

Food Science News

Department of Food Science

Department Head Update

Dear Friends of Food Science,

We have been busy since our last edition of Food Science News.

On April 4th, the department had a banner day. We hosted the College of Agricultural Sciences Alumni Association Outstanding Alumnus, John Martin, for a visit and held our first annual Food Science-Food Industry Group-Keystone IFT IGNITE talks and reception. During John's visit, he provided insight into the corporate world to graduate students who peppered him questions. The IGNITE event was well attended, and the talks by faculty and students were excellent. We look forward to repeating the event next year and will be looking for industry speakers to participate.

On May 7th, we celebrated spring beginning with commencement for the Class of '23, which, coincidently, contained 23 newly minted food scientists. In addition, three graduate students completed their programs in time for the May graduation, and we will have a number graduating in August. Please join me in wishing them congratulations and success in the next chapter of their lives!

From May 21st to May 27th, I ran away to the woods and completed another section of the <u>Vermont Long Trail</u>. For those who might not know, this is the oldest long distance hiking trail in the US and runs from Massachusetts to the Canadian border. Since I grew up in Vermont, it's on my bucket list to complete. We hiked about 70 miles this trip, and I have about 90 to go. Perhaps the best thing about being in the woods is NO CELL SERVICE. That's a vacation!

I am pleased to note that Dr. Jasna Kovac, who was honored as an Outstanding Young Scientist by the Institute of Food Technologists and who received the Global Penn State Award from Penn State Global, was promoted to the rank of associate professor and granted tenure. I am also pleased to note that Dr. Cathy Cutter was named a Fellow of the International Association of Food Protection. Very well-deserved awards. Please join me in congratulating them on their outstanding achievements.

Our alumni affiliate program group, the Food Industry Group (FIG), will hold a summer meeting on Friday July 14th. We will be discussing our agenda for the upcoming academic year as well as the Fall Tailgate which will be held on October 28th (PSU vs IN). Please plan to join us if you can.

Finally, for those who may not have heard, Dr. Paul Dimick passed on May 25th. I am sure that many of you have memories of Dr. Dimick as a teacher, a researcher, and a friend. He will be missed.

I hope you enjoy the rest of your summer and look forward to seeing you when you visit campus.

As always, Stay Calm, Stay Safe and Stay Healthy.

Robert J. Raberts
Bob Roberts, Professor and Head



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In Memory of

Dr. Paul S. Dimick 1935 - 2023



Dr. Paul S. Dimick, Professor Emeritus of Food Science

Paul Slayton Dimick, Ph.D., Professor Emeritus in the College of Agricultural Sciences, passed away on May 25, 2023, at Mount Nittany Medical Center. Paul was born on September 15, 1935, in Burlington, Vermont to Evelyn Slayton and Trafford Goodwin Dimick. Paul attended the University of Vermont and graduated with a B.Sc. in Dairy Manufacturing in 1958 and a M.Sc. in Dairy Science in 1960. Following his M.Sc. degree he served in the US Army Artillery, Air Defense Command and obtained the rank of Captain, and received an Honorable Discharge. In 1964, he received his Ph.D. in Dairy Science/Biochemistry from The Pennsylvania State University and joined the faculty that same year.

Since his arrival at Penn State, he taught 15 courses at the undergraduate and graduate level, of which he developed five. His teaching responsibilities in the Department of Food Science allowed him to interact with approximately 3,200 students. He adapted his Food Chemistry course for television which was distributed to the main campus and the Penn State Medical School in Hershey, PA. As a senior member of the Graduate Faculty, he served as the major Professor for 36 M.Sc. and Ph.D. candidates in Food Science, and 6 Post Doctoral students. Dr. Dimick's research emphasis was on the metabolic origin of flavor constituents in food systems with emphasis on lipid metabolism, photochemical effects on milk, cocoa production and processing, and lipid crystal growth. He published over 200 peer reviewed scientific publications, 72 abstracts and over 60 symposia. These included presentations in the US, England, France, Canada, Germany, Malaysia, Australia, and New Tealand

