

# Food Science Newsletter

June 2007



## From the Chairman - Srinivasan Damodaran

Greetings from the Department of Food Science at the University of Wisconsin-Madison!

The 2006-2007 academic year has been one of change and revival for the Department. We started with 74 undergraduates in the department in September 2006 and as of May 2007 it stands at 83. We went through a recruitment process for an Associate Professor of Food Chemistry. I am happy to report that Dr. Veronika Somoza will be joining the Department as an Associate Professor on October 1, 2007. Dr. Somoza received her PhD in Human Nutrition from the University of Vienna, Austria in 1995 and currently she is the Vice Director of the German Research Center for Food Chemistry, Garching, Germany. Her research focus at UW-Madison will be in the nutraceutical / phytochemicals / functional foods area. We have completed our discussions on "Strategic Planning in Research". We are in the process of initiating a dialogue with the College regarding creating two Centers of Excellence, one in "Food Materials Science" and the other in "Food and Health". The Department of Food Science will be the hub of these interdisciplinary centers and the centers will be used as the pulpit for creating university/industry consortia in these two areas. Professor William Wendorff has announced that he will be retiring in July 2008. The department is seeking two faculty positions from the college, one for an Assistant Professor of Food Material Science and the other for an Assistant Professor of Extension in Sustainable Food Processing Systems. We have completed the work on a new revised undergraduate curriculum, which will be rolled out starting from spring semester of 2008. We have initiated the revision of our graduate curriculum.

The Product Development Team won the second place in the Almond Innovation Contest and is one of the six finalists for 2007 Product Development Contest at the IFT Annual Meeting in Chicago in July 2007.

After 40 years of service to the university and 36 years of service to the department, Yvonne Bushland has retired in May 2007. We are very grateful for her dedicated service to the department and wish her good luck and a long happy retirement.

The Food Science Education Investment Initiative campaign is in its final phase. We have not yet reached our target of \$7.2 million in endowment funds for professorships, undergraduate and graduate student scholarships, and laboratory and pilot plant facilities. We have a gap shortfall of about \$2 million and we hope to reach our goal before the December 31, 2007 deadline. You will find more information on the FSEI Initiative inside this newsletter.

In the 2007-2008 academic year, we will strive to secure two faculty positions in the department, create more scholarship opportunities for our undergraduate and graduate students, and move forward on creating research centers and consortia to forge stronger relations with our alumni and industry partners.

Until next time...have a great summer!

## New Food Chemist

We have just received word that Dr. **Veronika Somoza** has accepted the faculty position of Food Chemist/Associate Professor in the neutraceutical/phytochemical/functional foods area. Dr. Somoza is currently working as the vice director of the German Research Center for Food Chemistry, a Federal research institute affiliated with the Department of Food chemistry at the Technical University of Munich. Her background is in Human Nutrition and Food Science and her research is primarily focused on the identification and function of novel bioactive food compounds. She received her M.S. degree in Nutritional Sciences from Justus-Liebig University of Gießen, Germany and her Ph.D. in Nutritional Sciences from the University of Vienna in Austria. She conducted post doctoral research in the Department of Biochemistry and Chemistry at the University of South Carolina. The appointment for the Food Chemist position consists of 60% research and 40% instruction. Dr. Somoza will be joining the faculty in Madison this fall.

## Emeritus Senior Lecturer Appointment for Yvonne Bushland

Yvonne Bushland, Senior Lecturer, will retire from the University of Wisconsin-Madison on May 27, 2007 after almost 40 years of service to the University. Yvonne received a BS degree in Food Science and Dietetics from the University of Wisconsin-Madison in 1963. After completing her degree, Yvonne served as a Peace Corps volunteer in a rural village in Western Malaysia where she taught English as a second language in the village elementary school. She also worked with the village youth club and the Women's Institute in developing programs for food and nutrition education in the village. After completing her Peace Corps assignment she returned to the University of Wisconsin-Madison and earned an MS degree in Foods and Nutrition in 1968. In 1967 Yvonne accepted her first academic staff position with the University of Wisconsin as a program coordinator for a University of Wisconsin-Extension project. She worked on a four-year Title



1 grant, where she developed and taught a management training program for Wisconsin school foodservice workers. Since 1971, Yvonne has been a lecturer and then senior lecturer in the Department of Food Science where she taught a variety of undergraduate courses and was granted an indefinite appointment in 1985. Her primary focus has been the development and teaching of "The Nature of Food" lecture (FS 235) and laboratory (FS 236) courses. These two courses are required for Dietetics majors and Family and Consumer Education majors. Yvonne has taught these two courses both fall and spring semesters since 1971.

