, a Protozoan Parasite and *Cyclospora cayetanensis* Surrogate. IAFP Annual Meeting. Orlando, FL. July 2007. P5-69
125. M. Sharma, **K.E. Kniel**, A. Derevianko, J. Ling, and A.A. Bhagwat. Sensitivity of *Escherichia alberti* to Food Preservation Treatments. IAFP Annual Meeting. Orlando, FL. July 2007. T3-05.
126. J.L. Cascarino, D.G. Hoover, D.T. Hicks, L.F. Pivarnik, and **K.E. Kniel**. Inactivation of Human Enteric Viruses and Viral Surrogates in Fresh Salsa Using High Hydrostatic Pressure. IAFP Annual Mtg., Orlando, FL. July 2007. P1-16.
127. V. Fino, E.B. Solomon, and **K.E. Kniel**. Comparative Susceptibilities of Hepatitis A, Feline calicivirus, Coliphages MS-2, And ΦX-174 To Inactivation By Quaternary Ammonium And Potassium Peroxymonosulfate Disinfectants. IAFP Annual Mtg, Orlando, FL July 2007. P4-12.
128. **K.E. Kniel**, A.E.H. Shearer, J. L. Cascarino, G. Wilkins, and M.C. Jenkins. Inactivation of Cyclospora Surrogate

- On Produce By Two Non-thermal Treatments. IAFP Annual Mtg, Orlando, FL July 2007. P5-47.
129. M. Sharma, **K.E. Kniel**, A. E. H. Shearer, M. Solomon, D. G. Hoover. Comparison of Hydrostatic and Hydrodynamic Pressure to Inactivate Foodborne Viruses. IAFP Annual Mtg, Orlando, FL July 2007. P5-45.
 130. J.L. Cascarino and **K.E. Kniel**. Addressing Biosecurity Issues of the Dairy Industry: The Survival of Raccoonpox Virus in Milk. IAFP Annual Mtg., Orlando, FL July 2007. P5-02.
 131. K.A. Hirneisen, D.G. Hoover, and **K.E. Kniel**. Isolation and Infection of Potential Foodborne Viral Pathogens. IAFP Annual Mtg., Orlando, FL July 2007. P3-44.
 132. A. Derevianko, L. Schoonover, A. Laycock, and **K.E. Kniel**. Ozonating Apple Cider to Reduce *E. coli* O157:H7 and *Cryptosporidium parvum*. IAFP Annual Mtg., Orlando, FL July 2007. P4-05.
 133. A. Hartman, R. Williams, D. Lindsay, **K.E. Kniel**, S. Sumner, J. Eifert. Effect of metabolic enzymes on amylopectin content and infectivity of *C. parvum*. IAFP Annual Mtg., Orlando, FL July 2007. P5-37.
 134. J. Higgins, C. O'Brien, J. Abrahante, M. Abrahamsen, R. Fayer, **K.E. Kniel**, M. Jenkins. Intracellular levels of the viral symbiont CPV in *Cryptosporidium parvum* correlate with fecundity of the parasite in dairy calves. Amer. Assoc. Vet. Parasitol. Washington, D.C. July 2007.
 135. B. Hicks, L. Pivarnick, N. Richard, R. McDermott, D. Hoover, and **K.E. Kniel**. Consumer awareness and willingness to pay for high pressure processing of ready-to-eat food. IFT, Chicago, IL. July 2007. 189-13.
 136. V. Fino and **K.E. Kniel**. Comparative inactivation of foodborne viruses on fresh produce. IAFP Annual Mtg, Calgary, Canada, Aug 13-16, 2006.
 137. J. Cascarino, D. Guan, D. Hoover, **K.E. Kniel**. The response of human viruses and viral surrogates in oyster slurry to hydrostatic pressure. IAFP Annual Mtg, Calgary, Canada, Aug 13-16, 2006.
 138. V. Fino and **K.E. Kniel**. The influence of incubation time and produce surface in virus recovery. Institute of Food Technologists Annual Meeting, Orlando, FL, June 24-28, 2006.
 139. J. Cascarino, A. Shearer, G. Wilkins, M. Jenkins, **K.E. Kniel**. Ultraviolet light treatment of raspberries inoculated with *Eimeria* as a surrogate for *Cyclospora*. IFT Annual Mtg, Orlando, FL, June 24-28, 2006.
 140. Guan, **K.E. Kniel**, H. Chen, D.H. Kingsley, V. Fino, D.G. Hoover. The potential of using F-specific RNA bacteriophage Q β as a pressure surrogate for hepatitis A virus. IFT Annual Mtg. Orlando, FL, June 24-28, 2006.
 141. Guan, **K.E. Kniel**, R.D. Joerger, D.G. Hoover. Effect of high hydrostatic pressure on four genotypes of F-specific RNA bacteriophages. IFT Annual Mtg. Orlando, FL, June 24-28, 2006.
 142. A.E.H. Shearer, M. Jenkins, G. Wilkins, **K.E. Kniel**. Effect of high hydrostatic pressure on *Eimeria acervulina*. Southeastern Society of Parasitologists Mtg, Blacksburg, VA April 6-8, 2005. #IV-55.
 143. A. Laycock, M. Jenkins, **K.E. Kniel**. The effect of ozone treatment on snow peas contaminated with *Eimeria acervulina* as a surrogate for *Cyclospora cayetanensis*. Southeastern Society of Parasitologists Mtg, Blacksburg, VA April 6-8, 2005. #III-30.
 144. M. Tango, M. Jenkins, C. O'Brien, **K.E. Kniel**. A novel wash system for disinfection of *Cryptosporidium parvum* on green onions. Southeastern Society of Parasitologists Mtg, Blacksburg, VA April 6-8, 2005. #III-31.
 145. J. Cascarino, M. Jenkins, **K.E. Kniel**. Efficacy of UV irradiation on pathogens. Southeastern Society of Parasitologists Mtg, Blacksburg, VA April 6-8, 2005. #III-30.

