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# FOOD INNOVATION CENTER

## NEWSLETTER

| Spring 2021 |

Department of Food Science and Technology  
The Food Processing Center

UNIVERSITY of NEBRASKA-LINCOLN





# Letter from the Director

Dear Alumni and Friends –

Can I tell you about all the wonderful colleagues at the University of Nebraska–Lincoln (UNL) that I get to work with? They are flexible, hardworking and dedicated. Without their biddableness and concurrence during the pandemonium of 2020, we would not have been able to continue providing essential services to our food industry partners, to complete Fall semester courses, to remain research active even at minimal levels and to be adaptive and creative in delivering outreach to our clientele and stakeholders. Much has been learned since I last wrote earlier this year and many challenges remain before concerns about COVID-19 transmission subside (hopefully in 2021). Nevertheless, I will be forever grateful to those with whom I worked in 2020.

A specific example of our achievements while abiding with local and UNL directed health measures (DHMs) was continuation of the services of the analytical laboratories of the Food Allergy Research and Resource Program and The Food Processing Center Microbiology group. These food testing laboratories were denoted as essential for the food and agricultural segments of a Critical Infrastructure Industry by the United States Department of Homeland Security. Additionally, the majority of activities in the FPC pilot plants shifted for four months to production of almost 200,000 gallons of hand sanitizer and disinfectant. The antiviral products were produced in collaboration with the UNL College of Engineering and the Nebraska Ethanol Board for donation to Nebraska’s medical community as well as to national, state and local government entities. While the UNL Dairy Store was closed for about four months due to local DHMs, nearby equipment used for producing ice cream and cheese moved from its long-time home (processing space east of the building originally known as the Dairy Industry building but now called Filley Hall) on East Campus to the Nebraska Innovation Campus. The UNL Dairy Store reopened in August and remains in its renovated space overlooking the green space on East Campus.

Three facilitated Zoom meetings in April allowed the food science and technology faculty members to develop departmental Strategic Priorities. A major reason for our priority-setting exercises was to align departmental efforts and activities with UNL’s N2025 Strategic Plan. Thirty key milestones to reach within 18 months were identified. To date, the milestones related to undergraduate student advising by faculty and the development of requirements for a project-based MS degree program have been reached. A milestone related to evaluation and assessment of improvement of communication skills has almost been reached. The fermentation scholarship challenge (see <https://foodsci.unl.edu/fermentation-scholarship-competition>) is one effort set in motion to help reach a fourth milestone related to student recruitment and retention.

Your support is certainly appreciated. Your questions and comments are always welcome.

Best wishes,  
**Curtis L. Weller, Ph.D., P.E.**  
*Professor and Head, Department of Food Science and Technology*  
*Director, The Food Processing Center*



## Focus on Faculty

Thanks to the work of Dr. Jayne Stratton and the Food Microbiology Services Lab, the food industry is advancing in the fight against food-borne pathogens.

Dr. Stratton manages the University of Nebraska–Lincoln’s Food Processing Center Food Microbiology Lab, a facility that tests samples for companies within the food industry. The lab has many testing capabilities, including pathogens and indicator organisms. The lab also designs and facilitates shelf-life tests to establish food expiration dates.

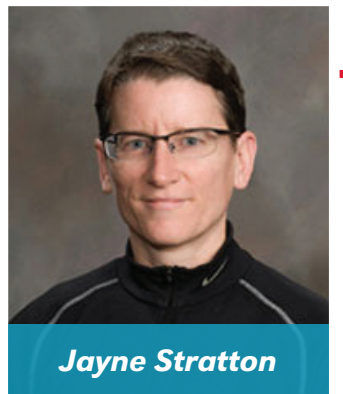
Common strains of E. coli, Salmonella and Listeria are no match for the Food Microbiology Services Lab. With the assistance of Dr. Stratton, her staff and a handful of student interns, the food industry can trust that their product is safe before it hits the shelves.

In addition to managing the Food Microbiology Services Lab, Dr. Stratton also directs the Better Process Control School (BPCS). The school utilizes a core group of University of Nebraska–Lincoln faculty members to teach industry processors the proper techniques when it comes to

commercial canning. The BPCS is a regulatory requirement—meaning that those supervising canning operations must attend the school. Dr. Stratton and her associates also provide training to the industry on how to create food safety plans and on methods used for microbiological testing of food.

