

Department of Grain Science and Industry

2021 Fall Newsletter

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October is already here; the semester is in full swing and our students are finally back in the Shellenberger classrooms. While not completely back to normal — masks are still required inside all university buildings — the fall vibe is positive and encouraging. The department's student clubs are seeing a return to pre-pandemic activity levels including the Bakery Science Club, which is currently working on improving old, and creating new, products.

Beginning this semester, we have a new tenure-track professor, Elisa Karkle, joining the department from Brazil with an emphasis on bakery science instruction and research. A K-State alumna, Karkle has spent the years since her graduation focusing on improving the delivery of school-based nutrition and nutrition curriculum in Brazilian grade schools. Additionally, she was active in consulting and supporting the bakery ingredient industry through the development of ingredients to improve the shelf life and nutritional impact of sourdough bread. Her husband, Daniel, and young sons, Levi and Gabriel, have relocated to Manhattan with her and are adapting rapidly to life in the U.S.

Activities at the International Grains Program Institute are still constrained by international travel challenges but are slowly returning to normal operating levels. The faculty dedicated to the IGP Institute — Shawn Thiele, Carlos Campabadal, and Guy Allen — have been working hard to create new online and in-person training to expand our impact in this challenging environment.

The Hal Ross flour mill has been up and running for our fall semester Milling Science labs and a couple of short courses. A few weeks ago, Kansas' U.S. Senator, Jerry Moran, came for a visit and spent more than an hour touring the operating flour mill. Thanks to the efforts of Fran Churchill and Monica



(L-R): Ernie Minton, Dean of the College of Ag, Gordon Smith, Professor and Head GSI, Jerry Moran, Kansas Senator, Paul Blodgett, Manager Hal Ross Flour Mill, Jason Watt, Buhler Instructor of Milling, after the mill tour on September 16, 2021.

Macfarlane, some of the flour which was manufactured during the Senator's visit was donated to K-12 schools experiencing issues with sourcing flour for their school lunch programs throughout the state.

Many of our international outreach and research programs have been impacted by the COVID situation. Faculty and staff are creating new ways to train and collaborate with foreign partners where face-to-face visits are still difficult or impossible. All of us are looking forward to next spring and summer, which should bring the opportunity to attend technical meetings, trade shows, and to reconnect in person with international collaborators. Several faculty members including Sajid Alavi and myself, are working on new study abroad experiences for our students since many have been postponed or delayed.

I would encourage all of you to make a trip back to Manhattan this fall to visit the department and meet our new faculty member. This remains an exciting time to be in Grain Science at Kansas State University; it is full of opportunities to be even more impactful in the future.

Sincerely,

Gordon Smith – Go Cats!

Congratulations May Graduates



Milling Science and Management

Ben Waldron, Daniel Bliss, Caleb Brungardt, Brock Harvey, Cody Blodgett, Dawson Swinehart, Mardi Traskowsky, Tilston Harrelson, and Clayton VanMeter. (Not pictured: Ethan Beumer)



Feed Science and Management

Bryce Kramer, Austin Engelland, Zeb Sjolander, Nelsa Beckman, Dr. Charles Stark, Josephine Gianni, Rachel Kort, and Trey Spinden.



Bakery Science and Management

Instructor Aaron Clanton, Claire McClellan, Dr. Hulya Dogan

GSI 2020–2021 Graduate Students



GSI Graduate students and faculty celebrate at the May 14, 2021 commencement ceremonies. It was the first in-person commencement ceremonies since the onset of COVID-19 restrictions. Pictured from left to right: Chad Paulk, Krystina Lema Almeida, Greg Aldrich, Amanda Dainton, Heather Acuff, Megan Haverkamp, Isabella Corsato Alvarenga, and Gordon Smith.

Congratulations to the grain science graduate students who finished their degrees during the COVID era while dealing with the additional challenges it created for everyone.

2021

Heather Acuff – Ph.D.
Krystina Lema Almeida – M.S.
Isabella Corsato Alvarenga – Ph.D.
Amanda Dainton – Ph.D.
Jared Lou Rivera – M.S.
Wenfei Tian – Ph.D.
Yiqin Zhang – M.S.

