



VISITING SCHOLAR DEVELOPS UNIQUE FOOD PRODUCT

Christian Bonilla Sanchez, a student of Zamorano University in Honduras, spent Spring 2011 studying and working at the Department of Food Science and Technology and The Food Processing Center. During his visit, which included rotations involving starch analysis, pilot plant operation, and agricultural economics, Christian developed an original condiment using the Central American fruit chayote.

“I have been working on a new green chili sauce, made of chayote, an original Central American fruit rich in vitamin C and high in calorie and carbohydrate content. The idea of this study was to develop a new green chili sauce, which could be an intermediate spicy flavor that all people could like, for spicy and non-spicy customers. The general idea at first was to develop a common green sauce, but then the idea changed into a green ketchup sauce that everyone would love to eat with any type of food, that’s why I gave to the sauce a little bit of sweetness at the end.”

Product Development Manager Laurie Keeler, who supervised Christian, said he “gave me a different perspective on different foods available in their area and how they use them and how that is so different than how we look at these products.”



Above (left to right): Rebecca Duar, Christian Bonilla Sanches, and Ana Sequeira. Right: Christian’s Chayote Ketchup



On his time at UNL, Christian stated, “I have accomplished a lot of goals, the first one is that I have had the chance to meet amazing, kind people and be involved in this new, extraordinary culture. I have learned a lot, not just the theoretical part, but also the practical one, combining both to be prepared when presented a problem in the real world.”

DR. TAYLOR RECOGNIZED WITH IDEA HONOR

On April 26, Dr. Steve Taylor was presented with the University of Nebraska’s Innovation, Development and Engagement Award (IDEA). The IDEA is a prestigious honor granted annually by the University of Nebraska, and then typically only to one professor. The award recognizes faculty members who have not only made a significant impact on their students and the university, but also on the wider community outside the university’s walls.

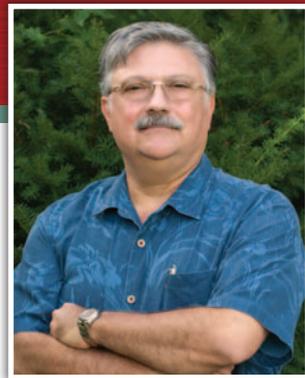
This award recognizes Dr. Taylor’s 35 years of outreach and research in the fields of food safety, food toxicology, and food allergies. Dr. Taylor also served as director of The Food Processing Center and head of the Department of Food Science and Technology for over 17 years. In 1996, Dr. Taylor established Food Allergy Research & Resource Program (FARRP) which, with the cooperation of now 57 member companies in 12 countries, provides the food industry with research and analysis regarding food allergies. Dr. Taylor added, “An important secondary factor was the successful licensing of FARRP-developed immunoassays to Neogen Corporation which has led to the commercialization of about 15 methods developed by our group. In addition to these industry-related partnerships, I have also established positive relationships with public health agencies around the world, with physicians who specialize in clinical food allergy research, and with food allergy-oriented consumer groups.”

Dr. Taylor does not take this award lightly, and said, “I am greatly honored to have received this award. While the award was presented to me, it represents the outstanding work of the entire FARRP team including other faculty, post-docs, staff, and graduate students both present and past.



Above: Dr. Taylor after receiving the award. (Left to right): NU President James Milliken, Dr. Taylor, UN Executive Vice President and Provost Linda Pratt

I could not have gotten this award without lots of terrific assistance and I have been blessed with an outstanding team throughout. Of course, the strong support of the Department is critical along with the commitment of University administration to the establishment and maintenance of a world-class food science department. I fully expect that other faculty from this department will likely receive this award in future years because we have so many who share my strong commitment to outreach and partnerships.”



SELECTED GRANTS

Texas Woman's University

Joseph Baumert

“Integrated Strategies to Reduce Foodborne Illness and Food Allergic Reactions Associated with Independently Operated Restaurants”

\$24,695 (3 years)

Department of Agriculture – NIFA

Stephen Taylor, Joseph Baumert,

Robert Hutkins, Deepak Keshwani,

Jeyam Subbiah

“Effects of Food Processing on Food Allergens - Assessment and Improvement of Detection Methods”

\$500,000 (4 years)

Department of Agriculture – NIFA

Andrew Benson, Stephen Kachman,

Etsuko Moriyama

“Composition of the GI Microbiota and Predisposition to

Enterohemorrhagic Escherichia coli (EHEC) Colonization as Complex Polygenic Traits in Beef Cattle”

\$954,804 (2 years)

Neogen Corporation

Stephen Taylor, Joseph Baumert

“Evaluation of the Extraction Efficiency and Immunoreactivity of UHT-

Processed Almond Milk”

\$5238 (2 months)

A MESSAGE FROM DR. FLORES

Right: Dr. Rolando A. Flores

Greetings from the Department of Food Science and Technology and The Food Processing Center.

