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Food Science & Technology Alumni News, Spring 2007

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A message from the Department Head...

SPRING 2007

The Spring 2007 school semester is moving ahead full force and the campus is again busy with students. The temperature is falling along with the snow but that doesn't seem to slow anyone down.

This past December the Department of Food Science and Technology had three students receive their Bachelor's degree: Ms. Kenzi Clark, Ms. Hooi Ling and Ms. Pei-Ven Kam. Two of these talented young students will be continuing on in our Master's program. Our Master's program graduated three students: Mr. Vinod Gumudavelli, Ms. Jennifer Huebner and Ms. Ashley Lardizabal. Ms. Kari Shoaf and Mr. Zhijie Yang also received their Ph.D. in December. We are very proud of our alumni and are happy that we had a part in their success.

Due to the hard work of the Food Science and Technology faculty in attracting funding for their research and extension programs, we added 7 graduate students into our Master's program this Spring. This gives us a total of 36 graduate students (8 Ph.D and 28 M.S.) Our undergraduate enrollment remains strong at 55 students.

Exciting things are also happening in The Food Processing Center. Thanks to the Nebraska Research Initiative we received \$500,000 to purchase some new state-of-the-art equipment for our Food Processing Center Pilot Plants. This funding will be used to purchase a single screw extruder, a fluid bed dryer, an automated form and fill packaging machine, an agglomerator and other lab equipment. This new equipment will allow The Food Processing Center to provide a broader range of product development services to potential clients and strengthen the commitment that FPC has to its clients.

The Food Science and Technology Department and

The Food Processing Center have been the host to many distinguished visitors over the past few months. These visitors included Nebraska's Lieutenant Governor Rick Sheehy, University of Nebraska Regent Bob Whitehouse, Director of the Nebraska Department of Economic Development Richard Baier, and a team from the Nebraska Department of Agriculture lead by Chief Administrator Dennis Blank. It was a privilege to showcase the renovated Dairy Store, the new Visitor's Center, the Printed Microarray Core Facility, the FPC laboratories and the site for the Food Safety and Security Pilot Plant currently under design.



Rolando A. Flores

The faculty of the Food Science and Technology Department has been busy continuing the strong traditions of academic excellence and cutting edge research in Nutraceuticals, Food Safety, Probiotics and Prebiotics, Genomics and Food Allergens — just to name a few.

Another highly anticipated event is the 90th anniversary celebration of the Dairy Store. The grand tradition that the Dairy Store represents is certainly worth celebrating. Please come and join us for our "Grand Re-Opening" on April 18-20, 2007.

There are always a lot of fun and exciting things going on in Filley Hall/Food Industry Complex. Feel free to drop by any time, grab an ice cream cone, tour the facility or just stop in to say hello. Thank you for your support!

Rolando A. Flores, Ph.D.
 Professor, Head & Director



Food Processing Center Workshops

FPC Workshop Overview

The Food Processing Center hosts a series of workshops throughout the year, which currently include: Introduction to Organic Food Processing, Molds and Mycotoxins in Foods, Ingredients and Ingredient Functionality, Better Process Control School and Applied Extrusion. These workshops are directed toward food industry professionals, inspectors, processing supervisors, safety professionals, research and development managers as well as scientists. They are offered to and attended by a worldwide audience and are a catalyst for outreach for the Center.



This past fall we offered the Better Process Control School which results in an FDA certification for its attendees. This year's school was attended by one of the largest groups we have ever hosted in the history of our workshop program.

Applied Extrusion was offered in Fall 2006 and attracted Process Engineers, Production Managers, Research and Development Managers and Food Technologists from some of our largest food industry manufacturers. It is an invaluable opportunity for these participants to have hands-on interaction in our Pilot Plant facilities as well as affording us the opportunity to utilize our facilities and expertise.

Fall 2006 also provided an opportunity to host a Brewing Science workshop in our facilities at the Food Industry Complex. Partnering with the Nebraska Brewers Association, we hosted microbrewers and homebrewers from across Nebraska.