In 1978 she began working on compiling the experiments she had developed and tested to create a lab manual for use in FS 236. In the early 80's one of her former students asked for permission to translate portions of the lab manual into Spanish for use in the classes she was teaching at the University of Nicaragua in Managua. About three years ago a colleague in California requested permission to use the manual in her food science laboratory class at Pepperdine University.

In addition to continually teaching FS 235 and FS 236, Yvonne has participated in the teaching of a number of upper level Food Science courses. She has taught portions of FS 515 Physical Chemistry of Food (from 1978-1981), portions of FS 310 Food Analysis (from 1982-1998), portions of FS 533 Food Processing Laboratory, co-taught FS 601 (from 1990 to 2003), and developed and taught a culinology sequence in the FS 438 Food Service Management course. In June 2003 and June 2004 Yvonne developed and taught the food science sessions at weeklong Research Chef Association culinology workshops at Kendall College in Chicago, Illinois.

Yvonne's interest in food science education has gone beyond the borders of the campus. Over the years she has continually been involved in supporting science education in elementary and secondary schools throughout the state. Over the years she has taken her "food science detective" into elementary schools in Fort Atkinson, Jefferson and Madison, Wisconsin. The "detective" presents the students with food-science-based puzzles then leads them through a series of hands-on experiments that allow the students to solve the puzzles and learn science principles.

Periodically, Yvonne has served as a resource person on a public radio call-in talk program and written and recorded public service pieces. In the early 1990s she participated with the department extension food science specialist in providing a series of telephone conferences reviewing basic food science concepts for state country extension agents. For the past three summers Yvonne has participated in Grandparents' University and taught one of the food science classes.

Yvonne has served on numerous department, college, campus and UW system committees – including the 1999 UW-Madison Dean of Students Search Committee – and has been the department sexual harassment contact person since the program was set up in the late 1980s.

Yvonne Bushland has had a distinguished career as a lecturer and mentor in the Food Science Department at the University of Wisconsin-Madison. We congratulate her on her outstanding career and wish her the best in her retirement.

### **Faculty Recognition**

Professor **Rich Hartel** has received the 2007 CALS Arthur J. Mauer Extra Mile Award. This award is given to recognize faculty who have demonstrated unusual concern for, and provided exceptional service to, undergraduate and graduate students. Rich has provided outstanding advising of individual students and student groups such as the Food Science Club and also provided leadership to improve the educational experience of students.

In September, **Daryl Lund** was appointed to a three year term on the USDA National Agricultural Research, Education, Extension and Economics Advisory Board representing the category of National Food Science Organizations. He was nominated by the Institute of Food Technologists.

### **International Programs – (Scott Rankin)**

This new dimension to our departmental efforts has helped create some novel and exciting programming for students, faculty and alumni. There are three main focus areas: study abroad opportunities, international internships and faculty/student exchanges. Part of the vision with our international programming has been to create a high profile and application rate for study abroad placement. Such memorable experiences allow our students to learn Food Science from the perspective of a new culture, economy and language. We are also developing an international course in conjunction with colleagues in Mexico that we hope to have on the books for Fall '07. With the increase in globalization of the food industry, we are striving to meet our new Dean's charge that every student have a strong international experience.

### **Foodservice Advisory Council (Monica Theis)**

The third annual Foodservice Advisory Council took place on Tuesday April 3, 2007. The Council welcomed new members Susan Quam, Executive Director of the Education Foundation for the Wisconsin Restaurant Association and Jennifer Boaz, Manager of National Accounts for U.S. Foodservices. The program focused on highlighting new initiatives in research and curriculum and, for the first time students were invited to present their accomplishments as interns within programs that were initiated as part of previous Council meetings. Jenny Allen and Kari Krenz, seniors in the dietetics program, described the work they did at Madison Metropolitan School District. During the afternoon session, Patricia Schmidt and Christine Klover-Spettel, juniors in the program described projects they worked on in local healthcare organizations.

