



**14th Annual
Grain Science Graduate Student
Research Symposium**

November 3rd, 2022

**International Grains Program (IGP) Institute
Conference Center**

Schedule

- 8:00 Breakfast
- 8:30 Q & A Panel with Industry Professionals
- 9:30 Break
- 9:45 Oral and Proposal Presentations
- 12:00 Lunch
- 1:00 Poster Session
- 3:00 Dr. Hulya Dogan, Interim Department Head of Grain
Science & Industry
- 3:30 Awards

Panelists

Carrie Dickie, Corbion

Carrie is from Lincolnville, Kansas. She graduated from K-State in 2017 with a Bachelor's in Food Science and a minor in Bakery Science. Previously, she was at General Mills where she worked on a wide range of areas including food safety and quality at a gluten free oat mill, packaging quality, team leading, and quality engineering projects. She primarily focused on supporting a refrigerated can dough line, biscuit line, and a high-volume frozen dough facility. She is now located in Lenexa, KS for Corbion where she is a scientist on the bakery applications team. Her responsibilities include developing new products, supporting their existing products, and working with their sales team to meet the customers' needs.

Joel McAtee, AB Vista

From St. Francis, Kansas Joel received his Bachelor's in Grain Science with the Feed option. After graduation he became the mill manager during the startup of the O.H. Kruse Mill for 4 years. He then joined ADM as a plant manager in Quincy, IL where he was shortly relocated to Kansas City for a quality assurance/quality control position. Currently, he works for AB Vista as a Feed Mill Engineer on their technical team. Day to day he assists customers in all aspects of the feed manufacturing process primarily with a focus on enzyme recovery. Recently he has been working on particle size analysis methods, pellet quality, liquid enzyme addition, and warehouse design.

Andrew Mense, PhD, Wheat Marketing Center Inc.

Andrew is from Grinnell, Kansas and received his Bachelor's in Milling Science, Master's focusing on milling and baking, and his doctorate focusing on cereal chemistry all within the Grain Science department at K-State. Out of school he was a food scientist at Indigo Agriculture studying the effect of plant associated microbe treatments on wheat, corn, and rice quality as

well as managing the product development of wheat flour, rice, and oat products for retail. He then became a lab technician for Bay State Milling where he tested flour quality and studied the functionality of high amylose wheat flour in tortillas. He currently is located in Portland, Oregon working for the Wheat Marketing Center. His responsibilities include research and development for private and public companies as well as help with course curriculum for various grower groups and industry focused courses.

Oral Presentations

- 9:45 Efficacy of silica powders on mortality and progeny production of the lesser grain borer, *Rhyzopertha dominica* (F.) (Coleoptera: Bostrichidae). **Manivannan Selladurai. Advisor: Bhadriraju Subramanyam, PhD.**
- 9:57 Application of encapsulated and dry-plated organic acidulants to control *Salmonella enterica* in raw meat-based diets for dogs. **Samuel Kiprotich. Advisor: Greg Aldrich, PhD.**
- 10:09 Influence of graded levels of microbially enhanced protein on nutrient digestibility of extruded cat foods. **Youhan Chen. Advisor: Greg Aldrich, PhD.**
- 10:21 Fecal microbiome of cats was maintained when fed diets containing corn fermented protein. **Logan Kilburn. Advisor: Greg Aldrich, PhD.**
- 10:33 Grain sorghum as a sustainable ingredient in aquatic feed-grinding and processing energy studies. **Tucker Graff. Advisor: Sajid Alavi, PhD.**
- 10:45 Utilizing protein functionality information to tailor quality of plant-based meat analogues. **Jenna Flory. Advisor: Sajid Alavi, PhD.**
- 10:57 Structure, birefringence and digestibility of spherulites produced from debranched starch. **Jialiang Shi. Advisor: Yong-Cheng Shi, PhD.**
- 11:09 Formation of starch spherulites from pea starch and high-amylose maize starch. **Jing Qi. Advisor: Yong-Cheng Shi, PhD.**

- 11:21 Developing and characterizing polyphenol and peptide antioxidants from corn distillers' grains. **Ruija Hu. Advisor: Yonghui Li, PhD.**
- 11:33 Towards better understanding of whole wheat flour bread-making performance. **Cheng Li. Advisor: Yonghui Li, PhD.**
- 11:45 Incorporating chickpea flour increases dough mixing tolerance and strength of wheat flour. **Eric Nkurikiye. Advisor: Yonghui Li, PhD.**
- 11:57 Bioinformatics-aided bioactive peptides discovery and value-added functional ingredients development from agricultural products. **Zhenjiao Du. Advisor: Yonghui Li, PhD.**

Proposal Presentations

- 12:09 Effect of fractioning corn on digestive physiology of nursery pigs. **Diego Lopez. Advisor: Chad Paulk, PhD.**
- 12:21 Feed manufacturing and delivery logistics optimization. **Allison Blomme. Advisors: Chad Paulk, PhD & Jessica Heier Stamm, PhD.**
- 12:33 Physicochemical and functional properties of pulse proteins obtained from salt extraction. **Bipin Rajpurohit. Advisor: Yonghui Li, PhD.**
- 12:45 Use of 3D printing for structuring starch and protein-based food matrices. **Conrad Kabus. Advisor: Sajid Alavi, PhD.**

Graduate Posters

The effects of pellet quality on growth performance of pigs during varying weight ranges. **Patrick Badger. Advisor: Chad Paulk, PhD.**

Impact of fatty acid composition on markers of exocrine pancreatic stimulation. **Yunyi Zhang. Advisor: Greg Aldrich, PhD.**

The effects of antioxidants and storage time on measures of shelf-life in raw chicken-based pet foods. **Kallee Dunn. Advisor: Greg Aldrich, PhD.**

Effect of sorghum accessions and small grains on pet food extrusion. **Katelyn Bailey. Advisor: Greg Aldrich, PhD.**

Evaluation of fermentability of whole soybeans and soybean oligosaccharides by a canine in vitro fermentation model. **Hee Seong Kim. Advisor: Greg Aldrich, PhD.**

Validation of a method to determine dogs' preference for flavors. **Paris Johnson. Advisor: Greg Aldrich, PhD.**

Accelerating the acidification of sourdough through changes in substrate, strain, and process. **Andrew Dorsch. Advisor: Hulya Dogan, PhD & Elisa Karkle, PhD.**

Evaluation of Wheat Kernel and Flour Quality as influenced by Chlorine Dioxide Gas Treatment. **Rania Buenavista. Advisor: Kaliramesh Siliveru, PhD.**

Reduction in Salmonella load of wheat by tempering with organic and inorganic acid solution alone and in combination of heat. **Shivaprasad DP. Advisor: Kaliramesh Siliveru, PhD.**

Steam parboiling of durham wheat to produce bulgar. **Manoj Kumar Pulivarthi. Advisor: Kaliramesh Siliveru, PhD.**

Impact of tempering conditions on generation of damaged starch during roller milling of hard wheat. **Anu Suprabha Raj.**
Advisor: Kaliramesh Siliveru, PhD.

Undergraduate Posters

Effect of sourdough fermentation on the gas production and acidity of mill stream outputs. **Jayden McNerny.** **Advisor: Elisa Karkle, PhD.**

The effect of feed retention time in the conditioner and conditioning temperature on pellet mill throughput and pellet durability index (PDI). **Carter Minson.** **Advisor: Chad Paulk, PhD.**

Utilizing Kernza in poultry diets: How does it influence the manufacturing process? **Garrett Friesen.** **Advisor: Chad Paulk, PhD.**