In 2007, The Food Processing Center will be working to expand its workshop and short course offerings. In addition to our annual workshops held each year, watch for these new and innovative workshops to be introduced.

Whole Foods Conference

The Food Processing Center in collaboration with the Whole Foods Grocery Store in Omaha, sponsored a one-day workshop for local vendors with interest in selling products to their grocery chain. Over 150 local producers with products from fresh fruits and vegetables, all natural meats, jams, jellies, cakes and more attended the event. Regional buyers from the Muncie, Ind., warehouse came to Omaha to visit with vendors and talk about purchasing local foods. Lori Tetreau, the Local Liaison Coordinator from Whole Foods, was thrilled that so many vendors came. "We were anticipating 30 to 40 vendors coming. You can imagine our surprise when over 140 people registered and 150 showed up. We are excited to work more with local vendors and this definitely shows the enthusiasm in Nebraska for local products."

The Center sponsored a workshop on "Pricing Your Product for Profit" and assisted local vendors in meetings with Whole Foods regional buyers. The day was an eventful one for our Nebraska growers and producers. We look forward to continuing our work with Whole Foods and promoting Nebraska products.

To Learn More About FPC Conferences or
to Register for a Conference
Visit: <http://fpc.unl.edu>

Food Science Club

The Food Science Club (FSC) brings an array of opportunities to both undergraduate and graduate students. Past President Rachel Reuss feels that the purpose of the club is to “bring together students with an understanding of Food Science through activities, community service, fundraising and social activities.”

During the Nebraska State Fair, the FSC continues to sell hand-dipped Dairy Store ice cream cones, and this year began a relationship with the Nebraska Bee Keepers Association (NBKA) selling its soft serve, honey-flavored ice cream. This relationship has proved fruitful for both organizations; the FSC provided labor and the BBKA saw increased traffic at its booth in Agriculture Hall. Both groups benefited from the substantial profit from the venture.

This year the Club also began a new relationship with the Nebraska Beef Council and several other UNL student groups to develop new beef-based product ideas. The participating students have been divided into teams and are busily working through the product development process to demonstrate three new concepts to a panel of Nebraska beef processors in late April.

In the last few years, the FSC has worked to revive the long-time tradition of sponsoring an industry tour each semester. The fall trip coincides with fall break to allow students to go without having to miss class. In 2006, Adviser Megan Patent-Nygren and Professor Bob Hutkins and a group of 14 students explored the St. Louis area, visiting Farmland Foods, Bissinger’s Chocolates, the Solae Company, Ralston Foods, Anheuser-Busch Brewery, the National Corn to Ethanol Research Center and Stone Hill Winery. This type of trip also allows the students to be tourists visiting local attractions such as the Gateway Arch. In the spring semesters, student industry tours are scheduled to precede the annual IFTSA area meeting. This March students will be traveling to the University of Minnesota in St. Paul to visit area food companies and compete in the regional College Bowl.



Food Science Club in action

The graduate student liaisons, Andreia Bianchini and Richard Zbasnik, have worked especially hard this year to increase the level of participation of graduate students in the club. They began with reviving the annual International Dinner. It was such a success, participants have asked to have one each semester. They also have sponsored numerous opportunities for students, faculty and staff to gather informally (usually with snacks) around the graduate seminar course.

While the FSC has added some new programs and activities in recent years, many long-time traditions have remained the same, including hosting representatives from companies, alumni of the program and campus resources; sponsoring semesterly community service projects; and enjoying social time as a group. Undergraduate Liaison Ryan Talley makes an ongoing effort to invite new students to the club, answer questions students may have about majors and “(I) act as a voice for the students in the club and help them to be heard.”

The invaluable experiences that the Food Science Club provides, both academically and personally, lay the path for future success. Reuss feels that she has gained much from her experience as past president. Not only has she honed her skills of public speaking, but she has enhanced her command of communication. “....communicating well with different people (is essential) because everyone hears things differently.”

The club is advised this year by Megan Patent-Nygren (Senior Adviser) and Dr. Jeyamkondan Subbiah (Junior Adviser).