The afternoon working session generated many ideas on how the industry and the department can partner on issues currently challenging the foodservice segments. Specific issues include trans fats, food safety, allergens and organics. The Council shared that what they need is a credible source of information on these and other food and health topics. It was agreed that the Department would work to add a "Hot Topics in Foodservice" to its website as a means to meet this need within the foodservice industry.

## Research Focus Areas

The Faculty and Staff of the Food Science Department have decided to concentrate any future development in research activities in three research focus areas: Food & Health, Food Material Science, and Sustainable Food Systems.

**Food and Health** – The major focus will be on *Bioactives, Probiotics, Nutrigenomics, and Food Safety*. Some of the sub-areas identified under the Food and Health focus area are:

*Bioactives & Probiotics*: Discovery; Efficacy and Physiological effects; Competition; Structure-Activity relationship; Chemistry, fate, and metabolism; Delivery system; Gut health;

*Food Safety*: Competitive exclusion of pathogens; allergens; mechanisms of pathogenesis; rapid detection methods; predictive strategies; and chemical safety.

**Food Material Science** – The major focus will be on Structure formation and Physical & Chemical Properties of Food Matrix. Some of the sub-areas under the Food Material Science activity are,

- Off-flavor control
- Protection of bioactives
- Release of bioactives
- Functional properties of food ingredients
- Phase transition
- Nano-particles
- Moisture migration
- Sensory properties
- Consumer – Food interactions
- Soy utilization

**Sustainable Food Systems** – At our September 2006 retreat to consider future research directions of the department, one topic that gained wide support was the interaction between the food industry and the environment. The impact of the food industry on environmental issues, from waste treatment to sustainable agricultural practices, will be a growing concern over the next decades. Several faculty already work on environmentally-related topics (waste by-product utilization, land-spreading of dairy wastes, etc.), but additional staff support is needed to make this a departmental emphasis. For this reason, the department has submitted a position request to the Dean to add a faculty member in this area. The position will encompass both extension/outreach and research on the impacts of the food industry on the environment. The research focus under this activity are,

*Energy*: Conservation, energy efficiency, energy balance; Waste minimization and by-products utilization; Process efficiency; Extraction, optimization.

*Sustainability*: Organic, pre-harvest impacts on food quality; Environmental impact of food processing; Developing new technologies.

## Student Awards

The **Food Science Club's Product Development Team** recently learned that the dessert they developed for the annual Institute of Food Technologists product development competition was among the top six entries. This means the team will compete for first place at the IFT conference in Chicago this coming July.

Ten students worked together to make the dessert item, Kudamushi Fruit Sushi. The bite-sized treat is designed to look like a maki roll (a popular type of sushi). At the center of the roll, where the raw fish usually goes, lies a piece of pectin candy that tastes of ginger and peaches. The gummy candy is surrounded by real sushi rice infused with jasmine tea. All of this is wrapped in dark purple fruit leather, as a maki roll is wrapped in seaweed. The fruit sushi comes frozen and is simply thawed before eating. It is fat- and cholesterol-free. Before the final competition in July, the group must finalize the product and expand their business plan, HACCP plan, nutrition information and manufacturing process description. We are hoping that the Product Development Team can maintain their "odd" winning tradition since Wisconsin teams have placed first in the IFT Product Development Contest in 2001, 2003, and 2005.

Another group within the **UW-Madison food product team** was among the top six teams advancing to the finals in the Almond Innovations competition. For this contest, they created a chai tea beverage called Almond Sereni-Tea made of almond milk and aromatic spices, including cinnamon and nutmeg. Additionally, the team isolated almond protein and used it to fortify the tea. The team won second place in the Almond Innovation Competition.

## Dairy Plant News

*Babcock Hall's Cheese-Making Treasure* (reprinted from <http://news.cals.wisc.edu/> )

When someone mentions Babcock Hall, you think “ice cream.” But the campus dairy plant is starting to make a name with another signature product: award-winning cheese. advanced training certification for cheesemakers, is administered by the UW-Madison’s Center for Dairy Research and funded by the Wisconsin Milk Marketing Board. That’s because the cheeses sold at the Babcock Deli are made by Gary Grossen. Grossen is one of only 43 cheese whizzes to undergo the rigorous certification process required to earn the title of Wisconsin Master Cheesemaker, which gives him the right to display the “master mark” on his Brick and Muenster, the cheeses for which he earned certification. The Wisconsin Master Cheese Maker program, the nation’s first and only



Since joining the university in January 2005, Grossen’s cheeses have received numerous awards. Not only did his Gouda take top honors at the Grant County Fair, Green County Fair and World Dairy Expo in 2006, but the same cheese also ranked eighth in the world at the 2006 World Championship Cheese Contest in Madison. It did that by surpassing no fewer than twelve Goudas from the Netherlands, where the creamy cheese originated.

