

Food Science Newsletter

June 2008



From the Chairman - Srinivasan Damodaran

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

Spring has arrived in Madison after a brutal winter...the snow fall this year was over 100 inches and it has broken all records. About 20 of our undergraduates graduated in May and about 10 may graduate in December. All of our graduating seniors have been already placed in the food industry with starting salaries in the range of \$45-55K! We are expecting a large pool of freshmen and transfers coming into our program in Fall 2008. Our goal is to have about 100 undergraduate students in the department by the academic year 2009-2010. We are almost there!

Several personnel changes have happened in the past six months... Dr. Veronika Somoza has joined the Department as an Associate Professor in December 2007. We have a new Academic Department Manager, Ms. Mary Anne Clarke, to replace Tom Blattner who will be retiring in September after about 28 years of service to the Department. Professor William Wendorff will be retiring in July 2008 and we have completed the interview process to hire an Assistant Professor – Extension Specialist in the area of Sustainable Food Processing Systems.

We have initiated a dialogue with major food companies about our strategic vision of creating a world-class multidisciplinary Center for Food and Health Research. Our goal is to bring in about ten major food companies as founding members of the center, which will be thereafter transformed into a university-industry consortium. The mission of this center will be to create a scientific and technological knowledge base for using foods, food ingredients and food processing to improve human health and wellness.

Babcock Hall may be getting a face lift! Renovation and remodeling of the old south wing of the building may start this summer and it may take two to three years to complete. Three faculty research labs will be created in the basement of Babcock as a part of this remodeling, in addition to the renovation of the existing labs and office spaces in the first and second floors of the south wing. Our food applications labs in the School of Human Ecology will be moved to a 4,200 square-foot state-of-the-art food preparation facility that will be built in the basement of Babcock Hall. Although the renovation will improve the quality of the working environment and address the shortage of research space to some extent, additional space will be needed as we move forward with our strategic vision of creating two centers of excellence – one in the Food & Health area, and the other in Food Material Science.

The 2007-2008 academic year has been a challenging one and I am very optimistic that some of the things we have done this past year will bear fruits in the coming years.

Until next time...have a great summer and a colorful Fall.

NITTANY LION JOINS BUCKY



Dr. Beth Panko Briczinski, a graduate of Penn State University (BS-'98, MS-'01, PhD-'07) in Food Science has joined the UW Food science Department as a Lecturer in the new FS 301 gateway course. Beth is a true Nittany Lion from Camp Hill, PA (a suburb of Harrisburg, PA). Her MS focused on fermentation of Cheddar cheese whey by a strain of *Lactobacillus delbrueckii* ssp. *bulgaricus* to make exopolysaccharides. Her PhD focused on characterization of strains of *Bifidobacterium animalis* ssp. *lactis*, trying to differentiate a collection of closely related strains and specifically focusing on how these strains transport glucose. (Bifidobacteria are used in the dairy industry as probiotics.)

At Penn State, Beth served as president of their Food Science Club and participated on the college bowl team. Working with her major advisor, Dr. Bob Roberts, she was involved in the PSU Ice Cream Short Course, Cultured Dairy Products Short Course, Pasteurizer Operator Workshop, and Ice Cream 101 Short Course as lecturer and lab assistant. She TA'd two semesters of Food Analysis and a semester of the a senior-level dairy course. In the Spring of 2004, she had the opportunity to teach an undergraduate general-ed course, FS 105: Food, Facts and Fads (similar to our FS 120).

Here at Madison, she is team teaching the new gateway course (FS 301: Introduction to the Science and Technology of Food) for food science and dietetics majors with Prof. Jim Steele. As the new FS curriculum is transitioned over the next 3 years, additional teaching responsibilities may develop. This summer, Beth will be performing research in Dr. Steele's lab to maintain a presence in dairy microbiology and probiotics.

Beth indicates that free time was something that was hard to come by over the past few years as a PSU graduate student, so she doesn't have any current hobbies. This semester was also a little hectic getting on board in the department in time to teach FS301. However, after setting a new snowfall record of over 100 inches of snow in Madison this winter, she and her husband are hoping to enjoy getting outside and hiking, biking, and exploring Wisconsin. *(We certainly are glad to have Beth join our staff in Food Science at UW-Madison and we look forward to sharing in her excitement to serve in "cardinal and white".)*

BLATTNER RETIRES AFTER 28 YEARS



For past 13 years, **Tom Blattner**, our Department Administrator has been the "glue" that has held the department together and kept it functioning. Tom joined the department in 1980 as the Dairy Plant Manager and served in that capacity for 17 years. He taught Dairy Products Processing and Quality for 22 years in the Farm and Industry Short Course Program. He also conducted laboratory and lecture sessions in the Pasteurization, CIP, Ice Cream Making, Cheese Making, and Process Cheese Short Courses.

