Greetings. A lot has happened since our last newsletter. I hope as you take the time to read these stories, they will help you reconnect and remind you of the many friendships formed at Virginia Tech. Please take the time to update your contact information with the Department of Food Science and Technology or through the Alumni Association. We really do wish to keep in touch.

Three years ago a survey was conducted with all of the IFT approved Food Science programs to see how many undergraduates were in the U.S. Out of 49 programs that responded at that time, Virginia Tech ranked 19th. Now we have greater than 130 undergraduate majors and are tied for seventh place for undergraduate program size. Our graduate program is also very strong; when we count the students in both residential and on-line degree programs, we have nearly 50 graduate students. As enrollment has increased, we’ve begun to outgrow our classroom. Many of you may still remember taking courses in FST 132; however our class sizes now exceed the room’s size, sending some classes to rooms across campus.

The people of FST are also in transition. We celebrated with Harriet Williams, Walter Hartman, and Brian Smith as they all retired last summer. We miss them deeply, but their retirements were well earned. We see them often, looking healthy and enjoying extra time for their own interests.

One of the biggest changes for me, personally, was the unexpected death of Cameron R. Hackney, Ph.D. Cameron and I were students together and shared many enjoyable hours during our professional careers. I admired his scholarly work, his amazing teaching ability, and his sincere care for others. He was my friend, and I miss him very much. Others, who were also touched by Cameron, have established an endowed fund in his honor. The proceeds from the Cameron R. Hackney Memorial Enrichment Fund will be used to cultivate the educational activities of undergraduate and graduate students in the FST Department. We welcome contributions to this fund from any who wish to honor Cameron.

Best personal regards,
Joe Marcy

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The SURF Program and FST Undergraduate Research

Laura Griffin (Leesburg, Va.), a junior double-majoring in human nutrition, foods, and exercise and food science, was part of the summer 2012 Fralin Life Science Institute Summer Undergraduate Research Fellowship (SURF) program. SURF and the Division of Undergraduate Education’s Scieneering program banded together to offer paid fellowships to an unprecedented 82 students.

Griffin worked with Andrew Neilson (FST assistant professor) investigating ways in which chocolate and grape seed extract might influence metabolic syndrome and its associated diseases (obesity, type-2 diabetes, etc). Obesity and metabolic syndrome are known to impair the ability of the gut wall to keep bacterial endotoxins from entering the bloodstream, which is then thought to cause inflammation and insulin resistance in muscle. Neilson hypothesized that the naturally occurring compounds in grape seed, known as procyanidins, improve the integrity and function of the gut barrier. The exact process by which grape seed extract exerts the effect is unknown.

Griffin fractionated grape seed extract into its smaller compounds to understand which compounds work to increase intestinal wall integrity and combat the inflammation that contributes to obesity. Griffin fed mice on high fat diets various doses of the extract, and she also worked to develop methods to prepare cocoa extracts, also high in procyanidins, to examine the effects of cocoa in high fat diets in animal models.

Neilson said, “Laur’s experience in the SURF program is invaluable in preparing her for success in her future graduate studies. Previous lab experience is a huge advantage for undergraduates as faculty have noticed that incoming graduate students without lab experience tend to struggle in the lab. In some cases, new graduate students discover that they actually do not enjoy lab work, which can severely hinder their progress toward graduation. The SURF experience increases the likelihood that students are accepted into a good graduate program and that they succeed in that program.”

FFA Milk Quality and Products CDE

Stonewall Jackson High School of Quicksburg, Va., won the state FFA Milk Quality and Products Career Development Event held at FST in June 2012. Team members were Brittany Bowman, Whitney Bowman, Victoria Marston, and Kayla Miller. Fort Defiance (Fort Defiance, Va.) placed second, and Riverheads High School (Staunton, Va.) came in third. Top placing individuals were Whitney Bowman from Stonewall Jackson High School (first), Lauren Nield from Sherando High School (second), and Brittany Bowman from Stonewall Jackson High School (third). Participants completed a written exam on milk quality and marketing, evaluated milk samples for flavor and quality, identified cheeses, and evaluated milk fat content. They also completed problem-solving activities and performed CMT testing.