His Monterey Jack with Chives has received similar accolades.

“Gary is dedicated to quality. It doesn’t matter how much work it takes,” says Bill Klein, manager of the Babcock Hall Dairy Plant. “He was used to hard work from his previous job s owner/operator of Prairie Hill Cheese Factory in Monroe.”

He gives credit to everyone up and down the line from him, including dairy farmers, milk processors, milk chemists, and the assistants who help him create and age out his cheeses. One of his favorite sayings, which is prominently displayed on the wall near his cheese vat, reads: It’s an accepted fact in the cheese industry that the cheese can be no better than the milk from which it is made.

His job gives Grossen the opportunity to help others learn the art. He’s training university students as well as participants in a statewide artisan cheese program supported by the Wisconsin Department of Agriculture, Trade and Consumer Protection.

He also works alongside Center for Dairy Research researchers who study new cheese formulations for industry clients. The proximity and mutual interest fosters a ready exchange of ideas and advice. He also provides whey and other cheese products to students conducting research in the UW-Madison’s food science department.

It’s people like Grossen that help keep Wisconsin at the nexus of the nation’s cheese industry, a spot that Grossen believes Wisconsin will continue to hold.

“We don’t care that California makes a larger volume of cheese than Wisconsin. We [in Wisconsin] are looking at artisan cheeses,” says Grossen. “We’re going to lead in that area, and lead for a good, long time.”

*(Written by Nicole Miller of UW-Madison Life Science Communications Dept. of 12/21/06) .*

**We are proud to offer the Champion Award Winner cheese box which features cheeses that won awards at the World Cheese Contest, World Dairy Expo and the Wisconsin State Fair. You can order this cheese box or another selection at our on line Dairy Store located at: <https://wisccharge.wisc.edu/dairystore>**

### **News from alumni/former researchers**

Edward G. Dudley, received his MS in Food Science in 1994 and PhD in Bacteriology in 2000 both at the UW-Madison under Prof. Jim Steele, is an Assistant Professor at Pennsylvania State University in the Department of Food Science.

Joseph M. Sturino received his MS in Bacteriology in 2000 at the University of Wisconsin-Madison under Prof. Steele, is an Assistant Professor at Texas A&M in the Dept. of Nutrition and Food Science.

Kurt M. Fenster a PhD student of Prof. Steele now works for Danisco Inc. in Madison WI; he was previously with Chr. Hansen Inc. in Milwaukee.

Gulhan Unlu Yuksel, received her MS and PhD in Food Science at the UW-Madison under Prof. Steele, received tenure and is now an Associate Professor in the Department of Food Science & Toxicology at University of Idaho-Moscow.

Yong-Su Jin completed a post-doctoral position with Greg Stephanopoulos at MIT and then took a position as assistant professor at Sungkyunkwan University in Suwon, Korea.

Frank Pavelec (BS '58) retired for the second time in June 2006 and has moved to Pflugerville, TX.

Leesa Stefano (BS '97) has left Wild Flavors and joined Litehouse Foods in Sandpoint, ID as a Sr. Food Technologist. She will be working on product development and troubleshooting of refrigerated salad dressings, dips and sauces.

Laura Paluch (MS '90) is now the Advanced Development Director for Mars Petcare U.S. in Nashville, TN.

### **Emeritus Faculty**

*From Norm Olson:* My wife, Darlene, and I are still living in the same house built in 1963 and enjoying shoveling snow (I always had a perverse sense of humor). We manage to escape the snow and cold for a few weeks in the winter but the Wisconsin winters have not been kind to those of us who enjoy cross-country skiing. I will be joining three other UW-Madison faculty members on a trip to Ireland in late April to evaluate their dairy industry and how it may impact on the U.S. industry. The study is sponsored by the Babcock Institute, a unit of CALS. I manage to fill my time with volunteering for the American Association of Retired Persons and our local church. We certainly welcome contacts with alumni if you are in Madison or by telephone or even by this new system called e-mail, Norm Olson, (608) 233-6233, [nfolson@wisc.edu](mailto:nfolson@wisc.edu).