146. **K.E. Kniel** and M. Jenkins. Detection of *Cryptosporidium parvum* oocysts on fresh produce using a parasite viral protein. IAFP Annual Mtg. Phoenix, AZ, August 8-11, 2004. #T10.
147. **K.E. Kniel**, M. Jenkins, J. Higgins, J. Trout, R. Fayer. Using a viral symbiont to evaluate water samples for the presence of viable *Cryptosporidium parvum* oocysts. IAFP Annual Mtg. New Orleans, LA August 10-13, 2003. #P227.
148. **K.E. Kniel**, S. Sumner, D. Lindsay. Effects of ozone on *Cryptosporidium parvum* oocysts in fresh fruit juices. The 10th International Congress of Parasitology, August 4-9, 2002, Vancouver, Canada.
149. **K.E. Kniel**, S. Sumner, and D. Lindsay. The use of oxidation to control *Cryptosporidium* infectivity, IAFP Annual Mtg. July 2002, San Diego, CA.
150. Lindsay and **K.E. Kniel**. *Toxoplasma gondii* as a surrogate for *Cyclospora cayetanensis*. American Association of Veterinary Parasitologists, July 13-16, 2002, Nashville, TN,
151. D. Lindsay and **K.E. Kniel**. A novel model for predicting infectivity of *Cyclospora cayetennensis* oocysts on produce, Southeastern Society of Parasitologists Meeting, April 10-13, 2002, Boone, NC
152. **K.E. Kniel**, S. Sumner, and D. Lindsay. Effects of hydrogen peroxide on the survival of *Cryptosporidium parvum* oocysts in unpasteurized fruit juices. IAFP Annual Mtg. August 5-8, 2001, Minneapolis, MN.
153. **K.E. Kniel**, S. Sumner, and D. Lindsay. Comparative study of *Toxoplasma gondii* oocysts on raspberries and blueberries. IAFP Annual Mtg. August 5-8, 2001, Minneapolis, MN.
154. **K.E. Kniel**, S. Sumner, and D. Lindsay. Inhibition of development of *Cryptosporidium parvum* in fresh fruit juices by chemical treatment. Annual Meeting of the American Association of Veterinary Parasitologists, July 14-17, 2001, Boston, MA.
155. **K.E. Kniel**, S. Sumner, and D. Lindsay. Effects of organic acids and hydrogen peroxide on the survival of *Cryptosporidium parvum* oocysts in fresh fruit Juices. International Workshop on Opportunistic Protists VII, June 13-17, 2001, Cincinnati, OH.
156. B. Seeman, S. Sumner, and **K.E. Kniel**. Internalization of *Escherichia coli* in apples outside laboratory conditions. IAFP Annual Mtg. August 6-9, 2000, Atlanta, GA.
157. **K.E. Kniel**, J. Koontz, and S. Sumner. Organic acids and hydrogen peroxide inhibit microbial viability in fresh juices. IAFP Annual Mtg. August 6-9, 2000, Atlanta, GA,
158. **K.E. Kniel** and R. Walker. Mechanism of NEM-inhibition on tubulin assembly. Annual American Society for Cell Biology Meeting, December 12-16, 1998, San Francisco, CA,
159. **K.E. Kniel** and R. Walker. NEM modification of kinesin and Ncd proteins. Annual American Society for Cell Biology Meeting, December 13-17, 1997, Washington, DC.