Dr. Dimick received the 1991 Outstanding Professor Award sponsored by the Eastern Region of the Institute of Food Technologists. He also received the Gamma Sigma Delta Award in Agriculture, Sigma Xi Research Award, and Phi Lambda Upsilon Chemistry Award. He served on the University Graduate Council, the University Faculty Advisory Committee on Sabbatical Leaves, and the Committee to develop a performance, evaluation, and counseling instrument for the College of Agricultural Sciences. He played a significant role in the formation of the Department of Food Science in the College of Agricultural Sciences at Penn State.

Paul is survived by Patricia L. Lantman who he married on April 6, 1958, in Hinesburg, VT. They were happily married for 65 years and are parents of three children. Daniel (Nannette) of Auburn, AL, their children; Paul (Trish) of Auburn, AL, and Lisa of Valley Village, CA; Thomas (Gloria) of State College, PA, and sons, Tyler and Thomas; Jeanne Dutrow (Melvin) of Centre Hall, PA, and their three sons, Andrew (Mattie), Thomas (Megan), and Steven (Paige). He was blessed with eight great grandchildren. He is also survived by his brother David (Sandra) of Knoxville, TN, and their two sons, Timothy and John.

Paul was a devoted husband, father, and grandfather. He enjoyed several hobbies. He was an active Amateur Radio Operator (Ham) with the call signs WA3ZPW and K3PSD and enjoyed talking to other Ham operators around the world. He was a member of the Nittany Amateur Radio Club. He also spent many years in the shooting sports (skeet, trap and sporting clays). Paul played ice hockey until the age of 50 with the Nittany Hockey League. Other activities included skiing, sailing, canoeing, hiking, and camping. He was a Boy Scout leader of Troop 380 for 7 years and immensely proud of his 2 sons and 3 grandsons who achieved the rank of Eagle Scout. He enjoyed gardening and wood carving in his spare time. In retirement, Paul and Pat enjoyed traveling in their RV and spent the winter months in Naples, FL, for 15 years before returning to their home in Centre Hall, PA.

In lieu of flowers, the family requests memorial contributions be made to the Paul S. Dimick Graduate Student Award in Food Science at https://raise.psu.edu/DimickAward.

 $\underline{\text{https://kochfuneralhome.com/tribute/details/2936/Paul-Dimick/obituary.html\#tribute-start}}$

Pa. Winemakers Uncork New Possibilities with Help of Penn State Researchers



In her lab at Penn State, Josephine Wee, assistant professor of food science, isolates non-Saccharomyces strains from grape samples provided by the industry to study their individual capabilities, such as whether they increase aroma compounds or acidity. The photo, taken by her student, Hung Li (Henry) Wang, shows indigenous or wild yeast and molds present on wine grapes which they isolated for their non-Saccharomyces yeast study. Credit: Hung Li (Henry) Wang. All Rights Reserved.

Pennsylvania winemakers are uncorking new possibilities with the help of <u>Penn State Extension</u> and the <u>College of Agricultural Sciences</u>. Their expertise serves as a vital ingredient in elevating wine quality and diversity, while fueling the growth of the state's \$1.4 billion wine industry.

A notable area of focus is the exploration of non-Saccharomyces yeasts, which can unlock new flavors and aromas.

"When I first learned about non-Saccharomyces yeasts, it caught my attention," said Molly Kelly, enology extension educator with nearly 20 years of experience in clinical microbiology.

She explained that wine fermentation typically relies on alcohol -tolerant Saccharomyces yeast strains. Non-Saccharomyces strains, naturally present on fruit, can lead to spoilage and produce undesirable aromas and flavors.

To address this, researchers have identified non-Saccharomyces strains that can withstand specific conditions, such as low levels of sulfur dioxide or higher alcohol content. By inoculating these strains first, followed by the Saccharomyces yeast, winemakers can achieve distinctive aromas and flavors while ensuring successful fermentation.