The team went on to compete at the National FFA Convention, held at the Indiana State Fairgrounds in Indianapolis, Ind. The team placed fourth in the nation out of 38 competing teams and received a gold emblem. Brittany was eighth in top placing individuals, and her sister, Whitney, was ninth. In addition, Brittany and Whitney placed first and second in the written portion of the event.

The National Convention was attended by over 56,000 people. Students participated in a variety of leadership activities, thereby fulfilling the FFA mission to make a positive difference in the lives of students by developing their potential for leadership, personal growth, and career success.
FST Students Participate in Global Perspectives Program

FST doctoral student, Margo Duckson, participated in the initial Future Professoriate Global Perspectives Program in Latin America. The Global Perspectives program was developed by Virginia Tech’s Vice President and Dean for Graduate Education, Karen DePauw. Duckson, along with five other Virginia Tech doctoral students, Dean DePauw, and John Dooley (Chief Operating Officer for the Virginia Tech Foundation Inc.), travelled to Chile for a week. While there, they visited with faculty, administrators, and students at two universities in Santiago (Universidad de Chile and Pontificia Universidad Catolica de Chile) and at the Universidad Austral de Chile in Valdivia. They met to discuss and gain a better understanding of higher education in Chile and Latin America.

In May 2012, FST doctoral students Margo Duckson and Jessica Maitland traveled to Switzerland with 13 fellow Virginia Tech graduate students and Dean DePauw to participate in the seventh annual Future Professoriate Global Perspectives Program. They visited the University of Basel, the University of Zurich, the Swiss Federal Institute of Technology Zurich, the University of Applied Sciences and Arts of Italian Switzerland, the University of Italian Switzerland (USI), and USI’s campus in Mendrisio, which serves as its Academy of Architecture. Additionally, they visited the University of Strasbour in France and Politecnico di Milano in Italy. While in Switzerland they held gatherings with graduate students from the University of Basel and Lund University. The program culminated in a joint graduate education seminar at the Swiss Embassy in Washington, D.C.

The PFP Global Perspectives program was developed in 2005 by the Graduate School and offered through Virginia Tech’s educational facility in Riva San Vitale, Switzerland. In the first cohort in 2006, 10 graduate students were selected, and since then 13 or 14 participants have been selected each year.

The program enables graduate students to meet new people from different countries and cultures. Students explore topics facing global higher education and learn about their higher education systems. They share thoughts in writing and through presentations and ongoing dialogue. Students also learn more about themselves and their ability to help make change in the world.

Recirculating Aquaculture Conference

CALS and the Seafood and Aquaculture group hosted the ninth International Conference on Recirculating Aquaculture and the sixth Aquacultural Engineering Society Issues Forum at the Hotel Roanoke and Conference Center in August 2012. A trade show was held concomitantly with the conferences. Approximately 250 individuals representing 24 countries attended the three-day event. The Forum focuses on engineering solutions to specific aquaculture challenges. The biennial Recirculating Aquaculture Conference offers a wider scope of aquaculture-related topics, including research, enterprise, and discovery. The next conference will be held in August 2014.
In Memoriam: Cameron R. Hackney

Morgantown, W.Va. - Cameron Hackney, Ph.D., died unexpectedly at the age of 61 on November 2, 2012. He spent fifteen years as an associate professor at Virginia Tech’s Department of Food Science and Technology. He served as department chair from 1995 to 2000.

Hackney was a food microbiologist who served the nation and the world with his applied research in food safety and then brought those experiences back to his classroom. He viewed the world as his classroom. It is unique for a faculty member to contribute to all three mission areas (research, teaching, and extension) at a land-grant institution. He was a champion of the land-grant mission and served on and chaired several committees for the Association of Public and Land-grant Universities (APLU).

Hackney was an outstanding teacher who attributed his 3.9 teaching evaluations (out of a possible 4.0) to his Extension work. He advised 32 graduate students and served on over 100 graduate student committees. He also served as an academic advisor to food science undergraduate students.

