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We Are Penn State!

Food Science Digest is published by the Department of Food Science Communications Committee

Notes from the Desk of John Floros

John Floros, Professor and Head



Penn Staters across the globe are well aware of the success our Nittany Lions enjoyed on the gridiron this past fall. All eyes will be focused upon ringing in the New Year in Pasadena as Joe Paterno brings his charges to the Rose Bowl in a BCS bowl match-up with the University of Southern California. Coach Paterno's recipe for success is simple – a solid plan for guidance and gifted teammates to put that plan into work. While we don't deal in blitz packages or design running plays, the Food Science Department is copying Coach Paterno's recipe for success. We are busy working on our next strategic plan and continuing to build upon our

talented alumni, industry, faculty, staff and student teammates to put that plan into work.

As part of the College of Agricultural Science's framework, we are articulating our department's vision for the next five years, addressing contributions to outreach, research and education in the college's five strategic initiatives of; (1) Entrepreneurship; (2) Water Quality and Quantity; (3) Energy; (4) Food, Diet and Health; and (5) Pest Prediction and Response. We will continue to enhance our student experience for both resident and long-distance students, assess learning outcomes, implementing cost savings and cost avoidance, and foster diversity. Our Industrial Advisory Board met in mid October and reviewed and commented on the draft strategic plan of our department. We are now finalizing our plan based upon the input of our board. Shortly after the Rose Bowl, our strategic plan will be finalized and in place as our guide for the next five years.

In conjunction with our Food Science Club and our Food Industry Group, we were pleased to host our annual Food Science Tailgate on September 6th prior to our game with Oregon State – nearly a foreshadowing of the Rose Bowl. Following our fall FIG meeting, we welcomed over 350 alumni and friends, and shared an enjoyable day of food, drink conversation, and catching up with so many who've become part of the fabric of this department. I'd like to thank all of you who contributed to this

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effort through your generous donations and especially the Food Science Club for planning and executing such an outstanding event.

As the fall semester progressed, the Lions' wins kept piling up, and our enrollment figures kept increasing. We learned that the recruiting efforts of our faculty/staff/alumni/industry team were paying dividends. Our undergraduate enrollment is now 118 students and continues to grow due to the team's efforts and the quality and value a degree in food science offers. As is so typically the case, expansion dilutes talent – but not in food science! Despite our growing numbers, the quality of our students as measured by academic performance continues to improve. In terms of student numbers, we are likely the largest food science department in the US today and in terms of overall quality it would be difficult to accept any argument that we are not at the top as well. Our graduate student applications mirrored our undergraduate enrollment numbers and we enjoyed selecting talented students from well over 140 applications for MS and PhD students.

A winning record and individual honors are indicative of a strong team. Coach Paterno's student-athletes are often honored with Big Ten and All American accolades and we have our share of food science award winners as well. Dr. Cathy Adams was honored by her selection as a 2008 University Alumni Fellow. Dr. Naveen Chikthimmah won the North American Colleges and Teachers of Agriculture (NACTA) Teaching Award of Merit. Lyndsay Bashore earned the 2008 Food Industry Group Student Leadership Award. IFT awarded significant scholarships to Elizabeth Beck, Kirby Keller, Jeffrey Martz, Ryan Moraski, Lauren Popescu, Debie Blair, Elise Glass, Annette Hartzell, Agnes Lim, Vanesa Lay, Marlene Moskowitz, Huan Xia, Hilary Peterson, Gretchen Wall, and Angela Richard. Debora Saibene, Huan Xia, and Lihe Yeo won AACC Graduate Scholarships. Debie Blair won an American Association of Candy Technologists scholarship, and Zachary Evanitsky won the All Star Dairy Association scholarship. And not unlike Coach Paterno's sustained record of excellence, we have a few faculty and staff members who are paving the path of sustained excellence and service to the university. The college recently awarded the following service awards; 5 Years - David Long; 10 Years - Dr. John Coupland, Dr. Luke LaBorde, Joyce Cingel, and Tammy Zeigler; 15 Years - James Stroup; 20 Years - Dr. Ramaswamy Anantheswaran, Dr. Gre-

gory Ziegler, and Susan Watson. Dr. Lynne Brown was recently honored by the University for her 25 years of service award along with Kim Ripka and Robert Lumley-Sapanski.

Like our Nittany Lions, we look back upon the fall semester with some sense of satisfaction and accomplishment. But we also realize that January brings the allure of new challenges. We feel we have a solid plan and a talented team to meet the challenges that surely lie before us. We feel fortunate for the opportunity to work with all of you.