This summer we will be saying goodbye to several dedicated faculty members. Drs. Susan Cuppett, Milford Hanna, and Durward Smith will be retiring at the end of June. All three have expanded the capabilities of the Department, guided dozens of students to graduation, and provided a fine example of service for our university and Department. They leave a void which will not be soon filled.

Despite these losses, we expect to thrive, as accolades received by our current faculty attest. Dr. Stephen Taylor received the IDEA award from the university this March. This prestigious award is given to University of Nebraska faculty who have enriched the broader community, and it and recognizes his long career promoting food safety with industry, government, and the public through proper address of food allergens.

Additionally, Dr. Curtis Weller has been appointed as a Jefferson Science Fellow by the U.S. State Department. This role will have Dr. Weller providing his professional insight in Washington, D.C., and elsewhere, to the end of enhancing U.S. foreign policy.

The faculty aren't the only ones winning awards. As you'll see in this issue, our students have received almost 70 honors over the last few months. These include Susie Hammons winning the Vann Student Leadership Award, Nicole Stott receiving the Canfield Scholarship, Emilie O'Connor receiving the Chancellor's Scholarship and, just in April, Jihan Cepeda received the “Outstanding Thesis Award” at this year's College of Engineering's Graduate Research Symposium.

For Fall, we have received 120 graduate student applications for 8 open positions. Additionally, 25 undergraduates have been admitted to the Department for 2011, 7 of which have declared the Food Technology for Companion Animals major. We expect to have over 60 undergraduates come Autumn.

We continue to examine The Food Processing Center and seek ways to innovate. We are focusing on our strengths as a client-centered organization and are looking at ways we can streamline the customer experience such as client management software and measures to insure we meet all the client's needs, even those they're not initially aware of.

To expand the audience The FPC assists we will shortly begin producing webinars on a variety of our services. Current plans include programs on product labeling, market analysis, grant funding, and food safety to name a few.

We have also been participating in the first U.S. pilot of Gallup's Entrepreneur Acceleration System. UNL and other Nebraska partners are now mentoring entrepreneurs to accelerate the growth of their businesses using the principles of behavioral economics. There are 26 mentors in the state, four of which are in the UNL system, including The Food Processing Center's Mark Hutchison. The program was begun in mid-February, and UNL mentors are now working with 20 Nebraska firms. Should this program work well in Nebraska, Gallup plans to extend it nationwide.

I have had the opportunity to continue serving as a mentor in the Executive Leadership in Foods Safety Program of IICA. As part of the program, we met in Bogotá, Colombia in January to share methodologies for improving teamwork, communication, and leadership. We continue expanding this program by forming partnerships with other universities. After Bogotá, I went to Chile to speak at the First International Seminar on Processed Fruits and Vegetables which was presented by the Center for the Study of Processed Foods. This conference opened possibilities of establishing a worldwide network of facilities specializing in applied food processing research.

I hope you enjoy this issue of the alumni newsletter and feel free to drop us a line. We are always happy to hear from past students or partners in the community.

If you would prefer to receive your newsletter electronically, please send your email address to mstandley2@unl.edu. The University is trying to find ways to “go green” and this is an excellent way for us to do our part. Thank you.



HEAD OF NUTRITION DEPARTMENT AND FOOD SCIENCE ALUMNA

Left: Dr. Marilynn Schnepf

Dr. Marilynn Schnepf, chair of UNL's Department of Nutrition and Health Sciences, will be stepping down from her role on June 30, 2011. Dr. Schnepf received her doctorate from the Department of Food Science and Technology in 1984.

Dr. Schnepf was raised on a farm in Northwest Iowa, near Le Mars. "Ice cream capital of the world", she clarified. She began her Ph.D. program in the Food Science Department after receiving an MS from UNL in nutrition. "I took Food Chemistry taught by Dr. Lowell Satterlee and decided food science was what I really wanted to do. I was very intrigued by viewing food as a complex chemical system and learning about what reactions took place when food was processed. Dr. Satterlee became my major professor."

While studying for her doctorate, Dr. Schnepf conducted research on the iron binding properties of soy protein. "There was a concern that when soy was added to hamburgers as an extender, the iron would not be absorbed because it was attached to the soy protein. At the time the biggest consumers of soy protein were school children and military personnel. This project involved my interest in food science and nutrition." Her conclusions were that soy protein isolate slowed the digestion and absorption of iron, but that it did not show a significant nutritional impact.

After graduation, Dr. Schnepf accepted an assistant professor

position at Texas Women's University, took a position at Virginia Tech in 1986, and in 1991 was appointed chair of UNL's Department of Nutrition and Health Sciences. She also has a courtesy faculty appointment in Food Science and Technology. Through it all, Dr. Schnepf has utilized the education she received in our Department. "I have always worked at the interface of nutrition and food science. I have seen the two disciplines come closer together over the span of my career as both recognize the importance of the other."