Invited Presentations: *It is a great pleasure and honor to be invited to “teach” and share research at various professional meetings and activities.*

1. COVID-19 in 2021. FVGAD Processing Vegetable Session, Delaware Agricultural Week, January 13, 2021.
2. Moving Forward in the Era of COVID and Recent Produce Foodborne Illness Outbreaks. FVGAD Produce Safety, Extreme Weather & Labor Session, Delaware Agricultural Week, January 13, 2021.
3. COVID-19, Outlook on the virus, and Vaccine Update. Farm Labor: Times of Change Becker Forum. January 11,

- 2021.
4. Wastewater Based Epidemiology of SARS-CoV-2. Dubai International Food Safety Conference, Dubai, UAE, November 30, 2020.
 5. Outlook for 2021: Treatments, vaccines, and COVID-19 prevention: A virologist's perspective. New York Labor Roadshow IV, November 24, 2020.
 6. And speaking of risks... Considering some of the challenges with Foodborne Viruses. INOFOOD Meeting, Santiago, Chile, November 11-12, 2020.
 7. Food Safety issues associated with pre-harvest environmental conditions of fruits and vegetables. INOFOOD Meeting, Santiago, Chile, November 11-12, 2020.
 8. IAFP and Food Safety Preparedness. Virtual Food Safety Summit, South Africa, November 3, 2020.
 9. The Use of Non-thermal Approaches to Inactivate Protozoa and Viral Pathogens in Produce. Korea Academy of Science and Technology (KAST). October 2020.
 10. Applications of One Health in Addressing Issues of Food Security within a Complex Food Safety System, International Association of Food Protection, A Virtual Annual Meeting, October 26-28, 2020.
 11. Development of a Curriculum that Integrates Food Safety with Environmental Sciences. International Association of Food Protection, A Virtual Annual Meeting, October 26-28, 2020.
 12. Wastewater-based Epidemiology Forecasting, COVID-19 & Food Safety Global Summit, July 29, 2020.
 13. Non-thermal Mitigations to Inactivate Protozoa and Viral Pathogens in Produce. American Society for Microbiologists Annual Meeting (ASM). June 2020.
 14. One Health Concept: Food Safety Through the Perspective of the Health of the Environment, Animals, and Humans, Dubai International Food Safety Conference, Dubai, UAE, November 12, 2019.
 15. Considerations on the Environmental Resistance and Biological Characteristics of Foodborne Parasites in Foods, International Association for Food Protection Annual Meeting, Louisville, KY, July 23, 2019.
 16. Prevalence of Foodborne Viruses in Irrigation Water, International Association for Food Protection Annual Meeting, Louisville, KY, July 24, 2019.
 17. Parasites, Viruses, and Produce from the United States: Can Anything Change? IAFP's European Symposium on Food Safety, Nantes, France, April 24, 2019.
 18. Public Health Risks Associated with Food- and Waterborne Protozoa, University of Wisconsin-Madison, September 11, 2018.
 19. Mitigation Strategies and Regulatory Compliance to Improve Microbial Quality of Irrigation Water Intended for Fruits and Vegetables. 3rd International Conference on Global Food Security, Cape Town, South Africa, December 3-6, 2017.

20. We're all in this together: A One Health Approach to Food Safety, CAFPA-ASM Washington DC Branch Fall Meeting, November 16, 2017.
21. Sustainable Water Sources for Food Safety, China International Food Safety & Quality, Beijing, China, November 1-2, 2017.
22. Update on Foodborne Viruses and Parasites (IAFP Keynote), New Jersey Association for Food Protection Fall Meeting, October 4, 2017.
23. Risk Assessment concerning Food- and Waterborne Viruses. International Conference on Food Safety and Risk Analysis, Sochi, Russia, May 18-18, 2017.
24. Virus Attachment to and Persistence on Produce, International Association for Food Protection Annual Meeting, St. Louis, MO, August 21, 2016.
25. Produce Safety Research Update, 61st New Jersey Agricultural Convention and Trade Show, February 11, 2016.
26. Investigating Foodborne Outbreaks Across Food Systems, State of Delaware 2015 Extension Conference, Dover, DE, October 22, 2015.
27. Indicators for Viral Foodborne Pathogens: Get Your Coliforms out of Here, International Association for Food Protection Annual Meeting, Portland, OR, July 25-28, 2015
28. Produce Safety Research Update. Delaware AgWeek, Harrington, DE January 13, 2015.
29. Case Studies on Creating Media That Work, panel participant, National Food Safety Education Conference, Arlington, VA, December 2014.
30. Use of zero valent iron (ZVI) in irrigation of tomatoes with manure contaminated water at varying E. coli levels, Center for Produce Safety Produce Research Symposium, Newport Beach, CA, June 24-25, 2014.
31. Advanced Produce Safety Training, Kent County, March 25, 2014.
32. Advanced Produce Safety Training, Sussex County, March 19, 2014.
33. Produce Food Safety Risks, Lower Eastern Shore GAP Training Wicomico County, February 27, 2014.
34. Risks in the Pre-Harvest Environment, Delaware Valley College Food Systems Institute Seminar Series, February 25, 2014.
35. Home Food Safety Mythbusters webinar, Partnership for Food Safety Education, September 11, 2013.
36. A food safety perspective on the interaction of enteric viruses with plants, American Phytopathological Society, Austin, TX, August 11-14, 2013.
37. Update on use of ZVI for irrigation water to meet FSMA needs, CPS webinar for the Oregon Department of Agriculture, August 13, 2013.

