

Amanda J. Deering

Department of Food Science, Purdue University
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Professional Preparation:

Central Michigan University	Biology	B.S.	2001
Central Michigan University	Plant Biology	M.S.	2004
Purdue University	Food Microbiology and Food Safety	Ph.D.	2010

Appointments and Research Experience :

Clinical Assistant Professor, Department of Food Science, Purdue University

Research Assistant Professor, Department of Food Science, Purdue University

April 2013-Present

Projects:

- Examining routes of contamination of *Salmonella* Typhimurium in cantaloupe.
- Internalization of *Listeria monocytogenes* in cantaloupe and lettuce using immunocytochemical techniques
- Testing the efficacy of commercial sanitizers for the reduction of human pathogenic bacteria on fresh fruits and leafy greens.

Post-Doctoral Research Assistant, Department of Food Science, Purdue University

December 2010 – April 2013

Advisors: Dr. Lisa Mauer (Purdue University)

Dr. Roger Billingsley, Dr. Bob Dull (Dole Fresh Vegetables, Inc.)

Project: Examination of various chemical sanitizers for the reduction of human pathogenic bacteria on leafy greens

- Test commercial sanitizers for Dole Fresh Vegetables, Inc. and compare to competitors sanitizing agents
- Developed sampling technique that better evaluated the number of bacteria present on the leaf following treatment
- Represented Dole as “Lead Scientist” in presenting research findings to a representative of the Food and Drug Administration
- Represented Dole as “Lead Scientist” to collaborate with a legal team to acquire a cease and desist order for the use of a competitors sanitization treatment and to acquire a provisional patent for a new sanitizer

Graduate Research Assistant, Department of Food Science, Purdue University

May 2006-December 2010

Advisor: Dr. Brad Reuhs

Project: Examination of the internalization of the human pathogenic bacteria, *Escherichia coli* O157:H7 and *Salmonella* Typhimurium, in plants

- Developed a novel method to examine the internalization of human pathogenic bacteria in plants using immunocytochemical based techniques

- Examined internalization in mung bean, peanut, and tomato
- Participated in obtaining approval for a Biosafety Level II greenhouse approved for the use of human bacterial pathogens (the first and only one at Purdue) and have used this space to examine various routes of internalization into tomato fruit with *E. coli* O157:H7 and *Salmonella* spp.
- Developed qPCR techniques for the differentiation of live and dead bacteria and compared that to using FT-IR based technologies
- Used PCR based detection methods for the identification of human pathogenic bacteria internalized within tomato fruit

Graduate Research Assistant, Department of Biology, Central Michigan University

May 2001-August 2004

Advisor: Dr. Joanne Dannenhoffer

Project: Development of bundle and extrafascicular sieve elements in phloem tissue of pumpkin, *Cucurbita maxima*

- Utilized immunocytochemical techniques to examine the location of a phloem specific protease inhibitor throughout development of the tissue
- Learned and utilized various microscopy based techniques for research: light microscopy, fluorescence microscopy, confocal microscopy, scanning electron microscopy, and transmission electron microscopy

Undergraduate Research and Microscopy Facility Assistant, Department of Biology, Central Michigan University

May 2000-May 2001

Advisor: Dr. Joanne Dannenhoffer

Project: Comparison of protein bodies from wild type and *opaque2* maize endosperm

- Extracted and characterized total proteins from wild type and mutant corn varieties using SDS-PAGE
- Isolated protein bodies from corn endosperm and analyzed using scanning electron microscopy

Teaching Experience:

Central Michigan University:

Graduate Teaching Assistant: Department of Biology, General Botany (5 semesters)

Guest Lecturer: Department of Biology

Course: General Botany Total # of Students: ~275

Topics: Photosynthesis, Plant Anatomy, Plant Cell Biology

Total Number of Lectures: 10

Graduate Teaching Assistant: Department of Biology, Microtechnique and Microscopy (1 semester)

Purdue University:

Graduate Teaching Assistant: Department of Botany and Plant Pathology, Introduction to Plant Science (3 semesters)

Guest Lecturer: Department of Botany and Plant Pathology

Course: Introduction to Plant Science Total # of Students: ~225
Topic: Plant Growth and Development, Plant Hormones, Plant Anatomy
Total Number of Lectures: 5

Guest Lecturer: Department of Botany and Plant Pathology

Course: Plant Anatomy Total # of Students: ~20
Topic: Phloem Anatomy, Arabidopsis in Anatomical Studies
Total Number of Lectures: 2

NSF GK-12 Teaching Fellow, 7th grade Science Klondike Middle School, West Lafayette, IN

- Taught 2 days a week for 1 year
- Developed new labs and lessons in collaboration with the teacher
- Responsible for teaching, prepping, and organizing new labs
- Attended teaching classes/workshops to develop ways to improve STEM education at the middle school level

Mentorship and Supervision of Research Projects:

Undergraduate Research Assistants, Central Michigan University

- Sarah Eikelberg, Department of Biology, 2001-2002
- Jon Langworthy, Department of Biology, 2004