Dr. Schnepf will be stepping down as chair later this year, but will continue at the university as program leader for the Hospitality, Restaurant and Tourism Management program with teaching responsibilities in the Culinary Science program. Dr. Schnepf's interim replacement as head will be Dr. Tim Carr, with a national search for a replacement to follow.

Dr. Schnepf's involvement in the Department of Food Science and Technology has guided her professional life. "As nutrition faculty, we work closely with the Department on a number of joint research projects. I teach Functional Properties of Foods and Experimental Foods, which are based on principles I learned in Food Chemistry. Our Culinary students take many Food Science courses and could not be successful without the cooperation of the Food Science Department."

DONATION ON BEHALF OF ALUMNI

In 2010, a generous sum was donated to the Department of Food Science and Technology in the memory of sisters Margaret Spader and Viola Spader Hronis, both of whom had careers in the food industry.

Margaret Spader attended UNL, receiving a degree in Home Economics in 1936. In the 1940s, Spader was the supervisor of the Betty Crocker Test Kitchens in Minneapolis, Minnesota during the development of the Betty Crocker cookbook. She later served as a food magazine editor, an advertising account executive, and a food consultant. She was responsible for determining the menu for one of the World Trade Center's first restaurants, which had menu item names such as Havelock and Waverly.

Viola attended business school and served as a secretary for an agricultural firm in the 1930s. In the 1940s, she co-owned and operated, along with her husband Bill Hronis, the Famous Café, a fixture of downtown Lincoln for over 20 years.

This donation was made so that the Department can continue to provide research and education to improve the food industry and the distribution of nutritious food in the world economy. Already the donation has been

earmarked for recruitment and scholarships, so that students can, like Margaret and Viola Spader, pursue their own roles in the food industry.



Above: Margaret Spader (left) in the 1960s

STUDENTS

GRADUATES OF THE B.S. PROGRAM

Danielle Ahrens

Elizabeth Baier

Susan Hammons

Cody Hartman

Barbara Mayor

Crystal Pribyl

Ruwanthi Ratnayake

GRADUATES OF THE M.S. PROGRAM

Valli Kannan

Thesis: "Extraction of Anthocyanins from Red Cabbage and Betalains from Beets Using Pulsed Electric Field"
Harshavardhan Thippareddi, Advisor

Onesmo Mella

Thesis: "Effects of Malting and Fermentation on the Composition and Functionality of Sorghum Flour"
Curtis Weller, Advisor

Sely Prajitna

Thesis: "Evaluation and Analysis of Meat Products Contaminated by Low Levels of Ammonia"
Randy Wehling, Advisor

Maria Isabel Quintero

Thesis: "Inhibition of *Cronobacter Sakazakii* by Prebiotic Oligosaccharides and Other Anti-adherent agents"
Robert Hutkins, Advisor

NEW M.S. GRADUATE STUDENTS

Abbas Hajmusa

Robert Hutkins, Advisor

NEW PhD GRADUATE STUDENTS

Maria Isabel Quintero

Robert Hutkins, Advisor



LEARNING THE IMPORTANCE OF QUALITY

Right: Travis Burger

Travis Burger is a junior in the Department of Food Science and Technology at UNL with plans to graduate in 2012.

Originally from Columbus, Nebraska, Burger joined UNL's Food Science Program because he felt it is one of the best programs in the country. "Also, the atmosphere at UNL seemed like the perfect fit for me," he added, "I especially like the close contact that we get with our professors."

“Through working there, I have learned the great care involved in doing research.”

"I am currently participating in a UCARE project under Dr. Stephen Taylor in the FARRP laboratory. My project is to research a long list of swab materials, used to assess the cleanliness of production equipment. I am evaluating the different swab products for their efficiency, as well as testing variables in the testing procedure. I really enjoy working in the FARRP lab. The people there are great, and they make the atmosphere great for a student who is just learning how things work in a commercial lab. Through working there, I have learned the great care involved in doing research. I also learned how important it is to adhere to procedures during testing, because even a little carelessness can cause disastrous results." In addition to working in the FARRP lab, Burger is treasurer of the Food Science Club.

Burger plans to use the food safety training he's received in the FARRP lab in his future career. "My plans after graduation are to look for a job in the food science industry, either in product development or quality assurance."





GRADUATE STUDENT REBBECA DUAR

Left: Rebecca Duar

Rebecca Burgos Duar has been a grad student at the Department of Food Science and Technology, advised by Dr. Vicki Schlegel, since early 2010. She is originally from Costa Rica. “Which I am proud to say has been ranked as the world’s greenest and happiest country,” she added. “I didn’t know Dr. Flores, the department head, was from Costa Rica; I was very delighted to meet him.”

Before coming to UNL, Rebecca received a Bachelor’s Degree in Nutrition from Hispanoamerican University in Heredia, Costa Rica. “I’ve always been fascinated by the physiological and biochemical interactions that occur in the human body and how they can be modified by different nutrients from the foods we eat,” she stated. “With my nutrition background and a career in food science, I would acquire the skills to identify and characterize the different components of food and also be able to make food better, healthier and safer.”