In closing, I'd like to add the department's best wishes for the rapidly approaching holiday season and the very best for the coming new year. ♦

Happy Holidays from the Department of Food Science!



New Faculty Profiles

Dr. Joshua Lambert



Dr. Joshua Lambert, Assistant Professor of Food Science, received his B.S. Biochemistry from Penn State University and his Ph.D. in Pharmacology & Toxicology from the University of Arizona. He worked for six years in the Department of Chemical Biology at Rutgers University, first as a Post-doctoral Associate and then as an Assistant Research

Professor. He returned to Penn State and joined the faculty of the Department of Food Science in June 2008.

Josh's research interests are in the area of diet and disease prevention. For the past six years, his work has focused on prevention of cancer and metabolic syndrome by tea polyphenols. More recently, he has become interested in the possible side-effects of high doses of tea polyphenols. Although tea as a beverage is considered very safe, new dietary supplements (*i.e.* pills and extracts) have often not been tested for safety. Recent work in Josh's lab has shown that although low doses of tea polyphenols protect the liver, high doses can cause liver toxicity.

Josh was attracted to Food Science as a field of study because of the strong links between diet and chronic diseases such as cancer, obesity, and diabetes. He was also attracted by the possibility to translate his laboratory work on diet and disease prevention to real-world situations using the outreach opportunities afforded by the Department and the University.

In his free time, Josh enjoys playing the guitar, making jam, and hiking. He also spends a lot of time playing Legos with his kids. ◆

Dr. Ryan J. Elias



Dr. Ryan Elias, Assistant Professor of Food Science, recently joined the faculty in August, 2008. Ryan did his undergraduate work in chemistry at Hamilton College (NY) before earning his Ph.D. in food science (2006) at the University of Massachusetts, Amherst.

Ryan's dissertation research at UMass focused on the mechanistic elucidation of protein and peptide antioxidant mechanisms in food emulsions. Following his graduate studies, Ryan accepted a postdoctoral appointment in the Department of Viticulture and Enology at the University of California, Davis, where he researched the role of transition metal catalysts in nonenzymatic wine oxidation.

Ryan will continue his research focus on food and beverage oxidation at Penn State, and he looks forward to collaborating with other researchers in the department and across the university. His research group is currently involved in projects relating to radical mobility in complex foods, identification of free radical reaction intermediates in wine using electron paramagnetic resonance (EPR) spectroscopy, and the effect of oxidized polyphenols on human health (a joint effort between Drs. Elias and Lambert).

In his spare time, Ryan is an avid cook and, more recently, an enthusiastic home brewer. Ryan and his wife, Kate, spend much of their time (and money) working on their old house just north of campus. A native of Massachusetts, Ryan also closely follows the ebb and flow of Boston's professional sports teams. ◆

Food Science Tailgate Huge Success

Tom Dimick, Outreach Coordinator

The Annual Food Science Tailgate was held on September 6, 2008. Alumni, friends, faculty, staff, students and their families came together to enjoy each other's company and to support the Food Science



Manfred Kroger and Larry Campbell check out the buffet options

Department at the annual Tailgate held at the Food Science Building. Over 350 guests attended this year's event co-sponsored by the Food Science Department, The Penn State Food Industry Group and the Food Science Club. The day's activities included the Food Industry Group Board meeting and presentation of the Food Industry Group Student Leadership Award (see page 8) followed by a tailgate lunch with excellent food prepared by the Food Science Club. Following the event, participants headed to Beaver Stadium to cheer on the Nittany Lions in their impressive victory over Oregon State 45-14. ♦

Food Science Club Highlights

Lyndsay Bashore, Food Science Club President

The Penn State Food Science Club kicked off the school year with our Annual Food Science Club Tailgate. Many of the faculty, staff, alumni, and students said that this was the "Best Tailgate Ever!!" The club members prepared the food at the Tailgate, which was mostly donated or sponsored by various food/ingredient companies throughout Pennsylvania. The club members also enjoyed scooping Creamery ice cream for

Harvestfest at Del Grosso's

Amusement Park just a few weeks after the Tailgate.

Our wrists may be sore after scooping for 3-4 hours, but it is all worth it to help fund our trip to the IFT Annual Meeting and Food Expo.



Lyndsay Bashore dips another scoop

Many companies, such as Kraft, Nestle, Unilever, Dreyer's, Campbell's, General Mills, and Heinz, have come to our club meetings to give presentations and interview students for internships, co-ops, or jobs.