Dr. Stratton works alongside Dr. Andreia Bianchini in researching the safety of grain-based foods. She also teaches food science classes and advises graduate students.

Dr. Stratton is a critical part of The Food Processing Center infrastructure, and her impact is not unnoticed by the students, faculty, staff and industry partners that she assists with her wealth of knowledge. They love what she does—and best of all, she does too. “I love the work that we do on the bench, I love testing, I love looking for organisms and making sure food products are safe,” explained Stratton.



**Jayne Stratton**

## How can The Food Processing Center Help You?



**Richard Zbasnik**

Richard Zbasnik is the analytical eye of the University of Nebraska–Lincoln’s Food Processing Center.

As a research technologist, he assists food companies with all their analytical needs when it comes to their product creation. From nutritional facts panels to nutritional claims, Richard handles all the analytical

aspects that get a product from the ideation stage to grocery store shelves.

For small producers, people like Richard are key in getting their products on the market. They might not have the resources and money to have their own laboratory and scientists performing these analytical tests, so the services of The Food Processing Center are an important factor in pushing their products to the market.

“I have the expertise and the knowledge on how to test for these things,” Richard said, “and I can definitely determine and let companies know if they have too much sodium, not enough fiber and many other factors regarding the analytical components of their products.”

Whatever a client needs to know about their product, Richard can likely find out. Using his breadth of knowledge from both his undergraduate and graduate degrees in food science at UNL, he is fully prepared to take on the task of testing their food products.

Depending on how urgent the product information is needed and what kind of testing it requires, Richard can usually turn around his findings to clients within five to ten days. This allows for production companies to get the information they need quickly and safely, which allows their products to hit the shelves and start feeding people.





Left to Right: USDA Under Secretary for Food Safety Mindy Brashears, Terry Howell, Sarah Herzinger, Hunter Flodman, TJ Bond, Russell Parde, Peter Hilsabeck, Julie Reiling, April Johnson

# Sanitizer Production Operation

When hospitals and nursing homes in Nebraska saw hand sanitizer shortages in sight, the University of Nebraska-Lincoln stepped in to help.

Led by engineering professor Hunter Flodman, this unique project-based on Nebraska Innovation Campus-produced more than 200,000 gallons of hand sanitizer in 4 months.

Julie Reiling was a part of the efforts to produce the hand sanitizer. Everything happened in a whirlwind—one day she was doing her normal duties as a senior consultant for The Food Processing Center, and the next thing she knew she was helping manage a statewide relief project.

“I never thought in a million years we’d have a tanker truck that would be bringing [ethanol] and off-loading and bottling and sending it back out,” Julie said. “So, that was pretty cool.”

As the coronavirus spread and hand sanitizer became harder and harder to access, hospitals, medical facilities, first responders and dental offices reached out to UNL’s operations to get a hold of the elusive but vital product.

Eventually, they were producing so much sanitizer that even Lincoln-area small businesses and nursing homes could pick up stock. And when it was confirmed that campus would be re-opening during the fall, the team began preparations to stock up on enough hand sanitizer to keep the campus community safe.

From early April through August, Julie and her team churned out batches upon batches of hand sanitizer.

“It started out with mostly medical, but it really spread to whoever we could help.” Julie said.



# Serving Over 100 Years of Tradition

It all started on East Campus in 1917: student employment opportunities, sweet and savory dairy products and a warm welcome to all university visitors. Come celebrate over 100 years of tradition with our signature flavor Scarlet and Cream—available in a dish, cone, sundae or shake. The Dairy Store is proud of the rich history and remarkable memories we’ve made with UNL’s students, faculty and alumni over the years. We are humbled to be a part of such a great community. Come in today and get a scoop of our homemade ice cream, and build on the legacy of your UNL Dairy Store.

[dairystore.unl.edu](http://dairystore.unl.edu) | Department of Food Science and Technology | The Food Processing Center  
Located at 38th & Holdrege on East Campus | 402.472.2828 | [marketplace.unl.edu/dairystore](http://marketplace.unl.edu/dairystore)

# Introducing New Faculty

## Dr. Charles Nwaizu



Dr. Charles Nwaizu recently joined the Department of Food Science and Technology as an assistant professor of practice. His area of expertise is in food engineering and intelligent food product design innovation with focus on the application of mathematical modeling to predict food behavior under the influence of industrial and/or human processes and the consequent effects of these processes on safety, quality, nutrition of food products and health and wellness of consumers. He received his Ph.D. in biosystem engineering from the University of Manitoba, Canada, where he developed a mathematical model for 3D characterization of pore structures and airflow distribution in grain aeration systems.