Graduates

Graduates of the B.S. Program

Kenzi Clark (December 2006)

Pei-Ven Kam (December 2006)

Hooi Ling (December 2006)

Kenzi Clark and **Pei-Ven Kam** will continue in the Food Science Masters Program, UNL.

Graduates of the M.S. Program

Vinod Gumudavelli (December 2006) — Thesis: "An Integrated Model for Heat Transfer and Dynamic Growth of Salmonella Enteritidis in Shell Eggs." Dr. Jeyamkondan Subbiah, Adviser. Plans to be part of Masters Foods in R&D section.

Jennifer Huebner (December 2006) — Thesis: "Functional Activity and Stability of Commercial Prebiotics." Dr. Robert Hutkins, Adviser. Employed with ConAgra Foods, Associate Food Scientist.

Ashley Lardizabal (December 2006) — Thesis: "Development of an Enzyme-Linked Immunosorbent Assay (ELISA) for the Detection of Clam Residues in Processed Foods." Dr. Susan Hefle and Dr. Steve Taylor, Advisers. Relocated to Honduras.

Graduates of the Ph.D. Program

Kari Shoaf (Dec 2006) — Thesis: "Effect of prebiotic oligosaccharides on enteropathogenic Escherichia coli adherence." Dr. Robert Hutkins, Adviser. Postdoctorate position at Washington State University.

Zhijie Yang (December 2006) — Thesis: "Functional consequences of genome variation in *E. coli* O157:H7: lineage-specific genomic variation associated with the perC-homologues contributes to LEE island gene expression." Dr. Andrew Benson, Adviser. Postdoctorate Research Fellow at the University of Colorado at Denver and Health Sciences Center.

New M.S. Graduate Students

The Department of Food Science and Technology was honored to have 7 new graduate students join the Master's program this Spring semester. These students include:

Harsha Ariyaratna (Adviser — Dr. Goodman)

Kenzi Clark (Adviser — Dr. Walter)

Matthew Dickey (Adviser — Dr. Jackson)

Patrick Duffy (Adviser — Dr. Benson)

Pei-Ven Kam (Adviser — Dr. Bullerman)

Manjusha Kasinadhuni (Adviser — Dr. Jackson)

Saurabh Kumar (Adviser — Dr. Thippareddi)

Undergraduate Program

Help Us Find New Students

From helping the world's food companies detect minute allergenic proteins and discovering the genetic answers to the most deadly pathogens to developing the products that make our lives easier and more interesting, food science impacts the lives of millions of people. At Nebraska, students will be at the forefront of these developments and positioned to take on the world, or at least feed it, every day.

Food Science and Technology majors receive over \$200,000 in scholarships each year. They have access to one-on-one sessions with one of Nebraska's best undergraduate advisers, Dr. Susan Cuppett, the 2006 LK Crowe Student Advising Award recipient. They will learn

from faculty that have been recognized by every food science professional society. On their way to class they can enjoy some of the Dairy Store's legendary ice cream. How can they go wrong?

We are continually searching for the best and the brightest students to join our undergraduate Food Science and Technology program. If you know of a student who might be interested in our program, please contact Megan Patent-Nygren, the FST Undergraduate Recruitment Coordinator at (402)472-5783 or via email at mpatentnygren2@unl.edu.

(fōd) ('scīəntist)

FOOD SCI-EN-TIST

(n) A Food Scientist studies the physical, microbiological, and chemical properties of foods to develop safe, nutritious products that meet consumer needs.



The Food Processing Center and US Foods, LLC: A look at moving from UNL's FST Program to US Foods with Alumna Becky Williams

What does it take to make it in the food industry? The University of Nebraska-Lincoln's Food Science and Technology program is an invaluable experience that can lead to a successful career. Becky Williams, Ph.D. and current Vice President of US Foods, has immersed herself successfully in the food science world. While at UNL, Williams was a Research Technician; during her Ph.D. work in Food Sciences, under Drs. Michael Zeece and Steve Taylor, she was Research Coordinator at the Food Processing Center (FPC). In 1994, she left UNL to join US Foods. Now as Vice President, she is involved with the "business development of the company (to) increase our customer base and develop strategies for future company growth."