Undergraduate Research Assistants, Purdue University

- Lillian Ochoa, Zamorano University, Honduras, 2008
- Sindy Salgado, Zamorano University, Honduras, 2009
- Lady Cabrera, Zamorano University, Honduras, 2010
- Dylan Houck, Department of Food Science, 2010-2011
- Cora Franks, High School Student, Summer 2010
- Amber Furrer, Department of Food Science, 2011-present
- Steven Emerick, Department of Food Science, 2011
- Brent Fiechter, Agricultural Economics, 2011-2012
- Megan Turik, Department of Food Science, 2011-present
- Ellen Hallberg, Undergraduate at Indiana University, Summer 2012
- Lindya Djaputra, DURF student at Purdue, Summer 2012-present
- Dan Jack, SURF student from Truman State University, Summer 2012
- Winner of best SURF Research Oral Presentation
- Ker Ming Chew, Department of Chemistry, Summer 2012
- Jun Won Chang, Department of Food Science, Summer 2012-summer 2013
- Emiria Soendjojo, Purdue University, 2012
- Research published in the Journal of Purdue Undergraduate Research
Soendjojo, Emiria. 2012. Is Local Produce Safer? Microbiological Quality of Fresh Lettuce and Spinach from Grocery Stores and Farmers' Markets. The Journal of Purdue Undergraduate Research, Vol. 2, Article 10.
- Pauline Lay, Department of Food Science, 2013-Present
- Stephanie The, Department of Food Science, 2013
- Michelle Egger, Department of Food Science, 2014
- Andriana Torres, Zamorano University, Honduras, 2014

- Yoojung Heo, Department of Food Science, 2014
- Alexis Belis, Department of Food Science, 2015-present
- Molly Powell, Department of Food Science, 2015
- Xuedi Huang, Department of Food Science, 2015
- Karen Flores, Zamorano University, Honduras, 2016

Graduate Students Advised:

- Archana Shenoy, M.S., Department of Food Science, Co-Advised with Haley Oliver (Graduated 2015)
- Jun Won Chang, M.S., Department of Botany and Plant Pathology, Co-Advised with Robert Pruitt (Graduated 2015)
- YooJung Heo, M.S., Department of Botany and Plant Pathology, Co-Advised with Robert Pruitt (Expected Graduation May 2017)
- Hansel Mina, Ph.D., Department of Food Science, (Start January 2017)

Graduate Student Committees:

- Jessie Wang, Food Science (Graduated 2014)
- Seokomu Ku, Agriculture and Biological Engineering (Graduated 2015)
- Susan Hammons, Food Science (Graduated 2016)
- Andrea Ray, Food Science
- Shershah Ameri, Agricultural Economics (Graduated 2015)
- Diana Vanessa Sarria Zuniga, Botany and Plant Pathology
- Clara Assisi, Food Science (Graduated 2016)
- Estefania Rama, Food Science
- Li-Kai Lin, Materials Science Engineering

Visiting Scientists:

- Johnna Tomas, Research & Development Scientist, Dole Fresh Vegetables, Inc.
- Jessica Kawabata, Research & Development Scientist, Dole Fresh Vegetables, Inc.
- Yuki Mikoshiba, Research & Development Scientist, Dole Fresh Vegetables, Inc.
- Abizer Khairullah, Research & Development Scientist, Dole Fresh Vegetables, Inc.

Grants and Extramural Funding:

1. Undergraduate Research and Creative Endeavors Grant, CMU (2001) - \$500
2. Graduate Research and Creative Endeavors Grant, CMU (2002) - \$700
3. Graduate Research and Creative Endeavors Grant, CMU (2003) - \$700
4. Dole Fresh Vegetables, Inc., Testing Novel Sanitizers in Romaine Lettuce, Purdue (2011) - \$10,175
5. Dole Fresh Vegetables, Inc., Sanitization Treatments to Improve Food Safety of Leafy Greens, Purdue (2011) - \$85,000
6. Dole Fresh Vegetables, Inc., Contract Work in Food Safety, Purdue (2011) - \$45,427
7. Dole Fresh Vegetables, Inc., Chlorine Dioxide Gas to Reduce Human Pathogenic Bacteria on Lettuce, Purdue (2012) - \$6,000 (with Dr. Mark Morgan, Food Science)
8. Dole Fresh Vegetables, Inc., Metagenomics of Bacterial Communities Associated with Fresh Produce, Purdue (2012) - \$10,000 (with Dr. Robert Pruitt, Botany and Plant Pathology)

9. GEO Specialty Chemicals, Determining the Efficacy of Glycine for the Microbial Reduction of Background and Pathogenic Bacteria to Increase the Shelf Life of Fresh Produce (2012) - \$10,009.37 (with Dr. Lisa Mauer, Food Science)
10. SePRO Corporation, Examining Biofilms Associated with Fresh Produce (2013) - \$4,500 (with Dr. Lisa Mauer, Food Science)
11. Indiana Vegetable Growers Association – Examining Routes of Contamination of *Salmonella* Typhimurium in Cantaloupe Fruit (2013) - \$1,000 (with Dr. Haley Oliver, Food Science)
12. Dole Fresh Vegetables, Continuing Work in Produce Food Safety (2013) - \$50,000
13. Dole Fresh Vegetables, Continuing Work in Produce Food Safety (2014) - \$20,000
14. Indiana Vegetable Growers Association – Examining Persistence of *Listeria monocytogenes* Associated with Commercial Cantaloupe Seeds (2014) - \$1,000 (with Dr. Haley Oliver, Food Science; Dr. Robert Pruitt, Botany and Plant Pathology)
15. Parker Hannifin Corporation – Examining Efficacy of Novel Filter System for the Removal of Foodborne Bacterial Pathogens (2014) - \$5,500
16. Dole Fresh Vegetables Inc., Continuing Work in Produce Food Safety (2014) - \$25,000
17. Center for Food Safety Engineering, USDA (2014) - \$55,000
18. Indiana Vegetable Growers Association (2015) - \$1,000
19. Dole Fresh Vegetables, Inc., Continuing Work in Produce Food Safety (2015) - \$15,000
20. Red Gold, Research in Processed Tomato Food Safety (2015) - \$1,000
21. Strawridge Farms, Testing Sanitizers for Small Growers (2015) - \$500
22. Center for Food Safety Engineering, USDA (2015) - \$60,000
23. Center for Produce Safety (2015) - \$6,563 (Co-PI)
24. USDA/NIFA Planning Grant (2015) - \$50,000 (Co-PI)
25. Food and Drug Administration, Food Safety Challenge Winner (2015) - \$320,000 (Co-PI)
26. AgSEED - Agricultural Research and Extension Leading to Economic (2016) - \$50,000 (Co-PI)
27. Center for Food Safety Engineering (2016) - \$160,000 (Co-PI)
28. AgSEED - Agricultural Research and Extension Leading to Economic (2016) - \$50,000 (Co-PI)
29. USDA Specialty Crop Block Grant Program (2016) - \$105,000 (Co-PI)
30. USDA-NIFA (2016) - \$499,617 (Co-PI)
31. Food and Drug Administration (2016) - \$438,324 (PI)
32. USAID (2016) - \$599,000 (Co-PI)
33. North Central FSMA Center, Iowa State University (2016) - \$24,000 (PI)
34. Mary S. Rice Farm Fund (2017) - \$8,090 (Co-PI)