Some non-Saccharomyces yeast strains may lead to a more fruit -forward character in some red wine varieties, Kelly noted. For white wines such as sauvignon blanc, these strains can contribute to increased aromatic compounds, creating a tropical flavor profile.

Winemakers can use certain non-Saccharomyces strains for biocontrol purposes to prevent spoilage, while other strains have the capacity to convert sugar into acid. Non-Saccharomyces yeast also can impact the texture of wine by producing extra polysaccharides that create a richer mouthfeel, said researchers.

While a few Pennsylvania winemakers have used non-Saccharomyces wine yeast for years, others were not familiar with them.

"Initially, winemakers were hesitant to use non-Saccharomyces yeasts in the fermentation process because it can be risky if not done in a controlled manner," said Kelly, who supports the technical needs of the Pennsylvania wine industry and leads educational programming focused on wine quality.

Kelly and her colleagues at Penn State experimented with two species of non-Saccharomyces yeasts provided by Scott Laboratories, a prominent supplier of yeast strains for the food and beverage industry. After seeing positive results, Kelly then distributed these yeasts to winemakers around Pennsylvania, asking them to compare non-Saccharomyces wine with traditional Saccharomyces fermented wines.

At the recent Pennsylvania Grape and Wine Industry Conference, Kelly asked winemakers who used the yeast to bring their wines to a panel tasting. The tasters reported enhanced aromas and mouthfeel. Kelly noted that many winemakers since have incorporated non-Saccharomyces yeast into their winemaking process.

While companies such as Scott Laboratories focus on refining known non-Saccharomyces strains with known fermentation capabilities, <u>Josephine Wee</u>, assistant professor of food science, works at the ground level, discovering new potential strains for winemakers to use. She isolates non-Saccharomyces strains from grape samples provided by the industry to study their individual capabilities, such as whether they increase aroma compounds or acidity.

"When I started at Penn State, I asked, 'How can I best contribute to my community?'" Wee said. "I quickly found that the wine and fermented beverage industries were rapidly growing and expanding in Pennsylvania. I felt that my skills and expertise could help accelerate science-driven improvement and innovation."

Wee said her team has found Pichia yeast species and Hanseniaspora yeast species particularly fascinating. She explained that these strains have co-evolved with Saccharomyces cerevisiae on wine grapes, enabling them to work together during wine fermentation. They also can produce unique flavors. Full Article... (Penn State News)

Roberts selected as Fellow of Institute of Food Technologists (IFT)



Dr. Robert Roberts, Professor and Head of Food Science

Dr. Robert Roberts, Ph.D., Professor and Head of the Department of Food Science has been selected as a 2023 IFT Fellow by the Institute of Food Technologists (IFT).

The Institute of Food Technologists (IFT) Fellow designation is an honor bestowed upon an IFT member by their peers to recognize career excellence and significant service, leadership, and contributions to IFT and the profession.

After earning a PhD in food science at the University of Minnesota in 1991, Dr. Bob Roberts joined the faculty of the Food Science Department at The Pennsylvania State University. He progressed through the academic ranks and has served as a professor and department head since 2013. Since joining Penn State, the major theme of his scholarly efforts has been the integration of research, teaching, and outreach programs in the science of dairy foods. He considers the education and development of people as the primary responsibility of a faculty member and has consistently mentored undergraduate and graduate students as part of his research program, provided leadership to the undergraduate program in food science and worked closely as an advisor to the Food Science Club. Dr. Roberts' research focuses on the microbiology and technology of fermented dairy foods. He has served as the director of the Penn State Ice Cream Short Course and Ice Cream 101 for 25 years. He is a past-president of the American Dairy Science Association and an active member of IFT. (IFT Fellows)

Kovac honored with 'Advancing a Global Penn State' Award

Dr. <u>Jasna Kovac</u>, Associate Professor of Food Science, was honored with the Early Career Faculty Award by Penn State Global.