*Report on Owen Fennema:* Last fall, Owen and Elizabeth Fennema were on a bird watching trip to Peru and were isolated on a jungle safari when Owen experienced a ruptured esophagus. He managed to hike out but was in very bad condition. His daughter, Karen, a physician here in Madison flew down to Lima to escort him back to UW Hospital for treatment. On the way back he suffered heart erythema and they detoured to Champaign, IL where they were able to stabilize his heart and then continue on to Madison. When Owen's esophagus ruptured, stomach fluid got in his lungs causing severe burning of his lungs and they collapsed. The surgeons were able to repair the esophagus and also scraped some of the defense coating from his lungs.

Owens's recovery has been slow but steadily improving over the winter months. He has not gained back his lost weight but he is gradually getting back to a normal dietary pattern. He does have a little shortness of breath but it is much improved over the past few months. He is walking outdoors a bit and is looking forward to improvements in the Wisconsin weather.

If you would like to share a card or letter of support, Owen's Madison address is:  
3023 Old Creek Road, Middleton, WI 53562.

### **Obituaries faculty/staff**

Dr. Nobi Tanaka, formerly with the Food Research Institute, passed away on Feb. 15<sup>th</sup> after a short illness with adenocarcinoma. Nobi was well known for his work on the effects of salt, pH, and moisture on growth and toxin production by *C. botulinum* and he made significant contributions in bringing the concept of HACCP to Japan.

## News from the Food Research Institute

(<http://www.wisc.edu/fri/>)

In the upcoming year there will be many changes for the Food Research Institute as we move into our new home in the Microbial Sciences Building diagonally across from Babcock Hall in the Fall 2007. As of October 2006, Dr Amy Wong has been the chair of the Department of Food Microbiology and Toxicology and will guide it through June of 2007. Everyone is looking forward to the new and expanded laboratory and office facilities and opportunities for increased interactions and collaborations with other microbiologists and food scientists.

### Meetings:

Focus on Food Safety Meetings. In 2006, FRI held two meetings on specific food safety issues. During June, FRI cosponsored a program with the College of Engineering on “Nanotechnology Applications in Food, Food Processing, and Food Packaging.” In November, we held a meeting on “Natural and Organic Food Safety,” which addressed regulations for organic foods and issues such as acceptable agricultural and processing technologies and natural antimicrobials. Summaries of these meetings are available on our website. Our next meeting, June 12, 2007, will address “Microbial Food Spoilage.” More details are available at our website.

FRESH Seminars. FRESH (Food Research and Education Seminar Highlights) seminar series continued in 2006. Speakers from our department and from elsewhere in the university, industry and government present timely information on Food Microbiology and Safety on alternate Tuesdays at 11:30 am. Please see our website for upcoming topics and join us!

A fourth annual Symposium on Regulatory and Analytical Challenges for Food and Dietary Supplements was held in August 2006 in cooperation with Covance Laboratories. Analytical challenges, qualification of suppliers, and cultural and regulatory concerns of exporters were discussed.

On May 2-3, 2007, FRI will cosponsor a meeting with EPA and the Wisconsin Security Research Consortium on Treatment and Disposal of Food Products Contaminated by Biological Threat Agents. More details are available at our website.

Research: Our mainstay research focuses on important foodborne bacterial pathogens, including *Clostridium botulinum*, *Bacillus cereus*, *Listeria monocytogenes*, and *E. coli* O157:H7, biofilm formation, mycotoxins, conjugated linoleic acid, foodborne allergens, and acrylamide formation in foods. Dr. BR DasGupta has published a review article on the structure and protease activity of botulinum neurotoxins.

Updated reviews of literature on “Nanotechnology in Food-Related Applications,” “Human Illness and *E. coli* O157:H7,” and “Natural and Organic Foods:Safety Considerations” have been prepared and are available on our website. Another review in progress concerns effectiveness of different procedures for inactivating avian influenza virus in meat and poultry products.

Awards: FRI affiliate faculty Charles Czypryński was named the first director of the Walter and Martha Renk Endowed Laboratory in Food Safety in 2006. FRI joint faculty member Nancy Keller received a Kellett Mid-Career Award in Spring, 2007.