In 1995, he was promoted to Department Administrator and has hired and supervised the department office and financial staff since then. He has also served as Department Safety Officer and Building Manager. Tom served on the CALS Facilities Committee, Academic Staff Advisory Committee, Chancellor's Dairy Products Pricing Committee and served as Accommodations Resource Coordinator. On the industry side, Tom has served as Wis. Section IFT Director, Member at Large, and the Midwest Food Processing Conference Program Chairperson. He also served as the Department contact person for the design and construction of Babcock Hall Phase I remodeling project in 1990 and the Dairy Store renovation in 2000. The most amazing fact is that Tom has served under 7 of the 9 Chairmen of the UW Food Science Department. Tom Blattner has certainly been a steady force over the past 28 years and has served the Department well.

(The new Academic Department Manager taking over some of Tom's administrative functions is Mary Anne Clarke.)



“UW CHEESEHEAD” RETIRES



Prof. Bill Wendorff, whose vehicle sported the license plate “UW CHZHD” will be retiring on July 7th. He attended the University of Wisconsin-Madison and obtained his B.S. in Dairy Industry (1964), M.S. in Dairy & Food Industries (1966), and Ph.D. in Food Science in 1969. He then was employed in technical management in the food industry for 20 years. In 1989, he returned to the University of Wisconsin-Madison as assistant professor in Food Science and extension dairy manufacturing specialist. He was promoted to associate professor in 1994, professor in 1999, and upon retirement in July will have emeritus status. In 1989, Prof. Wendorff helped develop a quarterly technical bulletin, **UW Dairy Pipeline**, to address current technical issues of the industry.

In 1991, he developed the **UW Dairy Alert**, a technical bulletin that addresses current critical environmental and regulatory issues. These two publications became the most effective communication tools for transmitting technical information to the cheese industry in Wisconsin and the whole U.S. In 1992, he developed the Cheese Grading Short Course and in 1994, the Applied Dairy Chemistry Short Course. In 1994, he also worked with the Center for Dairy Research and Wisconsin Milk Marketing Board personnel to develop the Wisconsin Master Cheesemaker program. This program was designed to advance the knowledge and skills of experienced Wisconsin cheesemakers to improve the overall quality of cheese produced in Wisconsin. Prof. Wendorff’s area of responsibility was the development of the curriculum for the Wis. Master Cheesemaker candidates. Five of the short courses in the curriculum were already in existence, thanks to Prof. Wendorff. However, four additional short courses needed to be developed in the next 2 years. The additional courses that he developed were: Wisconsin CIP Workshop, Dairy Plant Water & Waste Management Short Course, Process Cheese Short Course, and the Whey & Whey Utilization Short Course.

With the training that the Wisconsin Master Cheesemakers received in the courses developed by Prof. Wendorff, the quality of cheese produced by those cheesemakers improved significantly and they consistently scored well in national and international contests. In the 2007 U.S. Cheese Championship Contest, over 66% of the winners were graduates of one of the UW dairy manufacturing short courses. Over the 19 plus years, Prof. Wendorff developed 18 different short courses that are offered semi-annually, annually, or biennially. Over this period of time, he conducted 164 short courses with a total of over 5400 students. He assisted over 560 apprentice cheesemakers in obtaining their state license.

Prof. Wendorff’s research program was closely linked to his extension program. His research emphasis was in two primary areas: 1) physical and sensory problems in specialty cheeses during production, storage and distribution, and 2) regulatory and environmental issues impacting the cheese industry. He authored over 95 papers in scientific journals and extension publications and also wrote six chapters for books. Prof. Wendorff trained 14 graduate students. In later years of his career, he was especially noted for his applied research on processing issues involving sheep and goat milk.

Professor Wendorff was honored with the CALS Pound Extension Award in 1996 and the Wisconsin Sanitarian of the Year Award in 2000. He served as Chair of the Food Science Department from 2000 to 2005. He was indeed proud to serve as UW’s “extension cheesehead”.

(The search for the new Extension Sustainable Food Systems Specialist to fill Prof. Wendorff’s position is in the final stages and should be completed by June 2008).