In November, we held the Keystone IFT Student Recognition Night to congratulate all of the students that received IFT scholarships. This year our distinguished speaker was Dr. Bruce McPheron, Associate Dean of Research and Graduate Education and Director of the Pennsylvania Agricultural Experiment Station for the College of Agricultural Sciences at Penn State.

Our college bowl and product development teams are working hard to get ready for their competitions. We are very excited for the long drive up to Maine for the Area meeting and college bowl competition this spring! Good luck to all of our seniors graduating in December! ♦

Featured Faculty

Kerry Kaylegian, Director of Industrial Outreach and Pilot Plant Manager

Welcome to the new Featured Faculty column. Our intent is to increase your awareness of the breadth and expertise of the Food Science Department.

Dr. John D. Floros



Dr. John D. Floros is not only a Professor of Food Science and our Department Head, but he is also the Past President of the Institute for Food Technologists (IFT).

John grew up in Greece, where he worked in tomato processing plants from the time he was in his teens. John was interested in science, engineering and food,

and found all of these in the new Food Science program at the Agricultural University of Athens, where he obtained his B.S./M.S. degree in their first Food Science graduating class. John was managing a tomato processing plant when he realized how much he didn't know and how many questions he could not answer. It was then that he decided to pursue a Ph.D. at the University of Georgia, Athens, U.S.A., and as he says "moved from Athens, GR to Athens, GA." After graduation, John joined the faculty at Purdue University where he advanced through the ranks before moving to Penn State in the role of our Department Head in 2000.

John's research continues his early connection with fruit and vegetable processing. John likes to work at the interface between processing/packaging and food quality/safety. Despite the demands of time on the Department Head and IFT, John still co-advises several students. It is evident that he misses being a full-time researcher and developing a closeness with his students as they work through problems and generate ideas that lead to success.

John has always been involved with IFT at the local and national levels. Once he settled in as Department Head and the new Food Science Building was designed, funded, built, and occupied, he felt it was time to serve our professional organization at a higher

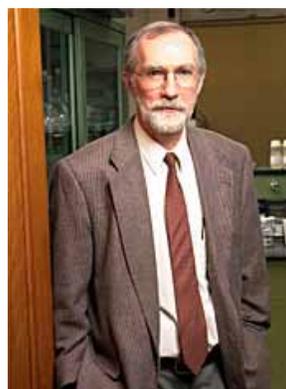
level. In July 2007, John became IFT President. He finds great satisfaction in having an impact on this important organization.

John feels that Food Scientists need to increase their recognition and respect among peer organizations in the other sciences and even within the food industry. One of the biggest challenges we have now is to get the food business sector to understand that in order to be successful they must hire and use Food Scientists, not just chemical engineers, chemists or biologists. Food Scientists understand the complexity of food materials and the effects of processing and storage on chemical interactions, food safety, food quality, and the sensory characteristics that make desirable food products.

One of the most critical challenges and opportunities is to convince governments and societies to invest more in Food Science research, not just on agricultural crop production. We need to focus on processing, distribution, and health and wellness to ensure adequate quantities of food and nutrition for the world's population.

When John is not reading and talking about Food Science, he enjoys reading about history and philosophy and visiting Greece with his wife and 2 sons.

Donald B. Thompson



Dr. Donald B. Thompson, Professor of Food Science, received his B.S. at Haverford College in English. Don started his career as a high school English and then as a high school Chemistry teacher. While he was teaching, Don took a class in Nutritional Biochemistry and became interested in the interface between chemistry

and nutrition, leading him to graduate studies in this area. Don obtained his M.S. in Food Science at the University of Illinois. He then went to work for the R.T. French company in product development and was involved in the roll-out of French's Bold and Spicy Mustard. Don returned to the University of Illinois for his Ph.D. in Food Science. Don joined the faculty at

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the Penn State Department of Food Science in 1984.

While Don was conducting his graduate studies on soy protein products, he developed an interest in carbohydrate polymers. This gave him the topic for the first graduate class he developed at Penn State, as well as contributing to the direction of his research. Don's research is a continuum of the relationships between starch structure, physical function, and nutritional properties. Of great interest is elucidating the covalent structure of starches and changes in starch physical structure as a result of processing, and in understanding how processing-induced changes in structure affect functional properties. Don's research on resistant starch forms the bridge between starch structure, function and human nutrition. Current projects in Don's laboratory focus on changing the amount of resistant starch in a product by various types of processing, the effect of genetic manipulation of starch branching enzymes on starch structure, and starch-flavor interactions.