The purpose of the Advancing a Global Penn State Awards program is to recognize the outstanding contributions of individuals and academic units across the University, including at the Commonwealth Campuses, who have demonstrated success toward achieving the goals of a Global Penn State.

The Early Career Faculty Award recognizes innovative international research projects, excellence in global scholarship, or curricular and experiential leadership surrounding global learning for a tenure-earning faculty member at Penn State. Full Article...(Penn State News)



The winners of the Penn State Global awards . Dr. Jasna Kovac (Center), College of Agricultural Sciences.

Credit: Penn State. Creative Commons

Outstanding Young Scientist Award in honor of Samuel Cate Prescott



Dr. Jasna Kovac, Associate Professor of Food Science

Dr. Jasna Kovac, Associate Professor of Food Science has been selected as the Outstanding Young Scientist Award in honor of Samuel Cate Prescott by The Institute of Food Technologists. She earned her BSc in microbiology and a PhD in biosciences/biotechnology from the University of Ljubljana, Slovenia. Jasna conducted pre-doctoral and post-doctoral research in microbial genomics at the University of Oxford and Cornell University, respectively. In 2017, she assumed a faculty position at The Pennsylvania State University. She is actively engaged in microbial food safety research domestically and internationally, particularly in Ethiopia and Cambodia. Her lab integrates next-generation sequencing and microbiological methods to investigate factors affecting foodborne pathogens' transmission, persistence, virulence, and antimicrobial resistance. Kovac lab leverages research findings to develop bioinformatics and genomics-based tools to inform food safety risk assessment. (IFT Achievement Awards)

Cutter Named Recipient of Prestigious International Food Safety Award

<u>Catherine Nettles Cutter</u>, <u>Penn State Extension</u> assistant director for food safety and quality programs, received the prestigious Fellow Award from the International Association for Food Protection in recognition of her exceptional contributions to food safety.

The award honors professionals who have made distinguished contributions to the association and its affiliates over an extended period. As a nonprofit organization, the association is focused on advancing food safety worldwide by providing a forum for food safety professionals to exchange information on protecting the food supply. Cutter will receive the award, which includes a plaque, at the association's annual meeting in July.

"This is a tremendous and well-deserved honor based on her commitment and documented success in extension, teaching and research focused on food safety," said Robert F. Roberts, head of the Penn State Department of Food Science.

Along with her extension responsibilities, Cutter is a professor of food science in Penn State's <u>College of Agricultural Sciences</u>. She has developed and taught several graduate- and undergraduate-level courses in food science and food safety.



Dr. Catherine Cutter, Professor and Food Safety Specialist

As a co-author of more than 80 abstracts and more than 150 publications, Cutter's research is focused on a range of important food safety issues. She investigates the prevalence and incidence of pathogens in foods, validates methodologies and assays for the sampling and detection of foodborne pathogens, and works to develop effective control measures and interventions to reduce pathogens in foods.

In addition to her research, Cutter leads Penn State's International Food Safety Initiative, which is aimed at improving food safety practices among food handlers in Armenia, Ukraine, Latin America and Africa.

Cutter has mentored a considerable number of students, including six postdoctoral researchers and 23 graduate students.

"A critical aspect of my work is training the next generation of food safety professionals, including graduate students and extension educators," Cutter said. "Building them into leaders is essential to keep the momentum going in this field. We are already seeing changes in the food safety culture, but we have a long way to go. We must adapt, change and improve upon what we do to reduce foodborne illness and risk."

In her role as a food safety extension specialist, Cutter has organized and delivered food safety workshops and short courses for industry professionals. As the leader of food safety and quality extension programs, Cutter supervises more than 20 extension educators who are responsible for the implementation of food safety programming throughout Pennsylvania.