38. The Cultivable Surrogate Viruses: How They Can (and Cannot) Be Used to Predict Human NoV Behavior, International Association for Food Protection, Charlotte, NC. July 29-31, 2013.
39. Food Safety Education: The Value of Education and Outreach to Advancing the Development of Future Food Safety Leaders, International Association for Food Protection, Charlotte, NC. July 29-31, 2013.
40. Commodity Specific Guidance and Produce Safety Training, Kent County, March 21, 2013.
41. Commodity Specific Guidance and Produce Safety Training, Sussex County, March 19, 2013.
42. Current Produce Safety Science and Risks, 37th Annual Eastern Shore Vegetable Meeting, Caroline County, MD, February 19, 2013.
43. Home Food Safety Mythbusters webinar, Partnership for Food Safety Education, September 14, 2012.
44. Current Science associated with Risks to Produce Safety. Mid-Atlantic Crop Management School, Ocean City, MD. November 13, 2012.
45. Interactions of Human Pathogenic Viruses and Plants. Human Pathogens on Plants Workshop, American Phytopathological Society, College Park, MD. February 14, 2012.
46. Food Safety across the High School Curriculum. International Association for Food Protection Annual Meeting, Milwaukee, WI. August 2, 2011.
47. Lesser Known Foodborne Viruses. International Association for Food Protection Annual Meeting. Anaheim, CA. August 2, 2010.
48. Don't Forget the Little Folks: Lesser Known Foodborne Viruses and Parasites. International Association for Food Protection. Grapevine, TX. July 13-16, 2009.
49. American Society for Microbiology Annual Meeting. Philadelphia, PA. May 21, 2009.
50. Institute of Food Technologists Non-Thermal Processing Workshop, Non-thermal methods for the inactivation of food-and water-borne protozoa. Portland, OR. January 13-16, 2008.
51. DuPont Chemical Solutions Enterprise, Efficacy of select chemical disinfectants on human and animal pathogenic viruses. Wilmington, DE. Jan, 2007.
52. USDA-Eastern Regional Food Safety Conference XIV, Effects of non-thermal treatments on protozoa. Philadelphia, PA. October 31-November 1, 2005.
53. Emerging Disease Military Conference at Fort Dix, NJ, October 12, 2004, Waiter there's a fly in my soup" – An introduction to food and water-borne parasites and detection of these organisms.
54. Food Frights Forum, March 28, 2002, Blacksburg, VA, speaker and session leader, Food Safety: Biological Aspects.
55. Virginia Environmental Health Association Meeting, October 20, 2000, Emerging Technologies in Food

Microbiology.

56. The IFT, Washington D.C. Section Meeting, Oct. 29, 1999, Blacksburg, VA, "Food Safety Research: Needs and Priorities.
57. The 18th Annual Seminar of Cancer Researchers in Virginia, American Cancer Society Meeting, March 14, 1998, Blacksburg, VA, "NEM Modification of Kinesin and Ncd Proteins"

External Funding listed chronologically:

Several of the grants that I have obtained are integrated meaning they have a research outreach and educational component.