Among his current responsibilities are teaching upper-level undergraduate courses in the area of food engineering (Engineering Properties of Biological Materials; Food Engineering Unit Operations, Heat and Mass Transfer) and part of the 3+1 Program between the University of Nebraska-Lincoln (UNL) and Northwest Agricultural & Forestry University (NWAUFU) in China.

Before his appointment at the University of Nebraska, he was a research associate in the Department of Biosystems Engineering, University of Manitoba, Canada, and has worked for more than eight years in the food manufacturing Industry in a variety of roles—including quality, food safety, R&D and product development. Some of the companies he worked for range from very small establishments, such as Fresh Hemp Foods and OSI Foods, to giant corporations such as General Mills; Civeo North America, and Sofina Foods.

Dr. Nwaizu is strongly concerned about subjects on re-thinking teaching and learning process that is centrally pinned on empathy—a student-focus pedagogical approach to the learning process. His goal is to equip the next generation of food scientists to appreciate the power of using theories based on physics and mathematics to understand complex changes in safety, quality, and nutrition of food products under the influence of industrial food processing.

## Dr. Jeffrey Price



Dr. Jeffrey Price recently joined the Department of Food Science and Technology as an assistant research professor and associate director of the gnotobiotic mouse facility. He will be joining the research group of Dr. Amanda Ramer-Tait and will be housed within the brand-new gnotobiotic facility located on East Campus. He is an immunologist, with specific expertise in regulation of immune responses that cause autoimmune disorders.

Dr. Price will be involved in research within Dr. Ramer-Tait’s group both in current projects and in developing new programs. He will also be responsible for coordination with collaborators within the Department and University as well as across the country for development of protocols and projects with germ-free mice. His research will focus on alterations in the biology of mice that have defined microbe species within their intestinal tracts.

Dr. Price received his B.A. in biology from the University of Virginia and his Ph.D. in immunology from Washington University in St. Louis. He did his postdoctoral training at the National Institutes of Health researching methods of suppressing immune responses that cause type I diabetes. He has resided in Nebraska for seven years, and prior to joining the Department of Food Science and Technology he coordinated the research laboratory of Dr. Sarah Thayer at UNMC, defining cell subsets responsible for early events in pancreatic cancer.





## Dairy Plant Move – From East Campus to Food Innovation Center

When Josie was just a kid, her grandfather would take her to the Dairy Store on the University of Nebraska–Lincoln’s East Campus. As they walked through the store with sweets in hand, she’d find herself looking through the windows into the Dairy Plant in awe.

As an undergraduate student at UNL, Josie found herself torn between studying animal science and food science. Having grown up on a dairy farm she knew she wanted to work in the industry—she just didn’t know for certain which side was right for her. After taking a job at the Dairy Plant, it wasn’t long before food science became her passion.

Josie went on to work for a cereal company after graduating, and eventually transitioned to being a stay-at-home mom with her growing young family. When her youngest went to kindergarten, she started to plan her transition back to the workforce. During this time she ran into a former coworker at the grocery store, and while catching up he suggested she come tour the new food science facilities on Nebraska Innovation Campus.

At the end of the tour, she asked her coworker where the Dairy Plant was in the new facility. Then they started discussing the plant’s planned move from East Campus, along with Josie’s past experiences working there in college. When her former coworker mentioned they were looking for someone to lead the Dairy Plant’s upcoming move to NIC, she was immediately interested.

Flash forward to today—Josie led the Dairy Plant’s move to NIC, and now oversees operations as Dairy Plant Technician. The space’s new operations at NIC have given them more visibility for potential clients, and allows for students and staff to work in a state-of-the-art facility located on a growing educational campus.

“I love working for the university because there’s so much transparency,” Josie said. “Because we want to educate everyone.”