At Virginia Tech, he received the Gamma Sigma Delta Teaching Award and the Virginia Tech Alumni Association Extension Excellence Award in 1995. The International Association for Food Protection (IAFP), the premier food safety organization, elected him a Fellow and awarded him the IAFP Outstanding Educator Award. He was most proud of receiving the Virginia State Council of Higher Education’s Outstanding Faculty Award in 1997, the highest honor for faculty at Virginia’s public and private colleges and universities. These awards recognize superior accomplishments in teaching, research, and public service.

He was a West Virginia native and returned to Morgantown in 2000 as Dean of the Davis College of Agriculture, Natural Resources, and Design and director of the West Virginia Experiment station at WVU. He was the longest serving Dean in WVU’s history.

Hackney’s stated instructional philosophy was that the most important part of teaching is to respect and care about your students. It is with this spirit in mind that the Virginia Tech College of Agriculture and Life Sciences and the Department of Food Science and Technology have established an endowment fund in Hackney’s memory to promote student enhancement opportunities.

American Cheese Society Judge

Walter Hartman (FST retiree) was selected to be one of the 34 technical and aesthetic judges at the American Cheese Society’s contest. Cheese experts from all over the world were at the contest to judge, so this was quite a distinction.

The contest was held in Raleigh, N.C. in August. Two hundred fifty-four cheese makers submitted 1,711 cheeses, the largest number of cheese entries since the inception of the contest in 1985. The best of show was “Flagsheep” from Beecher’s Handmade Cheese (Wash.). Second place went to “Crema de Blue” submitted by Valley Shepherd Creamery (N.J.). “Roth Grand Cru Surchoix” from Emmi Roth USA (Wis.) won third place.

Judges were given a category of cheese, such as smoked mozzarella cow’s milk, to evaluate. After all categories were evaluated, the first place cheese in each category was reviewed by all of the judges. Selection of the winning cheeses takes two full days to complete.
Flick Receives Lifetime Achievement Award

George Flick, Jr., University Distinguished Professor Emeritus, was presented the Lifetime Achievement Award by the Seafood Science and Technology Society. The presentation was made at the fourth Trans-Atlantic Fisheries Technology Conference in Clearwater Beach, Fla., in November 2012. The award is presented once every three years to a scientist who has made significant contributions in the field of seafood science and technology. The award is open to scientists in North, Central, and South America, as well as all European and Eastern countries.

Flick has planned, conducted, and published research funded by more than $20 million in external grants and contracts. His research program has saved jobs and provided valuable scientific and technical assistance to the fish and shellfish industry. Flick established the Seafood Agricultural Research and Extension Center in Hampton, Va., as well as the Aquaculture Extension Facility in Saltville, Va. He also established the world’s first graduate curriculum in Health Product Risk Management.

Williams Receives Teaching Excellence Award

Robert Williams, FST associate professor, received the CALS 2012 Certificate of Teaching Excellence award. Williams earned a 3.8 rating out of a possible four points from his students. He was presented his award during the college’s commencement ceremonies on May 12, 2012.

“I know that Rob challenges his students to solve food safety problems and to develop critical thinking skills,” said Professor Joe Marcy, FST department head. Williams urges his students to move beyond the “what” and explore the “why.”

“I do not believe that teaching is confined to the classroom,” Williams said. “It is my goal that each graduate student contributes to the development of his or her research program and performs projects independently.”

Williams, who has been teaching for nine years, is credited with keeping the department abreast of current issues and technologies and with creating an online class, “Good Agricultural and Manufacturing Practices.” Govindaraj Dev Kumar, a graduate of Virginia Tech, said the online class was the inspiration for his dissertation project.

“The best feature of the class was that it encouraged students to think and analyze problems instead of just introducing them to facts,” said Dev Kumar, who completed his master’s and Ph.D. under the guidance of Williams. “Williams’ ability to inspire students and metamorphosize them into thinkers and scientists is a gift,” Dev Kumar said. “I am truly thankful to have Williams as my advisor.”

