

Food Science Newsletter

University of Wisconsin-Madison,
Department of Food Science

June 2004



News about Former Students and Researchers

Robert Brackett, formerly professor of food microbiology at the University of Georgia-Griffin, is now director of the Center for Food Safety and Applied Nutrition (CFSAN) in the Food and Drug Administration; his appointment was effective January 1, 2004; in this position Brackett is responsible for all food-related activities of the FDA. . . . **Michael Doyle**, regents professor of food microbiology at the University of Georgia-Griffin, in October 2003, was elected to the Institute of Medicine of the National Academy of Sciences. . . . **Maribeth Cousin**, professor of food microbiology at Purdue University, has been elected a fellow of the Institute of Food Technologists; the honor will be bestowed on her at the 2004 annual meeting of the IFT. . . . **Moustafa El-Shenawy** continues at the National Research Centre in Cairo where he is working on behavior of pathogens in the environment (including workers) of food processing plants; he is also collaborating with workers at Alexandria University on a study of methods to detect fecal pollution. . . . **Elliot Ryser**, effective July 1, 2004, will be promoted to associate professor of food microbiology in the Department of Food Science and Human Nutrition, Michigan State University. . . . **Theodore Minor** is spending retirement time by...

"News" continued on p. 2...

From the Chair - *Bill Wendorff*

Greetings from the Department of Food Science at the University of Wisconsin-Madison. We are moving into the third year of our 5-year transition plan, "Design for the Future." Our transition has taken a slightly different twist this year, caused by our current state budget crisis. As mentioned in the Fall newsletter, our support staff in the departmental offices has completely turned over because of retirements, transfers and budgets cuts. We now have our restructured support staff in place and functions are almost back to normal.

This past year we were required to vacate two foodservice laboratories in the School of Human Ecology building that we were using for the dietetics program, so we consolidated activities in the two remaining foodservice labs. Melanie Dineen, Monica Theis, Yvonne Bushland, and Tom Blattner did an outstanding job of transitioning the foodservice equipment during the first semester. We are still waiting for Phase 2 to be completed in Babcock Hall, and we thought we were getting close. Phase 2 was the #1 capital project for the CALS campus for this next year but with the state budget crisis, no capital projects on Ag campus were funded for this next year. Phase 2 does have provisions for establishing a food application suite within Babcock Hall that would not only service the labs for the dietetics program but would also provide facilities for food application labs for our Food Science students.

As we plan for the future, we will be reviewing our total curriculum this June at our faculty/staff retreat. With the change in the background of our students and the changed needs for personnel within the food industry, we felt now was the time to take a serious look at the curriculum for our current and future major options. Our incoming freshman class this past year had an average ACT score of 27 and an average class rank of 92%. With a highly qualified student coming into the department, we should be able to begin our major courses for students earlier in their career and expand their skill level.

Speaking of our top notch students, they continue to gain national recognition. This past February, our product development team defeated 26 other national teams to win the Grand Prize in the Almond Innovation Contest with their entry of a baked almond snack chip, "Almond Cravers". Their winning product concept will be showcased at the national IFT convention in Las Vegas in July. They have also been selected as one of the final teams in the 2004 IFT Product Development Contest in July with their vegetable snack bar, "Vegebytes." For more information see the article on the Food Science Club.

This year we have increased our undergraduate enrollment to 65 so we are almost back to our 1997 modern high figure. Our graduate enrollment has dropped to 44, primarily because of a decrease in federal research funding and the poor economy. We are hoping that our "Create the Future" Campaign Drive will be successful in providing funds for additional scholarships and research assistantships to help stabilize our student enrollments.

We appreciate your continued support of the Department and look forward to visiting with you in the near future. On Wisconsin!

...News continued from p. 1

traveling – in 2003 he visited the Falkland Islands, spent a week north of the Arctic Circle and visited Finland, Sweden and Norway. . . . **Ahmed Yousef**, professor of food microbiology at the Ohio State University, is the senior author of *Food Microbiology: A Laboratory Manual* published in 2003 by John Wiley and Sons and is the senior editor of *Stress Adaptation and Food Safety* published in 2003 by CRC Press. . . .

Margaret Halpin Dohnalek is director of Product and Technology Strategy at Abbott Laboratories; in this position she is responsible for ingredient and technology strategy in the international nutritional business – she also is responsible for pediatric product strategy. . . .

Rhona Applebaum, formerly executive vice-president at the National Food Processors Association, is now with the Coca-Cola Company. . . .

Thomas Gruetzmacher is now vice president of dairy foods research and development at Land O'Lakes in Arden Hills, MN; he has over 25 years of experience in dairy research including executive positions at Dean Foods Company and Kerry, Inc. . . . **James Behnke** is retired from the Pillsbury Company (General Mills) and now lives in Incline Village, NV (near Lake Tahoe). . . .

Sue Hefle is now a tenured associate professor in the Department of Food Science and Technology at the University of Nebraska where she is the co-director of the Food Allergy Research and Resource Program; Sue has been elected a Fellow of the Institute of Food Technologists—she will receive the honor at the 2004 annual meeting of the IFT. . . .

Sue has been elected a Fellow of the Institute of Food Technologists—she will receive the honor at the 2004 annual meeting of the IFT. . . .

News continued on p. 3..

Departmental Research Activities

Research continues to be a major departmental activity not only because it generates new information, but also because it affords the means for training graduate students and postdoctoral workers. As one might expect, much of the research deals with dairy foods and cheese continues as a major object of inquiry. Research projects currently active in the department are itemized in the following paragraphs.

Cheese

Eleven different projects supervised by four faculty members currently are active. Included are: (a) use of dairy components in cheesemaking, (b) relationship between rheological properties and functional performance of cheese, (c) controlling the calcium equilibrium in cheese, (d) use of sweet cream buttermilk as a cheese ingredient, (e) making cheese from milk standardized with milk protein fractions, (f) understanding the chemistry of emulsifying salts used in process cheese, (g) understanding structure/function relationships in cream cheese responsible for its performance, (h) identifying enzymes and metabolic pathways of *Lactobacillus casei* and *Lactobacillus helveticus* to enhance cheese flavor, (i) development of a predictive formula to estimate cheese yield from sheep milk, and (j) moisture migration into cheese pieces in processed meat products.

Other dairy-related projects

Nine research projects supervised by six faculty members deal with an array of dairy products. Included are: (a) complex lipids in dairy foods, (b) enhancing the nutraceutical value of fermented milks using flaxseed lignans, (c) microbial spoilage patterns in fluid milk products, (d) value-added products from salty whey, (e) control of annatto cheese colors in whey products, (f) phase/state transitions in whey drying, (g) improvement of lactose refining technology through control of crystallization, (h) microstructural aspects of frozen desserts, and (i) development of processes to recover value-added components of cheese whey.

Food safety

Issues of food safety are considered in six projects supervised by four professors. The projects include: (a) enzyme-based assay to verify adequate pasteurization of apple cider, (b) food safety at home—computer-based food safety lessons for high risk audiences, (c) field-validation of critical limits for use of non-composted cow manure as fertilizer in vegetable production, (d) validation of meat processing critical limits, (e) effects of cheese solids and condiments on *Clostridium botulinum* in process cheese products, and (f) determination of mechanisms of formation

continued on next page..

and development of methods to prevent acrylamide formation in heat-processed foods.

