**Dr. Deanna S. Scheff**

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**Education**

**Ph.D. Grain Science and Industry** May 2016

Kansas State University

USDA National Needs PhD Fellow, Donoghue Scholar

Dissertation Research: Packaging technologies for the control of stored-product insects

**M.S. Food and Nutritional Sciences** May 2013

University of Wisconsin – Stout

Thesis: Survival of *Salmonella* ser. Typhimuriumin a Raspberry beverage preserved with organic acid treatments

**B.S. Chemistry, Minor Physics** May 2010

University of Wisconsin – Eau Claire

**Research Experience**

**Post-Doctoral Research Entomologist** (June 2016-Present)

USDA – Agriculture Research Service – Center for Grain and Animal Health Research – Stored-Product Insect and Engineering Unit, Manhattan, KS.

Research areas: packaging technologies, integrated pest management, ecological studies, aerosol effectiveness and dispersal patterns, taxonomy, behavioral entomology, and evaluation of grain protectants.

* Conduct and direct fundamental and applied research projects on new and improved multi-hurdle approaches to integrated pest management solutions and strategies for stored-product insects
* Improve and expand on fundamental research to address national and international problems related to food security and post-harvest grain storage, processing, and packaging
* Collaborate with federal, academic, and industry professionals on determining the effectiveness of insect resistant packaging and insecticide treated packaging across a suite of stored-product insect species
* Develop, coordinate, and conduct research on evaluating the effectiveness of aerosol applications in mills and warehouses on stored-product insect survival
* Conduct ecological and taxonomic studies on the colonization of stored-product insects in grain spillage and natural native prairie landscapes
* Collaborate with colleagues to develop novel attract-and-kill technologies
* Mentor high school and undergraduate students on laboratory safety, conducting research activities, developing the scientific method, and working with stored-product insects.
* Accumulate, interpret, and summarize experimental data in the forms of presentations, research summaries, and published manuscripts.
* Secure external funding to conduct research projects in the forms of grants, trust funds, and industry funding.

**Graduate Research Assistant** (August 2013-May 2016)

Dept. of Grain Science and Industry, Kansas State University, Manhattan, KS.

Research Areas: Insect resistant packaging, stored-product insects, insect growth regulators, material characterization, and food security and safety

* Developed standard testing protocols for adult mortality, progeny production, and larvalicidal effects against stored-product insects on insecticide treated packaging for food products and commodities
* Designed and tested protocols for influence of insect growth regulators on insect growth and development
* Characterized the influence of packaging materials physical properties on insect penetration of stored product commodities
* Designed and implement independent research projects on packaging technologies for the control of stored-product insects including the Indian meal moth, Red flour beetle, and Warehouse beetle.
* Collaborated with USDA researchers and external industry clients on outlining project objectives, designing experiments and conducting statistical assessments of data to achieve project goals and milestones
* Collected, interpreted, and summarized experimental data in the form of presentations, research reports, and manuscripts.

**Graduate Research Assistant** (September 2011-August 2013)

Dept. of Food and Nutrition, University of Wisconsin-Stout, Menomonie, WI

Research Areas: food safety, food microbiology, foodborne pathogens, flow cytometry, acid-tolerance response of *Salmonella*, organic acids

* Worked with an external industry client on defining project requirements, designing experiments and conducting research to enhance microbial food safety in fresh juice beverage production operations
* Collaborated with external industry client in development of a food safety HACCP plan
* Conducted food safety challenge studies to determine the effectiveness of various intervention treatments on the safety of non-pasteurized fruit-based beverages
* Explored the use of flow cytometry to differentiate between acid-tolerant and injured cells of *Salmonella enterica*
* Mentored undergraduate students in designing experiments, conducting research, and interpreting results on anti-microbial research projects.
* Communicated results of research in research summary reports and poster presentations

**Research and Development Chemist** (May 2011-Sept. 2011)

Ecolab, Eagan, MN

Research Areas: hard surface treatments, wearwashing technologies, surfactant chemistry

* Collaborated with colleagues to developed new technologies based on surfactant chemistry for improved warewashing agents
* Independently performed standardized testing procedures for wearwash machines, hand washing applications, and laundry applications
* Collaborated to develop a revised cleaning detergent that reduced detergent amount and water requirements while boosting cleaning power
* Skilled in laboratory documentation, standard testing protocols, federal and state chemical/hygiene, safety audits

**Teaching and Leadership Experience**

**Kansas City Institute of Food Technologist (KCIFT)**

Secretary (May 2013-August 2017)

Director (August 2017- Present)

* Maintain an accurate and complete record of minutes from all meetings and activities for the KCIFT
* Update and notify members of the KCIFT of upcoming board meetings and activities
* Coordinate elections and voting ballots on the board
* Act as a communicator between the president and all members of the organization, which includes over 200 members
* Represent the KCIFT when networking with industry professionals

**Grain Science Graduate Student Organization (GSGSO)**

Dept. of Grain Science and Industry, Kansas State University, Manhattan, KS.