Ashwini Benedict, an alumnus with a bachelor’s degree in biology, noted the depth of Williams’ experience and knowledge. Before Benedict’s final semester at Virginia Tech, he was still unsure about his career path. That changed in the spring semester of his senior year when he took Williams’ food microbiology course. Williams’ lectures inspired Benedict to pursue graduate studies in microbiology and infectious diseases at George Mason University.

“Williams presented the material with ease and humor in a way that captured the students’ attention, allowing us to effectively absorb the concepts,” Benedict said. “For example, he would associate his personal anecdotes with the subject matter, relating normally abstract concepts to daily life which made them more universally appealing.”

Schwarz Elected President of WAS

Mike Schwarz, Ph.D., was elected president of the World Aquaculture Society. This is a huge accomplishment and recognizes Schwarz’s professional accomplishments in aquaculture. Schwarz is the Extension seafood specialist at the Virginia Seafood and Agricultural Research and Extension Center in Hampton, Va. His research and extension focus area is recirculating aquaculture larval culture development for emerging species.
The Master Food Volunteer Program

The Master Food Volunteer Program was launched in 2009 to help family and consumer science Extension agents reach more Virginians with information about the importance of good nutrition, healthy living, and food safety.

“According to the Centers for Disease Control and Prevention, 62 percent of adult Virginians and 20 percent of the youth are overweight or obese and at risk of chronic disease,” said Melissa Chase, state coordinator of the Master Food Volunteer Program. “There is a critical need for educating consumers to improve overall health and quality of life in Virginia. Our volunteers are helping to fill this need.”

With fewer than 30 full-time family and consumer science agents scattered across the state and the demand for nutrition and food information on the rise, their presence has been welcomed. There are more than 78 certified volunteers located throughout the state, and more volunteer training classes are scheduled in the near future.

“By training and organizing volunteers, our agents in the communities can multiply the number of people they can reach with educational programs and have a greater impact than if they were teaching the classes by themselves,” Chase said.

Volunteers pay a small fee to receive 30 hours of training over four weeks. They learn about basic nutrition, meal planning, cooking techniques, food safety, and how to work with diverse audiences. This is hands-on, research-based training that they receive before they appear in a class setting.

After completing the training program, volunteers can select venues where they will share their newfound expertise. “Some may go into the school system and teach youth about eating healthy. Others may do demonstrations of safe preparation and storage of local foods at farmers markets around the region. Or they can choose to do health fairs, in which case they would maintain an educational exhibit with nutritional information set up to help the public. The opportunities are endless,” Chase said.

Graduate School Diversity Scholar

The first cohort of diversity scholars from the Graduate School at Virginia Tech presented results of their research projects and initiatives during the diversity spotlight event in May 2012. FST doctoral candidate, Anibal Concha-Meyer (Valdivia, Chile), was one of 13 students in the program.

Concha-Meyer’s project included an initiative to create diversity awareness in the Virginia Tech community by bringing together students from different cultures who share the same Hokie pride. Concha-Meyer enlisted the services of the University Relations video team to create a short video in which the popular chant, “Let’s go Hokies,” was expressed by different cultures in their native languages. Groups were filmed at locations on campus that are part of the Hokie identity, such as Burruss Hall, Lane Stadium, and the Duck Pond. The video included American and international members of the Virginia Tech community wearing maroon and orange Hokie clothing. Languages included in the video were Chinese, Hindi, Arabic, Spanish, French, Serbo-Croatian, and English.

Concha-Meyer’s video demonstrated that even though the Virginia Tech community is diverse and many cultures, religions, and languages coexist here, the pride of being a Hokie unites every single student, staff, faculty, and alumni. Four other FST graduate students were featured in the video: Liyun Ye, Raul Saucedo, Jian Wu, and Hassan Masri.

Diversity scholars are graduate students who specialize in, and advocate for, the awareness, knowledge, and skills associated with diversity and inclusion in the graduate school and greater community. Students in the program are responsible for conducting research studies and initiatives as part of their program. The goal of the diversity scholars program is to generate dialogue, provide advocacy, and implement change to lead to a more diverse and inclusive experience for all graduate students, staff, faculty, and administrators.