Awards and Honors:

Beta Beta Beta, The Honor Society for Biology (2000)
 Norvall C. and Evelyn Gagnon Bovee Scholarship, CMU (2000)
 Daniel E. Wujek Research Award for Outstanding Research in Plant Biology at CMU (2003)
 Department of Biology Competitive Summer Research Assistantships (2001, 2002)
 National Science Foundation Graduate Teaching Fellowship, GK-12 Program (2006-2007)
 Phi Tau Sigma, The Honor Society for Food Science (2008)
 Gamma Sigma Delta, The Honor Society of Agriculture (2009)

IFT Food Microbiology Division, 2nd place Z. John Ordal Oral Competition (2010)
Bilsland Dissertation Fellowship, Purdue University (2010)
IEEA Team Award, Cooperative Extension Service (2014)
FDA Food Safety Challenge Winner (2015)
Selected for Participation in the Indiana Agriculture Leadership Program (2106)

Professional Association Memberships:

Produce Safety Alliance
Institute of Food Technologists
American Society of Microbiology
International Association for Food Protection

Publications:

1. Deering, A.J. 2004. Development of bundle and extrafascicular sieve elements in phloem tissue of pumpkin, *Cucurbita maxima*. M.S. Thesis, Central Michigan University, Mount Pleasant, Michigan.
2. Deering, A., Nail, S., Wee, B., Pruitt, R. 2008. Addressing photosynthesis using a plant physiology experiment at the middle school: Perspectives from a visiting scientist. *The Hoosier Science Teacher*, 33: 107-113.
3. Mauer, L.J., Chernyshova, A.A., Hiatt, A., Deering, A., Davis, R. 2009. Melamine detection in infant formula powder using near- and mid-infrared spectroscopy. *Journal of Agriculture and Food Chemistry*, 57 (10), 3974–3980.
4. Davis, R., Burgula, Y, Deering, A., Reuhs, J. Irudayaraj, B.L., Mauer, L.J. 2010. Detection and differentiation of live and heat treated *Salmonella enterica* serovars inoculated onto chicken breast using Fourier transform infrared (FT-IR) spectroscopy. *Journal of Applied Microbiology*. Epub 2010 Jul 30.
5. Deering, A.J., Reuhs, B.L., Mauer, L.J. Nanostructural differentiation between live and dead *Escherichia coli* cells using FT-IR spectroscopy and comparison of detection limits using quantitative PCR (qPCR). University Government Industry Micro/Nano (UGIM) Symposium Proceedings, June 28 - July 1, 2010, West Lafayette, IN, United States.
6. Deering, A.J. 2010. Examination of the internalization of the human pathogenic bacteria, *Escherichia coli* O157:H7 and *Salmonella* s.v. Typhimurium, in plants. Ph.D. Thesis, Purdue University, West Lafayette, Indiana.
7. Deering, A.J., Pruitt, R.E., Mauer, L.J., Reuhs, B.L. 2012. Examination of the internalization of *Salmonella* serovar Typhimurium in peanut, *Arachis hypogaea*, using immunocytochemical techniques. *Food Research International*, 45: 1037-1043.
8. Deering, A.J., Pruitt, R.E., Mauer, L.J., Reuhs, B.L. 2011. Identification of the cellular location of internalized *Escherichia coli* O157:H7 in mung bean, *Vigna radiata*, using immunocytochemical techniques. *Journal of Food Protection*, 74: 1224-1230.