Sugar

Two projects supervised by one professor deal with sugar. They are (a) sugar crystallization in confections and (b) moisture sorption and crystallization in amorphous sugar matrices.

Proteins

Three projects supervised by one professor are in this category. They are (a) development of protein-based biodegradable superabsorbent hydrogels, (b) competitive absorption, thermodynamic incompatibility and phase separation of proteins in two-dimensional films at the air-water and oil-water interfaces, and (c) characterization of conformational changes in proteins at interfaces using CD spectroscopy.

Nutraceuticals

Four projects supervised by two professors deal with this topic. They are: (a) identifying cancer chemopreventive agents in soybeans, (b) selenium-enriched vegetables as dietary vehicles for delivering cancer chemoprotective benefits, (c) identifying potentially anticarcinogenic compounds in common vegetables, and (d) chemistry and nutraceutical functionality of ginkgo biloba constituents.

Other research

Five projects supervised by three professors are in this category. The projects are: (a) structure-functionality relationships in water-in-oil emulsion products, (b) effect of mixing intensity on dough development and rheological property measurement, (c) mixing and simulation studies, (d) mechanism of activation of lipolytic enzymes at lipid-water interfaces, and (e) removal of off-flavors from soy protein isolate.

The December, 2003 Newsletter described the **Food Science Campaign** with a goal of raising \$5.75 million to support departmental programs. A list of the contributors is included in this issue of the Newsletter. A form you can use to contribute to the Campaign, if you have not yet done so, also appears at the end of the Newsletter.

This issue of the newsletter was organized by Elmer Marth and Yvonne Bushland and was edited by Elmer Marth. The copy for printing was prepared by Molly Fischer Bjork, Gera Bodley, and Nicole Sparacino, and constructed by Sarah Grant. Joanne Gauthier from the Center for Dairy Research again gave invaluable assistance. Production and distribution of the Newsletter is supported by the Wisconsin Agriculture and Life Sciences Alumni Association (WALSAA).

...News continued from p. 3

Kathy Knutson lives in Chicago Heights, IL and serves the food industry by designing curricula and providing training on topics of food safety. . . . **Mahmoud Buazzi** is the technical manager for Rebyana Food Technology in Khoms, Libya; he provides technical information and problem solving to the local food industry and to governmental authorities. . . . **Carol Karahadian** is with Firmenich and spent the last year or so in Geneva, Switzerland. . . . **Luke LaBorde** has been promoted to associate professor of food science, with tenure, at the Pennsylvania State University . . . **John Pasch** is the technical brand manager for the adult meals category at Kraft Foods. . . . **Sharon Pasch** received the Great Blue Heron Award from Citizens for Conservation in recognition of her dedication to prairie restoration. . . . **Christiaan Kirk** recently joined Flavors of North America, Inc., Carol Stream, IL, as applications technologist; his expertise is in ice cream and yogurt product development. . . . **Bruce Hildenbrand** retired in 2001 as a senior staff engineer at Sun Microsystems; now he spends his time in the San Francisco Bay area, Colorado and Europe pursuing outdoor activities – he also is involved with several charitable organizations. . . . **Indravadan Shah**, after completing his M.S. in dairy industry at UW-Madison, went to New York, earned an M.B.A. degree, worked for Sealtest Dairy and then for several advertising agencies; he worked on campaigns for Ed Koch (former mayor of New York City) and organized a media event in City Hall for Mother Teresa; Shah retired at age 45, returned to India

News continued on p. 4..

...News continued from p. 3

and has been working to change the legal system for Indians living outside of India. . . . **Verl Hannah**, now retired, during his career worked at Libby, McNeil and Libby (Blue Island, IL), Corn Products Co. (Argo, IL), Seymour Foods (Topeka, KS), Dole Pineapple Co. (Honolulu, HI, 1964-1978), and Continental Mills, Inc. (Kent, WA); he now lives in San Jose, CA. . . .

Stephen Smith, now retired, during his career was with the USDA (1959-1962), Florida Department of Public Health (1962-1966), and Novartis Corp. (1966 – 1994). . . . **Wayne**

Sanderson retired in October, 2003 from his executive R & D role with Murray Goulburn Cooperative Co. LTD. in Brunswick, Victoria, Australia; he will remain on the board of the company as a non-executive director and will continue to live in Melbourne. . . . **Susan**

Peterson Cotter is a quality assurance specialist with the Madison (WI) Metropolitan School District. . . . **Chet Rao** is currently a Hormel Fellow in the University of Minnesota's cancer research center in Austin; he is working on the role of certain protein-lipid interactions in colon cancer and Creutzfeldt-Jakob disease. . . .

Milford Lewis is with the New York State Department of Agriculture and Markets – Food Safety and Inspection; on April 17, 2003 he was promoted to chief inspector in the New York City Regional Office. . . . **Arun Shastry** is with Masterfoods U.S.A. in Hackettstown, NJ. . . .

Joy Maus is with Degussa BioActives in Waukesha, WI. . . .

Laverne Nelson is retired from Beatrice Cheese, Inc. and lives in New Hampton, IA. . . .

News continued on p. 5..

The Extension Report

by Scott Rankin

Extension and Outreach programs at UW-Madison Food Science continue to be a strong component of our departmental activities. In collaboration with industry, regulatory agencies and other campus colleagues, hundreds of food industry professionals participate in a wide variety of extension programs. Please see the departmental websites for more detailed information. Departmental homepage: <http://www.wisc.edu/foodsci/>; The Extension Program Calendar: <http://www.wisc.edu/foodsci/conted/>; **Barb Ingham's** Food Industry Research Service and Training Webpage: <http://www.wisc.edu/foodsafety/index.htm>.

Some noteworthy highlights include: **Rich Hartel** will be directing the 42nd version of the Resident Course in Confectionery Technology, co-sponsored by the National Confectioner's Association. Dates are July 26- August 6, 2004. Of interest is that one of our alumni is currently enrolled in this summer's class. Rich is also hosting a 2.5-day short course on Chewing and Bubble Gum in November. This latter program is co-sponsored with the National Confectioner's Association, Pennsylvania Manufacturing Confectioner's Association, and Cafosa Gum.

This past year, **Bill Wendorff** had 258 students from the dairy industry attending the 8 short courses that he coordinated. At least 35 students completed requirements for their Wisconsin cheesemaker's license and 8 licensed waste treatment plant operators at dairy plants gained CEU units for renewal of their license. We are completing the tenth year of the Wisconsin Master Cheese Makers program in which over 40 cheese makers have finished their advanced training for their Master Cheese Maker certificate. This May we are introducing two new dairy short courses: Cultured Dairy Products Short Course and the Cheese Packaging Short Course. That brings us to 13 different dairy manufacturing short courses that are offered within the department. Bill continues to work with the state and national dairy industry in development of potential markets for sheep milk products and will be presenting a paper on cheese yields from sheep milk at the IDF Sheep and Goat Dairy Conference in Spain in October.