In her years at UNL, Williams received a great deal of hands-on experience in areas such as extrusion and product development. Her M.S. work in cereal science was a strong foundation and a good fit for her present work since US Foods is highly focused on grains.

US Foods, based in Lincoln, Neb., is a major player in the world of food as a Ready-To-Eat (RTE) cereal contract manufacturer with sales over \$20 million in 2006. When US Foods does not have the ability to develop and test products in house it often utilizes the expertise and services of The Food Processing Center. Some of these tests include shelf life and allergy testing. US Foods has the advantage of ongoing, as needed, consultations with the Food Processing Center and Food Allergy Research and Resource Program (FARRP).

Students in the Food Science and Technology program have the opportunity to tour US Foods as part of their coursework. In addition, there are internship opportunities for students in the area of Quality Assurance.

US Foods already strong presence in the food industry will soon be further enhanced as it prepares for a \$9 million expansion that will double its volume, bring in new equipment and create new jobs.

At the UNL Food Processing Center, "...you learn to work with customers/clients and how to direct their R&D projects and see them through to completion."

It is clear that the partnership between US Foods and The FPC is vital. This partnership can open up doors for students to move from graduate work into a top company such as US Foods, like Williams did, and at the same time, allows The FPC to provide testing services for US Foods. We excitedly wait to see how US Foods' expansion will bring new opportunities to strengthen this partnership.

Alumni Updates

Let us Know where you are now!

We are continually updating our alumni database. Please help us by sending your current contact information to insure you receive future Alumni Newsletters and other exciting Food Science and Technology Alumni News. Tell us about your career changes and progress. Please send your information to the address listed below or visit us at:

<http://foodsci.unl.edu/alumni/contact.shtml>

Department of Food Science and Technology
143 Filley Hall
Lincoln, NE 68583-0919

Phone: (402)472-2381
FAX: (402)472-1693

Development of Functional Foods and Nutraceuticals at the University of Nebraska-Lincoln



Vicki Schlegel, Ph.D.
Assistant Professor
UNL Department of Food
Science and Technology

Traditional crops grown in Nebraska, such as corn, dry beans, soy, beets and grain sorghum, are not immediately recognized as novel food - products, but in fact may hold great promise as functional foods and/or nutraceuticals (FFN). Although most food is considered functional in terms of providing nutrients and/or energy to sustain life, natural systems that are developed for the specific purpose of delivering health benefits beyond their basic nutritional functions are classified as FFNs. Increasing public awareness of the link between diet and health has propelled the consumption of FFNs to unprecedented levels, particularly in countries where the population is aging and health care costs are rising. In 2001, the United States accounted for 35 percent of the estimated \$140 billion plus market to become the single largest consumer and distributor of FFN in the world (Nutrition Business Journal, 2001). Moreover, the value of FFNs is predicted to expand another ten fold in this decade, growing at three to four times the rate of conventional foods (Wheat Science, 2003). Considering that agriculture is Nebraska's most dominant industry, which contributes more than \$10 billion to the economy annually and employing 21 percent of the population (Nebraska Department of Agriculture, 2005), our state is well positioned to become "a pharmacy for disease prevention."

However, legitimate FFN must be developed and consistently produced on a lot-to-lot basis to provide the consumer with safe and effective products. While marketed with specific health claims, FFNs

may not induce the cited response, or may do so irregularly, and may even produce toxic side effects. Production of FFNs is also complicated by the number of materials and processes required, each of which can either enhance or compromise the bioactive agent(s). Health care claims must therefore be supported by research programs where the primary goal is to identify the relationship between the bioactive components in the food and the health benefiting properties while accounting for any harvesting and manufacturing effects. Without this knowledge, the future of FFN innovation will be precarious. The University of Nebraska-Lincoln has addressed this need by establishing a program for developing specialty commodities as a source of health-promoting ingredients for FFNs. According to a panel of high ranking executives across North America, Nebraska is a good candidate for this type of program "because of its agricultural background and the presence of a leading research university" (Lincoln Journal Star, 2003).