9. Davis, R., A.J. Deering, Y. Burgula, L.J. Mauer, Reuhs, B.L. 2012. Differentiation of live, dead, and treated cells of *E. coli* O157:H7 using FT-IR spectroscopy. *Journal of Applied Microbiology*, 112: 743-751.
10. Deering, A.J. Comparison of sampling methods to determine the efficacy of chlorine vs. peroxyacetic acid and lactic acid in microbial reduction of *E. coli* O157:H7 on Romaine lettuce (*L. sativa var. romana*) leaves. Manuscript in preparation.
11. McCoy, S., Chang, J. W., McNamara, K. T., Oliver, H. F. and Deering, A. J. 2014. Quality and safety attributes of afghan raisins before and after processing. *Food Science & Nutrition*, 3: 56–64.
12. Vibbert, H.B., Ku, S., Li, X., Liu, X.1, Ximenes, E., Kreke, T., Ladisch, M.R., Deering, A.J., Gehring, A.G. 2015. Accelerating sample preparation through enzyme-assisted microfiltration of *Salmonella* in chicken extract. *Biotechnology Progress*, 31: 1551-1562.
13. Deering, A.J., Jack, D.R., Pruitt, R.E., Mauer, L.J. 2015. Movement of *Salmonella* serovar Typhimurium and *E. coli* O157:H7 to Ripe Tomato Fruit Following Various Routes of Contamination. *Microorganisms*, 3: 809-825.
14. Ku, S., Ximenes, E., Kreke, T., Foster, K., Deering, A. J. and Ladisch, M. R. 2016. Microfiltration of enzyme treated egg whites for accelerated detection of viable *Salmonella*. *Biotechnol Progress*, 32: 1464–1471. doi:10.1002/btpr.2343
15. Fu, Y., Deering, A.J., Bhunia, A.K., Yao, Y. 2017. Pathogen biofilm formation on cantaloupe surface and its impact on the antibacterial effect of lauroyl arginate ethyl, *Food Microbiology*, 139-144, ISSN 0740-0020, <http://dx.doi.org/10.1016/j.fm.2016.12.020>.
16. Shenoy, A., Oliver, H.F., Deering, A.J. 2017. *Listeria monocytogenes* Internalizes in Romaine Lettuce Grown in Greenhouse Conditions. *Journal of Food Protection*, accepted.

Invited Review:

1. Deering, A.J., Mauer, L.J., Pruitt, R.E. 2012. Internalization of *E. coli* and *Salmonella* spp. in plants: A review. *Food Research International*, 45: 567-575.

Patents:

1. Dull, B.J., Khairullah, A.M., Deering, A.J., Billingsley, R.D., Kawabata, J.A., and Thomas, J. Novel method for sanitizing fruits and vegetables. Patent Issued July, 2015.

Invited Seminars:

1. Deering, A.J., Burkholder, K. How does digestion work? Understanding the role of enzymes and food. Presented at The Indiana Developmental Training Center, Lafayette, IN, Summer 2008.

2. Deering, A.J. Understanding Microscopy for the Middle School Student, Klondike Middle School, West Lafayette, IN September 2007-2009.
3. Deering, A.J. Using Spectrophotometers to Measure Photosynthetic Rates, Klondike Middle School, West Lafayette, IN, January 2007-2012.
4. Deering, A.J., Mauer, L. J. Infrared spectroscopy applications for pathogen detection. Rapid Methods Workshop. Kansas State University, Manhattan, KS. June 2009.
5. Deering, A.J., Mauer, L.J. Detection of bacterial pathogens using infrared spectroscopy applications. Food Safety Technology Commercialization Summit. Purdue University, West Lafayette, IN. July 2009.
6. Deering, A.J., Pruitt, R.E., Reuhs, B.L. Examination of the Internalization of *Escherichia coli* O157:H7 in Mung Bean, *Vigna radiata*, Following Seed Contamination. IFT Annual Meeting, Chicago, July 17, 2010.
7. Deering, A.J. The Dark Side of Salad: Research in Produce Food Safety. Indiana Food Safety and Defense Task Force Meeting, Indianapolis, IN. March 7th, 2012.
8. Deering, A.J. The Dark Side of Salad: Challenges to Provide Safe Produce to Consumers. Food Science Symposium, Purdue University, April 4, 2012.
9. Deering, A.J. Detection of Internalized Human Pathogenic Bacteria in Plants. 14th Annual Meeting of the Purdue University/USDA-ARS Center for Food Safety Engineering, Purdue University, November 29th, 2012.
10. Deering, A.J. Food Safety Concerns Associated with Fresh Produce. 82nd Annual Meeting, Indiana Dietetic Association, Indianapolis, IN, April 17th, 2013.
11. A. J. Deering. Examination of the Movement and Persistence of *Salmonella* s.v. Typhimurium and *E. coli* O157:H7 to Ripe Tomato Fruit Following Various Routes of Contamination. IFT 2010 Annual Meeting, Chicago, IL, July 2013.
12. A. J. Deering. Dark Side of Salad: Movement and Persistence of Human Bacterial Pathogens in Tomato Plants. IEHA 63rd Annual Fall Educational Conference, Fort Wayne, IN September, 2013.
13. A. J. Deering. Research and education for the fresh produce industry. Department of Food Science Industrial Associates Fall Meeting, Purdue University, October 2013.
14. A. J. Deering. *Listeria monocytogenes* Persistence and Movement in Cantaloupe Plants and Fruit. Indiana Vegetables Growers Association Annual Meeting, Purdue University, 2013.