Steve Ingham continues food safety extension activities in support of Wisconsin food processors. During January-March, he worked with Dr. Dennis Buege (Animal Sciences) to train meat and poultry processors on methods to prevent *Listeria monocytogenes* contamination of Ready-To-Eat products. Steve has also been working closely with Dr. Buege to validate the anti-pathogen efficacy of several meat processing intervention steps. Results of several of these studies will be posted to a food safety section of the Wisconsin FIRST website.

Scott Rankin coordinates programming for four events (three offered biannually) including the milk pasteurization course, the premium ice cream course, the cheese

Extension continued on p. 7...

Graduate Program Requirements Revised

by Kirk Parkin

The Curriculum Committee has been quite busy over the last several years and has been comprehensive by reviewing both graduate and undergraduate programs in the context of making necessary revisions to enhance the value of the educational experience. The Graduate Programs revisions have just been approved by the department and the changes will be fully implemented by July 1, 2004.

We will still offer graduate training in the options of Food Chemistry, Food Engineering, Food Microbiology and Toxicology, and Food Science. The two biggest changes in all of these options is that less focus is placed on minimum coursework requirements "to enter" the graduate program, and there is no longer any minimum credit requirement for the M.S. (formerly 14 credits) and Ph. D. (formerly 16 credits beyond M.S.) programs. This does not mean that the program is less rigorous, but rather that we see alternative ways to ensure or enhance the rigor of coursework to better augment the selected research program.

We now recognize that having a B.S. degree in Food Science or related field with prior coursework REQUIRED in only selected areas (organic chemistry, biochemistry) is sufficient for graduate studies. We also no longer require that graduate students have the breadth of Food Science training that our undergraduates receive, in recognition that graduate training specializes in one of the multiple disciplines embodied by Food Science. However, we also recognize that all Food Science graduate students must be conversant in the various disciplines and be aware of contemporary trends and issues in Food Science. To achieve a balance, there is a dimension of breadth requirement through coursework, and now all graduate students will be required to attend Graduate Seminar EVERY semester they are enrolled in the Graduate program.

The Food Science Department also recognizes the Graduate School change in policy of now stipulating a 10-credit minimum of coursework to satisfy the Minor requirement. In addition, the Food Science Department now specifies fewer required courses outside of Food Science; this was intended to create added flexibility for the student in tailoring Minor course selections to meet needs of the research project. For example, while a course in statistics is still required, specific courses in physical chemistry and biochemistry laboratory may not be, although these courses still remain popular choices.

The last change that was adopted is that a Graduate Program Committee will be identified for each student early in the graduate program to help monitor and ensure student progress toward completion of graduate program requirements.

Graduate Program continued on p. 7...

...News continued from p. 4

Bill Hantke retired in 1998; for 30 years he lived in California where he owned and operated an engineering/installation company that sold packaging equipment and conveyor systems; he now lives in Madison, WI. . . . **Floyd Harris** is retired and lives in Indian Head Park, IL. . . . **Christine Bunting** is the manager of R & D for Nellson Nutraceuticals, Inc., a manufacturer of nutrition bars and located in Irwindale, CA. . . . **Vidya Sridhar** is with the bakeries and foodservice division of General Mills in Minneapolis. . . . **Chanokphat Phadungath** is teaching in the Food Science and Technology Program in Rajabhat Surin University in Surin, Thailand. . . . **Daniel Patience** and **Nicole Diliberti** were married in Milwaukee on August 2, 2003; they now live in Narberth, PA. . . . **Veronique Lagrange** recently was named vice president for strategic research at U.S. Dairy Export Council, Dairy Management, Inc; she is located in Washington, D.C. . . . **Byron Brehm-Stecher** is now a senior scientist/molecular biologist at Applied Biosystems in Bedford, MA; he is continuing to work on molecular detection of microorganisms using peptide nucleic acid technology, including its use in real-time PCR. . . **Mike Matthews** is presently CEO of Tatua Dairy Cooperative in Hamilton, New Zealand; the cooperative focuses on specialty dairy products. . . . **Lawrie Creamer** is a senior scientist at Fonterra Technology Center, formerly the New Zealand Dairy Research Institute. . . . **W. James Harper** of Ohio State University spent the three U.S. winter months at the Fonterra Technology Center....

News continued on p. 6..

...News continued from p. 5

Gene Chyou, a current undergraduate in food science, when not studying gets dressed in the official Bucky Badger suit and participates in athletic and other events.

Robert George received his B.S. degree in dairy industry in 1950. He died on October 12, 1996 of Lou Gehrig's disease. George was the owner of the Harp and Kettle Cheesehouse in Madison, WI. In 1985 he retired and sold the business. He was active in the Gift Cheese Association for many years and designed the "I Love Wisconsin Cheese" bumper sticker.

Robert Van Liere received the B.S. degree in dairy industry in 1936 and died on August 11, 1997. For many years he was the midstates regional manager of Associated Milk Producers Association. At the time of his death, he lived in Salem, WI.

Walter Cook received the B.S. degree in dairy and food industries in 1954 and died on July 5, 1995. Cook retired from the U.S. Navy in 1984 with the rank of commander. He lived in Woodbridge, VA.

Harold Steinke, age 82, died on August 20, 2003. He received the B.S. degree in dairy industry and then joined the Borden Company in 1946 where he remained for 42 years. During his career with the Borden Company, Steinke served as quality control director; director of research; production manager; vice president, cheese division; president, refrigerated products; vice president, economic and industrial relations; and vice president,

News continued on p. 7...

Undergraduate Program Update

by Barbara Ingham

The instructional staff of the department met June 3 and 4, 2004 at the West Madison Research station for a retreat aimed at an evaluation of the undergraduate curriculum. This discussion was informed by input from the Babcock Associates, an alumni survey, and information gathered from within our own campus and from peer institutions.

The mission for undergraduate education in the department, as we articulated it, is: To contribute to a food supply that is safe, wholesome and innovative by providing the next generation of food science professionals with contemporary knowledge and skills in a personalized, dynamic learning environment.

Overall, three primary goals guided our discussion at the retreat:

- To identify what our graduates should know, understand, and be able to do;
- To identify what assessment strategies will be used to gauge student progress;
- To identify what interdisciplinary relationships need to be established or strengthened to meet our goals and move toward our vision.

Our discussion at the retreat was strengthened by the involvement of colleagues from the department of Nutritional Sciences and Animal Sciences, and from the Food Research Institute. Dean Bob Ray from CALS Academic Student Affairs also provided insight into the background, interests and attitudes of students admitted to the UW campus, allowing us to gauge student capabilities and expectations.

As we move to improve the undergraduate curriculum and move toward our vision, we agreed at the end of the retreat to:

- Affirm our commitment to teaching the core disciplines
- Continue to emphasize critical and integrative problem-solving skills in our curriculum
- Maintain and build upon the rigor of our program
- Add food, nutrition, and health as one area of program focus
- Add opportunities for research and practical training for all our students
- Increase participation of adjunct and affiliate faculty in our curriculum
- Increase flexibility for Food Science electives within our curriculum.