Don is first and foremost interesting in teaching. Every spring he teaches FD SC 406 Physiology of Nutrition, a required class for our Food Science undergraduates. He enjoys the opportunity to provide a different perspective on the subject than the students would get in a biochemistry or nutrition department. Every other year since 1985 Don has taught a graduate level class in Carbohydrate Hydrocolloids. More recently he developed a course that explores the relationship between food and health, as mediated by values. It is clear, when talking to Don, that his passion lies in teaching.

From January 1994 until June 2000 Don was the Head of the Department of Food Science. Don gave up his undergraduate teaching responsibilities, but maintained a full research laboratory while he was Head. During Don's tenure as Head, the Department made significant progress when a Borland Lab renovation project was approved.

Don is an avid gardener and reader. Recently he has been interested in the concept of 'natural' as it applies to food. He provided some of insights about 'natural' in a Food Science Department Seminar this semester, entitled "Contesting the Natural: Implications for Food Scientists." ♦

Featured Staff

Ellen Daly Mahan

Julie Peterson, Sensory Lab Coordinator



Ellen Daly Mahan was born in Madison, WI to two PSU Ag Engineering grads and grew up in southeastern Michigan where her dad is now a patent attorney and her mom is a community food bank organizer. She came to Penn State in 2004 as a freshman in Food Science after learning about the program from her grandfather, who worked in the food industry for several years.

Throughout her undergrad career, Ellen traveled abroad in Italy and Costa Rica and became president of her sorority, Sigma Alpha. In 2006, Ellen was hired as an undergraduate worker in the Food Sensory Lab and after graduating with her B.S. in Food Science in 2008, she was hired as a full time employee in the Sensory Lab. Now as the Sensory Lab Research Technologist, Ellen's main responsibilities include designing and conducting consumer and descriptive tests, training descriptive panels, analyzing and reporting data, and informational presentations about the sensory lab. She looks forward to the coming of the new Sensory Science Faculty member, Dr. John Hayes, and plans on starting graduate school in the near future. ♦

Catherine E. Adams Receives Penn State's 2008 Alumni Fellow Award



Catherine E. Adams, President and CEO, RdR Solutions Consulting, LLC, is the 2008 recipient of the Penn State Alumni Fellow Award.

Catherine has spent her career in multiple sectors and brings a unique perspective to problem solving in her new role as an independent consultant with her own firm, RdR

Solutions Consulting. She has worked at high levels in the public and private sector and survived all with integrity and left a legacy as a change agent, for the better! In her new role, Catherine will dedicate her time to bringing positive changes to health and food safety policy.

Catherine recently was Corporate Vice President for Worldwide Quality, Food Safety & Nutrition for McDonald's. Prior to this role, she led Quality and Environmental Safety at Coors Brewing Company, led North American Quality at H.J. Heinz, led Restaurant Quality at YUM Brands (Pizza Hut, Taco Bell, KFC restaurants), and led next-generation Quality programs at the Campbell Soup Company. Prior to joining the industry, she managed scientific affairs at the Grocery Manufacturers of America and International Life Science Institute-Nutrition Foundation. She also was in the public sector as Assistant Administrator of the USDA Food Safety & Inspection Service, where she engineered the development of HACCP as international and national regulatory policy and industry practice.

Catherine graduate at the top of her class in 1979. She went on to graduate with a MS in Food Science and Human Nutrition from Michigan State University and a doctoral degree in Food Science from University of Illinois. Catherine is also a Registered Dietician. She was previously honored by Penn State as an Outstanding Alumnus in 1995 and currently serves on our Volunteer Committee for Col-

lege fundraising. Catherine proudly sponsored a laboratory in the new Food Science Building.

Catherine is a life member of the Penn State Alumni Association and lives now in both Washington, DC and Aubrey, TX. In Texas, she owns and operates a working ranch, breeding and raising competitive cutting horses and registered Angus cattle. Her cattle herd began with foundation Angus purchased from the Penn State program and she has remained "true blue" to the Penn State genetics in her breeding program ever since.

The Alumni Fellow Award is the most prestigious award given by the Penn State Alumni Association. It is presented to professional leaders who have been nominated by an academic college and selected by the Board of Trustees. Recipients are invited by the university president to return to Penn State to share their experience with students, faculty and administrators. ♦

Naveen Chikthimmah Receives NACTA Teaching Award of Merit



Naveen Chikthimmah was the recipient of the 2008 North American Colleges and Teachers of Agriculture (NACTA) Teaching Award of Merit. The NACTA Teaching Award of Merit is awarded by the College of Agricultural Sciences to one individual each year in an attempt to properly recognize and encourage excellence in teaching in faculty

early in their tenure careers (with less than five years of teaching experience at Penn State).