15. A.J. Deering. June 2014. Elderhostel/Road Scholar Purdue's All-You-Can-Learn Buffet. The Dark Side of Salad: Salmonella and Other Pathogens Associated with Fresh Produce.
16. A. J. Deering. December 2014. Prevalence of *Listeria monocytogenes* associated with commercial cantaloupe seeds. Indiana Vegetable Growers Annual Meeting, Purdue University.
17. A. J. Deering. January 2014, Indiana Hort Congress. Experiences with Food Safety Inspections in Packing Houses.
18. A. J. Deering. March 2014, Schereville, IN. Illiana Vegetable Growers Symposium. Using Sanitizers in Post-Harvest Water.
19. A. J. Deering. January 2015, Schereville, IN. Illiana Vegetable Growers Symposium, Post-harvest sanitizers for fresh produce.
20. Archana A. Shenoy, Haley F. Oliver, Amanda J. Deering. August 2015. Internalization of *Listeria monocytogenes* in Romaine Lettuce. International Association of Food Protection Annual Meeting
21. A.J. Deering. October 2015. Brno, Czech Republic, Mendel University. The Dark Side of Salad: Movement and Persistence of Human Bacterial Pathogens in Plants.
22. A.J. Deering. December 2015. Department of Botany and Plant Pathology, Purdue University. The Dark Side of Salad: Movement and Persistence of Human Bacterial Pathogens in Plants.
23. A.J. Deering. December 2015. Indiana Environmental Health Association Annual Meeting. The Dark Side of Salad: Movement and Persistence of Human Bacterial Pathogens in Plants.
24. A.J. Deering. October 2016. Brno, Czech Republic, Mendel University. Internalization of Human Pathogenic Bacteria in Plants and Fresh Produce Food Safety.
25. Monroe, J.S. and A.J. Deering. The Effect of Soil Remediation Treatments on Microbial Populations Following an Extreme Flooding Event, Center for Produce Safety 2016 Annual Meeting. June 28-29, Seattle, WA.
26. A. J. Deering. January 2016. Postharvest Sanitizers for Fresh Produce. Indiana Horticultural Congress. Indianapolis, IN.
27. A.J. Deering. February 2016. Good Agricultural Practices for Wild Mushrooms. Morel Mushroom Certification Course, The Hoosier Mushroom Society. Indianapolis, IN.
28. A.J. Deering. March 2016. Good Agricultural Practices for Wild Mushrooms. Morel Mushroom Certification Course, The Hoosier Mushroom Society. South Bend, IN.

29. A.J. Deering. April 2016. Guest Speaker, Purdue Afghanistan Society, Afghan New Year Meeting. Lafayette, IN.
30. A. J. Deering, H. F. Oliver, J. S. Monroe. June 2016. Bringing in the Harvest: Preparing for the 2016 Melon Season. Oaktown, IN.
31. A. J. Deering, H. F. Oliver, J. S. Monroe. July 2016. Postharvest Processing and Food Safety in the Packing House. West Lafayette, IN.
32. A.J. Deering. September 2016. Indiana Environmental Health Association Annual Meeting. The Dark Side of Salad: Movement and Persistence of Human Bacterial Pathogens in Plants. Michigan City, IN.
33. A.J. Deering. September 2016. Postharvest Sanitizers for Fruits and Vegetables. Farm Science Review. London, OH.
34. A.J. Deering. October 2016. Food Safety for Fresh Produce Grown using Aquaponics. Indiana Aquaculture Association. Kokomo, IN.
35. A.J. Deering. November 2016. FSMA and Purdue's Effort for GAPs Training for Indiana Growers. Indiana Food Protection Symposium. Indianapolis, IN.
36. A.J. Deering. December 2016. Indiana Environmental Health Association Meeting. Food Safety Trainings in Afghanistan. Lafayette, IN.

Meetings Attended and Presentations:

1. Deering, A.J. and J.M. Dannenhoffer. 2001. Comparison of protein bodies from wild type and *opaque2* maize endosperm. Student Research and Creative Endeavors Exhibit, Central Michigan University, Mt. Pleasant, MI.
2. Deering, A.J., Hampton, J., Dannenhoffer, J.M. 2002. Localization of mRNA expression of a trypsin inhibitor (PFTI) from pumpkin phloem using *in situ* hybridization techniques. Student Research and Creative Endeavors Exhibit, Central Michigan University, Mt. Pleasant, MI.
3. Deering, A.J. and J.M. Dannenhoffer. 2002. Determining size and number of protein bodies from wild type and *opaque2* maize using scanning electron microscopy. Michigan Microscopy and Microanalysis Annual Meeting, Lansing, MI.
4. Deering, A.J. and J.M. Dannenhoffer. 2003. Localization of a pumpkin fruit trypsin inhibitor (PFTI) during sieve element differentiation in pumpkin, *Cucurbita maxima*. Microscopy Society of America Annual Meeting, San Antonio, TX.