FOOD SCIENCE GOES GLOBAL

(By Monica Theis)

The University's vision for instruction includes a statement that every student will complete an international experience as part of his/her undergraduate work. The International Committee of the Food Science Department is working to realize that vision by developing international experiences custom-designed to the interests and needs of its students. Work is underway to define and develop an international program specific to the needs of students in Food Science and to build partnerships with universities throughout the world to serve as hosts for these programs.

Minimally, the purpose of this program is to help students gain an appreciation for the complexities of the global food supply. In addition, it is desirable to prepare students for careers with multinational companies. Committee members are currently working with international program directors in Mexico, Greece and Italy. In fact Monica Theis, will be traveling to Monterrey Mexico in May to work with faculty members at Monterrey Tech on program development. This visit will include exploration of opportunities for students to take classes, tour food companies and meet with government officials to learn about trade and other aspects of the global food supply.

It is anticipated that the first students will travel during winter break 2008-2009. In preparation for this experience, students will take a 1-credit course during the fall semester to learn about the country and its food industries.

FACULTY RECOGNITION

Professor **Bill Wendorff** was presented with a Commander's Coin from the 949th Medical Detachment (Veterinary Services) of the Army Reserve unit from Ames, Iowa. Prof. Wendorff assisted in training the 949th unit in dairy plant food safety prior to their deployment to Kuwait, Qatar, and Djibouti. The training session was coordinated by the Wis. Dept. of Agric., Trade and Consumer Protect. Food Safety Division and conducted at Fort McCoy.

Professor Rich Hartel was awarded the WALSAA Outstanding Advising Award at the 2008 CALS award program. Rich has done an outstanding job of advising 20-25 undergraduates food science majors plus serves as the advisor of the Food Science Club.

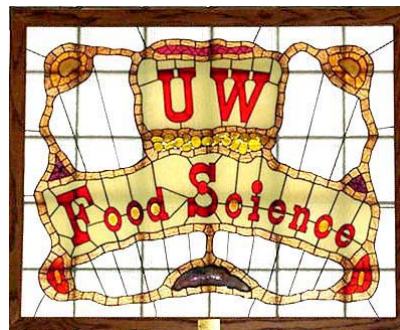
FOODSERVICE ADVISORY COUNCIL MEETS

The 4th annual meeting of the Foodservice Advisory Council met on Tuesday March 18th at Babcock Hall. Twelve council members and special guests were in attendance. The day started with an overview of accomplishments that are a direct result of input from the council over the past four years. This overview was followed by a session on "Potentials for No/Low Fat Dairy Products" by Dean Sommer of the Center for Dairy Research. Members were then treated to a hands-on cheese demonstration where they learned about the functional properties of a wide variety of cheeses. The afternoon session was devoted to group discussions on opportunities for internship in various segments of the food industry for undergraduates in food, nutrition and dietetics. The group also provided input on the state of "going green" in the foodservice industry.

NEW ACADEMIC DEPARTMENT MANAGER FOR FOOD SCIENCE

With the retirement of Tom Blattner, the Food Science Department is now eliminating the teaching and research requirement from the Department Administrator position and moving to an Academic Department Manager. Filling that new position is **Mary Anne Clarke**, who previously served as Academic Department Manager in the UW-Madison Department of Economics from 1992-2002 and Instructional Program Manager III in the UW-Madison Physics Department since 2002. She received a BS in Education at UW-Madison in 1991. Her interests include: reading, sewing, quilting, traveling, aerobics and cross-country skiing.

(Mary Anne is joining the Department in the beginning of May and will work with Tom Blattner for several weeks to provide for a smooth transition of the administrative functions of the department. More information on Mary Anne will be forthcoming in the December Alumni Newsletter.)



CURRICULUM UPDATE

(From Rich Hartel, Curr. Comm. Co-Chr.)

As of Fall 2007, all new students entering the Food Science major will graduate under our new and improved curriculum. Over the next three years, the new courses will be phased in as needed and old ones phased out when no longer needed. The process has started already with this Fall's offering of our sophomore gateway course, FS 301, Introduction to the Science and Technology of Food.

Although students who graduate from our current program are generally quite good, we think we can enhance student learning through a coordinated and integrated curriculum that better accommodates student learning throughout the program. From sophomore to senior, the new Food Science courses are carefully coordinated and integrated to ensure that students meet the desired learning outcomes.