Naveen was formally recognized with this award during our college's Annual Scholarship Banquet held October 27th at the Penn Stater Hotel and Conference Center. ♦

Bashore Honored with 2008 Student Leadership Award

Tom Dimick, Outreach Coordinator

Lyndsay Bashore, a senior in Food Science, is the 2008 recipient of the Food Industry Group Student Leadership Award. The award was presented September 6, 2008 at the Food Industry Group Fall Board Meeting during the Annual Food Science Tailgate.



An active member in the Food Science Club, Lyndsay has held leadership roles serving as president in 2007 and 2008. She is an active member of The Institute of Food Technologist Student Association and Sigma Alpha Professional Agricultural Sorority. Lyndsay currently serves as first vice president for Sigma Alpha and served as treasurer in 2007.

Lyndsay studied in Rome, Italy for seven weeks in 2007 as part of an international program focusing on the Mediterranean Diet and International Nutrition Education Programming. In addition, she has gained valuable experience working as an assistant in the Food Science Department Sensory Laboratory and as a teaching intern in Food Science 201.

Lyndsay has been active in volunteer groups including the State College Food Bank, American Red Cross, and as a volunteer at the Centre Crest Nursing Home.

This annual award is presented to a Penn State Food Science student who demonstrates exemplary leadership, scholarship, community involvement, and volunteerism. Only undergraduate Food Science students who have completed at least four semesters and graduate students majoring in Food Science are eligible for this award. ♦

25 Year Service Awards

Dr. Lynne Brown, Robert Lumley-Sapanski, and Kim Ripka (*left to right*), were recently honored for 25 years of service to The Pennsylvania State University at a special reception at Nittany Lion Inn.



Thank you for your dedication!

Pilot Plant Update

Kerry Kaylegian, Director of Industrial Outreach and Pilot Plant Manager

Activity in the Food Science Pilot Plants continues to increase. Each Fall semester the Science and Technology of Plant Foods Laboratory and the Science and Technology of Dairy Foods Laboratory are held in the pilot plant. These classes bring 23 undergraduates into the pilot plant every week to learn a variety of food manufacturing processes. All 3 pilot plants are being used more in graduate and post-graduate research. In the Wet Pilot Plant the MicroThermics UHT unit and the Avure High Pressure Processing unit are used regularly for projects, and in the Dry Pilot Plant there are ongoing projects using the Armfield spray dryer, Haake PolyLab extruder, and a chewing gum mixer. The Pathogen Pilot Plant is active with short and long term projects.

The use of the pilot plants for industry and interdepartmental university projects continues to grow. We have recently conducted projects on yogurt, ice cream, cheese, milk, and butter. We anticipate start-

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ing on a chocolate project in the near future. The industry projects have focused on the evaluation of ingredients that take advantage of Penn State's ability to make small batches of different products.

We are happy to say that the new pilot scale retort and can seamer have arrived in the pilot plant. Installation is in progress and we hope to have it commissioned and operational early 2009.

As we wind down 2008 the pilot plants are on track to support teaching and research at the undergraduate and graduate level, and provide industry support. We look forward to even more growth in 2009. If there is anything we can do to help you, the food industry, please let us know. ♦

Calendar of Events

Ice Cream Short Course

January 4-10, 2009.

Contact: Dr. Robert Roberts (814) 863-2959

Audience: Commercial Ice Cream Manufacturers, Independent Entrepreneurs and Suppliers.

Ice Cream 101 "Introduction to Frozen Desserts"

January 24-25, 2009.

Contact: Dr. Robert Roberts (814) 863-2959

Audience: Individual store owners and prospective frozen dessert retailers.

Dairy Basics for Farmstead and Artisan Processors

February 25-26, 2009

Contact: Dr. Kerry E. Kaylegian (814) 867-1379

Audience: Farmstead and small-scale dairy producers and processors.

Better Process Control School

April 27-30, 2009

Contact: Dr. Stephanie Doores (814) 863-2956

Audience: Retort Operators.

Spring Statewide Extension In-Service Week

March 3-6, 2009

Audience: Extension Educator

For more information visit:

www.foodscience.psu.edu/News/news.html

This publication is available in alternative media on request.

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