The video can be found at: http://www.unirel.vt.edu/audio_video/2012/06/062712-letsghokies.html
Mineral Content of Water Effects
Cow Health and Dairy Product Quality

Cows drink nearly 30 gallons of water a day while they are lactating. Because milk contains 87% water, water quality is important. Mineral composition of milk can be altered if the mineral content in the water is unbalanced.

Western dairy farms are seeking alternative sources of drinking water to reduce the burden on natural groundwater reservoirs. High levels of minerals, such as iron and copper, may be found in some water sources.

Susan Duncan, FST professor; Katharine Knowlton, dairy science professor; and Andrea Dietrich, civil and environmental engineering professor, are leading research into how excess amounts of iron and other minerals impact dairy cow productivity and health, nutrient digestibility, milk synthesis, and dairy product quality. The research will provide preliminary data for establishing mineral recommendations for water reuse in dairy herd health.

“Excess amounts of iron and copper in milk can lead to flavor problems, making it taste bad,” Duncan said. “Additionally, changes in the milk’s mineral composition may reduce the quality of manufactured dairy products, such as cheese and yogurt.”

Questions to be answered through this research include:
Will the cow’s natural response to excess iron in the water protect the calf by maintaining the normal milk calcium content? If so, will this cause changes in the cow’s metabolic mineral balance at the expense of her bone health? Will iron from the water source change the way the cows synthesize milk proteins so that there are more iron-binding proteins in the milk?
Changes in milk composition can impact the quality of dairy products, which may be noted by a decrease in flavor, odor, and texture, and a shortened shelf life of milk and dairy products, Duncan said.

Georgianna Mann, FST graduate student, is conducting the initial studies on milk composition and processing. Aili Wang, FST doctoral student, is examining the changes in milk proteins. Xin Feng, dairy science doctoral student, is studying the effects on cows. Katherine Phetxumphou, civil and environmental engineering graduate student, is evaluating the chemistry of water on dairy farms in Virginia.

Food Science Student Numbers and Salaries

Every other year, OPUS International surveys all U.S. universities that have an IFT approved food science program in order to obtain accurate numbers of undergraduate and graduate students currently pursuing a food science degree. In 2006, there were only four programs in the United States that had over 100 undergraduates. In 2012, 37 accredited schools were surveyed. There were 18 programs with over 100 students and some had over 200. The number of graduating seniors has increased by 59%, from 473 to 751. The total number of students in undergraduate programs today is 3,547. Virginia Tech and Michigan State reported 131 students, and they tied for seventh in undergraduate numbers. The top three universities were Ohio State, Penn State, and UC Davis, all with over 200 undergraduates. Virginia Tech currently has 22 residential graduate students, making us 16th in the nation. The survey also asked for the number of students who receive their bachelor of science and go on to graduate school; Virginia Tech ranked 14th in the nation.

Food science students graduating with a bachelor’s made a median salary of $65,000 in 2011. Food science was grouped with eight other degree options under agriculture and natural resources majors, and it topped the list. This group included forestry, agriculture economics, plant science, and animal science. Median earnings for people in this group were $50,000.

New Course Offered

A new special topics course is being offered for the 2013 spring semester. Emotions and Food Journal Club (FST/AEE 5984) is a multidisciplinary research discussion about food and emotions. Faculty and students from around campus gather on Mondays to explore and discuss current published literature in a journal club format. Later in the semester, nationally recognized guest speakers will participate in the class.

The study of emotions associated with foods is an emerging area of research for both academic and industry researchers. It involves many disciplines including food science, nutrition, psychology, communications, education, computer-human interface, and neurobiology. The published research literature that explores the connections between emotions and foods is starting to grow yet the gap in communication among the interested disciplines is still large.

The course leaders are Susan Duncan, Food Science and Technology, and Rick Rudd, Agricultural and Extension Education. Julie Dunsmore, Psychology, will also contribute to the class. Topics include a review of neural basis of emotion in context to food, qualitative tools for measuring emotional response to foods, and many others.