The new sophomore level course, FS 301, is intended to provide an overview of the food industry and how foods are commercially manufactured. From a learning perspective, this course gives the students the "big picture" at the same time it allows us to expose them to critical food science learning outcomes. In junior year, we then provide details of the foundation principles - chemistry (and analysis), engineering, microbiology, preservation principles, and regulatory issues. In the senior year, the new curriculum takes a radical departure from our previous program. Senior year is now spent on integrated classes, where students further their knowledge in Food Science through project-based learning. Two new senior level courses, Integrated Food Manufacturing and Integrated Food Functionality, and an expanded Senior Project and Seminar sequence require students to combine and apply knowledge learned in previous courses.

How will we know that this curriculum will train students better than the previous one? In addition to assessing Food Science learning outcomes in each of the courses, we are also implementing a curriculum-wide assessment program to evaluate specific skills. We are imbedding specific assignments into courses throughout the curriculum to specifically assess critical thinking and statistical analysis skills. Although any number of learning outcomes/skills could have been chosen to assess, we feel that these particular skills will truly be enhanced with the new curriculum. By implementing these curricular assessments now, we will gather two years of data for students graduating under the old curriculum to compare with students graduating with the new curriculum. This will allow us to better measure the success of the new curriculum.

We feel this revision gives the UW-Madison Food Science Department one of the most progressive curricula in the country. If you're interested in further details of the new curriculum, feel free to contact Rich Hartel (rwhartel@wisc.edu).

STUDENT RECOGNITION

The "odd year" winning ways of the food product development team continues as this year's team did not qualify for the finals at IFT in New Orleans. The college bowl team also was defeated at the regional contest in April.

Olson Graduate Scholarship Winner

Hui Cai, a Ph.D. student from Dr. Jim Steele's lab, is the 2008 Olson Graduate Scholarship recipient for graduate dairy foods research. Hui got her bachelors degree from China in Biotechnology and joined Dr. Steeles lab in Fall of 2005. Her research is focused on *Lactobacillus casei*, an industrially important lactic acid bacterium that have been primarily used as probiotics and specialty cultures for cheese flavor development. The title of her research project is Genotypic and Phenotypic Characterization and Comparative Genomics of *Lactobacillus casei*. She has mentored three undergraduate students on their independent research projects. She also volunteered as an interpreter at the World Dairy Expo and a lecturer for the Wisconsin Cheese Technology Short Course in 2007. She won first place in the 2007 Phi Tau Sigma IFTSA Graduate Research Paper Competition at IFT, Chicago, IL. Her plan after graduation is to do research in a prestigious research institute or R&D of a Food company, and make her contributions to the rapid development of dairy microbiology research.

Our IFT Scholarship winners for this year are:

Leann Barden
Tisha Yancey
Jayne Bock
Raechel Bartz
Kathryn Cook (incoming grad student)

FOOD SCIENCE IN THE NEWS

Edible antifreeze promises perfect ice cream

Edible antifreeze developed by **Prof. Srinivasan. Damodaran** could keep ice cream tasty and smooth, and prevent other frozen foods from being ruined. The antifreeze contains proteins similar to those that help “snow flea” insects survive winter without freezing solid.

The formation of tiny ice crystals, each around 15 to 20 microns wide, is crucial to making smooth ice cream. But if ice cream is subjected to sudden temperature fluctuation – when transported home from the store, for example – these crystals can grow to 40 microns or larger, as water melts and refreezes. This can ruin the texture of good ice cream, making it gritty to eat. Gum-like carbohydrates are used by manufacturers to restrict the movement of water molecules and prevent big ice crystals from forming in ice cream. However, as anyone who has tasted crunchy ice cream will know, these carbohydrates do not work perfectly.

Prof. Damodaran thinks he has a better solution. He is experimenting with edible antifreeze made from gelatin, which is much more effective at preventing ice crystals from ruining ice cream. His antifreeze is made by partly digesting gelatin using an enzyme found in papaya, called [papain](#). He used a process called gel chromatography to separate the partly digested gelatine into proteins in different weight ranges. The gelatine samples were then added to different batches of identical ice cream frozen to -40 °C. The results showed that the lightest proteins most strongly prevented ice crystals from forming. “It will be some years before these [proteins] reach the market,” says Damodaran. “But hopefully they will bring benefits and better ice cream to everyone.” (From article written by NewScientist.com news service, Tom Simonite)

Unique whey protein is promising supplement for strict PKU diet

Individuals with a rare genetic condition known as phenylketonuria, or PKU, receive a difficult-to-follow prescription. They must severely limit their consumption of protein, completely avoiding mealtime staples such as meat, cheese and even bread. Not surprisingly, for many, diet is a constant struggle.