The Curriculum Committee, and the entire instructional staff, is committed to implementation of the action steps from this retreat. We wish to thank all alumni and staff who provided input into our discussions through survey responses, discussions and other feedback. If you would like additional information or wish to offer input into undergraduate curriculum reform, please contact Dr. Bill Wendorff, Chair or Dr. Kirk Parkin, Curriculum Committee.

Food Engineering in Focus

by Robin Connelly

The Undergraduate Food and Bioprocess Engineering Program

The Food and Bioprocess Engineering undergraduate program option is offered within the Department of Biological Systems Engineering (BSE) in partnership with the Department of Food Science. It is designed to capture essential features of both a food science and engineering education with courses in mathematics, physics, general chemistry, organic chemistry, biochemistry, biology, engineering and food science. In addition, food engineering undergraduate students can gain valuable hands-on experience by participating in the many co-op and internship positions offered by the food industry or via undergraduate research opportunities available within laboratories of the Food Engineering faculty. Our Food and Bioprocess Engineering undergraduates are training to be professional engineers with a strong food science background who are ready to tackle issues involved in delivery of a high quality, inexpensive and safe food supply.

Food and Bioprocess Engineering Program Committee (FBEP)

The purpose of the FBEP is to facilitate communication among the faculty with interest or teaching responsibilities in the Food and Bioprocess Engineering undergraduate and graduate programs and includes faculty from both Food Science (Rich Hartel, Mark Etzel (co-chair), Daryl Lund and Bill Wendorff) and Biological Systems Engineering (Sundaram Gunasekaran, Frank Denes, and Ron Schuler) with the newest member, Robin Connelly (co-chair), holding a 60/40 dual appointment in both departments. The committee has made recommendations for updating and improving both the undergraduate curriculum for the Food and Bioprocess Engineering option in BSE and the graduate Food Engineering option in Food Science based on suggestions generated in an industrial focus group that met in the fall of 2001, the results of an external 2003 CSREES review of the Department of Biological Systems Engineering, and preparations for the upcoming 2006 ABET accreditation review of the undergraduate Biological Systems Engineering program. Another priority of the committee is increasing visibility of our Food Engineering programs and students. To that end, we are forming the Student Food Engineering Committee to provide student input and representation in recruiting activities such as at the Engineering EXPO, SWE ETC summer camp for high school students, introductory engineering classes, SOAR, and others; as well as offering a forum for undergraduate and graduate Food Engineering students to get to know each other. If you would like to get involved in the activities of the Student FE Committee to get to know our students and to help us increase the size and strength of our student pool, please contact Robin Connelly at rkconnelly@wisc.edu.

...News continued from p. 6

economic and industrial relations; and vice president, purchasing and industrial affairs. Steinke served as president of the National Cheese Institute and served as an officer of several other cheese-related organizations. Harold retired in 1984 and in 1993 received the Laureate Award from the National Cheese Institute.

Ronald Novelen received the B.S. degree in dairy and food industries in 1951. He then joined the Research and Development Division of Kraft Foods in Glenview, IL, where he remained for his entire career. Upon retirement, Ron returned to Wisconsin and lived in Bailey's Harbor. He died on April 21, 2004.

Extension continued from p. 4...

grading and evaluation course, and the Wisconsin dairy field rep's annual meeting. Over 250 persons have attended these programs over the last year. Additionally, Scott acts as chair for the FFA dairy foods career development program, attracting over 300 high school students from throughout Wisconsin.

Graduate Program continued from p. 5

The Committee will meet on a yearly basis to confer with the student to assess specific coursework needs, preliminary exam (for Ph.D candidates), assessing progress in research and the thesis defense. The preliminary examination has been changed from evaluating performance of the student to one where the research proposal, based on the student's dissertation research, provides the basis for qualifying for the Ph.D. degree.

News from the Food Science Club

compiled by Elmer Marth

It has been a busy year for the University of Wisconsin- Madison Food Science Club, but a very successful one as well. This year's meetings have created interest for Food Science majors and stimulated interest in the possibilities available to Food Science majors. The Food Science Club consists of fifty-two active members and club meetings are held the first Tuesday of every month. Throughout the year, the club participates in numerous activities such as fundraising, community service, social events, field trips, and our College Bowl and Product Development Teams.

Our main fundraising event is the cheese box project. Students volunteer to cut cheese and stuff order envelopes for the University of Wisconsin-Madison Dairy Store's Holiday Cheese Boxes. A portion of its profits are then given to the club. Another main event is exam proctoring where students supervise exams for classes within the department. So far this year, the club has raised about \$1,500.00 and plans to raise more during the spring semester.

Once a month, the Food Science Club is involved in a community service event. In the Fall we participated in an Adopt-A-Block where students cleaned up trash around Babcock Hall. We also held a food drive and a clothing drive where proceeds were donated to The Salvation Army. This Spring the club will be volunteering at a Senior Center in Madison.

Every month the club also plans a social event. In the Fall we had a "Welcome Back" picnic which allowed students to reacquaint with one another after the summer break. The club also had a social at State Street Brats and a pre-game cook-out before a Badger football game. This semester we've had a chocolate lab, an international dinner, wine and cheese social, and a spring picnic.

Twice a year the club plans a field trip to a food company. This Fall the club went to Natural Ovens Bakery and Miller Brewing Company. Each company gave us a tour of its facilities and allowed the students to sample products. This Spring we went to Galloway Company and Sunrise Farms.

Our College Bowl Team and Product Development Team have done exceptionally well this year. The College Bowl team received first place in the IFTSA national championship which is the first time in the University of Wisconsin-Madison's history. The team competed at the Midwest Area Meeting on April 3rd. The Product Development team also received first place at the IFTSA Product Development Competition in 2003 with its Fruit-Yo's product. Recently, they received first place at the Almonds Innovations Competition. As grand prize winners, the team receives \$5,000 and a free trip to the IFT convention in Las Vegas this summer.

The 2004 College Bowl team, early in April 2004 won the third consecutive Midwestern College Bowl and thus has qualified to defend its national title at the 2004 annual IFT meeting. Members of the team are: Rita Mishra, Sandhya Sridhar, Marcell Salonga, Dierdre Titel, and Anupama Dattatreya. To achieve its victory, the team beat Michigan State University, UW-River Falls, and Ohio State University. The competition was at Purdue University.

Scholarship awards went to the following students: IFT Sophomore scholarship to Laura Shumow and Bridget Schigoda; IFT Graduate fellowship to Karen Mandl; Hilldale Research Scholarship to Clement Chan; and Norman Olson Graduate Research Scholarship to Chinthu Udayarajan.

continued on next page...

Wei Zhang is a finalist in the IFT graduate student paper presentation contest. Wei will discuss use of mechanical intelligence to help make decisions about usefulness of applying antimicrobials. Dr. John Norback is serving as Wei's major professor.