The initiatives of our "UNL-FFN" Program are (1) to characterize the physiochemical, metabolic and bioavailability properties of the health-promoting components in natural products and their interactions within complex food matrices, (2) to develop extraction processes for isolating health promoting components from natural matrices with defined specifications and acceptable stability; (3) to develop processes for incorporating natural bioactive ingredients into foods systems or other types of matrices; and (4) to collaborate and provide educational services to the food industry about FFNs through various avenues. This approach to FFN development is designed to continually provide feedback and validation for each stage of a project so that ultimately the total system becomes optimized.

Additionally, the strength of the UNL "nutraceutical" team toward achieving these initiatives is the integration of diverse scientific backgrounds. For

example, the combined research programs of Drs. Vicki Schlegel and Susan Cuppett (Department of Food Science and Technology (FST) have the extended instrumentation capabilities and understanding of food based systems to characterize the physiochemical properties of natural systems and their extracts. In conjunction with Schlegel and Cuppett, Drs. Timothy Carr and Ji-Young Lee (Department of Nutritional Sciences and Health) are responsible for determining the efficacy and safety of the natural components toward a targeted disease or symptom by using cell culture models or animal subjects. Dr. Jens Walter (Department of FST) has recently joined the characterization group by studying the impact of these agents on gut health. Feedback from the characterization groups is then used by Dr. Curtis Weller (Department of FST) for developing effective processes to isolate the health-promoting components from their natural matrix. After the active component(s) is identified and the extraction processes are determined, the ensuing information then flows to The Food Processing Center, (Department of FST) in order to scale the existing processes and/or to design a FFN, with feedback from the characterization groups once again driving process development decisions. Lastly, Dr. David Jackson (Department of FST) has begun to integrate an extension component to our program. As part of this initiative, curricular materials will be developed to describe (a) our existing analytical and evaluation framework to more universally screen potential bioactive compounds in foods and food materials and (b) the basic information associated with general food

processing so that potential bioactive components in natural systems can be retained. Moreover, we plan to rapidly communicate and disseminate specific knowledge resulting from our research as it develops via an existing Ingredients Functionality and Extrusion workshops, and by developing a Nutraceutical Evaluation and Processing workshop. The FPC collaboration will then serve as an interface with the food industry to allow for proprietary innovation and commercial development of products containing nutraceuticals.

Grain sorghum was used as the “model” food system to establish the UNL-FFN program because a body of the information that had already been generated by various members of our “nutraceutical” team. One such study consisted of evaluating the clinical outcomes on cholesterol metabolism in response to the consumption of grain sorghum lipids extracted from the whole kernel. Hamsters that were fed diets supplemented with grain sorghum lipids presented with significantly lower low density lipid (LDL) cholesterol and liver cholesterol concentrations as compared to controls. Both LDL and liver cholesterol concentrations were in the metabolic ranges known to reduce the risk of coronary heart disease in humans. Body weight gain and food intake were not altered by the presence of the grain sorghum lipids in the animal diets, indicating that grain sorghum lipids were palatable and did not adversely affect growth. Furthermore, cholesterol excretion from the body significantly increased, while cholesterol absorption in the body was reduced. Compositional

(continued on next page)

Vicki Schlegel, Ph.D.