In an effort to expand their dietary options, a team of UW-Madison scientists, including **Prof. Mark Etzel** of the Food Science Dept., is assessing a unique protein found only in whey, the liquid byproduct of cheese-making, that appears to be safe for this group to eat. These findings open the door to the possibility that individuals with PKU

will be able to eat foods enriched with the whey protein. Prof. Etzel developed a method to purify this unique protein from cheese whey.

There are around 15,000 people in the United States with PKU. From birth, they lack the enzyme responsible for breaking down phenylalanine, one of the 20 major amino acids that form the proteins we eat in everyday foods. They must avoid protein because, while small amounts of phenylalanine are required for life, excess amounts stay in their bodies indefinitely and interfere with brain function. Those who go off-diet often suffer from concentration problems and depression. A few even sustain permanent brain damage.

Upon learning about positive results from this study, various grassroots organizations that support the PKU community decided to fund this project, helping the UW-Madison team move more quickly in the direction of real-world applications. Already, Kathy Nelson, a researcher at the Wisconsin Center for Dairy Research, has created a line of glycomacropeptide-fortified foods, including pudding, fruit rolls, crackers and an assortment of flavorful drinks. Prototypes are currently being tested in a human clinical study funded by the National Institutes of Health, and the preliminary results look promising. (See full article written by Nicole Miller of CALS News staff at: <http://news.cals.wisc.edu/newsDisplay.asp?id=1703>).

DAIRY PLANT NEWS

Gary Grossen, Babcock Dairy Plant’s Master Cheesemaker won Third Place with his Gouda cheese in the recent 2008 World Cheese Championship held in Madison. He bested 14 other cheesemakers from The Netherlands and all other cheesemakers from the US. Gary consistently produces an outstanding cheese as he placed first last year in the 2007 U.S. Cheese Championship Contest with his Gouda. Gary and his wife Corie will also be honored as the Green County (WI) Cheese Days King and Queen this summer. Cheese Days is a biennial event started in 1914 and takes place in Monroe, WI the self proclaimed Swiss Cheese Capital of the USA.

We are proud to offer Gary’s 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/>

ALUMNI NEWS

News from alumni/former researchers:

Ilenys M. Perez-Diaz, received her Ph.D. in Microbiology in 2005 at the University of Wisconsin-Madison under Professor James L. Steele. She is currently working as a Scientist / Microbiologist for the US Department of Agriculture-Agriculture Research Service in the Food Science Research Unit located in Raleigh, North Carolina. She also serves as an Assistant Professor for the Department of Food Science at NC State University. Her research goals are to utilize developing genomic and bioinformatics techniques to identify the metabolic potentials of microorganisms present in vegetable fermentations in order to improve the quality, safety, and value of the commercial products; to develop improved techniques for the prevention of growth of spoilage microorganisms and assure inactivation of pathogenic bacteria in acidified vegetable products; and to reduce waste generation in vegetable processing. Ilenys is currently celebrating the arrival of her first baby girl, Kelsey, who weighted 8 lbs and 5oz. and was 20 long.

Yi-Cheng Su, received his Ph.D. in Food Science under Professor Amy Wong, received tenure and was promoted to Associate Professor in the Department of Food Science and Technology and Seafood Research and Education Center at Oregon State University.

Gulhan Unlu, (Ph.D., '98) was granted tenure and promoted to the rank of Associate Professor at the University of Idaho. She is a faculty member within the departments of Food Science and Toxicology and Microbiology, Molecular Biology, and Biochemistry.

Patricia Gabarra (M.S., '96) currently is serving as a Project Technologist and Documentation Specialist at Nestle USA Confections and Snack Division at Burlington, WI. She holds a Project Management Professional (PMP) certification from Project Management Institute, Inc. (PMI) and is a candidate for the Board of Directors – 2008 for the Milwaukee/So. Wisconsin chapter of PMI.

In Jan. 2008, **Beth (Ziobro) Tupper** (FS, '81) and Mark Tupper, owners of Tupper Foods Inc. purchased Triad Fisheries Ltd. with the Bruce Gore brand. An elite fleet of troll-style fishing boats out of Southeast Alaska supply the company with fish, mostly salmon, caught and frozen at sea pre-rigor, so the quality is of the highest standard. In fact, a third is sold as sushi grade to Japan.