2020

Michaela Braun – M.S.
Megan Haverkamp – Ph.D.
Randall Martin – M.S.
Gage Nichols - M.S.
Mayra Perez-Fajardo – M.S.
Courtney Truelock – Ph.D.
Zhenhua 'Vivienne' Sun – Ph.D.
Mohana Yoganandan – M.S.

GSI Spring Honor Students

Congratulations to the students who finished the Spring semester with honors.

BSM – Simone Boykin, Karly Brungardt, Fernanda Cantu Corona, Andrew Dorsch, Kayla Henderson, Emily Kline, Anna Kolb, Lydia Long, Ella Martin, Erin Martin, Genny Zaharia.

FSM – Nelsa Beckman, Neeley Bowden, Austin Engelland, Garrett Friesen, Josie Gianni, Tucker Graff, Connor Hecke, Rachel Kort, Bryce Kramer, Carter Minson, Sidney Odle, Payton Teasley, Nathaniel Wren, Carter Zongker.

MSM – Luke Benfer, Daniel Bliss, Cody Blodgett, Tanner Imthurn, Caleb Kats, Andrew Kent, Conner McDonald, Brenden Meek, Grace Otott, Dillon Wells.

Department News

4-H Members Learn About Milling and Baking

Grain Science offered a milling and baking block entitled “The Life Cycle of a Scone” during the 4-H Discovery Days held virtually on June 2–3. 4-H members learned about the milling process and the various reactions of chemical leavening agents used for quick breads. They then made scones and shared their results with the group.



Baking instructor, Aaron Clanton demonstrates the different reactions achieved when using baking soda or baking powder in the leavening process.

K-State Hosts Successful Pet Food R&D Virtual Showcase

More than 165 pet food industry professionals from 30 countries and 31 states Zoomed into the K-State Pet Food R&D Showcase on June 24. The event featured two tech talks by K-State faculty, a demonstration by Extru-Tech, graduate student research presentations and networking opportunities. Attendees had the opportunity to hear from Greg Aldrich, research professor and Pet Food Program Coordinator in the Department of Grain Science and Industry, speak about nutrition and processing implications of starches in pet food. Valentina Trinetta, associate professor in the Department of Animal Sciences and Industry, also presented her research on the effects of moisture on Salmonella survivability in different types of rendered fats.

Will Henry from Extru-Tech hosted a helmet-cam demonstration that allowed attendees to watch new treat products being made with emerging protein ingredients and with an increased focus on food safety.

The Pet Food R&D Showcase is typically hosted by K-State on the K-State campus each fall.

“This online format allowed us to overcome the limitations due to COVID-19 restrictions and reach a wider audience than ever before,” stated Aldrich.

The showcase was a combined effort between the K-State Pet Food Program and K-State Innovation Partners. It also featured eight

sponsors: Extru-Tech, Petfood Forum, The F.L. Emmert Company, IsoNova Technologies, Balchem, EuroFins, Kansas Department of Ag and the National Corn Growers Association.

Attendees were asked to select the best graduate student research presentations. The top three received scholarships totaling \$1,000. The winners were:

- Isabella Corsato Alvarenga
- Samuel Kiprotich
- Aiswariya Deliephan

Starting fall 2022, the event will be rebranded as Kibblecon. This new, interactive, in-person event will be held next year in Manhattan. Dates and the agenda will be announced in early 2022. Please check out the website to sign up for updates.

For links to presentations or more information, please visit the Pet Food Program Events web page <https://www.k-state.edu/research/industry/establish-partnership/pet-food/events/>, or contact Stephanie Pierce, economic development and entrepreneur relations manager at K-State Innovation Partners at smpierce@k-state.edu or 785-532-3892.

Department News



Grain Science Department Names Elisa Karkle as Assistant Professor

Bringing a wealth of international industry experience and multiple years as an AIB Instructor educating industry

professionals, Elisa Karkle has been named the new assistant professor of bakery science and management in the grain science and industry department at K-State.