Cutter earned her doctoral degree from Clemson University and began her career at the U.S. Meat Animal Research Center in Clay Center, Nebraska. She was appointed by the U.S. Secretary of Agriculture and served two terms on the National Advisory Committee for Meat and Poultry Inspection under the U.S. Department of Agriculture's Food Safety and Inspection Service.

Since 1987, Cutter has participated in several professional development groups as a member of the International Association for Food Protection. She served as an editorial board member for the Journal of Food Protection and has held the position of scientific editor for Food Protection Trends since 2013.

"For more than 35 years, since I was a graduate student, I've been motivated to do what I do because it makes a difference," Cutter said. "Our work in Extension helps businesses navigate regulatory issues, pinpoint problems, improve food safety to keep people from getting sick, and maintain a viable food supply. This approach is critical for national and international food security, and it's what motivates us to keep improving. To me, it's a reason to get up in the morning — to ensure a safe food supply and to keep people healthy." Full Article... (Penn State News)

John Martin Receives 2023 Outstanding Alumni Award

Penn State's <u>College of Agricultural Sciences</u> recently honored John Martin with the 2023 Outstanding Alumni Award.

John Martin, of Oak Park, Illinois, and John Finegan, of Sacramento, California, were this year's recipients. They received their awards during a banquet April 4 at the Graduate State College.

The Outstanding Alumni Award recognizes alumni for their achievements and provides opportunities for recipients to interact with the college's faculty, students and other alumni. The recipients also were inducted into the Armsby Honor Society, which recognizes those who have demonstrated a commitment to the College of Agricultural Sciences.

Martin received his bachelor's degree in food science from Penn State. He received his master's degree in food science from Cornell University, with additional coursework from Rutgers University, the University of Georgia and Georgia State University.

He has more than 20 years of experience in specialty ingredients, food and beverage, and alcoholrelated industries across a wide range of global companies. He has significant expertise in strategy, innovation and high-margin startup activities as an operator.

Martin has had successful consumer product launches in North America, Asia and Europe and has developed technology platforms to deliver research programs, including more than 10 utility patents.

He is active in public and investor relations with key trade, industry and consumer press, including interviews with the BBC and Forbes magazine.



John Martin, (center) of Oak Park, Illinois

In March 2021, he joined the Olam Food Ingredients team as its global vice president of innovation, leading research and development on edible nuts. Previously, he held leadership positions at various food and beverage companies, including vice president of innovation and technical development at PureCircle, a global biotechnology sweetener ingredient company for the food, pharmaceutical and flavor industries.

Martin successfully developed and launched various consumer products worldwide at the Coca-Cola Co., Ferrara Candy Co. and Brown-Forman Corp. He also developed applications using fiber and active food ingredients while working for Beneo Co. Full Article... (Penn State News)

Honors and Awards

2023 Gamma Sigma Delta Awards

Catherine Cutter, Outstanding Research Faculty Award

Rose Spah, Undergraduate Student Inductee Songyi Yoo, Undergraduate Student Inductee

Anna Sarubbi - 1st place, Undergrad division Food Systems, Title: *The effect of spore germination triggers on the germination of Bacillus cereus sensu stricto spores* (Advisor: Jasna Kovac)

Laura Taraboletti - 1st place, Undergrad division Human Behavioral & Social Systems, Title: *Comparison of techniques to remove smoke off-odors from books* (Advisor: Helene Hopfer)

Cynthia Loi - 1st place, Grad division Food Systems, Title: *Olfactory inputs modulate the perceived tastes of different types of chocolate* (Advisors: Helene Hopfer & John Hayes)

Tyler Chandross-Cohen - 1st place, Grad division Microbiology & Microbiome Systems, Title: *Growth Potential of Bacillus Cereus Group Strains From Different Phylogenetic Groups in a Dairy Food Model* (Advisor: Jasna Kovac)

Leah Bodinger - 2nd place, Undergrad division Food Systems, Title: *Effects of Sodium Citrate on Almond Proteins for Almond-Based Beverage Products* (Advisor: Federico Harte)