## Congratulations to the Graduates

August 2020

**Bachelor of Science**  
Danyan Gu

**Master of Science**  
Kristina Arslain

**Ph.D.**  
Abigail Burrows  
Xinjuan Hu  
Esteban Valverde  
Bogantes  
Yangjunna Zhang

December 2020

**Bachelor of Science**  
Casey Engelbart  
Zhou Fang  
Chase Grove  
Emily Jundt  
Nathan Mai  
Han Yu

**Master of Science**  
Madhurima  
Bandyopadhyay  
Cody Brown  
Jenna Krager  
Armando Lerma  
Karen Nieto Flores

**Ph.D.**  
Ana Arciniega Castillo  
Jose Mendoza Jimenez  
Isaac Rukundo  
Hefei Zhao  
Haowen Qiu

## Awards & Recognition

Faculty

**Dr. Robert Hutkins**, UNL Parents Association – Certificate of Recognition for Contributions to Students  
**Dr. Randy Wehling**, UNL Parents Association – Certificate of Recognition for Contributions to Students  
**Dr. Ozan Citti**, LIAB Award (LIST International Award in Bioinnovation), which honors world-leading researchers in the fields of biology, ecology, circular economy, health sciences and food sciences

Student

**Haowen Qiu**, Outstanding Research & Creative Activities Award  
**Hefei Zhao**, Larrick Whitmore Student Travel Grant Award

## Scholarships

**Jacob Bentz**, Edward Cornish Scholarship  
**Chloe Calhoun**, IFT Feeding Tomorrow Scholarship  
**Chloe Calhoun**, Oak Smith Scholarship  
**Andre Chavez**, Oak Smith Scholarship  
**Andre Chavez**, Susan Hefle Scholarship  
**Julia Hernandez**, Dr. Morrison & Genevieve Loewenstein Scholarship  
**Alisa Holst**, Oak Smith Scholarship  
**Alisa Holst**, Stephan & Susan Taylor Scholarship  
**April Johnson**, Maxcy Food Science & Technology Scholarship  
**Emma Kiffmeyer**, Oak Smith Scholarship  
**Olivia Kinne**, Ava Petersen Scholarship  
**Zoe Kraus**, Edward Cornish Scholarship  
**Jacqueline Manchester**, Maxcy Food Science & Technology Scholarship  
**Joel Parker**, William & Linda Racicot Scholarship  
**Gaurav Rajeev**, Edward Cornish Scholarship  
**Kyle Raymond**, Dr. Morrison & Genevieve Loewenstein Scholarship  
**Katerina Roberts**, L.K. Crowe Kiwanis Scholarship  
**Katerina Roberts**, Oak Smith Scholarship  
**Katerina Roberts**, Maxcy Food Science & Technology Scholarship  
**Joshken Sanny**, Oak Smith Scholarship  
**Levi Sorgenfrie**, Nestle Purina Scholarship  
**Emma Williams**, Nestle Purina Scholarship



## Where Are They Now?

Ryan Talley's time is an undergraduate and then graduate student in the University of Nebraska–Lincoln's food science department. The program prepared him for an enriching and engaging career as a food scientist. ▶▶▶

After touring UNL's food science department in 2001 as a high school student, he returned in 2003 to begin his collegiate career as a food science major.

"I always wanted to be a scientist growing up as a kid, right, and not necessarily a food scientist, but just a scientist in general," Ryan said.

When he completed that degree in 2007, he decided to stick around and obtained his master's degree in food science from UNL as well.

After graduating with his master's degree, Ryan landed a job at ConAgra as a food scientist. For the next seven years, he worked on the innovation side of frozen food products for well-known brands like Kid Cuisine, Marie Callender and Healthy Choice. In 2016, he shifted his area of focus from family food to pet food and accepted a job at Hill's Pet Nutrition.

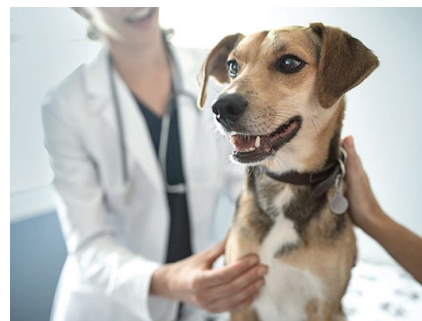
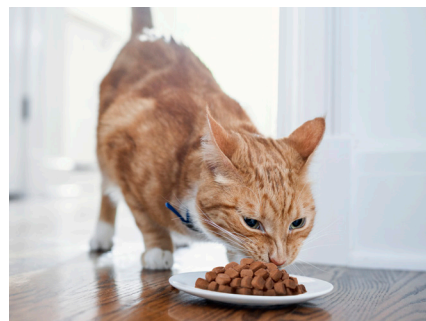
Ryan now works in the quality department as a manager of ingredients. Aside from managing and tracking ingredient data and trends, Ryan also audits the food safety processes of their vendors.