Karkle will teach undergraduate courses such as Baking Science II, Bakery Plant Layout, and will be responsible for the development of new courses, which will expand our bakery science curriculum and further the preparation of our students. In addition to her classroom responsibilities, she also will also focus on recruiting new students to our bakery science programs and growing participation in the Bakery Science Club.

"Students ask questions all the time about the industry and professors with successful industry careers like Elisa are in a unique position to provide meaningful answers," said Gordon Smith,

department head of grain science. "I am looking forward to having her make immediate and significant impact on the program."

Elisa has been working with K-State for several years on projects for the International Grains Program. She has a B.S. in human nutrition, a M.S. in food science, and a Ph.D. in grain science from Kansas State University with emphasis on "better for you" snack foods.

After graduation, Karkle has focused on improving the delivery of school-based nutrition and nutrition curriculum in Brazilian grade schools. Currently she supports the bakery ingredient industry through development of ingredients to improve the shelf life and nutritional impact of sourdough breads.

Dr. Karkle said she is excited to get students involved with undergraduate and graduate research projects and that she looks forward to optimizing lab space for bakery product research and development.

"I'm excited about serving the next generation of baking professionals and establishing research collaborations with industry. The department of grain science is a great place to make a meaningful impact."

Clanton Teaches Middle School Food Camp Students About Baking

Baking instructor Aaron Clanton spent July 12–15 at K-State Olathe helping with a Food Camp for Middle Schoolers that featured baking topics. Each day had a different bakery focus including pan breads, flat breads (chapati, pizza) cookies, and quick breads (banana bread, biscuits, scones). The camp was virtual in the morning and every afternoon or evening the kids had homework to bake that day's baked goods. After completing the projects they sent in pictures of their results.

In addition, Clanton spoke to 16 Kansas high school Family and Consumer Science teachers at the KASCTE annual conference about the science of leaveners, specifically chemical leaveners. The teachers left with a better understanding of the differences in chemical leavening acids and ways to better teach baking science in their classes.



Baking instructor Aaron Clanton leads a virtual session of Food Camp for Middle Schoolers held at K-State's Olathe campus during July.

Awards and Recognitions



Siliveru Receives Early Career Engineer of the Year Award

Kaliramesh Siliveru, assistant professor of grain science in the College of Agriculture, has been awarded the 2021 Early Career Engineer

of the Year Award by the American Society of Agricultural and Biological Engineers' Association of Agricultural, Biological, and Food Engineers of Indian Origin. This award recognizes the outstanding engineering achievements in design, research, development, or management made by young professional agricultural, biological and food engineers in the past three years.



Yong-Cheng Shi Wins AFS Award

We are pleased to announce that Grain Science Professor Yong-Cheng Shi was recently selected to receive the prestigious Alsberg-French-Schoch Memorial Lectureship Award from the

Cereals & Grains Association. Dr. Shi has made tremendous contributions to the scientific field of starch, cereals, and grains during his impressive career. We are fortunate to have him as a member of our faculty.

Congratulations to Delaney Webb and Eric Maichel

Delaney Webb and Eric Maichel, under the advisement of Dr. Sajid Alavi, successfully defended their theses this summer. Delaney presented her defense, Physicochemical properties of pea proteins, texturization using extrusion, and application in plant-based meats, on July 27, 2021. Eric presented his defense, Use of grain sorghum as the primary grain ingredient in premium extruded foods designed for cats, on July 12, 2021.

Student Awards

Logan Kilburn was awarded the International Ingredients Corporation "Pinnacle Award" on July 27, 2021 in St. Louis.

Amanda Dainton, Ph.D. (May Graduate) and Julia Pezzali (2019 MS graduate from our program, now a Ph.D. candidate at Guelph University) were the 2nd and 3rd place oral presentations winners at the recent American Society of Animal Science meetings in Louisville, Kentucky.

Meeting Abstracts

The pet food group presented two oral abstracts and seven poster abstracts at the ASAS meetings in Louisville, Kentucky, and one poster abstract at the IAFP meetings in Phoenix.