Dairy Plant News: Anniversaries, Celebrations and Innovations

by Tom Blattner

During the past year two anniversary celebrations occurred on campus: Agricultural Hall turned 100 years old and Memorial Union turned 75 years old. To help commemorate these events, the Dairy Plant was asked to develop two new ice cream flavors. In both instances, good spirited contests were conducted by the College and by Memorial Union to identify clever and meaningful names. Contestants were asked to suggest flavors and ingredients they felt would match the name. Dairy Plant staff then developed samples of the top contenders for taste-testing by a distinguished panel of judges. The result of the Ag Hall contest was Ag Hall Berries on Henry Malt – a cranberry flavored ice cream with a fudge ripple and miniature chocolate malt balls. Dean Aberle introduced the new ice cream at a reception celebration held in Ag Hall on December 4, 2003. Union Utopia – a vanilla based ice cream with caramel, fudge and peanut butter swirls – was the winner in the Memorial Union contest. Contest winners were awarded (what else!) a gallon of their named ice cream flavor. We had a great deal of fun working with Ag Hall and Memorial Union and are pleased that the Dairy Plant was asked to participate in these memorial events. Check out our website www.wisc.edu/foodsci/store for a full listing of ice cream flavors and cheeses currently available.



photo: B-Wolfgang Hoffmann
Life Sciences Communication

E.H. Marth Receives NCI Laureate Award

During the 2004 Dairy Forum in Boca Raton, FL, the National Cheese Institute awarded its Laureate Award to emeritus professor Elmer H. Marth. The award recognizes individuals who have made significant contributions to development and growth of the industry. Marth was born on a dairy farm near Jackson, WI in 1927 and by 1954 he had earned B.S., M.S. and Ph.D. degrees from UW-Madison, all in bacteriology with an emphasis on dairy and food science. After 3 years of postdoctoral work in dairy bacteriology, Marth joined the R & D Division of Kraft Foods in Glenview, IL. In 1966, when he was associate manager of the Microbiology Laboratory, Marth left Kraft and returned to UW-Madison as associate professor of food science, bacteriology, and food microbiology and toxicology. He was promoted to professor in 1971 and was named emeritus professor upon retirement in 1990.

Marth did most of his research at UW-Madison; his work included studies on behavior of salmonella, aflatoxin M1, *Staphylococcus aureus*, enteropathogenic strains of *Escherichia coli* and *Listeria monocytogenes* during the manufacture and ripening of various types of cheese. During his 24 years on the faculty Marth served as major professor for 32 students who earned the M.S. degree and also for 32 students who earned the Ph.D. degree. In addition, 17 scientists did post-doctoral research in his laboratory. Marth is the author, coauthor, editor or coeditor of over 660 scientific publications, including research papers, review papers, books, chapters in books, patents and published abstracts of papers given at professional meetings.

The Laureate Award has been given since 1989. In those 15 years the award went to persons in industry 12 times and to persons associated with a university three times. Interestingly, the latter three recipients all were/are associated with UW-Madison. John Nelson (1994) was emeritus program manager at the Food Research Institute (although his work in industry probably was the basis for his award) and Norman Olson (1998) is an emeritus professor of food science. It is also noteworthy that all three earned the Ph.D. degree at UW-Madison and two (Olson and Marth) did all their undergraduate and graduate work at UW-Madison.

R. W. Hartel Receives IFT R&D Award

Dr. Richard W. Hartel, professor of food science and of biological systems engineering, was selected to receive the Research and Development Award at the 2004 annual meeting of the Institute of Food Technologists. Hartel was chosen for the award in recognition of the excellence of his research dealing with confectionery ingredients. He has developed principles for controlling crystallization of sugar in confections based on an understanding of the phase/state diagram in products where crystallization structure is desired (fondant, fudge, caramel, grained candies) and where it is undesired (hard candy, ungrained candies, etc.). His work on sugar crystallization is widely recognized in and applied by the industry.

Hartel also has studied the problem of bloom formation in chocolate. His research on bloom formation in untempered chocolates has changed our thinking about this ubiquitous problem. He has shown that the bloom formed in untempered chocolate is sugar and cocoa power rather than cocoa butter, as is commonly accepted. Hartel also has studied the role of milk fat fractions on physical properties of and bloom formation of chocolate. Because of his major research contributions in this area, Hartel's expertise is sought by confectionery fat and chocolate suppliers and by candy manufacturing companies.

In addition to his research, Hartel provides assistance to the confectionery industry by coordinating and teaching in the annual 2- week resident course in confectionery technology sponsored in part by the National Confectioners

continued on next page...

...continued from previous page

Association and held at the UW- Madison. He also has developed an undergraduate course in confectionery science and technology. This soon will become an online course.

S.A. Rankin Receives 2004 ADSA Foundation Scholar Award

In 1997, the American Dairy Science Association initiated the Foundation Scholar Award to recognize a young scholar and his/her potential in research and educational leadership and to identify critical issues affecting the future of the dairy industry. This year, Dr. Scott A. Rankin, assistant professor of food science at UW-Madison, will receive this award at the 2004 annual meeting of the American Dairy Science in St. Louis, MO. This award recognizes the excellence of Rankin's extension work and research contributions, both at UW-Madison and at the University of Maryland, his first position.

Dr. Rankin received his Ph.D. degree in food science at Oregon State University in 1996. He then became assistant professor at the University of Maryland and in 2001 he moved to UW-Madison where he holds an extension/research appointment.

The central theme of Rankin's research has been and continues to be cheese flavor, although at UW-Madison he is also determining how processing parameters affect properties of whey powder. In his work with cheese, Rankin made the unique observation that bixin, a pigment in the cheese colorant, annatto, has substantial antimicrobial properties, especially against *Staphylococcus aureus*.

Dr. Rankin's extension program, geared entirely to the needs of the dairy industry, has involved organizing and participating in short courses on milk pasteurization, ice cream making (especially for small businesses), and cheese grading and evaluation. He also contributes to other dairy-related short courses offered at UW-Madison. Rankin arranges the program for the annual meeting of the Wisconsin Dairy Field Representatives Association and for the annual FFA Dairy Foods Career Development Event.

Rankin is the second UW-Madison faculty member to receive this award. The first was Dr. John Lucey in 2001.

R.C. Lindsay and F.S. Chu Are Named Highly Cited Researchers

The Institute of Scientific Information (ISI) publishes the various versions of *Current Contents*. For over 20 years names of all authors on references cited in all papers listed in *Current Contents* have been assembled in an immense data base. Thus ISI can readily determine the names of researchers whose papers are cited frequently by other researchers. Frequency of citation is a key measure of the influence of a researcher on science and technology. Citation data are a statistically powerful resource for finding individual authors who have formed or changed the course of research in a subject.

In 2002 ISI identified 112 highly cited researchers, worldwide, in the agricultural sciences covering the period of 1981 through 1999. Early in 2004 the listed was expanded by 88 researchers. Included in the expanded list are

continued on next page...

...continued from previous page

Robert Lindsay, professor of food science, and Fun Sun Chu, emeritus professor of food microbiology and toxicology and of food science. Dr. Lindsay is a food chemist with an emphasis on food flavors. Over the years he has worked on a variety of foods such as cheese, butter, cultured milks, wild rice and fish. Dr. Chu is a biochemist who is best known for developing immunological methods to detect and quantify such mycotoxins as the aflatoxins, T-2 toxin, deoxynivalenol, ochratoxins, alternaria mycotoxins, fusarochromanone, fumonisins, sterigmatocystin, diacetoxyscripenol, cyclopiazonic acid, and patulin.