Working in food science allows Ryan to create new things and put something out into the world that has never been seen before. And with working at Hill's, he's able to do it while focusing on the care and nutrition of four-legged friends.

"What I've come to really appreciate about pet food is that, you know, whereas we might be able to run out and eat a cheeseburger or have an apple or a glass of milk or whatever...our animals don't get to make those choices." Ryan said, "What you put in your kitten's bowl, what your dog's eating...it truly has to be everything that will sustain and maintain their lives."

Though he never expected to find himself working on the pet food side of food science, Ryan said his education at the University of Nebraska–Lincoln equipped him for the endeavor. Taking foundational courses in chemistry, biochemistry, microbiology, food regulation, micro food analysis and engineering has prepared him to tackle any task that comes his way.

"Truly, the food science program really prepared me well," Ryan said. "I feel like they prepared me extraordinarily well."



Ryan Talley



## Professional Development Opportunities

Providing the opportunity for employees to learn new skills and update their knowledge is critical for any company to remain viable in the marketplace. The Food Processing Center provides companies with a variety of unique educational and training opportunities so your company can continue to be successful. Each program is designed specifically for the food manufacturing industry. Information is presented by industry and academic faculty experts. For complete information on each event visit [fpc.unl.edu](http://fpc.unl.edu).

In addition to the upcoming selections below, The Food Processing Center can work with your company to customize learning experiences for your employees. Many workshops can also be presented on-site at your location. To discuss this option, please contact Event Manager Jill Gifford at [jgifford1@unl.edu](mailto:jgifford1@unl.edu) or 402-472-2819.

### Better Process Control School for Acidified Foods

April 26–27, 2021

### Better Process Control School for Acidified Foods (ONLINE)

April 12–13, 2021

### FSPCA for Human Food (ONLINE)

May 10–14, 2021

### FSPCA for Animal Food (ONLINE)

May 24–27, 2021

### Better Process Control School

September 21–23, 2021

### Recipe to Reality Seminar (In Person)

March 27, 2021

August 14, 2021

June 5, 2021

October 23, 2021

### Recipe to Reality Seminar (ON DEMAND)

### Food Processing Management Certificate Program (ONLINE and ON DEMAND)

For many food processors, food allergens remain among the most challenging food safety concerns to manage, and undeclared food allergens are the most common cause of FDA food recalls. With the implementation of the Food Safety Modernization Act (FSMA), it is more critical than ever to have well-documented, effective allergen management programs.

The Food Allergy Research and Resource Program (FARRP) in the Department of Food Science and Technology at the University of Nebraska–Lincoln conducts both in-person and virtual training opportunities. Due to the COVID-19 pandemic we have had to postpone several of our sessions, but we hope in 2021 to be able to once again host the Effective Food Allergen Management Workshop in person. Also in 2021, we plan to roll out new online training modules. To view additional information about the workshop, online modules, and other training opportunities, please visit [farrp.unl.edu](http://farrp.unl.edu). The website will be updated as dates and information become available.





## Introducing Graduate Student Jessica Humphrey

Jessica Humphrey's time as an undergrad student at the University of Nebraska–Lincoln was full of life-shaping learning experiences.

As a food science student, Jessica quickly became interested in working in one of the on-campus laboratories. She knew that working in one of the labs would help her to grow her knowledge in the food science industry, but she didn't expect that it would help her find her passion.

Working in the Food Allergy Lab helped Jessica find her love for research. It also connected Jessica with UNL professors, grad students and fellow undergraduate students with expertise and ambition in the world of food science. And now, she finds herself fully prepared to continue her education as a graduate student at UNL.

"Having that experience has set me up for success as a grad student," she said.

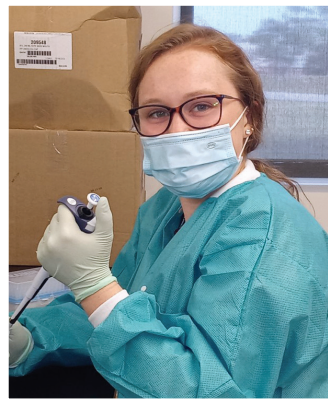
Each day for Jessica is filled with prep, testing and analyzing. She still works in the Food Allergy Lab, though now she feels as though she has more time to focus on her

research interests than she did as an undergraduate student. As an undergrad, her life was filled with running back and forth between classes, the lab and student organizations — and now she just gets to focus on the science.