Dr. Bernard A. Prior (PhD, '72) retired from a full time position at the Department of Microbiology, University of Stellenbosch, South Africa at the end of 2005. Since then he has taken part time positions at universities in the US (LSU), China (Jiangnan University) and in South Africa (Stellenbosch, Durban).

CENTER FOR DAIRY RESEARCH

NEWS (By Deb Wendorf Boyke)

John Jaeggi, Carol Chen, Marianne Smukowski, and Mark Johnson were all selected as judges for the 2008 World Cheese Contest. Judging occurred at the Monona Terrace, March 11-12, 2008.

At the 5th IDF Cheese Ripening Symposium held in Bern, Switzerland, March 9-13, 2008, Dr. John Lucey, Food Science, introduced one of 10 sessions by giving a major review presentation on Cheese as a Food Ingredient. Dr. Rani Govindasamy-Lucey, CDR Senior Scientist, presented "Influence of Low Molecular Weight Emulsifiers on the Texture and Baking Properties of Nonfat Process Cheese." The symposium covered the latest scientific findings about important microbial and enzymatic activities during cheese ripening, control of flavor formation and chemical analysis, sensory studies, texture, structure and functionality of cheese and the influence of technology on cheese ripening as well as packaging and safety.

The following work by several CDR and Food Science staff was recently published in the Journal of Dairy Science: Use of Cold Microfiltration Retentates Produced with Polymeric Membranes for Standardization of Milks for Manufacture of Pizza Cheese S. Govindasamy-Lucey, J.J. Jaeggi, M.E. Johnson, T. Wang, and J.A. Lucey J. Dairy Sci. 2007 90: 4552 - 4568

FOOD SCIENCE CLUB

Food Science Club's Busy Year (from Leann Barden, FSC President)

The Food science Club had a busy first semester with an ice cream social, the CALS picnic and career fair. In November, the FSC traveled to Wollersheim Winery in Prairie du Sac to learn about one of Wisconsin's outstanding wineries. Members returned from the field trip with an appreciation for proanthocyanidins and winery trivia. In second semester, the FSC had numerous visits from companies recruiting our outstanding students. In April the FSC participated in Science Expeditions and in May the club had a wine and cheese tasting and a silent auction.

FS EDUCATION INITIATIVE

The Food Science department was ranked **number 1 in the nation** in the 2007 Top Research Universities Faculty Scholarly Productivity Index issued by the Chronicle of Higher Education. The 2007 index compiles overall institutional rankings on 375 universities that offer the Ph.D. degree. Criteria used included percentage of faculty with a journal publication, number of journal publications per faculty, percentage of faculty with journal publication cited by another work and citations per faculty. Rutgers and U. of Mass. were ranked second and third, respectively.

(With the state budget deficit, tuition continues to increase significantly for both in-state and out-of-state students. Fianancial assistance in the form of scholarships and assitantships is crucial to recruit the outstanding students that have contributed to the research and educational program that has made us the #1 food science program in the nation. Won't you please consider a contribution to our scholarship needs and invest in a proven winner. On Wisconsin!)

FOOD SCIENCE CAMPAIGN DONORS

Since the December 2007 newsletter, the following people and food industry foundations have graciously donated to the Food Science Education Investment Initiative campaign. Details on various named scholarships and on how you can provide your gift are included in the newsletter.

Rakesh K Singh
 Tonya Marie Birkrem
 Jay Russell Bishop
 Thomas M Bush
 Srinivasan Damodaran
 Barbara H Ingham
 Jerry L Moore
 Badri Narayanan
 Daniel B Patience
 Glenn C Pomerening
 Bernard A Prior
 Ronald J Sinz
 Keith W Smith
 William L Wendorff



Class of 2008

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

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.

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.

(*Endowment per scholarship)



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)



2006 Almond Innovations Team

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 out-reach 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.
Card number _____ Exp. Date _____
Cardholder's name (please print) _____
Cardholder's Signature _____

I/we wish to designate this gift toward: ___ Graduate assistantships
___ Undergraduate scholarships ___ Instructional equipment
___ Other _____

Name: _____

Address: _____

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) _____

Newsworthy items for the next Newsletter:

Home Address: _____

Phone: _____

E-mail: _____



Return to: Department of Food Science
1605 Linden Drive
Madison, WI 53706

Fax: (608)262-6872 email: foodsci@wisc.edu

Department of Food Science
University of Wisconsin-Madison
1605 Linden Drive
Madison, WI 53706

Nonprofit Org.

U.S. Postage
PAID

Permit No.658
Madison, WI