It was at Hispanoamerican University that she was first directed to UNL, “During my junior year of college, I met Dr. John Rupnow at the National University in Costa Rica when he was presenting a seminar called Advances in Food Safety,” she explained. “We had a short conversation about my career goals and he encouraged me to apply for an internship at UNL.”

Rebecca interned with the Department in Spring of 2009. “During that internship, I initiated research on the ‘Characterization of Antioxidants in Different Bean Cultivars.’ I had very little laboratory training before coming to work in Dr. Schlegel’s lab. I had to learn most basic things; however, by the end of my internship, I was already using spectrometric and chromatographic techniques. I’d like to thank my lab mates during that time: Danielle Ahrens, Emily Sitorius, Bailey Harris, Richard Zbasnik and of course Dr. Schlegel. [Dr. Schlegel] is always available, encouraging and very patient even when things are not working very well. I will never forget that once she told me: ‘Sometimes you learn more from your mistakes. Now you know what not to do; go ahead and start again.’ I am very fortunate to be her graduate student; she is a wonderful mentor and an excellent professional and scientist.”

“I am working on a project that studies the effect of different prebiotics when added as ingredients to various food matrices,” Rebecca said, describing her current research, “my responsibility is to adapt and validate suitable analytical procedures to detect such effects by using chemical and instrumental methodologies, including ion-exchange HPLC, enzymatic based extractions and Uv-Vis applications.”

“I have to say this truly has been the best experience of my life. I feel very comfortable here, and I have made many new friends. I feel like at home, and I am really honoured to be part of the Food Science Department at UNL.”



Above: (Left to right) Rebecca Duar, Andrés Maldonado, Jihan Cepeda

COOKING WITH SCIENCE

On March 15, a team from the Department of Food Science and Technology won the Second Annual Iron Chef Nebraska Competition put on by Student Involvement’s Campus Nightlife. “Rice-It-Up!”, the Food Science team, was composed of Jihan Cepeda, Rebecca Duar, and Andrés Maldonado.

15 teams competed in this cooking competition with rice as the required key ingredient. “The event was fun and very well organized,” said Rebecca, who spoke for the group. “Students from countries such as Iran, Panama, Italy, China, India, Thailand, Costa Rica and Colombia were participating in the contest. It was great to interact with them, and have the opportunity to try a variety of traditional rice dishes from all over the world.”

“Rice-It-Up!” chose *arroz con leche* as their dish, “Which is a traditional Hispanic rice pudding,” Rebecca explains. “We wanted to make something a little bit different, so we came up with our own recipe: *arroz con leche* made with condensed milk, evaporated milk, dried cranberries, coconut, shredded mozzarella cheese and marshmallows. Also, we made it using 5 minute rice instead of the commonly used long grain rice; which shortened the total preparation time to about 25 minutes.”

“To be honest, we didn’t think we had a chance to win whatsoever, as most of the participants were culinology majors with much more cooking skill than us. We think that is what made us win, was our recipe was simple, but very tasty. Oh, and of course we cooked with science!”



THE FUNGUS AMONG US: A BRIEF SURVEY OF NEBRASKA MUSHROOMS

Right: Dr. Heather Hallen-Adams

Caveat: Do not use an article in a newsletter as the basis for collecting and eating wild mushrooms. If you are interested, obtain a good, local field guide (B Horn, R Kay, D Abel, 1993, *A Guide to Kansas Mushrooms*; DM Huffman, LH Tiffany, G Knaphaus, 1989, *Mushrooms and Other Fungi of the Midcontinental United States*), and consult with experienced mushroom collectors. The Prairie States Mushroom Club (www.iowamushroom.org) is a good place to start for further information.

Mushrooms are fungi, members of their own Kingdom of Life, distinct from plants (which they resemble in frequently growing up from the ground, and in being notably immobile). Fungi, mushrooms included, are actually more closely related to animals than to plants, but possess many features distinct from both. The majority of fungi are small to microscopic. These include the little-known but vitally important Glomeromycota, without which garden plants couldn't obtain sufficient mineral nutrients to grow and flourish, and the notorious chytrid fungus responsible for a worldwide decline in frog populations, as well as the better-known (if unappreciated) molds.

The mushrooms are the fungi big enough to catch the eye and, in many cases, provide a tempting meal. Nebraska mushrooms can be divided handily into morels and everything else. Morels are relatively unusual in the category of temperate climate mushrooms because they fruit during the Spring. Morel abundance peaks in May in Nebraska, with early fruitings beginning in April; by June, the season's over, and morel aficionados must wait for the following year. Unlike many popular mushrooms (portabello, oyster mushroom, porcini), morels cannot be easily cultivated, which limits their availability to their wild fruiting season.