5. Deering A.J. and J.M. Dannenhoffer. 2003. Localization of a pumpkin fruit trypsin inhibitor (PFTI) during phloem development using immunocytochemical techniques. Michigan Microscopy and Microanalysis Annual Meeting, Frankenmuth, MI.
6. Deering, A.J. and J.M. Dannenhoffer. 2005. Developmental differences in PFTI localization between fascicular and extrafascicular phloem in pumpkin, *Cucurbita maxima*. American Society of Plant Biologists Annual Meeting, Seattle, WA.
7. Deering, A.J., Reuhs, B.L., Mauer, L.J. 2008. Differentiation between live and dead bacterial cells using FTIR spectroscopy and verification using quantitative PCR. Poster presentation at Annual Research Planning Workshop, USDA/ARS Eastern Regional Research Center, Purdue University, Center for Food Safety and Engineering.
8. Deering, A. J., Reuhs, B. L., Mauer, L. J. Differentiation between live and dead bacterial cells using FT-IR spectroscopy and comparison of detection limits using quantitative PCR (qPCR). Institute of Food Technologists' Annual Meeting and Food Expo. Anaheim, CA. June 6-10, 2009.
9. Davis, R., Burgula, Y., Deering, A., Irudayaraj, J., Reuhs, B. L., Mauer, L. J. Identification, enumeration, and differentiation of live and dead *E. coli* O157: H7 in ground beef using fourier transform infrared (FTIR) spectroscopy and a portable IR sensor. Institute of Food Technologists' Annual Meeting and Food Expo. Anaheim, CA. June 6-10, 2009.
10. Deering, A.J., Reuhs, B.L., Mauer, L.J. 2009. Differentiation between live and dead bacterial cells using FT-IR spectroscopy and comparison of detection limits using quantitative PCR (qPCR). Poster presentation at Annual Research Planning Workshop, USDA/ARS Eastern Regional Research Center, Purdue University, Center for Food Safety and Engineering.
11. Deering, A.J., Pruitt, R.E., Reuhs, B.L. Examination of the Internalization of *Escherichia coli* O157:H7 in Mung Bean, *Vigna radiata*, Following Seed Contamination. Institute of Food Technologists' Annual Meeting and Food Expo. Chicago, IL. July 17-20, 2010.
12. Deering, A.J., Reuhs, B.L., Mauer, L.J. Comparison of Detection Limits for Differentiation between Live and Dead *Escherichia coli* Cells using FT-IR Spectroscopy and Quantitative PCR (qPCR). Institute of Food Technologists' Annual Meeting and Food Expo, Chicago, IL. July 17-20, 2010.
13. Deering, A.J., Furrer, A.N., Pruitt, R.E. 2012. Comparison of sampling methods to determine the efficacy of chlorine vs. peroxyacetic acid and lactic acid treatment in the microbial reduction of *E. coli* O157:H7 on Romaine lettuce (*L. sativa var. romana*) leaves. Institute of Food Technologists' Annual Meeting and Food Expo, Las Vegas, NV. June 25-28, 2012.

14. Deering, A.J. Internalization of Human Pathogenic Bacteria in Plants. Annual Research Planning Workshop, USDA/ARS Eastern Regional Research Center, Purdue University, Center for Food Safety and Engineering, Purdue University, November, 2012.
15. Deering, A.J. Pathogen Internalization and Responses to Sanitization. Annual Research Planning Workshop, USDA/ARS Eastern Regional Research Center, Purdue University, Center for Food Safety and Engineering, USDA-ERRC, Wyndmoor, January, 2014.
16. Alexis Peterson, Archana Shenoy, and Amanda Deering. July 2014. Examination of Romaine Lettuce Seeds as a Potential source of *Listeria monocytogenes* Contamination. Purdue Summer Research Opportunities Program Presentation.
17. Archana Shenoy, Haley F. Oliver, Amanda J. Deering. November 7th 2014. Growth and Internalization of *Listeria monocytogenes* in Romaine Lettuce (*Lactuca sativa*, var *longifolia*). Purdue Plant Sciences Network poster presentation.
18. Christopher E. Bach, Archana G. Shenoy, J. Paul Robinson, Euiwon Bae, Amanda J. Deering, and Robert E. Pruitt. Nov 14th 2014. Validation of the BARDOT System for Classification of Background Microflora on Romaine lettuce. Purdue Center for Food Safety Engineering/ USDA poster presentation.
19. Jun Won Chang, Robert E. Pruitt, and Amanda J. Deering . November 14, 2013 . Purdue Univ. Botany & Plant Pathology Poster Session at Lafayette Theatre . Efficacy of Household Sanitizers for the Reduction of *Listeria monocytogenes* and *Salmonella* s.v. Typhimurium on Cantaloupe.
20. Jun Won Chang, Robert E. Pruitt, and Amanda J. Deering . March 31, 2014 . Health and Disease: Science, Culture and Policy Research Poster Session at Purdue Memorial Union, Purdue University. Efficacy of Household Sanitizers for the Reduction of *Listeria monocytogenes* and *Salmonella* s.v. Typhimurium on Cantaloupe.
21. Jun Won Chang, Robert E. Pruitt, and Amanda J. Deering . March 31, 2014 . Health and Disease: Science, Culture and Policy Research Poster Session at Purdue Memorial Union, Purdue University. Efficacy of Household Sanitizers for the Reduction of *Listeria monocytogenes* and *Salmonella* s.v. Typhimurium on Cantaloupe.
22. Jun Won Chang, Robert E. Pruitt, and Amanda J. Deering . November 14, 2014 . The Center for Food Safety Engineering Poster Session at Purdue University. Efficacy of Electrochemically Activated Water and UV for the Reduction of *Listeria monocytogenes* and *Salmonella* s.v. Typhimurium on Cantaloupe.
23. Jun Won Chang, Robert E. Pruitt, and Amanda J. Deering . November 18, 2014 . Purdue Univ. Botany & Plant Pathology Poster Session at The Beck Agricultural Center, Purdue University. Efficacy of Electrochemically Activated Water and UV for the Reduction of *Listeria monocytogenes* and *Salmonella* s.v. Typhimurium on Cantaloupe.