Emeritus professors Norman Olson and Elmer Marth are included in the original list of 112 researchers in the agricultural sciences. The complete list of highly cited researchers in the agricultural sciences and in 20 other fields can be found at www.isihighlycited.com.

R.W. Hartel Named Teaching Academy Fellow

Professor Richard Hartel has been selected as a University of Wisconsin-Madison Teaching Academy Fellow. He was officially inducted into the Academy on April 29, 2004 in a ceremony at the University Club.

The UW-Madison Teaching Academy aims to promote effective education by encouraging innovation, experimentation, and dialogue about teaching and learning. It is composed of faculty members and instructional staff who provide leadership to strengthen undergraduate, graduate, and outreach teaching and learning at the University of Wisconsin-Madison.

Scholar-teachers are selected as Fellows in the Teaching Academy in recognition of their commitment to educational excellence on this campus and beyond and to provide a forum for supporting the advocacy, scholarship, and professional development of teaching at the University of Wisconsin.

D.B. Hyslop Received Outstanding Faculty Award

Douglas B. Hyslop, senior lecturer in the Department of Food Science received the 2004 Outstanding Faculty Award given annually by the Food Science Club. This is the second time Dr. Hyslop received the award; the first was in 1989 when the award was initiated. Hyslop received his Ph.D. degree in food science (food chemistry) from UW-Madison in 1978. After post-doctoral work at University College, Cork, Ireland, he returned to UW-Madison and has taught food science courses since 1980. Presently, Hyslop is involved in teaching the undergraduate courses FS 310 (Analysis of Foods), FS 410 (Food Chemistry), FS 440 (Food Engineering), FS 530 (Food Processing I), Food Science 532 (Food Processing II), and FS 542 (Food Unit Operations). In addition, Dr. Hyslop teaches FS 718 (Food Colloids), a graduate level course.

K.L. Parkin Named ACS Division Fellow

Professor Kirk Parkin, in 2003, was named a Fellow of the Agricultural and Food Division of the American Chemical Society. Parkin was honored for his research contributions to our understanding of lipids, action of fungal lipases on glycerols, esterase from *Lactobacillus casei*, acyl hydrolase from potato tubers, and action of thiosulfinates from *Allium* (garlic/onion) species.

continued on next page...

...continued from previous page

Dr. Parkin earned B.S. (1977) and Ph.D. (1983) degrees from the University of Massachusetts-Amherst and the M.S. degree (1979) from the University of California-Davis. After three years at the University of Guelph, Parkin came to the UW-Madison in 1986 as an assistant professor of food science. He was promoted to associate professor in 1990 and to professor in 1997. Thus far, Dr. Parkin has served as major professor for 16 students who earned the M.S. degree and 8 who received the Ph.D. degree.

S. Gunasekaran Receives ADSA Award

Sundaram Gunasekaran, professor of biological systems engineering and of food science, received the 2003 International Dairy Foods Association Research Award at the annual meeting of the American Dairy Science Association in Phoenix, AZ.

Gunasekaran received the B.E. degree in 1979 from Tamil Nadu Agricultural University in India and the Ph.D. degree in agricultural engineering in 1985. After 3 years at the University of Delaware, he came to UW-Madison in 1988.

Professor Gunasekaran developed the UW Meltmeter and UW MeltProfiler and their related data analysis software. The UW Meltmeter is the first significant new objective cheese meltability measurement and test procedure developed in over 25 years. The UW Meltmeter is based on principles of squeeze flow rheometry, a valid rheological test ideally suited for materials such as cheese. Later Gunasekaran developed the UW MeltProfiler which also is based on squeeze flow rheometry; it gives a finger print of rheological changes occurring in cheese as it is heated (for example, pizza baking). Measurement of cheese melting properties with these approaches has enabled the cheese industry to modify its cheese manufacturing processes to produce cheese that meets the functionality targets of the foodservice pizza industry.

Gunasekaran is the author or coauthor of 55 research publications dealing with dairy foods processing topics. He is the coauthor of the book "Cheese Rheology and Texture," and has edited a book on nondestructive food evaluation techniques. To date, he has trained 27 graduate students in M.S. and Ph.D. programs.

Awards at the Food Research Institute

compiled by Ellin Doyle

Ed Traisman was inducted into the Wisconsin Meat Industry Hall of Fame for research he did on nitrate in cured meats and control of *E. coli* O157:H7. Dr. Chuck Kaspar assumed the Chair of the division on Food Microbiology at ASM. Dr. Eric Johnson served on several committees related to control and detection of clostridia and other spore-formers. Dr. Elmer Marth received the 2004 Laureate Award from the National Cheese Institute in recognition of his contributions to cheese safety.

Faculty Notes: July 2004

compiled by E.H. Marth

Barbara Ingham is scheduled for promotion from assistant to associate professor on July 1, 2004; she teaches the introductory course in food science which regularly has an enrollment of 500 to 700 students and also does extension work in the area of consumer food science. . . . **Norman Olson** visited New Zealand and Australia as part of a UW-Madison Babcock Institute study tour; while there he visited with several former graduate students and a post-doctoral researcher (see article on News of Former Students and Researchers). . . . **J. Russell (Rusty) Bishop** is the chairman of the U.S. National Advisory Committee to the International Dairy Foundation (IDF) and also international chairman of the IDF's Program Coordination Committee, which puts him in charge of all work of the IDF for the next three years; Bishop also is a member of the U.S. delegation to CODEX Alimentarius (International Food Code). . . . **S. Damodaran, K.L. Parkin, and O. Fennema** are the editors of the fourth edition of *Food Chemistry* to be published in 2005 by Marcel Dekker, New York. . . . **S. Damodaran** is on the editorial board of the *Journal of Food Biochemistry*. . . . **Mark Etzel** serves on the editorial board of the *Journal of Food Engineering* and the *Journal of Food Process Engineering*. . . . Richard Hartel is the co-author of the sixth edition of *Ice Cream*, which was published in 2003 by Kluwer, New York; he also serves as managing editor of *Food Reviews International*, as associate editor of the *Journal of Food Science Education*, as senior associate editor of the *Journal of the American Oil Chemists Society*, as a topic editor (crystal growth and design) of the American Chemical Society and on the editorial boards of *Journal of Food Engineering*, *Journal of Food Process Engineering*, *Food Science and Technology International*, Marcel Dekker, Inc. and Kluwer Publishing Co. . . . **Steve Ingham** is a member of the editorial board of the *Journal of Food Protection*; recently Steve was elected to the executive committee of the University's Biological Sciences division . . . **Robert Lindsay** serves on the editorial boards of the *Journal of Food Composition and Analysis* and of *Flavor and Fragrance Journal*. . . . **John Lucey** serves as regional editor (North America) of the *International Journal of Dairy Technology* and on the editorial board of *Le Lait*. John is scheduled for promotion from assistant to associate professor on July 1, 2004; his research program involves the chemistry and technology of dairy foods. . . . **Kirk Parkin** is a member of the editorial boards of *Food Research International*, *Journal of Food Processing and Preservation*, *Journal of Food Biochemistry*, and the *Journal of Food Science*. . . . **Scott Rankin** is the representative of the American Dairy Science Association to the 3-A Sanitary Standards Committee; he also is a member of the editorial board of the *Journal of Dairy Science*. . . . **James Steele** is on the editorial boards of Marcel Dekker's food science and technology section and of *Food Research International*; in June, 2003 he gave an invited presentation at the Functional Genomics of Gram – Positive Microorganisms Conference in Baveno, Italy- the topic of his presentation was “ comparative full-genome microarray-analysis of *Lactobacillus gasser* under differing pH growth regimes” **William Wendorff** is a member of technical advisory committees on chlorides and on phosphates for the Wisconsin Department of Natural Resources; Wendorff was a judge of processed meats at the Wisconsin State Meat Convention and of dairy products at the American Cheese Society Conference and at the Shawno County (WI) fair. . . . **Monica Theis** is the co-author of the tenth edition of *Introduction to Foodservice* to be published in 2004 by Prentice Hall; she also is the food safety editor for *The Consultant Dietitian*, a quarterly newsletter of the American Dietetic Association. . . . **Yvonne Bushland** and **M. Theis** visited Kendall College in Evanston, Il to explore the potential for building partnerships between food science and the culinary arts; in June 2003, Bushland served as a food science resource person for a research chef's culinary workshop at Kendall College.