Morels have many wonderful features for aspiring mushroom hunters: in addition to their flavor and local abundance, their sponge-like caps and spring fruiting make it easy to distinguish morels from other fungi and minimize the chances of making a potentially dire mistake in identification. Entities called "false morels" exist; these are potentially toxic and fruit during the same season as the true morels, but do not look particularly similar. False morels (genus *Gyromitra*) have a wavy, convoluted but not sponge-like cap; additionally, their stems are stuffed with a cottony pith, while the stems of true morels (genus *Morchella*) are invariably hollow, top to bottom. There are traditions in some places of knowingly eating false morels, but this is not recommended - specimens this side of the Rocky Mountains contain hydrazines, rocket fuel components which may cause acute poisoning as well as being carcinogenic.

For true morels and most mushrooms, the critical advice is to cook

them well before eating (a possible exception is the store-bought button mushroom [genus *Agaricus*], which can be served raw on salads). One of the features that makes fungi unique, warranting their own taxonomic Kingdom, is their mode of nutrition. Fungi secrete digestive enzymes into a substrate, allow that substrate to be broken down, then absorb the nutrients. Some of their favored food sources include durable substances like wood; consequently, fungi possess powerful digestive enzymes. If you consume a mushroom whose enzymes are not inactivated by the heat of cooking, there follows an interesting period during which you are trying to digest the mushroom while the mushroom is trying to digest you. Being bigger, you will win in the end, but the interim involves some pretty severe gastrointestinal distress. "Poisonings" involving raw morels do occur, though none are life-threatening and all are avoidable.

Our "everything else" mushroom season is less defined than the morel season, being dependent on a variety of factors including rainfall, temperature and day length. A mushroom is the fruit of a fungus, equivalent to an apple on an apple tree. It is the product of reproduction and genetic recombination, and its "purpose" is to disperse the fungus to new habitats through the production of spores. As such, the mushroom is not necessary for the continuing life of the fungus, and a fungus may persist for years in one spot, only producing mushrooms for one week in ten years when conditions are favorable.



Above: *Amanita bisporigera*
"The Destroying Angel"



Above: *Chlorophyllum molybdites*
"Green Gill"

Winter in temperate climates signifies hardship - cold, snow, ice - and many plants and fungi will fruit in the Fall to ensure that, if they do not survive, their genes will be passed on. It is clear the temperature, day length and/or light intensity, factors signifying the approach of Winter, play a role in inducing fruiting in several mushrooms. In addition, all mushrooms require water to fruit, the amount varying depending on the species. In Nebraska, these factors may be at odds, as we tend on average to have wetter Summers and drier Autumns. Most of our common mushrooms compromise by beginning to fruit in June or July with the peak rains, then continuing as late into Autumn as precipitation will allow.

Many mushroom species have some obligate associations with trees. Some form mutually-beneficial symbioses with the tree roots (called mycorrhizae; "fungus-roots") in which the tree supplies the fungus with carbohydrates from its photosynthesis while the fungi helps the tree obtain minerals such as phosphorus and nitrogen. Others are pathogenic on living trees, or feed off of dead ones. The beneficial, mycorrhizal mushrooms associate particularly with oaks, conifers and several nut trees; cottonwood and willow may form associations with either mushroom-forming fungi or the microscopic Glomeromycota mentioned earlier, and many trees, such as maple and elm, will only associate with Glomeromycota, and not with mushrooms.



Above: *Gyromitra* "False Morel"

Grasslands and prairies have less diversity of mushrooms than do wooded areas; nevertheless, there are several species with a particular affinity for grasslands. Notable grassland edibles include the larger puffballs (*Calvatia* species), the shaggy mane (*Coprinus commatus*) and the meadow mushroom (*Agaricus campestris*). All of these fruit throughout the Summer and into the Autumn, weather permitting.

Some mushrooms are poisonous, and some poisonous mushrooms are common. Mushroom poisoning may involve gastrointestinal illness, central nervous system disorder (including hallucinations), other rare and specialized poisoning syndromes, or death. *Amanita bisporigera*, "the destroying angel", is a potentially lethal mushroom occurring in Nebraska. Its amatoxins bind to RNA polymerase II, halting transcription and thereby halting protein synthesis. Amatoxin poisoning is characterized by a delay of 6-36 hours (usually 12-24)

between eating the mushroom and the onset of GI symptoms (nausea, vomiting, diarrhea). These symptoms subside after about 24 hours and there is a remission period, followed by liver failure. On average, there is one fatal amatoxin poisoning in the US per year. The destroying angel may be confused with the edible meadow mushroom - both have white caps and a ring around the stem - but the *Amanita* will have white gills and spores in maturity, while the meadow mushroom's gills turn pink and then brown. Additionally, the destroying angel has a sack of membranous tissue around the base (you may need to dig the mushroom up to find it), and is mycorrhizal with trees, particularly oaks and conifers, while the meadow mushroom may occur with no tree in sight.

One other poisonous mushroom that may be confused with the meadow mushroom is the green gill, *Chlorophyllum molybdites*. This, too, has a ring around the stalk (and no sack at the base). Its gills and spores are greenish at maturity (white earlier in development). This is not a deadly mushroom; rather, a severe GI irritant. It is common on lawns in urban settings, where several mushrooms may form a fairy ring, and may also occur in grasslands. This is our most common poisonous mushroom.