24. Jun Won Chang, Robert E. Pruitt, Amanda J. Deering. March 2015. Efficacy of Electrochemically Activated Water and UV for the Reduction of *Listeria monocytogenes* and *Salmonella* s.v. Typhimurium on Cantaloupe. Indiana Small Farms Conference.
25. Archana A. Shenoy, Haley F. Oliver, Amanda J. Deering. August 2015. Internalization of *Listeria monocytogenes* in Romaine Lettuce. International Association of Food Protection Annual Meeting.
26. YooJung Heo, Robert E. Pruitt, Amanda J. Deering. February 2016. Impact of Postharvest Treatment Methods for Fresh Produce Indiana Small Farms Conference.
27. Seockmo Ku, Eduardo Ximenes, Thomas Kreke, Amanda J. Deering, Michael R. Ladisch. Rapid *Salmonella* Concentration, Recovery, and Detection from Ready-To-Eat Spinach CFSE Annual Meeting, October 2016.
28. Alexandria Belias, Haley F. Oliver, Amanda Deering. Prevalence of *Listeria monocytogenes* and *Salmonella* spp. from commercial cantaloupe seeds. CFSE Annual Meeting, October 2016.
29. Core-shell Particles for *E. coli* O157:H7 Detection. Seon-Ah Jin, Amanda Deering, Lisa Mauer, Lia Stanciu. CFSE Annual Meeting, October 2016.
30. YooJung Heo, Robert E. Pruitt, Amanda J. Deering. November, 2016. Impact of Postharvest Treatment Methods for Fresh Produce. Plant Science Social, Purdue University.
31. YooJung Heo, Robert E. Pruitt, Amanda J. Deering. June 2016. Bacterial communities associated with greenhouse grown romaine lettuce. Plant Science Poster Session, Purdue University.

Workshops:

1. Annual Research Planning Workshop, USDA/ARS Eastern Regional Research Center, Purdue University, Center for Food Safety and Engineering, November 2008.
2. Annual Research Planning Workshop, USDA/ARS Eastern Regional Research Center, Purdue University, Center for Food Safety and Engineering, October 2009.
3. Sample Prep 2012: Sample Preparation for Virus, Toxin, & Pathogen Detection & Identification, San Diego, CA. May 3-4th, 2012.
4. A. J. Deering, H. F. Oliver, J. S. Monroe. Food Safety in the Packinghouse: Preparing for a Safe Harvest and Potential Audits in 2013, Vallonia, IN, June 17th 2013.
5. A. J. Deering, H. F. Oliver, J. S. Monroe. Food Safety in the Packinghouse: Preparing for a Safe Harvest and Potential Audits in 2013, Vincennes, IN, June 19th 2013.

6. A. J. Deering, H. F. Oliver, J. S. Monroe. Food Safety in the Packinghouse: Preparing for a Safe Harvest and Potential Audits in 2013, Poseyville, IN, June 21st 2013.
7. A. J. Deering, H. F. Oliver, J. S. Monroe. Bringing in the Harvest: Preparing for the 2014 Melon Season. Vallonia, IN. June 9th, 2014.
8. A. J. Deering, H. F. Oliver, J. S. Monroe. Bringing in the Harvest: Preparing for the 2014 Melon Season. Oaktown, IN. June 13th, 2014.
9. A. J. Deering, H. F. Oliver, J. S. Monroe. Bringing in the Harvest: Preparing for the 2015 Melon Season. Oaktown, IN. June 13th, 2015.
10. A. J. Deering, H. F. Oliver, J. S. Monroe. June 2016. Bringing in the Harvest: Preparing for the 2016 Melon Season. Oaktown, IN.
11. A. J. Deering, H. F. Oliver, J. S. Monroe. July 2016. Postharvest Processing and Food Safety in the Packing House. West Lafayette, IN.
12. A. J. Deering. Produce Safety Alliance Good Agricultural Practices. November 2016, Purdue University.
13. A. J. Deering, J. S. Monroe. Produce Safety Alliance Good Agricultural Practices. December 16, Purdue University Southwest Purdue Agricultural Center.

Extension and Outreach Activities:

1. Klondike Middle School (West Lafayette, IN) 6th, 7th, and 8th grade science fair judge: 2007, 2008, 2010, 2011, 2012, 2013, 2014, 2015, 2016.
2. Understanding Photosynthesis using Spectrophotometers. Lab activity, 7th grade Science, Klondike Middle School (West Lafayette, IN). 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015. 2016.
3. Deering, A.J. Research in Produce Food Safety. Purdue Council for Agricultural Research, Extension and Teaching Meeting, Evansville, IN. October 17th, 2011.
4. Deering, A.J. Routes of Contamination and Sanitization Treatments for the Fresh Produce Industry. Purdue Extension: GAPs for Fresh Produce, Indianapolis, IN. November 30th, 2011.
5. Deering, A.J. Possible Routes of Contamination of Fresh Produce and Methods of Post-Harvest Sanitization. Indiana Horticulture Congress: Good Agricultural Practices from A to Z for Produce Growers, Indianapolis, IN. January 17th, 2012.
6. Deering, A.J. Routes of Contamination Important for Produce Food Safety. Knox County Purdue Alumni Meeting, Vincennes, IN. March 6th, 2012.