Soomee Hwang - 2nd place, Grad division Food Systems, Title: *Comparative urine metabolomics of mice treated with non-toxic and toxic oral doses of (-)-epigallocatechin-3-gallate* (Advisor: Josh Lambert)

Sloan Scholars Program

Brittani Bedford, Selected as a Sloan Scholar (Advisor: Catherine Cutter)

Graduate Exhibition DEI Award

Marjorie Jauregui - 3rd place, Title: Evaluation of the effects of growing and drying conditions on the nutritional and phytochemical composition of emergency foods in a post-nuclear war scenario, co-presented by **Swathi Kothattil**, College of Agricultural Sciences / Plant Pathology and Environmental Microbiology. (Advisor: Josh Lambert)

Spring Undergraduate Class, 2023

Jamie Aravich Julia Doklan Jaylynn Gardner Leah Kaczur Andrew Kisiel Alexandra Melton Rose Spahn Songyi Yoo Leah Bodinger Katelyn Feaster Avery Geiger Thitima Kaothaisong Jared Labowski Eliana Perilman Olivia Sparkman Sabrina Yushinski Thomas Damon Megan Futchko Nanmanus Homchuay Matthew Karcewski Allison Mansfield Kiana Shoemaker Gregory Wilson

Spring MS and PhD Graduates, 2023



Bridget Reed, MS

Thesis title: The Influence of COVID-19 Panndemic on Wine Consumer Behavior in the Mid -Atlantic U.S. Region. (Advisor – John Hayes)



Laura Rolon, PhD

Thesis title: The Role of Environmental Microbiota in the Persistence of Listeria Monocytogenes in Food Processing Facilities.
(Advisor – Jasna Kovac)



Veronica Stefanick, MS

Thesis title: Development and Evaluation of Chitosan-Pullulan Films Containing Lauric Arginate (LAE) to Inhibit Microorganisms Associated with Raw and Ready-to-Eat Meat Products.

(Advisor – Catherine Cutter)

Congratulations!

Contact Information

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Giving to the Food Science Department go to:

GiveTo.psu.edu/FoodScience

Upcoming Events

29	Dairy Basics: Fundamentals of Quality and Safety, University Park, PA
30	Hazard Analysis and Preventive Controls for Small-Scale Dairy
	Processors, University Park, PA
5-7	Hazard Analysis Critical Control Point Programs for Meat and Poultry
	Processors (HACCP), University Park, PA
19-21	Pasteurization Short Course, University Park, PA
19-21	Preventive Controls for Human Foods Certification, Pittsburgh, PA
26	<u>Cultured Dairy Products Short Course</u> , University Park, PA
10-12	Food Safety and Sanitation for Food Manufacturers, University, PA
24	Preventive Controls for Human Foods Certification, Malvern, PA
24-26	Penn State - Ingredion Plant-Based Yogurt Alternative Short Course,
	University Park, PA
28	Food Science Tailgate, University Park, PA
30	The Art and Science of Cheese Making Short Course, University Park, PA
	30 5-7 19-21 19-21 26 10-12 24 24-26

SAVE THE DATE: Food Science Annual Tailgate

Join us on October 28, 2023, at the Erickson Food Science Building, University, PA, for the annual Food Science Tailgate hosted by the Department of Food Science, the Food Industry Group, and the Food Science Club. Alumni, parents, students, faculty, staff, and other supporters of the department are welcome to attend and enjoy food and good company before attending the Penn State football game.

> October 28, 2023 Penn State vs. Indiana

Update Your Alumni Information

Updating your information with the Alumni Association is now easier than ever. You can change your home address, work address, e-mail address, and other information online at the Penn State Alumni website. Or you may also contact the Alumni Records staff directly.

Web: Record Update Form

Phone: 800-548-LION (5466), option 2 Mail: Penn State Alumni Association Alumni Data Access & Services Department B Hintz Family Alumni Center University Park, PA 16802



This publication is available in alternative media on request.

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