In Memoriam:

David A. Stuiber, 1934 – 2003

Emeritus professor David A. Stuiber died at age 69 on September 16, 2003 of severe anemia and leukemia. He was born on February 11, 1934 in Kaukauna, WI. On November 25, 1961 David married Mary Dahnke in Crivitz, WI. He served in the U.S. Army from 1951 to 1953 and then attended UW-Stevens Point where he received the B.S. degree in chemistry in 1958. Stuiber then worked as a brine analyst at the West End Chemical Company near Death Valley, CA. He returned to Wisconsin, enrolled in the UW-Madison biochemistry graduate program and simultaneously worked as a chemist at the University Hospital. After receiving the M.S. degree in biochemistry, Stuiber transferred to food science to work on a Ph.D. degree which he received in 1969. He then joined the faculty of the Department of Food Science as an assistant professor and an extension seafood processing specialist. Much of his work was in conjunction with the Sea Grant program. In time, Stuiber was named associate professor, professor and, upon retirement in 1994, emeritus professor.

David is survived by his wife, Mary, his daughter, Heidi Holmes (Oxnard, CA), his son, Hans (Madison, WI), and his brothers Harold (Altadena, CA) and Sylvester (Fond du Lac, WI). He was preceded in death by his parents, Arnold and Linda (Finke) Stuiber, and his brother, Kenneth. A celebration of David's life was held at Vilas Park in Madison on June 19, 2004.

Ava Marie Peterson, 1922 – 2003

Ava Marie Peterson died on October 22, 2003 at age 81. She was born on September 17, 1922 to William and Ava Reuter in Bear Creek, WI. Ava Marie married Theodore Peterson on September 2, 1961 in Richland Center, WI. She attended UW-Stout and in 1944 received the B.S. degree in home economics education. She then moved to UW-Madison where she earned the M.S. degree in home economics and extension education. Ava Marie taught high school home economics in Lone Rock, Kewaskum, and Reedsburg and was an extension home economist in Grant and Chippewa counties. She also was an assistant professor at UW-Madison and served as supervisor of extension home economists in 28 western counties. Ava Marie retired from UW-Madison in 1962 but continued teaching as foods instructor at the Madison Area Technical College and as a lecturer in the Department of Food Science. She was a member of the American and Wisconsin Home Economics Associations and a life member of Phi Upsilon Omicron.

Ava Marie is survived by her husband, Theodore, her son, Mark (Oregon, WI), two grandchildren, and sisters Wilma (Gotham, WI) and Alice (Madison). She was preceded in death by her parents and sister, Carol. Funeral services for Ava Marie were at the Memorial United Church of Christ in Fitchburg on October 27, 2003.

continued on next page...

...continued from previous page

Arvid O. Grimstad, 1919 – 2004

Arvid Grimstad died on January 8, 2004 at age 84. He was born near Westby, WI on March 17, 1919, the seventh child of Emma (Lovstad) and Nordahl Grimstad. Arvid enlisted in the U.S. Army in 1942; he was in the 234th Engineer Combat Battalion which landed on Omaha Beach in France on the second day after D-Day. Grimstad was discharged in 1945 and on January 1, 1946 married Bernice Knoble. Arvid attended the Dairy Short Course at UW-Madison in 1948 to study cheesemaking. He then worked at the Larson Creamery in Gays Mills, the Westby Co-op in Westby and the UW-Madison dairy plant. Arvid attended UW-Whitewater where, in 1970, he earned a bachelor's degree in accounting. He then served as the chief accountant for the UW-Madison Department of Food Science until his retirement in 1987.

Arvid is survived by his wife, Bernice, his daughter Jane (Middleton, WI), his brothers Leif (Baraboo) and Cleo (Madison), and his sisters Ruth (Hayward) and Alta (Midland, MI). Arvid was preceded in death by his parents; his brother, Erling; and his sisters Margie, Borgne, and Esther. Funeral services for Arvid were at Bethel Lutheran Church, Madison, on January 12, 2004.

News from the Food Research Institute

by *Ellin Doyle*

Meetings. Our 2003 Annual Meeting was held in May, with scientists from university, industry, and government in attendance. Updates on food safety issues were presented and special sessions addressed: (a) Hot Topics in Food Safety including obesity, bioterrorism and food safety, global regulation of agricultural biotechnology, and ethics and biotechnology, (b) Zoonotic Diseases, including *Salmonella*, prion diseases, and risk communication, and (c) *Listeria*, including RTE foods, human defenses, and FSIS initiatives. FRI's Acrylamide Consortium discussed intervention strategies to reduce acrylamide levels in baked and fried foods. Poster sessions highlighted the research of FRI faculty and affiliates and presented research results of FRI staff and postdoctoral and graduate students. The 2004 Annual Meeting was held May 18-19 and featured presentations on (1) Obesity, as related to determining factors, gene expression, the food pyramid, and the influence of technology and economics; (2) Foodborne Pathogens and At-Risk Populations, including microbiological and immunological considerations and animal models; (3) Microbial Adaptation, including microbial evolution, *E. coli* and colonization of cattle, and GMOs and soil microbes; and (4) Intervention Strategies, including an acrylamide update, prions in the environment, and microbial interventions.

A Symposium on Science, Research, and Regulation was held in August 2003 in cooperation with Covance Laboratories and considered topics related to food safety, dietary supplements, and consumer concerns and current fads.

FRI Acrylamide Consortium has met several times during the past year to enable sharing of information among researchers in several departments on campus and those in industry with respect to analytical methodology, mechanisms of acrylamide formation and degradation, and the effects of variety, growth conditions, and length of storage on asparagine levels and acrylamide formation in potatoes.