7. Deering, A.J. Food Safety Research at Purdue. Melon Food Safety: 2012 and Beyond, Purdue Extension, Vincennes, IN. January 29th, 2013.
8. Deering, A.J. Examining Routes of Contamination with *Salmonella* s.v. Typhimurium using Cantaloupe in a BSL2 Greenhouse Facility. Great Lakes Vegetable Working Group Annual Meeting, Purdue University, February 27-28, 2013.
9. A.J. Deering. Food Safety Research at Purdue. Melon Food Safety: 2012 and Beyond, Purdue Extension. Vincennes, IN, January 2013.
10. A. J. Deering, J.S. Monroe. Research, Education, and Advocacy for the Indiana Produce Industry. Purdue Council for Agricultural Research, Extension and Teaching Annual State Conference, Purdue University, November, 2013.
11. A.J. Deering. Experiences with Food Safety Inspections in Packing Houses. 2014 Indiana Hort Congress, Indianapolis, IN.
12. A.J. Deering. Use of Post-Harvest Water in the Packinghouse. 2014 Illiana Vegetable Growers Symposium. Schererville, IN, March 2014.
13. A. J. Deering. March 2014. Good Agricultural Practices Trainings. Post-Harvest Water and Sanitizers. LaGrange County, IN.
14. A. J. Deering. March 2014. Good Agricultural Practices Trainings. Post-Harvest Water and Sanitizers. Elkhart County, IN.
15. A. J. Deering. March 2014. Good Agricultural Practices Trainings. Post-Harvest Water and Sanitizers. Fulton/Marshall County, IN.
16. A. J. Deering. January 2016. Postharvest Sanitizers for Fresh Produce. Indiana Horticultural Congress. Indianapolis, IN.
17. A.J. Deering. February 2016. Good Agricultural Practices for Wild Mushrooms. Morel Mushroom Certification Course, The Hoosier Mushroom Society. Indianapolis, IN.
18. A.J. Deering. March 2016. Good Agricultural Practices for Wild Mushrooms. Morel Mushroom Certification Course, The Hoosier Mushroom Society. South Bend, IN.
19. A. J. Deering, H. F. Oliver, J. S. Monroe. July 2016. Postharvest Processing and Food Safety in the Packing House. West Lafayette, IN.
20. A. J. Deering, H. F. Oliver, J. S. Monroe. June 2016. Bringing in the Harvest: Preparing for the 2016 Melon Season. Oaktown, IN.

International Activities:

1. A. J. Deering. May 2014. Food Safety, Health, and Hygiene Training. Afghanistan Sanitary Phytosanitary USDA Foreign Ag Service Project. Kabul, Afghanistan.
2. H. F. Oliver and A. J. Deering. September 2014. Training in Food Microbiology and Food Microbiology Lab Techniques. University Support and Workforce Development Program. Kabul, Afghanistan.
3. A. J. Deering. February 2015. Overview of Hermetic Storage and Purdue Improved Crop Storage, Herat-AAEP. Herat, Afghanistan.
4. A. J. Deering. August 2015. Health, hygiene, and food safety in the home (women's only training), Herat-AAEP. Herat, Afghanistan.
5. A.J. Deering. August 2015. Hermetic storage and microbial quality of stored fruit, nuts, and grains: A lecture and lab activity, Herat-AAEP. Herat, Afghanistan.
6. A.J. Deering. August 2015. Hermetic storage and microbial quality of stored fruit, nuts, and grains: A lecture and lab activity, Herat-AAEP. Herat, Afghanistan.
7. A.J. Deering. December 2015. Pesticide residue associated with fruits and vegetables and agricultural water quality, AAEP II, Kabul, Afghanistan.
8. A.J. Deering. December 2015. Pesticide residue associated with fruits and vegetables and agricultural water quality, AAEP II, Herat, Afghanistan.
9. A.J. Deering. December 2015. Food safety, hand washing, and hygiene for industry training, Morvarid Food Company, AAEP II, Herat, Afghanistan.
10. A.J. Deering. December 2015. Training Herat University student food science and hermetic storage: lab based activities, and postharvest water testing. USAID. Herat, Afghanistan.
11. A.J. Deering. August 2016. Training Herat University student food science and food preservation techniques. USAID. Herat, Afghanistan.
12. A. J. Deering. August 2016. Overview of Hermetic Storage and Purdue Improved Crop Storage, Herat-AAEP II. Herat, Afghanistan.
13. A.J. Deering. October 2016. Brno, Czech Republic, Mendel University. Internalization of Human Pathogenic Bacteria in Plants and Fresh Produce Food Safety.

Service Activities:

1. Industry Scientific Representative, Dole Fresh Vegetables, Inc.: Food and Drug Administration, Chicago, IL. May 19th, 2011.
 - Presented data that supported improved sampling methods to determine the efficacy of high acid sanitizers for leafy greens

2. Industry Scientific Representative, Dole Fresh Vegetables, Inc.: Food and Drug Administration, Oakland, CA. October 26, 2011.
 - Presented data that supported improved sampling methods to determine the efficacy of high acid sanitizers for leafy greens
3. A. J. Deering, J. S. Monroe. July 2013. FDA Inspection at Frey Farms. Poseyville, IN.
4. A. J. Deering. August 2013. Performing a Mock Audit and Preparing for an FDA Audit: Frey Farms. Hayti, MO.
5. A. J. Deering, R. E. Pruitt. Spring Fest Display and Activity: What's that growing on my spinach? Purdue University, April 2013, 2014, 2015.
6. A.J. Deering. 4H visit to Purdue University, learning about food safety work at Purdue. Summers 2014,2015
7. A.J. Deering. Performing a Mock Audit for Purdue Student Farm, Purdue University, July 2015.
8. A J. Deering. Girls Inc. Visit to Purdue. Learning about food safety, October 2015.
9. A. J. Deering, R. E. Pruitt. April 2016, Purdue University. Spring Fest Display and Activity: What's that growing on my spinach?
10. Science Fair Judge. 6th, 7th, and 8th grade students. Klondike Middle School.
11. A.J. Deering. 4H visit to Purdue University, learning about food safety work at Purdue. Summers 2014,2015, 2016.
12. A.J. Deering, R.E Pruitt. Understanding Photosynthesis and Quality of Light: A 7th Grade Science Lab. Klondike Middle School, December 2016. West Lafayette, IN.
13. A.J. Deering. Performing a Mock Audit for Purdue Student Farm, Purdue University, May 2016.
14. Leadership Team (1 of 3) for the Women Faculty in Agriculture group, Purdue University, 2016-present.