President(May 2014-May 2015)

* Serve as a role model and representative of the GSGSO
* Preside and prepare agendas for all monthly meetings
* Enforce the GSGSO Constitution and Bi-laws
* Represent over 50 GSGSO members at committee meetings, department meetings, university gatherings, and other university functions as needed.
* Communicate and convey relevant information to graduate students through monthly meetings, emails, and personal interactions

**Chemistry Tutor** (Sept. 2014 – Dec. 2014)

Dept. of Grain Science and Industry, Kansas State University, Manhattan, KS/

* Tutored an undergraduate student in general chemistry twice a week during the semester
* Reiterated to the student topics taught in the classroom and laboratory
* Assisted the student in completing homework and laboratory reports
* Showed the student studying styles and tips to prepare for exams

**Teaching Assistant for Food Science** (January 2013-May 2013)

Dept. of Food and Nutrition, University of Wisconsin-Stout, Menomonie, WI

* Organized, planed, and prepared food science laboratory experiments and lesson plans for graduate and undergraduate students
* Supervised and trained students in laboratory safety, MSDS documentation, material handling procedures and , and equipment use
* Discussed and assisted the lecture professor in developing laboratory experiments that implement and reiterate relevant discussions in the classroom
* Graded homework, exams, and papers and then computed and recorded results using electronic marking and reporting devices

**Research Safety Committee** (January 2013-August 2013)

Dept. of Food and Nutrition, University of Wisconsin-Stout, Menomonie, WI

* Met with personnel across the organization to implement chemical hygiene safety while in university laboratories and pilot-plants
* Identified crucial audit issues throughout the campus laboratories and provided remedies to prevent any reoccurrences
* Discussed training procedures for faculty and students when dealing with hazardous chemicals
* Investigated new chemical inventory and monitoring program in order to maintain an accurate inventory campus wide
* Examined ways to monitor and reduce hazardous waste accumulation campus wide

**Chemistry Demo Coordinator** (September 2008 – May 2010)

Dept. of Chemistry, University of Wisconsin-Eau Claire, Eau Claire, WI

* Planed, prepared, and trained undergraduate students to present a chemistry demo show for neighboring grade schools in the area
* Developed new demonstrations to in incorporate into existing show
* Contacted grade school science teachers to coordinate a chemistry demo show at their facility

**Chemistry Tutor** (January 2009 – May 2009)

Dept. of Chemistry, University of Wisconsin-Eau Claire, Eau Claire, WI

* Tutored fellow undergraduate students in areas such as general chemistry, organic chemistry, and quantitative analysis
* Demonstrated and taught studying styles and tips to undergraduate students
* Helped students with lab analysis and reporting formats

**Professional Experience**

**Lab Manager** (January 2013-August 2013)

University of Wisconsin-Stout

* Trained faculty, staff, and students on correct use of lab equipment, chemical hygiene protocol, and laboratory safety guidelines
* Established and maintained a standardized chemical and equipment inventory binder system for the Food and Nutrition Department
* Developed an audit preparatory and action plan for all laboratories in the Food and Nutrition department
* Managed scheduling laboratory use for graduate and undergraduate research, departmental classes
* Contacted external vendors and contractors to discuss schematics of creating a new laboratory space and presented results to department chair
* Prepared designs, quotes, and estimates for renovation of an existing space to be retrofitted for a food analysis laboratory

**Receiving and Transportation Specialist** (September 2011-August 2013)

Menards Inc., Eau Claire, WI.

* Communicated and directed the daily receiving, stocking, and shipping of Menards products to customers and retail locations
* Instructed and trained new employees on compliance and company rules, audits, and job tasks for four departments
* Recognized in the organization for a positive attitude, work ethic, and flexibility in various departments and buildings

**Quality Technician Intern** (March 2012-January 2013)

White Winter Winery, Iron River, WI

* Conducted sulfite and proximate analysis methods to estimate composition of fruit spritz beverages
* Performed production operations and conducted monitoring studies on wine sugar and acidity attributes for product quality and safety standards according HACCP standards
* Performed a pilot study incorporating the aronia berry into current wine making procedures to produce a new product