1. Hoover, D.G., **Kniel, K.E.**, Hicks, D., and Pivarnik, L., USDA-CSREES-Integrated Food Safety Program (\$450,205) 9/01/04-8/31/07, Inactivation of viruses by pressure in ready to eat food products.
2. **Kniel, K.E.** ISEQ and ABC Graduate Fellowship (\$40,000) 06/01/07-05/31/09. Fate of viral and bacterial pathogens during the growth of leafy greens.
3. **Kniel, K.E.**, CANR Seed Grant (\$16, 538) 5/04-5/06, Survival of enteric viruses on salad greens, green onions and strawberries after treatment with ultraviolet light.
4. R. Joerger and **K.E. Kniel**. Avian Biosciences Center Grant (\$7,000) 01/01/07-12/31/07. Virulence gene prevalence and its connection to cell invasion potential of *Salmonella enteric* isolated from poultry production environments.
5. **Kniel, K.E.**, University of Delaware Research Foundation (\$20,000) 6/05-12/06, A validation study for the process of ozonation of apple cider in order to eliminate *Cryptosporidium parvum*.
6. Hoover, D.G. and **Kniel, K.E.**, CANR & USDA-ARS Research Partnership (\$20,000), 12/05-12/06, Hydrodynamic and hydrostatic pressure inactivation of bacteriophage as a model system in food processing.
7. **Kniel, K.E.**. DuPont Young Professors Grant. (\$75,000) 08/01/06-07/31/09, Microbial Food Safety.
8. Jin, Y., **Kniel, K.E.**, Simms, T., USDA-NRI Watershed Grant Program (\$399,454), 9/1/06-8/31/09, Effect of land application of wastes on the fate and transport of pathogens in soil.
9. **Kniel, K.E.** USDA-NRI Food Safety Program (\$94,401) 9/01/07-8/31/09, Survival and transmission of pathogenic viruses and protozoa in an agricultural environment.
10. Chiu, P., Jin, Y., and **Kniel, K.E.**. American Water Works Association Research Foundation (\$220,407) 10/01/07-9/30/08, Enhancing removal of viruses in water treatment plants using zero-valent iron.
11. Chen, H., **Kniel, K.E.**, Hoover, D.G., and Joerger, R. USDA National Needs Fellowship. (\$156,000) 09/01/08-08/31/10. (Coordinated partnerships with USDA-ARS and DuPont Chemical Solutions Enterprise.)
12. Chen, H., **Kniel, K.E.**, Matthews, K., Worobo, R. USDA-NIFSI. (\$590,000 total) 09/01/08-08/31/11, Control of hepatitis A virus and *E. coli* O157:H7 in green onions and spinach.
13. **Kniel, K.E.**, Shearer, A.E.H., Snider, S. USDA-Challenge (\$35,000) 07/01/09-06/30/11, Integrating food safety investigations into science curricula for secondary education.
14. Sims, T., Jin, Y., Sparks, D., Chen, H., **Kniel, K.E.**, Saylor, W., Wu, C., Dou, Z., Ferguson, J., Galligan, D., Wu, Z., Wang, F., Zhang, F. Building research-based collaborations with China Agricultural University in the animal, food, and environmental sciences. University of Delaware Center for International Studies Global Partnerships and Initiatives Program. (\$20,000) Collaborative program among UD, University of Pennsylvania New Bolton Center and China Agriculture University.