Dr. Schlegel began her studies at Union College in Lincoln, Nebraska and received her A.A. in Foods and Nutrition. She received her B.A. with honors in Chemistry and a minor in Mathematics. Continuing her education at the University of Nebraska Lincoln she obtained her M.S. degree in Analytical Chemistry. She went on to complete her Ph.D. in Analytical Chemistry at Iowa State University.

analysis of the crude extract showed that grain sorghum lipids contain phytosterols, and tocopherols, triacylglycerides, fatty acids, long-chain alcohols, and aldehydes in various profiles and concentrations. Additional studies are on-going to separate specific classes of grain sorghum lipids from the crude extract to determine the specific component(s) responsible for evoking the cited clinical responses. Nonetheless, our preliminary research demonstrates the potential of grain sorghum as a cholesterol-lowering food ingredient or dietary supplement for human use. Our program is now being applied to dry beans and to Nostoc, i.e., an understudied blue-green algae with potential health promoting properties. In addition, with the upsurge in the development of biodiesel it is anticipated that biodiesel byproducts may prove to be a valuable source of FFNs, as evidenced by recent studies completed by our group. It is therefore our

intention through the establishment of the UNL-FFN program to promote Nebraska by developing our commodities and/or enhancing our food industries for the niche, but fast growing, FFN market.

Citations:

- Lincoln Journal Star. 2003. Executives say state could be hub in emerging field of nutraceuticals. August 31.
- Nebraska Department of Agriculture, 2005. Nebraska agriculture facts. Available at <http://www.agr.state.ne.us/facts.pdf>.
- Nutrition Business Journal. 2001. Available at <http://www.nutritionbusiness.com/login.cfm>.
- Wheat Science, 2003. New frontiers in functional foods. Oct 14. Available at http://www.meristem.com/sjeat/ws03_11.htm.

Food Science Extension Program



Durward Smith, Ph.D.
Assistant Professor
UNL Department of Food
Science and Technology

The Extension program in Food Science at UNL assists the food industry in providing for the nutritional well-being and safety of the people of Nebraska through helping to assure a continuous, reasonably priced supply of wholesome foods. This is done primarily through the extension faculty sharing knowledge within its constituency, which is comprised of food producers, processors, distributors, retailers, commercial and institutional food service establishments, consumers, and research scientists.

Durward Smith, Extension Faculty, provides processing assistance to entrepreneurs and other small food

manufacturing entities, and serves as a process authority for low-acid and acidified, low-acid foods. He assists clients with the storage and processing of horticultural crops and teaches Better Process Control Schools.

The Food Processing Center offers a unique combination of technical and business development services for the food industry by transforming food ideas into marketable realities. Dr. Smith assists the technical staff of The Food Processing Center in advising clients and in conducting proprietary research involving food product development and in customizing manufacturing processes for the unique food products of Food Processing Center clients.

Some recent extension publications include:

- Hodges, L., S.D. Schoneweise, and D. Smith. 2004. Storing fresh fruits and vegetables. NebGuide G1264.
- Littrell, P., D. Smith, P. Read, and S. Cuppett. 2005. Varietal apple wines from great plains grown cultivars (abs.). HortScience 40(4):994.
- Smith, Durward. 2006. Fruit Jellies: Food Processing for Entrepreneurs, NebGuide G1604.
- Smith, Durward and Jayne E. Stratton. 2006. Understanding GMP's for Sauces and Dressings: Food Processing for Entrepreneurs, NebGuide G1599.

2006 Japan Trade Mission

Dr. Rolando Flores took part in a celebration of the grand opening of the state's first foreign trade office abroad in Japan. This trade mission was led by Nebraska Lieutenant Governor Rick Sheehy and included over 28 delegates from Nebraska government and industry, including the Nebraska Department of Economic Development, the Nebraska Department of Agriculture and Nebraska Food Manufacturers. More than 200 leaders from Japanese business, industry and governmental bodies attended the reception.

The objectives of taking part in the trade mission to Japan were to 1) establish links with food processors interested in product development and food business opportunities in Nebraska; 2) to develop collaborative projects with education and research organizations in Japan; and 3) to explore alternative food processing technologies that can find a home at the UNL Food Processing Center.

During the visit Dr. Flores gave a presentation at the University of Shizuoka to promote and exchange information regarding the Department of Food Science



Rolando Flores, Richard Baier, Lt. Governor Rick Sheehy, Koji Nagasaka, Greg Ibach

and Technology and The Food Processing Center.