**Analytical Technician** (Sept. 2010-April 2011)

General Mills, Golden Valley, MN

* Executed and provided replicable test results using ISO accredited fiber and nutrient analysis procedures
* Coordinated with a team to establish and maintain a successful, safe and efficient analytical laboratory
* Prepared a variety of chemical reagents for use on a daily basis
* Chemical hygiene and hazardous waste disposal certified and trained

**Awarded Grants and Contracts**

Developing and implementing a diversified integrated pest management program to prevent stored-product insect infestation, 2017-2019. Funded $325,000, by USDA – Crop Protection and Pest Management Grant. Co-PI: Zhu, K.Y., Morrison, W.R, McKay, T., Campbell, J.F., Arthur, F.H., Bingham, G.V., Phillips, T.W., Scully, E.D., Scheff, D.S., Gerken, A.

Insect infestation trails on microencapsulated meal-ready-to-eat (MRE) bags, 2017. Funded $15,000, by the US Army NATICK laboratory. Co-PI: Campbell, J.F., Scheff, D.S.

Insect infestation trials on thermoformed meal-ready-to-eat (MRE) bags, 2017. *In review,* $15,000, by the US Army NATICK laboratory. Co-PI: Campbell, J.F., Scheff, D.S.

Assessment of Zerofly® Storage Bags and D-Terrence netting against stored-product insects, 2018. Funded $15,000, by Vestergaard. Co-PI: Arthur, F.H., Scheff, D.S.

Evaluation of spinosad alone and in combination with methoprene as a packaging treatment, 2017. Funded, $15,000, by ProvisionGARD™. Co-PI: Arthur, F.H., Scheff, D.S.

Evaluation of Zerofly® Storage Bags for the control of stored product insects. 2016-2018. Funded, $25,000, by Vestergaard. Co-PI: Arthur, F.H., Scheff, D.S.

Evaluation of methoprene packaging on *Trogoderma granarium* and *Trogoderma inclusum*. 2016-2017. Funded by ProvisionGARD™. Co-PI: Arthur, F.H., Scheff, D.S.

**Publications**

Scheff, D.S., Subramanyam, Bh,, Arthur, F.H., Dogan, H., 2017. *Plodia interpunctella* and *Trogoderma variabile* larval penetration and invasion of methoprene-treated foil packaging. *Submitted to* Journal of Stored Product Research (December 2017).

Scheff, D.S., Arthur, F.H., 2017. Fecundity of *Tribolium castaneum* and *Tribolium confusum* adults after exposure to deltamethrin packaging. Journal of Pest Science, DOI 10.1007/s10340-017-0923-3

Scheff, D.S., Subramanyam, Bh., Arthur, F.H. 2017. Susceptibility of *Triboilum castaneum* and *Trogoderma variabile* larvae and adults exposed to methoprene-treated woven packaging. Journal of Stored Products Research 73, 142-150.

Scheff, D.S. Subramanyam, Bh., Arthur, F.H. 2016. Effect of methoprene treated polymer packaging on fecundity, egg hatchability, and egg-to-adult emergence of *Tribolium castaneum* and *Trogoderma variabile*. Journal of Stored Products Research 69, 227-234.

Scheff, D.S. 2016. Packaging technologies for the control of stored-product insects, Ph.D. dissertation, Kansas State University, Manhattan, Kansas.

Scheff, D.S., Sehgal, B., Dogan, H. & Subramanyam, B. 2014. Resistance of three energy bar packages to penetration by *Plodia interpunctella* (Hübner) larvae. In *Proceedings of the 11th International Working Conference on Stored Product Protection*, November 24-28, Chiang Mai, Thailand.

Scheff, D.S. 2013. Survival of *Salmonella* ser. Typhimurium in a raspberry beverage preserved with organic acid treatments, M.S. thesis. University of Wisconsin-Stout, Menomonie, Wisconsin.

**Conference Presentations**

*Invited presentations*

Scheff, D., Arthur, F.H., 2018. Utilizaing insecticide treated netting against stored-

product insects, Entomological Society of America – North Central Branch, March 18-21, Madison, WI.

Scheff, D., Campbell, J., Arthur, F., Domingue, M., Myers, S., 2017. Packaging

technologies for the control of dermestids. Entomological Society of America National Meeting, November 5-8, Denver, CO.

Scheff, D., 2017. Challenges and opportunities after graduate school. Grain Science

 Graduate Student Organization – Fall Symposium, September 23, Manhattan, KS.

Scheff, D., Arthur, F., Campbell, J., Brabec, D., 2017. Aerosol dispersal patterns and

how they affect susceptibility of *Tribolium confusum* adults. Entomological Society of America – North Central Branch Meeting, June 4-7, Indianapolis, IN.