15. **K.E. Kniel**, D.G. Hoover, M. Sharma, J. Patel, D. Shelton. Center for Produce Safety. (\$236,240) 10/01/09-09/30/11, Mitigation of irrigation water using zero-valent iron treatment.
16. D.G. Hoover, **K.E. Kniel**, M. Sharma, J. Patel, S. Yaron. Center for Produce Safety-BARD. (\$200,000) 12/01/09-11/30/12, Persistence and detection of norovirus, *Salmonella* and pathogenic *E. coli* on basil and leafy greens.
17. **K.E. Kniel**, M. Sharma, and J. Barak. USDA-NIFA-AFRI Foundation (\$600,000) 02/01/11-01/31/13, Plant Responses to Foodborne Bacteria and Viruses and Mechanisms used by Pathogens to Survive.
18. **K. Kniel**, A. Shearer, D. Hoover, S. Snider R. Gallagher, J. Gleason, F. Hashem, C. Cotton. USDA-NIFA Higher Education Challenge (\$400,000) 09/01/12-08/31/15, Development and Assessment of an Educational Module for College Students for Conceptual and Attitudinal Changes towards Food Safety Systems.
19. Hasham, P. Millner, **K. Kniel**. USDA (\$38,988) 9/01/12-8/31/16, Building an Interdisciplinary Educational Program on Food Safety for Fresh Fruits and Vegetables.
20. R. Buchanan, C. Walsh, D. Oryang, D. Schaffner, F. Hashem, J. LeJune, J. Meng, **K. Kniel**, K. Everts, K. Schneider, M. Sharma, M. Roberts, M. Grimley, M. Danyluk, M. Jay-Russell, P. Milner, R. Goodrich. USDA-SCRI-CAP (\$4.5 million total, \$162, 811 for UD) 07/01/11- 06/30/13, Developing Scientifically-based Consensus Food Safety Metrics for Leafy Greens and Tomatoes.
21. L. Jaykus, M. Estes, J. Vinje, L. Saif, Wang, Petrosino, Atmar, J. Cannon, J. Jang, Tan, M. Janes, **K. Kniel**, Grego, C. Moe, A. Hall, et al. USDA-NIFA-AFRI-CAP (\$25 million total, \$366,306 for UD) 09/01/11-08/31/16, Building Capacity To Control Viral Foodborne Disease: A Translational, Multidisciplinary Approach.
22. Li, R. Joerger, **K. Kniel**, E. Benson, P. Chiu, Y. Jin. US Poultry Foundation. (~\$50,000) Frequent Application of Litter Amendments in Broiler Houses during Grow-out on Animal Health, Production, and Environment.
23. **K. Kniel**, M. Sharma, P. Chiu, and D.G. Hoover. Center for Produce Safety – Western Center for Food Safety. (\$68,777, with a \$50,000 total direct cost maximum) 08/01/13-07/31/14, Use of zero valent iron in irrigation of tomatoes with manure-contaminated water at varying *E. coli* levels.
24. R. Buchanan, C. Walsh, D. Oryang, D. Schaffner, F. Hashem, J. LeJune, J. Meng, **K. Kniel**, K. Everts, K. Schneider, M. Sharma, M. Roberts, M. Grimley, M. Danyluk, M. Jay-Russell, P. Milner, R. Goodrich. USDA-SCRI-CAP Continuation Funds (\$4.5 million total, \$400,000 for UD) 07/01/14- 07/31/16, Developing Scientifically-based Consensus Food Safety Metrics for Leafy Greens and Tomatoes.
25. S. M. Markland and **K.E. Kniel** (listed as advisor). USDA-NIFA Sustainable Agriculture Research and Education Graduate Student Grant (\$14,035) 09/01/14-08/31/15, *Bacillus subtilis* as a biocontrol to increase crop yield and reduce *Listeria* contamination in cantaloupes. Project written and directed by Sarah Markland, Ph.D. student.
26. V. Wu, X. Fang, J. Gurtler, L. Huang, A. Hwang, D. Kingsley, A. Lacombe, B. Niemira, H. Chen, **K. Kniel**, R. Boyer, and J. Li. USDA-NIFA-AFRI (\$5 million total, ~\$350,000 for Kniel) 01/01/15-12/31/19, Enhancing the Safety and Quality of Fresh Produce and Low-Moisture Foods by Waterless Non-Thermal Technologies.
27. **K. Kniel** and M. Sharma. *Listeria monocytogenes* in soils and contamination of melons. U.S. Department of Agriculture- Agricultural Research Service (\$225,000) 9/29/14 – 8/30/18
28. **K. Kniel** and G. Johnson. Food Safety Risks with Watermelons Grown Using Poultry Manure. Delaware Department of Agriculture (45, 904) 05/01/16-10/01/18
29. M. Jay-Russell and **K. Kniel**. Manure Pathogen Sampling Survey. Western Center for Food Safety, U.S. Food and Drug Administration. (\$173,362) 03/01/2016-08/31/2018

30. Sapkota, A. Ellixon, C. Gerba, P. Goeringer, F. Hashem, **K. Kniel**, K. Messer, S. Micallef, M. Neganhban-Azar, M. Pappas, R. Pervical, S. Ravishankar, C. Rock, M. Sharma, M. Pop, A. Sapkota. CONSERVE (**CO**ordinating **N**ontraditional Sustainable wat**ER** Use in Variable climat**Es**): A Center of Excellence at the Nexus of Sustainable Water Reuse, Food, and Health. USDA-NIFA (\$10 million total) 03/01/2016-02/28/2020.
31. **K. Kniel** and M. Sharma. U.S. Department of Agriculture- Agricultural Research Service. Bacterial transfer to raw agricultural commodities and produce crops. (\$599,000) 07/01/2017 – 06/31/2019.
32. Chirnside and **K. Kniel**. Evaluation and optimization of innovative, mycoremediation technologies to remove pathogens and antibiotics from dairy manure. USDA-NIFA, (\$469,999), 06/01/18 to 05/31/2021
33. **K. Kniel**. Analysis of the Presence of Cyclospora in Waters of the Mid-Atlantic and Evaluation of Removal and Inactivation by Filtration. Center for Produce Safety. (\$49,170) 01/01/20-3/31/21
34. A.E.H. Shearer and **K.Kniel**. Interactions of Bacteria and Human Norovirus and its Surrogate, Tulane Virus. CANR Seed, University of Delaware, (\$25,025) 01/01/20-5/31/21.
35. M. Danyluk, K. Schneider, A. Havelaar, N. Mantazeri, M. Sharma, M. Jay-Russell, R. Baldwin, **K. Kniel**, L. Dunn, R. Tikekar, L. Strawn, F. Critzer. Scientific Challenges and Cost-Effective Management of Risks Associated with Implementation of Produce Safety Regulations (CONTACT). University of Florida (\$7.25 million, UD about \$415,790), 10/01/20-09/30/24.