Internships

The Feed Science faculty hosted three interns for the KSRE Fellows program out of the College of Agriculture diversity office. In the Pet Food program Greg Aldrich mentored Rajion Hall and Karrington Howard. In the Feed Science program Charles Stark and Chad Paulk mentored Khairy Jenkins. Final project presentations of the research projects were completed on July 29, 2021.

Grain Science Donates 2,500 lbs. of Flour to Kansas K-12 Schools

Barb Depew, Farm to Plate Project Director for the Kansas Department of Education, reached out to the Grain Science department in early September to see if the department might be able to fill a gap in the flour supply chain that has continued to be a challenge for many Kansas school districts needing to source flour for their school lunch programs.

Thanks to the efforts of Fran Churchill, Monica Macfarlane, and Paul Blodgett 2,500 pounds of flour, which was manufactured during Senator Moran's visit on September 16th, was donated to K-12 schools throughout the state. School district areas that received the flour include Manhattan, Wamego, Rock Creek, Onaga, Chapman, Hays, Riley County, and Renwick.

Graduate Student Update



Zhenjiao Du

Hometown: Hubei, China

Zhenjiao Du is a new doctoral student in Dr. Yonghui Li's research group. Zhenjiao's previous graduate work focused on

processing and storage of agricultural products. He completed his Master of Engineering from China Agricultural University in June of 2020. Zhenjiao's desire to learn more about improving productivity in the field of grain science and to explore something different and unknown led him to apply to K-State. Zhenjiao hopes his studies will maximize his professional knowledge and allow him to contribute to society.



Youhan Chen

Hometown: Changsha, Hunan, China

Youhan Chen is a new doctoral student in Dr. Greg Aldrich's research group.

Youhan most recently studied Veterinary Medicine at China Agricultural University and completed her master's degree in June 2020. When asked why she chose the Grain Science and Industry graduate program, Youhan stated, "I love animals. I would like to take care of them from the aspect of their diets. The pet food program connects researchers and industry, which makes theory into products." Youhan hopes to become an academic scientist in the pet food industry and that her studies will enable her to promote animal welfare and to address owners' concerns regarding animal behavior and health issues.



Shivaprasad Doddabematti Prakash

Hometown: Bangalore City, Karnataka State, India

Shivaprasad Doddabematti Prakash is a new

doctoral student under the advisement of Dr. Kaliramesh Siliveru. Shivaprasad earned his Master of Technology in Food Safety and Quality Management from National Institute of Food technology Entrepreneurship and Management, India. Shivaprasad's decision to apply to the Grain Science graduate program was driven by his aspiration to pursue a research career in grain processing, handling, and safety. "My objective has always been to transform science into a safe and nutritiously innovative product to feed the world and solve the raising food safety problems by providing a suitable solution that would cater the needs of the food industry and the public. Hence, I strongly believed that the department of Grain Science and Industry would be the right destination to achieve this objective for its state of art facility and a sound research team."



Patrick Badger

Hometown: Sullivan, Indiana

Patrick Badger is a new master's student in Dr. Chad Paulk's research group. Patrick earned his bachelor's degree in Animal Sciences

from Purdue University in May 2021. Patrick said he chose the Grain Science program at Kansas State because of the world class research opportunities and the potential to learn all aspects of the feed industry. "Manufacturing feed is the first step to producing quality animal products and I believe I will be surrounded by faculty and colleagues that will improve my understanding of the industry. I believe the best way that I can achieve my goal of allowing other people to make memories with livestock is the through the feed industry."

Graduate Student Update



Nelsa Beckman

Hometown: Manhattan, Kansas

Nelsa Beckman is a new master's student in Dr. Chad Paulk's research group. Nelsa is a K-State alumna, she earned her bachelor's

degree in Feed Science and Management from the Grain Science and Industry department. Nelsa said she chose to pursue her graduate studies in Grain Science because it gave her the unique opportunity to pursue her interests regarding sustainability in the feed industry.

Furthermore, she stated that the small size of the department also gave her confidence that she wouldn't be overlooked or lost in a group. Nelsa's long-term goal is to become a feed mill consultant to assist mills in becoming efficient in producing quality, cost effective feed that will help producers maximize their own profit and output.