## Extension Report – (Scott Rankin)

Extension and outreach activities continue as a strong component of our department. Each year, hundreds of industry and consumer clients are engaged in programming offered through campus as well as at off-site venues.

In accordance with the new departmental vision, the extension committee and resulting activities have been focusing on a bright future. Main changes include a continued effort to make our website more effective and accessible to our growing client base. As part of the departmental vision focuses on creating a resource in sustainable food systems we are also preparing for the implications this new dimension has on our possible future hires.

## **Curriculum changes- John Lucey (Chair of the Curriculum committee)**

Over the past 3 years the Food Science department has gone through a considerable amount of discussion about revising our undergraduate program. During the Spring of 2007 this revised program was approved and over the next couple of years we will be making these changes. To review why and how we undertook this process we need to go back to 2003/2004. The department identified several reasons why we should embark on a revision of our program including (1) results from our program evaluations (multiple years), e.g. exit interviews with seniors, alumni survey, industry advisory focus groups and employer/supervisor surveys, (2) The desire to change to a student-centered curriculum (both program and course specific learning outcomes), a recognition that previous changes were focused on individual course content and not on how courses relate to one another, (3) recognition that the incoming freshman students to UW-Madison have changed (improved greatly) and finally (4) a realization that the needs of the food industry are changing (from a historical focus on production/manufacturing to greater emphasis on functionality, wellness, biotechnology, regulatory, safety). After a lot of discussion we agreed on a set of guiding principles for the revision of our program based on what we wanted to see when we were finished (1) a revised curriculum that increases the overall core technical competencies in food science, attains our program goals and the learning outcomes of our undergraduate students, (2) a curriculum that has specific strategies for evolving and improvement (including assessment), (3) a curriculum where we have both the food science principles and the integration of the various food science disciplines (e.g. foundation and integrated or multidisciplinary courses in junior and senior years, respectively), (4) greater flexibility in student learning, (5) increased emphasis on food, nutrition, and health, (6) more exposure to food science instruction in the first two years of the undergraduate program and finally (7) a curriculum that is rigorous, science-based, and quantitative. In the past year the Institute for Food Technologists re-approved the food science undergraduate program (with high praise for our revision efforts). We had a focus group of recent graduates, which was facilitated by the UW-Madison Office of Quality Improvement to help with assessment of our current program and suggest aspects for improvement. The faculty revised learning outcomes for all new and existing food science courses and new roadmaps for undergraduate program adopted.

In the newly approved undergraduate program we now have a sophomore gateway course (to help bridge sciences/maths concepts to FS courses), at the junior level we have foundation courses in food chemistry, engineering and microbiology, we changed the capstone to a senior thesis and seminar and at the senior level we have several advanced integrated courses (heavily project-based). The next few years will be an exciting time for the program here and our goal is to have a student-centered curriculum that is responsive to the on-going needs of students and employers.

## **Food Science Campaign Donors**

Since the December newsletter, the following people have graciously donated to the Food Science Educational Investment Initiative: Creating the Future. Details on how to donate are on the inside back cover.

Abbott Laboratories Fund	General Mills Community Action	Mr Derek R Held
Alcan Aluminum Corporation	Glenn C Pomerening	Nick R Meyers
Arthur G Rand Jr	Hans F Zoerb	Richard W Hartel
Barbara H Ingham	Henry F Harder	Robert L Sellars
Bel/Kaukauna USA	James L Steele	Shane T McDonald
Brenda J Rudan	Jay Russell Bishop	Srinivasan Damodaran
Christopher J Davis	Jolyon Adam Stein Revocable Trust	Susan M Rankin
Daniel B Patience	Leland A Schwebs	Thomas M Blattner
Deborah J Holden	Lori A Wagner	Timothy R Sullivan
Derek M Held	Lucy McProud	William Holden
Dr Rakesh K Singh	Maribeth A Cousin	William L Wendorff
Dwight H Krampien	Mark V Craig	William R Keithler
		Wrigley Wm Jr Company Foundation

## Food Science Education Investment Initiative

The fiscal reality facing the University of Wisconsin is that the State's share of its total budget continues to erode. It is now less than 20% of the total...and decreasing. This means that private support will become increasingly important to sustain the standard of excellence achieved over the years.