Current and Past Graduate Students (my advisees, with honors as noted):

- Alyssa Kelly: M.S. Student, September 2019-present, advisor
Thesis topic: Using novel tools to reduce risk in preharvest food safety
- Alexis Omar: M.S. Student, September 2018-present, advisor
Thesis topic: Mycoremediation of bacterial pathogens in soil amendments
 - Unidel Fellowship Award, 2020
- Brienna Anderson: Ph.D. Student, June 2017-present, advisor
Dissertation topic: Presence of enteric viruses and vial indicators in relation to produce safety
- Samantha Gartley: M.S. Student, August 2016 – present, advisor
Thesis topic: Evaluating *Listeria monocytogenes* Survival and Infectivity in Water
- Adam Vanore: M.S. Student, August 2016 – present, advisor
Thesis topic: Comparative survival of norovirus surrogates in non-traditional agriculture water
- Shani Craighead: Ph.D. Student, January 2015-August 2020, advisor
Dissertation topic: Presence of protozoa in non-traditional water samples and inactivation of oocysts through non-thermal methods
 - Doctoral Fellowship Award, 2019
 - International Association for Food Protection Student Travel Scholarship, 2014
- Adrienne Shearer: Ph.D. Student, September 2012-May 2017, advisor
Dissertation topic: Novel pre-harvest control strategies for enteric viruses
 - Worrilow Award, College of Agriculture and Natural Resources, UD, 2017
- Patrick Spaninger: P.D. student, June 2012-2017, committee advisor
Dissertation topic: Evaluating food safety metrics for leafy greens and tomatoes
 - International Association for Food Protection Student Travel Scholarship, 2014
 - Food Marketing Institute Foundation Scholarship Grant Award, 2014

• Qing Wang: Ph.D. student, September 2012-present, committee advisor

Dissertation topic: Norovirus transmission on fresh produce

- University of Delaware Graduate Fellow Award, 2015
- American Society of Microbiologists Travel Grant Award, 2015
- Institute of Food Technologists Feeding Tomorrow Travel Grant Award, 2014
- International Association for Food Protection Student Travel Scholarship, 2014
- Institute of Food Technologists Food Microbiology Division Poster Competition Award, 2013

• Sarah Markland: M.S. candidate, June 2009-May 2011, committee-co-advisor

Thesis topic: Characterization of super-dormant spores of *Bacillus cereus* and *Bacillus weihenstephenses*.

- USDA National Needs Fellow Award, September 2009

Ph.D. candidate, June 2011 –May 2015, committee advisor

Dissertation topic: Plant immune response to and control of enteric viruses and bacteria

- Benton Award, College of Agriculture and Natural Resources, UD, 2015
- University of Delaware Institute for Global Studies International Travel Award, April 2014
- University of Delaware Professional Development Award, March 2014
- Institute of Food Technologists Feeding Tomorrow Scholarship Award, June 2013
- University of Delaware Graduate Fellow Award, March 2013
- Capital Area for Food Protection Association Student Travel Award, June 2011, June 2013

• Kyle LeStrange: M.S. candidate, September 2010-January 2013, committee advisor

Thesis topic: Correlating genetic and phenotypic characteristics of avian pathogenic *E. coli* as a model environmental pathogen

• Kyleigh Gloska: M.S. candidate, September 2008 -December 2010, committee advisor

Thesis topic: Effectiveness of plant fertilizers on picornaviruses

• Jie Wei: Ph.D. candidate, June 2007-August 2011, committee advisor

Dissertation topic: Virus survival in land applied manures and biosolids

- International Association for Food Protection Developing Scientist Award, 2008

• Kirsten Hirneisen: M.S. candidate, September 2006-December 2008, committee advisor

Thesis topic: Virus inactivation by high pressure processing in a model food, seafood salad

Ph.D. candidate, January 2009-September 2012, committee advisor

Dissertation topic: Virus association and internalization with plants

- Benton Award, College of Agriculture and Natural Resources, UD, 2012
- International Association for Food Protection Developing Scientist Award, 2011