Mushroom poisoning is rare. Most adult Americans are rather suspicious of mushrooms, and are not likely to take chances with the unknown. Children are the largest mushroom poisoning demographic, and more than 90% of mushroom calls to Poison Control Centers turn out to involve innocuous fungi. True food allergies to mushrooms are also quite rare (more common are sporadic cases of contact dermatitis). Fungal cell walls contain a number of unusual structural polysaccharides. Some people lack the enzyme trehalase, and cannot digest the fungal sugar trehalose. These people will experience diarrhea or other GI symptoms upon eating any mushroom, including common edibles.

The vast majority of mushrooms are neither poisonous nor edible. They play a vital part in whichever ecosystem they inhabit and merit appreciation for their own sakes.



Above: A truly giant "giant puffball"



Above: *Morchella* "Morel"

STUDENTS AWARDS

Bess McDonald Scholarship

Skye Sabatka

Bruce M. Fellman Scholarship

Ashley Bernstein

Canfield Scholarship

Nicole Stott

Chancellors Scholarship

Emilie O'Connor

Charles Stuart Scholarship

Travis Burger

College of Engineering's Graduate Research Symposium & Poster Fair Outstanding Thesis Award

Jihan Cepeda

Cornish Fund Scholarship

Emilie O'Connor

Geri Spinner

Daniel S. Bestor Scholarship

Jacob Kruse

David Distinguished Scholarship

Jacob Kruse

David H. and Annie E. Larrick Scholarship

Ashley Bernstein

Engel Sisters Scholarship

Juliann Starman

G. Robert Muchemore Scholarship

Elizabeth Baier

Jacob Kruse

The George Beadle Scholarship

Katy Merckel

Hazel V. Emley Scholarship

Danielle Ahrens

Holling Memorial Scholarship

Samantha Bryant

Brooke Grossenbacher

Katy Merckel

Emily Pribyl

Taylor Stelk

Howard and Judy Vann Student Leadership Award

Suzy Hammons

IFT Annual Meeting

Toxicology and Safety Evaluation

Division graduate student research paper and poster competition

First Place - Ben Remington

Third Place - Pei Wen Lim

IFT Foundation Scholarship

Ashley Bernstein

Brooke Grossenbacher

Suzy Hammons

Emilie O'Connor

Ivan and Darlene Auer Scholarship

Nicole Berns

Jack Schinstock Scholarship.

Rachel Rosinski

James and Anna Lemay Scholar

Emilie O'Connor

Johnny Carson Scholarship

Travis Burger

Kellogg's Scholarship

Suzy Hammons

Kevin and Paige Yost Award

Mariah Brandt

Lampert Family Scholarship

Justin Bakke

Katy Hilgren

Larrick Memorial Travel Funds

Emily Ang

Kenzi Clark

Rakhi Panda

Ben Remington

L.K. Crowe Kiwanis Award

Suzy Hammons

Luther Drake Scholarship

Kristen Drvol

Maxcy Scholarship.

Emily Pribyl

Milton E. Mohr Fellowship

Nyambe Mkandawire

Ben Remington

Milton Mohr Scholarship

Katy Merckel

Minnie Latta Ladd Scholarship

Samantha Bryant

Morrison Scholarship

Nicole Stott

Nebraska Achievement Scholar

Taylor Armstong

Nestle Purina Petcare Scholarship

Nikki Hardman

Oak B. Smith Scholarship

Justin Bakke

Nicole Berns

Brooke Grossenbacher

Cody Hartman

Alex Hlavaty

Emilio Ho

Jenny Pickering

Nicole Stott

Emily Williams

Regents Scholarship

Justin Bakke

Travis Burger

Kristen Drvol

Research Chefs Foundation:

Michele Block Memorial Scholarship

Ashley Bernstein

Robert H. & Dorothy G. Kooper Scholarship

Ashley Bernstein

Shear-Miles Fellowship

Rakhi Panda

Susan Buffett Scholarship

Taylor Armstong

Susan Hefle Scholarship

Ashley Bernstein

Vann Student Leadership Award

Suzy Hammons

Widaman Trust Distinguished Graduate Assistant Award

Inés Martínez

UCARE (and Sponsors)

Danielle Ahrens – Vicki Schlegel

Nicole Berns –

Harshavardhan Thippareddi

Ashley Bernstein – Michael Zeece

Travis Burger – Stephen Taylor

Cody Hartman – David Jackson

Emilio Ho – Jayne Stratton

Matthew Kerrigan –

Rolando Flores

Matthew Pedersen –

Susan Cuppett

Juliann Starman –

Lloyd Bullerman

Taylor Stelk – Stephen Taylor

Laurel Weilage – Robert Hutkins

Cara Wogsland – Joseph Baumert



Suzy Hammons (right) accepts the Vann Student Leadership Award from Alumni Association VP Diane Mendenhall.