Product Development Teams

The department boasts six product development teams that have created innovative formulations for Institute of Food Technologists (IFT), IFT Disney, the Dairy Research Institute, Developing Solutions for Developing Countries, the Heart Healthy competition, and Danisco.

The Disney IFT team submitted Mousse Scoops, bite-sized frozen treats consisting of a gluten-free, multi-grain waffle bowl containing chia seeds coated in garlic-infused dark chocolate, a strawberry slice, and covered with frozen vanilla yogurt.

The Heart Healthy team introduced “Trout-Dogs,” a healthy alternative to high fat sausages. This Cajun-inspired creation was made from Rainbow trout and Cajun herbs formed into link sausages.

Jason Levy (Middletown, N.J.), Tony Lukas (West Allis, Wis.), Melanie Dorenkott (Columbus, Ohio), Andi Stone (Stafford, Va.), Susie Coleman (Richmond, Va.), and Brett Driver (Blacksburg, Va.) have developed “Yo-Go Veggie Dip” for the 2013 Heart Healthy competition.

The Developing Solutions for Developing Countries team finished second. Students developed Uji-mate to help solve vitamin A deficiency in Kenya. Mango production is high in Kenya, but lack of post-harvest technology results in most mangoes being wasted. The team processed mangoes into a powdered supplement that Kenyans could use with their staple porridge, Uji. The team included, Emily Duckett (Christiansburg, Va.), Alaina Herrera (Woodbridge, Va.), Jian Wu (Beijing, China), Liyun Ye (Jiangsu Province, China), Angelique Ameerally (Charlotte, N.C.), and Fatema Girnary (Burke, Va.).

For the Natural Coloring Food Product Development entry, beet juice was used to improve the color of veggie burger patties. Healthy red velvet cake, made with vegetables for coloring and fiber, and a probiotic frosting also went to the finals.

Doctoral students, Margo Duckson (Sanford, N.C.) and Raul Saucedo (Chiriqui, Panama), and master’s student, Matt Boling (Blacksburg, Va.), developed Albert’s Quinoa Cookie Bars for the Danisco Knowledge Award Competition. The product was a gluten-free cookie/granola bar with a pistachio cream filling and quinoa. The team placed sixth out of 15 entries from nine universities.

The Dairy Research Institute entry is an MRE milkshake with Chia seeds, probiotics, and wheatgrass.

Virginia Tech

Invent the Future

College of Agriculture and Life Sciences
Fortified Yogurt as a Vehicle for Omega-3 Fatty Acids

Many consumers want to increase omega-3 fatty acid intake, but they find it difficult to consume American Heart Association recommended levels. FST research found that it may be possible to achieve the suggested daily intake in a single serving of yogurt.

The Journal of Dairy Science featured the study and identified the research as a potential market for savory fish-oil fortified yogurts.

“The international popularity of yogurt and the health-promoting properties associated with probiotics, minerals, vitamins, and milk proteins suggest yogurt could be an excellent vehicle for the delivery of n-3 fatty acids,” says lead author Susan Duncan. “Recent innovations in exotic yogurt flavors provide innovation opportunities. We tested four ratios of butter oil to fish oil in a savory chili and lime flavored yogurt. The successful formulation delivered 432 milligrams of heart-healthy fatty acids per cup, close to the 500-milligram daily target for healthy people suggested by a broad range of health studies. The U.S. Department of Agriculture suggests daily consumption of 250 milligrams per day in healthy adults.”

“We were concerned the fish oil would undergo oxidation, which would shorten the milk’s shelf life, or the milk would acquire an off flavor by reacting with the fish oil. It appears we have a product that is stable, with no chemical taste or smell issues,” says Duncan.

“We milk was first fortified with Vitamin D as a way to fight rickets — a disease that leads to soft or weak bones,” said Kerry Kaylegian, a dairy foods research associate with Penn State’s College of Agricultural Sciences, who was not involved in the research. “It was a good approach to address a dietary deficiency disease, because so many people drink milk, which is already loaded with nutrients. This study describes fortification of milk with omega-3 fatty acids EPA and DHA. We can’t say lack of those compounds definitively causes cardiac disease, but there is evidence that they protect us and contribute to heart and brain health. Milk would be a good delivery vehicle for those nutrients.”