Jenna Flory

Hometown: Baldwin City, Kansas

Jenna Flory is a new master's student in Dr. Sajid Alavi's research group. Jenna is a K-State alumna, she earned her bachelor's

degree in Biological Systems Engineering. Jenna stated, "I chose the Grain Science graduate program at K-State because this degree will help me to reach my goal of working for a food or agriculture company where I intend to design new products and processes that improve the sustainability of food systems. I loved my time at K-State as an undergraduate and I am excited to stay and continue my education here in Manhattan."



Paris Johnson

Hometown: O'Fallon, Illinois

Paris Johnson is a new master's student in Dr. Greg Aldrich's research group. Paris studied Animal Sciences at the University of Missouri

and completed her bachelor's degree in May 2018. When asked why she chose the Grain Science and Industry graduate program, Paris stated, "When I completed my bachelor's, I knew eventually wanted to go back to school and pursue an advanced degree in animal nutrition. While doing research in the different areas of animal nutrition I decided I wanted to study companion animal nutrition. In my search for a program that was companion animal focused, I came across the Pet Food Program. Although it is not specifically nutrition based, it was so interesting and unique I knew I wanted to attend K-State and work with Dr. Aldrich." Paris plans to pursue a Ph.D. in animal nutrition after she completes her masters.



Alpha Mu Banquet

Dr. Jason Ellis, department head of Communications and Agricultural Education, was the keynote speaker at the Alpha Mu banquet recently. Alpha Mu is the Grain Science Honorary Society. Membership is open to undergraduate students (sophomores and above) and graduate students who have met the qualifications. Club advisors are Drs. Smith and Dogan.

IGP Institute Update

IGP Institute Partners with USSEC to Train Next Generation of Ag Business Leaders from Latin America

From the 12th of July to the 21st of September, IGP delivered a USSEC sponsored short course *Practical and Strategic Education for the Next Generation of Agribusiness Leaders – Latin America Emerging Markets*, that included participants from Colombia, El Salvador, Honduras, Nicaragua, and Venezuela.

Through this USSEC sponsored project, IGP worked closely with more than 60 potential agribusiness leaders. These individuals between the ages of 30 to 45 years may eventually lead large swine, poultry, and cattle operations. Their companies will need to assess their businesses from new perspectives and develop strategies for future success. The course facilitated this process by providing training for a range of business skills to further develop their management capabilities.

The two short courses consisted of 10, two-hour sessions of live instructional presentations on each topic, along with 10 on-demand sessions of translated video recordings, quizzes, and other materials delivered via the Canvas platform.

IGP Institute
INTERNATIONAL GRAINS PROGRAM
KANSAS STATE UNIVERSITY

USSEC
U.S. SOYBEAN EXPORT COUNCIL

Colombia Session:
40 participants

Latin America Session:
24 participants
El Salvador, Honduras, Nicaragua and Venezuela

The joint project helped develop a continued preference for U.S.-produced commodities, including U.S. soybeans, soybean meal, soy oil, and other related soy products.



Gordon Smith with the IAOM Board of Directors during the 2021 IAOM Annual Conference in Little Rock.

4th Annual Grain Science Friends and Alumni



More than 52 grain science faculty, staff, students, alumni, and friends attended the 4th Annual Grain Science Friends and Alumni Golf Tournament held October 1 at the Manhattan Country Club. Players enjoyed the beautiful fall weather and friendly competition between teams. Thank you to all of the players and industry sponsors (Buhler, Ardent Mills, Miller Milling, Grain Craft, ADM, Corbion, AB Vista, and PIC) who helped raise more than \$8,000 to benefit the department.



Golf Tournament



KANSAS STATE UNIVERSITY

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Grain Science and Industry

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Recruiting Information

The grain industry needs qualified applicants to fill numerous job openings, and the demand has never been higher. K-State students from the Department of Grain Science and Industry have the education and experience necessary for future success, and benefit from **100% job placement** along with some of the **highest starting salaries** available to graduates in the College of Agriculture.

We need your help sharing these great educational and career opportunities with potential students. Visit www.grains.k-state.edu to get started.



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