DAIRY PLANT PROVIDES VERY FROZEN ICE CREAM

Student workers Russell Parde and Thomas Dux prepare a batch of liquid nitrogen frozen ice cream.

In 2010, the dairy plant at The Food Processing Center was approached by the Nebraska Center for Materials and Nanoscience to make ice cream using liquid nitrogen.

“The reason they were using liquid nitrogen is that the faster you freeze water the smaller the ice crystals are and the smoother the ice cream will feel in your mouth,” stated Steve Weier, manager of The FPC pilot plants. “So the theory is that if you freeze with liquid nitrogen you would be creating nano ice crystals yielding a very smooth ice cream.”

Weier continued by saying, “The method that we used was to have the ice cream base mixing in a Hobart mixer while periodically pouring in liquid nitrogen. We kept pouring in small additions of liquid nitrogen until the ice cream was frozen to the proper consistency and then we would package it into 1/2 gallon containers. Total process took about 5 minutes per 1.5 gallon batch.”

The Center for Materials and Nanoscience, a division of the UNL Physics Department, has since used this ice cream in recruiting, demonstrations, and fundraising.



HELP OTHERS WHO SHARE YOUR HUNGER FOR FOOD SCIENCE.

Donations to the Food Science and Technology Fund are used in scholarships to enhance undergraduate recruitment. To contribute online, go to www.nufoundation.org/foodscience. To learn more, please contact Ann Bruntz, IANR Director of Development, University of Nebraska Foundation, 402-458-1176, or e-mail her at abruntz@nufoundation.org.



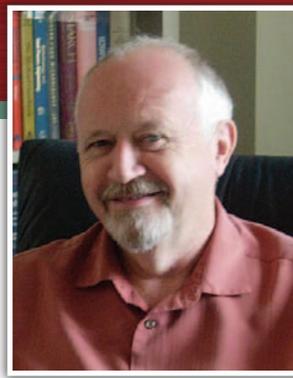
DEPARTMENT OF
FOOD SCIENCE
AND TECHNOLOGY



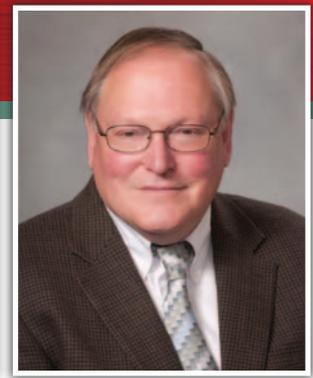
FOOD SCIENCE FACULTY RETIREMENTS



Dr. Susan Cuppett



Dr. Milford Hanna



Dr. Durward Smith

This summer will see the retirement of three professors who, for decades, have brought esteem to the Department of Food Science and Technology. On this, Dr. Rolando Flores, department head, said “The Department is going to see three major retirements in the areas of teaching, research, and extension. Dr. Susan Cuppett has been very well known for her teaching expertise. Dr. Milford Hanna has been a pioneer in food engineering and bioprocessing, and split his time between Food Science and Biosystems Engineering. Dr. Durward Smith is an individual who has dedicated his life to food processing in Nebraska and beyond; there are many cases where his assistance saved developing or established food businesses. The impact of these losses on students, outreach, science, and engineering will be great.”

Dr. Susan Cuppett has been with the Department for over 20 years and in that time has greatly influenced the Department through her work with sensory analysis, lipids, nutraceuticals, and as undergraduate advisor.

Dr. Stephen Taylor, colleague and department head of Food Science from 1987 to 2004, said, “Her biggest strength has been her ability to interact with undergraduates. Wonderful job she’s done over the years as advisor. Some number of students wouldn’t have made it through the program without her advice and encouragement. She brought the sensory evaluation program from essentially nothing to having a very capable program. We didn’t even have a lab when she arrived.”

Laurie Keeler, product development manager at The Food Processing Center said, “Dr. Cuppett has definitely influenced and helped The Food Processing Center grow in the areas of product development as well as interaction with students. Dr. Cuppett has been great at recommending students to work in the FPC labs and pilot plants, providing great workers for The FPC and helping students gain valuable experience for their résumés.”

Dr. Cuppett’s colleague Dr. Vicki Schlegel provided this reflection, “Many times during the course of the year, several blank sheets of papers were posted on Susan’s office door. These sheets were provided to the undergraduates enrolled in our program as a means to schedule a face-to-face meeting with Susan. Once I saw those sheets posted, I knew that Susan would be unavailable for several weeks as her attention would be focused exclusively on advising

our students. On numerous other occasions, I have dropped in on Susan only to find one or several of our undergraduates seeking her advice as her door was always open for such unscheduled visits. As the sole advisor for the Food Science and Technology Department for years, Susan provided stability, continuity, encouragement, guidance and even an occasional scolding, when needed, to our students. Interestingly, she has done the same for me as I went through the ranks. I will deeply miss the fact that she will not be just down the hall for my all too many impromptu visits.”