Research. Our mainstay research focuses on important foodborne bacterial pathogens, biofilm formation, mycotoxins, the anticarcinogen, conjugated linoleic acid, foodborne allergens, and most recently, acrylamide formation in foods. A review on saturated fat and beef fat as related to human health has been prepared and is available on our website (<http://www/wisc.edu/fri/>).

Center for Dairy Research Update

by Mary Thompson

Dr. Rusty Bishop is the Chair of the Programme Coordination Committee of the International Dairy Foundation, which also includes membership on the IDF Management Committee and the Council/General Assembly of IDF. Rusty's IDF committee memberships include Standards for Cheese, Codex Standard for Individual Cheese (including cream cheese), Investigations into Methods which can be used for the Recognition of Coagulation of Protein in Cheese, Microbiological Hygiene, and Food Additives. Rusty is the Team Leader of the Codex guidelines on validation of food hygiene control measures. He also chairs the US/IDF National Committee and serves on the U.S. delegation to the Codex Committee on Milk and Milk Products.

The 2003 Wisconsin Cheese Industry Conference held at the LaCrosse Center drew record attendance. The opening joint session featured a panel addressing "Trade concerns for global marketing of U.S. dairy products, including Protected Designations of Origin." Technical offerings during the conference included cheese flavor development and the use of dairy proteins in cheese manufacture for performance.

Marianne Smukowski serves as a technical advisor to the committee for the assurance of Wisconsin Dairy Product Safety. This committee was formed to assist Wisconsin dairy manufacturers' development of a standardized food safety program. A manual addresses Food Manufacturing Practices, Prerequisite Programs, and HACCP Program, Audit programs, Bio-security and References.

If you attended the 2003 IFT meeting at Chicago's McCormick Place you may have sampled one of the high-protein treats provided by Dairy Management Inc. Kathy Nelson, Karen Smith, and K.J. Burrington from CDR's Whey Applications program were on hand to talk about the value of whey proteins as they offered samples of a nutritious fruit leather and empanadas de mejido, a flaky pastry with a sweet filling of queso fresco cheese.

Carol Chen, CDR, and her South Dakota collaborator, K. Muthukumarappan, have begun sharing the results of their recently completed research on melt profiles and aging of shredded cheese. Two posters summarizing their work were presented initially at the 2003 IFT meeting by Carol Chen, and then by Muthukumarappan at the meeting of the American Society for Agricultural Research.

In September 2003 the Wisconsin Center for Dairy Research cheesemakers within the UW-Madison College of Agricultural and Life Sciences introduced a specialty cheese for Wisconsin cheese producers. This unique, buttery-flavor cheese has roots in Finland and Sweden. Juustoleipä (pronounced you-stah-lee-pah), which means "bread cheese," is a flat, squeaky cheese with a very buttery flavor.

The September 2003 issue of the *Journal of Dairy Science* includes Invited Review: Perspectives on the Basis of Rheology and Texture Properties of Cheese. Authors of the review include John A. Lucey*, Mark E. Johnson†, and David S. Horne‡ - *Department of Food Science and †Center for Dairy Research, University of Wisconsin-Madison and ‡Charis Food Research, Hannah Research Park, Ayr, KA6 5HL, Scotland UK. The review can be found in Vol. 86, No. 9, 2003, 86:2725-2743.

Food Science Campaign Donors

Since December's 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 next page.

Alvin J. Alton
 Joy A. Alwes
 Marvin L. Alwes
 Julene Sorensen Beck
 Siegfried J. Behm
 Jim and Deena Behnke
 Karen L. Berke
 Benjamin R. Bierer
 Robert J. Bogdanoff
 Jane F. Bukacek
 Kimberlee Jo Burrington
 Patrick J. Cardiff
 Li-Fu Chen
 Lindsey A. Christy-Klemens
 Willard J. Corbett
 Maribeth A. Cousin
 Grace C. Cox
 Linda O. Daines
 Thomas H. Daines
 Norbert J. De Beukelar
 Dean Foods Company
 Harvey H. Ebert
 Mark R. Etzel
 R.I. Fenton-May
 Beth A. Flett
 Foss North America Inc.
 Galloway Company
 General Mills Inc. Minnesota
 Roger P. Genske
 Elizabeth M. Gorak
 Grande Cheese Company
 Guard Society
 Michael J. Gugler
 Rachel Hopen Gustafson
 Elroy C. Hagberg
 Paul R. Hagen
 William T. Hamann
 John J. Hansen
 James A. Hardell
 Harper Fritsch Studios Inc.
 Derek R. Held
 Peggy E. Henninger
 Geraldine L. Herberger
 Beatrice T. Hoekstra

Arthur I. Hoekstra
 Herbert A. Hollender
 Lee A. Jensen
 Mark E. Johnson
 Aileen M. Kacvinsky
 Richard A. Kallan
 Stephen P. Kaufman
 Frances C. Keller
 Robert A. Keller
 David L. Kitzki
 Joy R. Klockow
 Jerome F. Koczan
 Jane A. Kusler-Jensen
 Charles P. Lattuada
 Vera Kwok-Ching Lau
 Daryl B. Lund
 Dawn Kreft Lund
 Michael J. Mack
 Eugene R. Maly
 Kim T. Manthei
 Gary L. Mayer
 Lucy McProud
 Karen L. Merlau
 Grace M. Merritt
 Holly B. Mezera
 Franco X. Milani
 Sara R. Strom Miller
 Paul M. Morano
 Joan C. Niland
 Aleen K. Nusbaum
 D. David Nusbaum
 Lorrene Ann Occhino
 Darlene M. Olson
 Norman F. Olson
 J. Douglas Quick
 Arthur G. Rand Jr.
 Susan K. Reed
 Therese M. Rexroat
 Thomas Richardson
 Susan J. Ridley
 Kevin P. Ronayne
 Leonard E. Rudie
 Elliot T. Ryser
 Phillip J. Sass

Dale R. Schmidt
 Schoeps Ice Cream Company
 Bruce R. Seemann
 Carol A. Seemann
 Robert L. Sellars
 Seminis Vegetable Seeds/Oxnard
 Jody A. Shands
 Joseph R. Shebuski
 Christopher P. Simon
 Karen E. Smith
 Keith W. Smith
 Timothy Sonntag
 Stacey A. Specht
 Brianna M. H. Spors
 Daryl D. Spors
 Jolyon A. Stein
 Frederick C. Steinhauer
 Fern A. Stone
 Dennis C. Stopen
 Marilyn A. Swanson
 Robert J. Theisen
 Russell A. Tietz
 Linda H. Tonucci
 George S. Torrey
 Marguerite S. Torrey
 Wilna G. Tygum
 Anne F. Van Donsel
 Thomas A. Vergeront
 Carol von Elbe
 Joachim H. von Elbe
 Jean W. Wallberg
 Wisconsin Alumni Research Fdtn.
 Wisconsin Dairy Products Assn.
 Paul H. Zander

Food Science Education Investment Initiative: Creating the Future

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.

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

Life income agreements

Including the UW Foundation in my will

Establishing a permanently endowed scholarship named for a relative or friend

Gifts of real estate

The Bascom Hill Society

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 53706-1565

Address Service Requested

Nonprofit Org.
U.S. Postage
PAID
Permit No. 658
Madison, WI