Dr. Flores visited several ingredient manufacturers and companies in Japan including YSK (Yaizu Suisankagaku Industry Co. Ltd.), a leading manufacturer of natural seasonings, extracted seasonings, dried foods and functional food ingredients. He also visited with executives from OHTA Oil, a company which has been producing oils for more than 100 years. OHTA Oil produces more than 30 different oils and seasonings and is looking to send research teams to the U.S. sometime this summer.

New Staff

Kathy Borg, Graduate Secretary for FST, was the Graduate Secretary at UNL's Chemistry Department and teaches piano and violin. She received her Bachelors of Music Education from UNL and holds the M.S. Level Endorsement in ESL and Sociology. She has two daughters, Natasha and Sophia.

Daisy Brayton, Staff Assistant, received her B.A. in Business Management from California State University Long Beach and also attended graduate school at UNL. She has worked at UNL since 1993.

Ben Costello, Computer Technician, is a Senior UNL Anthropology and Journalism major studying photo journalism.

Courtney Wilson, Dairy Store Manager, came to the Dairy Store from the McDonalds Corporation. She received her M.B.A. from Marylhurst University.

New Faculty

Jens Walter, faculty member for the FST, is a native of Germany. Dr. Walter teaches food microbiology and conducts research in gastrointestinal track microbiology. He received his Ph.D. from Hohenheim University in Germany and did his post-doctorate work at the University of Otago, New Zealand, where he conducted research on microbial ecology in the characterization and dynamics of intestinal *Lactobacillus* populations using molecular methods.

Shaowei Liu, FPC Process Engineer, received his Ph.D. at Pennsylvania State University in Agricultural and Biological Engineering. His research area is mainly in dairy products, cereal chemistry and extrusion processing, food microbiology and food safety. Before joining UNL, Liu did his post doctorate work in the Department of Grain Science and Industry, Kansas State University where he focused on starch chemistry, extrusion technology and snack food.

Dairy Store

2007: The 90th Anniversary of the Dairy Store

The Dairy Store has long been home to generations of students, staff, faculty and visitors. This year the Dairy Store will celebrate its 90th anniversary under new manager, Courtney C. Wilson.

Wilson has been manager at University of Nebraska-Lincoln's Dairy Store since late October 2006. Since her arrival the Dairy Store has been remodeled to bring it a more updated look, create higher efficiency in customer service, and incorporating the new East Campus Visitor's Center.

The 90th anniversary celebration also will bring with it even more variety of products including new cheeses and new ice cream (including soft serve in the near future). Please join us for our "Grand Re-Opening" on April 18-20, 2007.

Products Available at the Dairy Store

- Ice Cream
- Milk
- Cheese
- Sausage
- Eggs
- Quail Eggs
- Sandwiches
- Salads
- Soups
- Beverages
- Daily Lunch specials
- Fruit
- Muffins
- Candy
- And MUCH MORE!



<http://dairystore.unl.edu>

Research Grants

EPA- U.S. Environmental Protection Agency: Richard Goodman, "Delineation of Appropriate Specific and Targeted IgE Serum Testing to Assess the Potential Allergenicity of Proteins Introduced by Genetic Engineering" \$450,000 (3 years)

Mussehl Poultry Research Endowment Fund: Harshavardhan Thippareddi, "Reducing the Risk of *listeria monocytogenes* in Natural and /or Organic Processed Poultry Meat Products" \$25,000

Mussehl Poultry Research Endowment Fund: Jens Walter, "Identification of novel enzymes for the supplementation of poultry feed using a metagenomic approach" \$25,000

UNL Faculty Seed Grant: Jens Walter, "Investigation of the evolutionary relationship between *Lactobacillus reuteri* strains inhabiting the gastrointestinal tract of different host species" \$10,000

NCESA - Nebraska Center for Energy Research: David Jackson, "Improving Ethanol Production Efficiency: Optimization of Corn-based Feedstock Energy Conversions" \$60,340 (2 years)

USDA/Foreign Ag Service: Harshavardhan Thippareddi, "A Training Program on Safety & Quality of US Beef & Poultry: Farm to Fork Approach (Morocco)" \$59,978