"I really have the time to dedicate to being in the lab," Jessica said, "which is fantastic."

Jessica plans on pursuing her Ph.D. in food science as well, though she's still deciding between whether she wants to focus on the food manufacturing or the clinical side of the industry. For now, she's focusing on her research, presenting her work at poster competitions, and constantly finding motivation and inspiration from the fellow graduate, Ph.D. and postdoc researchers in her lab.

"I think the aspects of research that I just find fascinating are...you're looking to create new knowledge, things that aren't yet understood or yet discovered, where that kind of spirit is really self motivating," Jessica said. "And you're doing it for the betterment of everyone around you."



## Introducing Undergraduate Student Casey Englebart

Growing up in Malcom, Nebraska, Casey Englebart always knew she would go to the University of Nebraska–Lincoln.

It was close to home, had a food science program, and she already knew some of the familiar faces in the department. In fact, when Casey was just a senior in high school she was able to get her first job in food science through The Food Processing Center's Julie Reiling.

As the food science department and The Food Processing Center moved from East Campus to their new Innovation Campus space, Casey was able to help them pack up their laboratories and make a successful and productive move. The experience provided her with an ample understanding of the food science laboratory experience, and connected her with members of the department and center that she would soon see as an undergraduate student.

When Casey came to UNL as a student, she started

working at The Food Processing Center Pilot Plant. From there, she built her skills and moved to the Product Development Lab, where she's been able to work on real-world projects and help produce products before they hit the shelves at the local grocery store.

"It's able to give me like a lot of experience that I can talk about at job interviews or even just apply in the real world," Casey said.

Casey graduated in December 2020, knowing she is well-equipped for the real world thanks to the training and education she's been given from UNL.

"Just my experience alone in working the different positions in the Product Development Lab and interacting with clients...I think they really prepared me for it."



## Food Science Club President Kyle Raymond



The University of Nebraska–Lincoln's Food Science Club allows current students to expand their passion for the world of food science by collaborating with peers, meeting with professionals and keeping up-to-date with new industry advancements.

Kyle Raymond is a senior food science student and the president of the club. Despite running into issues with COVID-19 affecting in-person gatherings, Kyle has adjusted the club to an online format where students are still able to participate and learn.

"We're still able to give the value to the members, just in a slightly different format," Kyle said.

Each month, members of the club gather on Zoom to virtually meet with new industry professionals. By moving online, Kyle has actually seen more consistency in student attendance due to it being more accessible in this format. Instead of running to club in between classes, labs and work, students are able to hop on a Zoom call right from home.

Though students have been able to meet remotely, some of their former activities, like attending the Institute of Food Technologists College Bowl, have been postponed. Before COVID-19, the event was an opportunity for University of Nebraska–Lincoln students to hit the road and compete against their fellow Midwestern schools in a trivia bowl based on food science, but for now the students will have to wait until it's safe to travel again to participate.

In the meantime, Kyle asks any interested food science professionals to reach out to the club for any potential opportunities to meet with students. They're always looking to expand their alumni base, and would happily host some former food science students at their next general meeting.

## Support those with a hunger for learning.

Young and intelligent with an insatiable appetite for knowledge, the students in the Food Science and Technology program are working hard to improve all things related to food. Your donation will help them receive the scholarships they need to make it happen. Make a gift that feeds young minds.

Contact Doug Carr at [doug.carr@nufoundation.org](mailto:doug.carr@nufoundation.org) or 402-458-1160 or give online at [nufoundation.org/foodscience](https://nufoundation.org/foodscience).





## SPRING 2021

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## FOLLOW THE FOOD PROCESSING CENTER ON SOCIAL MEDIA

You can follow the activities, updates, and news from The Food Processing Center on your favorite social media channels. We are found on LinkedIn, Twitter, and Facebook.

LinkedIn will be our primary channel to communicate events, news and opportunities with food industry professionals and partner organizations. We will also distribute updates on Twitter and Facebook.

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We'd love to hear from you! For any feedback or story contributions you'd like to see in future issues, email us at **FOODSCI@UNL.EDU**.



***IN OUR GRIT, OUR GLORY.***