Historically, private dollars have been critically important to the Department of Food Science. They provided a significant share of the total funding for the last (1986) addition and remodeling of Babcock Hall. Private support is also responsible for the Department's first endowed chair...the Fritz Friday Chair in Vegetable Processing, and subsequently the William C. Winder Bascom Professorship.

Given the importance of private funding to the Department and the University, the Department of Food Science launched its Food Science Education Investment (FSEI) Initiative to raise \$7.2 million for endowed professorships (\$2.2million), undergraduate scholarships (\$1.5 million), graduate research assistantships (\$2.5 million), and instructional equipment (\$1.0 million). To date, we have raised \$5.1 million (71%) toward our original \$7.2 million goal, leaving us with a \$2.1 million shortfall. Our immediate concern however, is that \$4.3 of our \$5.1 million commitments are in deferred gifts. Thus, based on current pledges, we only have \$800 thousand presently available for our stated needs. It is therefore critically important that we raise the remaining \$2.1 million in dollars immediately available for the purposes outlined in this brochure.

### Student Scholarships: Our Most Pressing Need

Over the past 3 years, the state portion of support to the UW has dropped from over 25% to less than 19% of the total budget. As a result, student tuition has increased faster than increases in student aid. The unmet need for student support has increased over 16% in the last 3 years. Last year, over 50% of the graduates had some student loan debt at graduation. Ten years ago, the average student loan debt at graduation was about \$10,000 while last year the average debt was nearly \$18,000. More than 40% of UW-Madison students received financial aid this past year.

Currently, the Department of Food Science has 22 scholarships, offering a total of \$33,000 – \$35,000 through private funds. The scholarships range from \$1,000 to \$2,000, with the average at \$1,500. With resident tuition in '06-'07 at \$6,730 and non-resident tuition at \$20,730, our current scholarships do not offer sufficient support to recruit the top quality students that can meet the UW's entrance requirements; currently, the average high school GPA of entering freshmen is 3.85. Notwithstanding the fact that our graduates are highly sought after by the food industry and we have 100% placement (which attest to our program excellence), 5 of 6 top recruits in the past 2 years did not come here because we could not offer full-tuition scholarships similar to other neighboring food science departments. Our greatest current need is to provide competitive scholarships to deserving students in order to off-set the inevitable increasing cost of education.

### Graduate Student Support

**Departmental Research Assistantships: \$700,000\*.** Graduate research assistants are vital in our training of outstanding researchers for the food industry. It is essential for the department to have the means to recruit the finest available graduate students for its research program. Research Assistantships will allow the department to offer an assistantship to a potential graduate student at the time a student applies for admission, rather than wait until funds are available through a specific grant. Admitting students only when funds are available through a research grant has caused the department to lose a number of outstanding students. In addition, these funds will provide faculty members with a base for increased exploratory research. Our goal is to establish an endowment fund of \$700,000 for each assistantship which would yield approximately \$35,000 per year.

**Gifts in kind:** The department throughout its history has been the recipient of pilot plant equipment as "gifts in kind". Such gifts will become increasingly more important in the future. Processing equipment suitable for pilot plants and teaching is a major need of the department.

## Undergraduate Student Support

**Undergraduate In-State Tuition Scholarships: \$135,000\***. Our goal is to have scholarship support that will cover tuition costs for the best and brightest students for a four year period. Increasing costs in tuition and living expenses make undergraduate recruitment and retention increasingly difficult. In the near future, resident tuition will exceed \$7,000 per year.

**Undergraduate Out-of-State Tuition Scholarships: \$375,000\***. Our goal is to have scholarship support that will cover all non-resident tuition costs for a four year period. The department wants to attract outstanding undergraduate students both nationally and internationally to enhance the quality and diversity of our undergraduate program and to offer the best possible student population for recruitment by the food industry. In the near future, out-of-state tuition will exceed \$21,000.

**In-State Minority Tuition Scholarships: \$135,000\*;****Out-of-State Minority Tuition Scholarships: \$375,000\***. To expand diversity within the department's student population, both resident and nonresident full-tuition scholarships are essential to attract excellent minority students.

**Undergraduate Research Awards:**

**\$50,000\***. These awards allow undergraduate students to design, conduct, analyze and interpret research under the guidance of a faculty research mentor. Such training is increasingly vital in the educational process of our most talented students and attracting young people into the department. Our intent is to offer two \$1,000 research awards annually.