USDA/CSREES: Harshavardhan Thippareddi, "Improving Safety of Shell Eggs & Egg Products by Addressing Critical Research Needs for *Salmonella Enteritidis* & *Salmonella spp*" \$599,951 (3 years)

St. of NE Rural Development Commission: Durward Smith/Rolando Flores, "Building an Innovative Regional Food Manufacturing Community to Enhance Markets for Family Farms" \$50,000

YES! I want to support the Food Science and Technology Development Fund

Private support is essential to recruiting outstanding undergraduate and graduate students, providing timely and applicable research, and expanding our outreach to small businesses and entrepreneurs across the state. As alumni and friends of the Department of Food Science and Technology, we hope you will consider making a gift to assist us in these efforts. Please complete the contribution form to the right and accept our appreciation for your generosity.

FOOD SCIENCE & TECHNOLOGY DEVELOPMENT FUND #4312

This fund provides general support to the department and is specifically used to enhance undergraduate student recruitment efforts.

Enclosed is my check for \$250 \$175 \$100 \$ Other_____

Make payable to University of Nebraska Foundation

Charge my Visa Mastercard Discover American Express

Credit Card Number_____ Expiration Date_____

Signature_____ Date_____

If you have questions regarding other giving opportunities, please contact Rolando Flores, Head, Department of Food Science & Technology, (402) 472-2831 or Ann Bruntz, Director of Development at the University of Nebraska Foundation, (402) 458-1176 or email abruntz@unfoundation.org

Name_____ Phone number_____

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University of Nebraska Affiliation

Alumnus Current Student Parent of a Student Friend

If Alumnus, please indicate campus(es): UNL UNO UNK UNMC

Class Year(s)_____ Degree(s)_____

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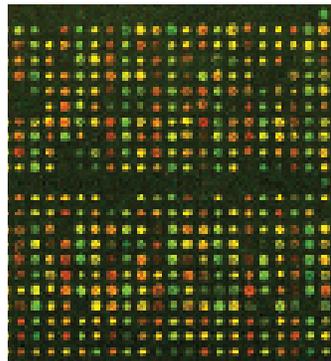
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LFST06

New FPC Laboratory & Testing Services

Printed Microarray Core Facility

The latest cutting-edge technologies in molecular biology now are available to the food industry through the University of Nebraska-Lincoln Printed Microarray Core Facility (PMCF), located in the Food Industry Complex. Applications in the food industry include the identification of microorganisms in food, source-tracking of contamination through subtyping methods, and study of functional genomics in various food systems. DNA-based technology has the reputation of providing the most rapid, accurate results to those working with biologically based products or systems.



New Aflatoxin Test at FPC Laboratory Services

Aflatoxins are a group of naturally occurring mycotoxins produced as secondary metabolites by the fungus *Aspergillus flavus* and *A. parasiticus* on variety of food products, particularly grain.



Analysts at the FPC's laboratory now offer aflatoxin testing at competitive pricing using Neogen's Veratox® kits for their detection and quantification. In the future, FPC Laboratory Services is looking to increase its aflatoxin detection capabilities through the use of HPLC. Companies interested in this service should contact Dr. Jayne Stratton at jstratton1@unl.edu or call at (402) 472-2829.

Learn More About FPC Laboratory Services
Visit: <http://fpc.unl.edu/Laboratory/>

Conferences and Workshops

Don't miss out!

Molds and Mycotoxins in Foods

March 13-15, 2007, Lincoln, NE

14th Annual Ingredients and Ingredient Functionality

May 15-17, 2007, Lincoln, NE

Better Process Control School

October 2-5, 2007, Lincoln, NE

17th Annual Applied Extrusion

October 23-25, 2007, Lincoln, NE

Please watch for more workshops to come. The Food Processing Center is continuing to add workshops and short courses that will fill needs of our many industry partners, as well as the workforce not only in Nebraska, but across the world!

Nebraska
UNIVERSITY OF
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DEPARTMENT OF FOOD SCIENCE
AND TECHNOLOGY

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