*Oral and poster presentations* (lead author)

Scheff, D., 2018. Multi-hurdle approach to integrated pest management. Oral

presentation at the NC-213 meeting, February 21-22, Kansas City, MO.

Scheff, D., Campbell, J., Arthur, F., Brabec, D., 2017. Aerosol distribution effects on

*Tribolium confusum* adults. Oral presentation at the Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reductions, November 13-15, San Diego, CA.

Scheff, D. Arthur, F., Subramanyam, B. 2016. Prevention of product loss through the use of methoprene-treated packaging. Poster presentation at the American Association of Cereal Chemists International Annual Meeting, Savannah, GA.

Scheff, D. Subramanyam, B., Arthur, F., & Dogan, H. 2015. Effect of methoprene impregnated polymer packaging on development of *Tribolium castaneum* and *Trogoderma variabile*. Oral presentation at the Entomological Society of America National Meeting, November 15-18, Minneapolis, MN, USA.

Scheff, D. Subramanyam, B., Arthur, F., & Dogan, H. 2015. Effects of methoprene impregnated birdseed packages on four week old larvae of *Tribolium castaneum* and *Trogoderma variable*. Poster presentation at the Institute of Food

Technologist Annual Meeting and Food Expo, July 11-14, Chicago, IL, USA.

Scheff, D. Subramanyam, B., Arthur, F., & Dogan, H. 2015. Effect of methoprene

impregnated packaging on *Tribolium castaneum* and *Trogoderma variabile* egg-to-adult development. Oral presentation at the Entomological Society of America-North Central Branch Meeting, May 31-June 3, Manhattan, KS.

Scheff, D. Subramanyam, B., Arthur, F., & Dogan, H. 2015. Effects of methoprene impregnated birdseed packages on four week old larvae of *Tribolium castaneum* and *Trogoderma variable*. Oral presentation at the Kansas State Research Forum,

March 31, Manhattan, KS, USA.

Scheff, D. Subramanyam, B., Arthur, F., & Dogan, H. 2015. Effects of methoprene impregnated birdseed packages on four week old larvae of *Tribolium castaneum* and *Trogoderma variable*. Poster presented at the NC-213 meeting, February 18- 19, Kansas City, MO.

Scheff, D., Sehgal, B., Dogan, H. & Subramanyam, B. 2014. Resistance of three energy bar packages to penetration by *Plodia interpunctella* (Hübner) larvae. Poster presented at the International Working Conference on Stored Product Protection, November 24-28, Chiang Mai, Thailand.

Scheff, D., Frederick, J., VanBibber, C., Bingham, A., Dogan, H., and Ambrose, K. 2014. The effect of temperature induced stress cracks on the process quality of yellow dent corn. Poster presented at the American Association of Cereal Chemist International Annual Meeting*,* Providence, RI, USA.

Scheff, D., Sehgal, B., Dogan, H. & Subramanyam, B. 2013. Resistance of three powerbar packages to infestation by *Plodia interpunctella*. Oral presentation at the Grain Science Graduate Student Organization Annual Research Symposium, September 20, Manhattan, KS, USA.

Scheff, D., Sehgal, B., and Subramanyam, B. 2014. Resistance of three energy bar packages to penetration by larval stages of *Plodia interpunctella* (Hübner). Poster presented at the Institute of Food Technologist Annual Meeting and Food Expo, New Orleans, LA, USA.

Scheff, D., Sehgal, B., Dogan, H. & Subramanyam, B. 2013. Resistance of three powerbar packages to infestation by *Plodia interpunctella*. Oral presentation at the Kansas State Research Forum, Manhattan, KS, USA.

Scheff, D., Burritt, J., & Chikthimmah, N. 2013. Survival of *Salmonella* ser. Typhimurium in a Raspberry Beverage Preserved with Organic Acid Treatments. Poster presented at the Institute of Food Technologists (IFT) Annual Meeting and Food Expo, Chicago, IL, USA.

Scheff, D., Burritt, J., Chinnadurai, K., & Chikthimmah, N. 2013. Survival of *Salmonella* ser. Typhimurium in a Raspberry Beverage Preserved with Organic Acids. Poster presented *at UW-Stout Research Day,* Menomonie, WI, USA.