• Alexandra Derevianko: M.S. candidate, September 2006-May 2008, committee advisor

Thesis topic: Zero-valent iron to inactivate *E. coli* O157:H7

• Jennifer Cascarino: M.S. candidate, September 2005-December 2007, committee advisor

Thesis topic: Effects of HPP on enteric viruses in ready to eat foods

• Viviana Fino: M.S. candidate, September 2004-May 2007, committee advisor

Thesis topic: Inactivation of enteric viruses using ultraviolet light

Current and Past Graduate Students (committee member):

• John Rosenberger: M.S. candidate, Biological Sciences Department

Thesis topic: Studying specific regulating gene profiles in *Vibrio* species

• Quincy Hardy: M.S. candidate, Department of Animal and Food Sciences

Thesis topic: Investigation of Pure and Mixed Listeria Biofilms Transferal Potential and Antimicrobial Tolerance and Using Processing Surfaces, MBEC Biofilm Pegs, and Soil and Beans at Refrigerated Temperatures

• Juliet Wachira: M.S. candidate, Department of Animal and Food Sciences

Thesis topic: Evaluation of the efficacy of antimicrobial agents to prevent the transfer of *Listeria monocytogenes* from existing biofilms to produce or processing surfaces

• Nick Johnson: M.S. candidate, Department of Plant and Soil Sciences

Thesis topic: Plant innate immune response to human bacteria

• Brian Ladman: Ph.D. candidate, Department of Animal and Food Sciences

Dissertation topic: Viral adaptation to host species

Defending March 2015

• Runze Huang: M.S. candidate, Department of Animal and Food Sciences

Thesis topic: High Pressure Inactivation of Human Norovirus on Strawberries, Blueberries and Raspberries and in Purees

Successfully defended January 2015

• Lena Hildebrand: M.S. candidate, Department of Applied Economics and Statistics

Thesis topic: Consumer preferences for chocolate

Successfully defended May 2014

• Yinan Liu: M.S. candidate, Department of Applied Economics and Statistics

Thesis topic: The influence of taste on people's willingness to pay for organic, local and conventional apples

Successfully defended May 2014

• Wenqing Xu: Ph.D. candidate, Department of Animal and Food Sciences

Dissertation topic: Inactivation of *E. coli* and *Salmonella* using non-thermal technologies

Successfully defended summer 2014

• Xin Dong: M.S. candidate, Department of Animal and Food Sciences

Thesis topic: Effect of soy isoflavones on human prostate cancer

Successfully defended August 2011

• Yinjian Lu: M.S. candidate, Department of Animal and Food Sciences

Thesis topic: Survival of *Salmonella* on grape tomatoes

Successfully defended May 2012

• Hudda Neetoo: Ph.D. candidate, Department of Animal and Food Sciences

Dissertation topic: High pressure processing of bacterially contaminated alfalfa seeds

Successfully defended May 2011

• Liping Zhang: M.S. candidate, Plant and Soil Science

Thesis topic: Bacteriophage transport in specific soil components

Successfully defended fall semester 2007

• Angela Hartman: Ph.D. candidate, Virginia Tech

Dissertation topic: Rapid identification methods for *Cryptosporidium parvum* in foods

Successfully defended May 2007

• Renee Raiden: Ph.D. completed May 2006, Virginia Tech, committee member

Dissertation topic: Mechanisms for attachment of *E. coli* O157:H7 to leaf lettuce surface

Undergraduate Student Theses: (As a member of the Undergraduate Research Board of Directors, I serve as a third reader for 5-6 new undergraduate student thesis projects each year, from 2010-2019)

- Alyssa Kelly: 2019 senior thesis, research committee advisor
Thesis title: Virus persistence on berries and investigation of irrigation water
- Claire Marik: 2018 senior thesis, research committee advisor
Thesis title: Zero-valent iron filtration of *Listeria* and *E. coli* in surface water
- June Teichman: 2017 honors senior thesis, research committee advisor
Thesis title: Influence of poultry litter amendment type and irrigation events on survival and persistence of *Salmonella* Newport
- Brittany Jackson: 2009 honors senior thesis, research committee advisor
Thesis title: The effects of high-pressure processing on viral capsid proteins
- Adam Yoskowitz: 2009 honors senior thesis, research committee advisor
Thesis title: Removal and inactivation of waterborne Hepatitis A virus using zerovalent iron
- Stacy Green: 2008 honors senior thesis, research committee second reader
Thesis title: Antibiotic resistance in avian pathogenic *E. coli* Delmarva isolates