(\*Endowment per scholarship)

## Student Recruitment Materials

**Student Recruitment Material Development and Production Funds: \$30,000.** Attractive materials to recruit students are essential in marketing our Food Science undergraduate programs to top quality high school students. Funds to cover development and production costs of these materials are not included in our normal budget.

## Instructional Equipment: \$1,000,000.

Modernizing and maintaining laboratory and pilot plant equipment has become increasingly difficult. Budget cuts have limited the department's ability to maintain equipment, especially pilot plant equipment. Students have criticized the use of old or obsolete equipment in pilot plants. One-time funding, as is sometimes available through the normal budget process, simply does not allow for continued replacement and maintenance requirements. We aim to establish an endowed fund to modernize and maintain laboratory and pilot plant equipment and to accept gifts in kind that will upgrade pilot plant equipment suitable for the department's teaching and research mission.

Although our needs are wide-ranging, the department has chosen to focus on instructional needs for food processing and engineering classes, including short courses. The following list is ranked in general order of priority:

- Freeze Drier – A pilot-scale tray freeze dryer is needed to provide facilities for faculty research and to support industry development work.
- Air Drier – A multi-tray, pilot-scale air drier is needed to provide up-to-date instruction and to support industry development work.
- Ultrafiltration/Microfiltration Unit – A small, lab-scale UF/MF system is needed for instruction in polymer and membrane technology.
- Reverse Osmosis/Nanofiltration Unit – A lab-scale RO/NF system is needed for instruction.
- Cryogenic Freezer – A cryogenic freezer for vegetable processing, which allows control of freezing rate, is needed.
- Plate Heat Exchanger – A heat exchange system with appropriate pumps and measurement devices (temperatures, pressure, etc.) is needed for the engineering laboratory.
- Drum Drier – A lab or pilot-scale drum drier is needed to ensure students learn the principles of drum drying.
- Juice Press – A modern unit is needed to demonstrate expression of juice from fruits.
- Twin-Screw Extruder – A small, lab-scale twin-screw extruder is needed for instruction.

# Food Science Education Investment Initiative

I/we wish to join other students, alumni, industry and friends in enhancing the teaching, research, and outreach programs in the Department of Food Science by contributing as indicated below to the Food Science Educational Investment Initiative campaign.

\$250     \$500     \$1000     \$5000     \$10,000     Other

I/we wish to pledge \$ \_\_\_\_\_ each year for \_\_\_\_ years beginning in \_\_\_\_\_ (year).

Please remind me of the annual amount I have pledged in \_\_\_\_\_ (month).

I/we wish to make a single gift at this time. Enclosed is the contribution of \$\_\_\_\_\_.

Please charge my gift of \$ \_\_\_\_\_ to my:  Master Card     Visa     Am. Exp.

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I/we wish to designate this gift toward:  Graduate assistantships

Undergraduate scholarships     Instructional equipment

Other \_\_\_\_\_

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Please make your gift payable to **UW-Foundation-Food Science Campaign**, University of Wisconsin Foundation, 1848 University Avenue, PO Box 8860, Madison, WI 53708-8860. The University of Wisconsin Foundation is an independent non-profit, tax-exempt corporation that raises, invests and distributes funds for the benefit of the University of Wisconsin-Madison. Your gift, whatever size, is needed and appreciated by the University. For those contributors whose level of support represents a special commitment to excellence at UW-Madison, the Foundation provides recognition through annual giving honor clubs. For exceptional support, the UW Foundation invites donors to membership in The Bascom Hill Society. For more information about giving opportunities, contact Jodi Wickham, director of development for the College of Agricultural and Life Sciences, 608-263-2027.

## Please send me information about the following:

College of Agricultural and Life Sciences  
Dean's Club

Including the UW Foundation in my will

Gifts of real estate

Life income agreements

Establishing a permanently endowed scholarship named for a relative or friend

We would like to hear from you. This information not only allows us to update our files but also provides us with news to pass on to your classmates and friends. Please remember if you relocate in the future to send us your new address. Also, if there are changes or mistakes in your address as we now have it, please notify us.

Name \_\_\_\_\_ UW Degree(s) \_\_\_\_\_  
Year(s) \_\_\_\_\_

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Return to: Department of Food Science  
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email: foodsci@wisc.edu

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