**Professional and Academic Honors and Awards**

* **USDA National Needs Fellowship**, 2013-2016. Kansas State University.
* **Donoghue Scholar**, 2013-2015. Kansas State University.
* **Phi Kappa Phi Honor Society**, 2014-Present. Kansas State University.
* **Rene Buhler Memorial Scholarship,**2015. Kansas State University.
* **Ph.D. Outstanding Graduate Scholar**, 2016, 2015, 2014. Kansas City section of the Institute of Food Technologist, Kansas City, KS
* **Outstanding Volunteer of the Year,** 2016, 2015, Institute of Food Technologist.
* **Corn Refiners Association Student Poster Competition Winner**, 2014, American Association of Cereal Chemists International Meeting, Providence, RI.
* **3rd Place Graduate Poster Competition: Quality Assurance: Food Safety and Defense Category**, 2014. The Institute of Food Technologist Annual Meeting and Food Expo, New Orleans, LA.
* **American Association of Cereal Chemists International Travel Award,** American Association of Cereal Chemists International Meeting.
* **Lola Lee Jackson Animal Welfare Foundation Fund Travel Award**, 2014. Kansas State University.
* **Graduate Student Council Travel Award**, 2015, 2014 (2). Kansas State University.
* **Outstanding Graduate Scholar,** 2013. Minnesota Section of the Institute of Food Technologists (IFT).
* **MN IFT Travel Scholarship,** 2013. Minnesota Section of the Institute of Food Technologists (IFT).
* **Graduate Representative for Applied Research Testimony,** 2012. University of Wisconsin Board of Regents.
* **Academic Honor Society,** 2011-2013. University of Wisconsin-Stout

**Professional Service:**

* *Co-Organizer,* Entomological Society of America – North Central Branch Member Symposium, (2018)
* *Co-Organizer,* Entomological Society of America – Member Symposium, (2017)
* *Judge,* Entomological Society of America (ESA) – North Central Branch Student 10-minute papers, (2017)
* *Moderator*, Entomological Society of America (ESA) – North Central Branch, (2017)
* *Volunteer,* Kansas City section of the Institute of Food Technologists Day of Service (2014, 2015, 2016)
* *Moderator*, Entomological Society of America (ESA) – North Central Branch Student Competition Presentation, May 31-June 3, 2015 Manhattan, KS.
* *Moderator*, Entomological Society of America (ESA) – North Central Branch Student Competition Presentation, March 10-12, 2014 Des Moines, IA.
* *Member,* Phi Kappa Phi Honor Society, Kansas State University (2014-Present)
* *Moderator,* Institute of Food Technologist (IFT) Annual Meeting and Food Expo, June 21-24, 2014, New Orleans, LA.
* *Moderator,* American Association of Cereal Chemists International (AACCI) - Rheological and Spectroscopic Methods session, October 5-8, 2014 Providence, RI
* Grain Science Graduate Student Organization Seminar Committee, 2014-2016, Kansas State University
* *Member,* Alpha Mu Honor Society, Kansas State University (2014-2016)
* Graduate Representative on the Department Head of Grain Science and Industry Search Committee, 2014-2015, Kansas State University
* *Volunteer,* Guide to Personal Success (GPS) First-year Mentoring Program, Mentor (2014-2015)
* K-State Open House Committee Graduate Student Representative, 2014-2016. Kansas State University
* Graduate Representative to the Grain Science and Industry Advisory Board, 2014, Kansas State University
* *Volunteer,* General Chemistry Tutor, Kansas State University (2014)
* *Volunteer*, Grain Science and Industry Alumni Tailgate (2014, 2015)
* *Volunteer*, Grains for Hope, Department of Grain Science and Industry, Kansas State University (2014)
* *Volunteer,* College of Agriculture Holiday Party (2014)
* *Volunteer,* Project Excell Ambassador, Kansas State University (2014)
* *Volunteer,* Science Fair Judge at Marlatt Elementary School Science Fair (2013, 2014)
* *Volunteer,* Alpha Zeta Philippine Typhoon Haiyan Relief (2014)
* *Volunteer,* Kansas State Football Parking (2013-Present)
* *Volunteer,* Food Drive for UW-Stout IFT Student Association (2013)
* Graduate Representative-Food and Nutritional Sciences Advisory Committee, 2012-2013, University of Wisconsin-Stout

**Professional Affiliations**

* Entomological Society of America (ESA) (2014-Present)
	+ North-Central Branch Section (2014-Present)
* Institute of Food Technologist (2012-Present)
	+ Kansas City Section (2013-Present)
* KCIFT Director-at-large (2017-2020)
* KCIFT Secretary (2014-2017)
	+ Minnesota Section (2012-2013)
	+ Wisconsin Section (2012-2013)
* American Association of Cereal Chemists (AACC) (2014-2016)
* Grain Elevator and Processing Society (GEAPS) (2014-2016)