Dr. Milford Hanna began teaching at UNL in 1975. Though most of his time was spent in the Department of Biological Systems Engineering, he still had an important role in the Food Science Department especially with his strong engineering background and extensive knowledge of extrusion processing.

On his experience working with Dr. Hanna, Dr. Curtis Weller, who also has a dual appointment in BSE and Food Science, stated, “I have found working with Dr. Hanna to be a very fortunate situation for me. One of my attractions for coming to Nebraska some years ago was the opportunity to work with colleagues such as Dr. Hanna. He has always been supportive of my endeavors and I only hope that I have enriched his academic career to the extent that he has enriched mine during our collaborative efforts. The relatively strong engineering component and presence in UNL Food Science and Technology can be attributed in large part to the steadfast and unwavering guidance from Dr. Hanna over his career. Additionally, his legacy at Nebraska lives on through the numerous UNL alumni that are sprinkled throughout the food industry the world over.”

Dr. Durward Smith began with the Food Science Department in 1989. In the time he has been here, he has gradually become the Department’s foremost expert on canning, processing operation, and vegetables.

On Dr. Smith, Dr. Taylor said, “One strength was his ability to interact one on one with FPC clients. People without scientific backgrounds came away with knowledge to make safe food. Don’t know if the rest of us can fill those shoes. He is a treasure trove of information on processing operations. I’ve heard it said that he is the most valuable faculty member to The FPC.”

Continued on next page

Laurie Keeler affirmed this by saying, “Dr. Durward Smith has always been so helpful in expanding our ability to help clients on ingredients, processing, and equipment. He has always had the answers or been able to tell us where to look for the answers, even if it was to recommend looking in some old, old agricultural bulletins from before World War II. Dr. Smith taught me that sometimes you can look to the past to learn about the development of ingredients, processes or foods to give a better understanding of problems and issues.”

We thank these professors for their tireless service and their role in shaping the Department of Food Science and Technology.



DR. PETERSON ACCEPTS POSITION WITH JOHNS HOPKINS

Right: Dr. Daniel Peterson

On July first, Dr. Daniel Peterson will step down as a professor in both the Department of Food Science and Technology and at the University of Nebraska Medical Center. Dr. Peterson has accepted a position as Assistant Professor of Pathology at John Hopkins University Medical School in Baltimore, Maryland.

In the short time Dr. Peterson has been with us, he has made great contributions to the Department, such as providing UNL with a fully functional gnotobiotic laboratory. Dr. Peterson will maintain a partial appointment until 2013 to assure a smooth transition to his successor.

VISITING SCHOLARS

Anand Adatya is currently visiting from the Indian Institute of Crop Processing Technology in Thanjavur, India. In the five months he is at UNL, he is working with The Food Processing Center on diverse subjects like extrusion technology, lean ice cream, and risk modeling.

Andrés Doblado Maldonado was hosted by Dr. Curt Weller during his internship from La Sabana University in Colombia in Fall of 2010. Andrés is now an MS student in the Department under Dr. Devin Rose.

Dr. Uday Kumar Putcha of the National Institute of Nutrition, Hyderabad, India, was in the Goodman laboratory for the first two months of 2011 as a Borlaug Fellow, sponsored by the USDA Foreign Agricultural Service (FAS). The purpose of Dr. Putcha’s visit was to learn more about the safety assessment of genetically modified crops as defined by the CODEX Alimentarius Commission of the United Nations and as practiced in the US. The visit included a visit to Washington, DC to meet with regulatory scientists at the USDA, FDA and EPA.

Ana Sequeira and **Christian Bonilla Sánchez** are undergraduate students who, in early 2011, visited our Department and also worked with The Food Processing Center. Ana came to us from the Universidad de Costa Rica in San Jose, Costa Rica. Christian came from Zamorano University in Honduras and he is originally from Ecuador.

143 Food Industry Complex
P.O. Box 830930
Lincoln, NE 68583-0930

CONFERENCES & WORKSHOPS

Food Entrepreneur Program Workshops

June 3, 2011 – Lincoln, NE
August 19, 2011 – Lincoln, NE
October 22, 2011 – Lincoln, NE

Better Process Control School

October 4-7, 2011 – Lincoln, NE

Extrusion Workshop

October 11-13, 2011 – Lincoln, NE

ONLINE REGISTRATION AVAILABLE AT FPC.UNL.EDU

**FOOD
FROM
THOUGHT**

LET US KNOW HOW YOU'RE DOING!

We'd love to hear from you! Tell us about your career changes, progress, or any news. Also send us your current contact information to ensure you receive future Alumni Newsletters and other exciting Food Science and Technology news. Visit our website at foodsci.unl.edu

Department of Food Science and Technology • 143 Filley Hall, UNL, Lincoln, NE 68583-0919
Phone: (402) 472-2381 Fax: (402) 472-1693 • Twitter: UNL_FOODSCIENCE