Alumni Updates

Brian Sheldon (Ph.D. ’79) retired in 2007 after 30 years of service in the Departments of Food Science and Technology and Poultry Science at North Carolina State University. He is now professor emeritus.

Twyla Smith (M.S. ’11) is a Quality Assurance supervisor for A.M. Briggs in Washington, D.C.

Nora Fabiola Ocampo-Garcia (M.S. ’10) is a Quality Control, Food Safety and Organic Integrity Supervisor at Earthbound Farm in San Juan Bautista, Calif.

Mark Kline (M.S. ’07) began working at Hershey’s in January. He is a Staff Scientist working on peanuts and treenuts.

Mark Ritter (B.S. ’83) is the International Sales Director for SunOpta Ingredients Group in Glastonbury, Conn.

Dina (Romano) Price (M.S. ’08) is a Food Technologist for Oh Boy! Oberto in Kent, Wash. Oberto is a family owned company that makes jerky and sausages.

FFA Food Science Career Development Event

FST hosted the State FFA Food Science CDE in October. Of the four teams that participated, Central High School (Woodstock, Va.) placed first in the contest. Team members were Kali Fravel, Thomas French, Justine Jordan, and Jackie Walsh, coached by Sherry Heishman. Kali received top individual at the contest, while Justine and Jackie placed second and third, respectively. The Fort Defiance High School team (Fort Defiance, Va.) placed second, and East Rockingham High School (Elkton, Va.) came in third at the state level. Central went on to compete at the 85th Annual National FFA Convention and Expo held at the Indiana State Fairgrounds in Indianapolis, Ind. There, the team received a silver emblem rating and came in 12th out of the 42 participating teams. Justine, Jackie, and Kali were silver emblem individuals, and Thomas received a bronze emblem.
Activities for research and product development in the FST Sensory Lab have increased over the past few years, increasing the need for more sensory participants. While FST students, staff, and faculty are dedicated participants, there is a need for increased participation from outside the department.

FST undergraduate students put their academic knowledge into action to help a local small business build into a successful corporation. The day of the Virginia Tech Spring Football Game, a “tailgate sensory study” was conducted to determine how much football fans enjoyed Pennsylvania Pork Company’s pork sausage and soup products. A representation of the general population was needed, which required a minimum of 200 participants.

The Pennsylvania Pork Co., a locally owned business built upon family recipes for pork sausage, partnered with students enrolled in the Principles of Sensory Evaluation course (FST 4024) taught by Susan Duncan, Ph.D. Students worked under the direction of Duncan and in cooperation with Nathaniel Haile, owner of Pennsylvania Pork Co., as they applied concepts learned in class. Students collected, analyzed and interpreted the data to draw conclusions and make recommendations regarding the product. A student executive panel provided an oral report to Haile as a culmination of the project.

In November, a marketing campaign called “serving science and society” was launched. The program provided incentives that helped participants feel good about participating in sensory research. Panelists were rewarded for their participation with a gift card as well as canned foods (total value about $5). Panelists kept the gift card and had the option to donate the canned food to the Montgomery County Emergency Assistance Program (MCEAP).

Sensory Lab activities range from class laboratories, product development student teams, student research (high school, undergraduate, graduate), and contract research with industry. If your company needs sensory assistance, please contact Susan Duncan (duncans@vt.edu; 540-231-8675). Gifts to the Virginia Tech Foundation, Sensory Evaluation Account or contributions of full value coupons or gift cards are gratefully accepted for assisting with the cost of incentives for the sensory evaluation program.

FST Staff Retirements

Three veteran FST staff members retired on July 1, 2012. We wish them well, but we will miss their substantial knowledge and their friendship and support as colleagues. Harriet Williams, Walter Hartman, and Brian Smith contributed a combined total of 75 years of service and experience to our department. They have touched the lives of many in the FST family and the Virginia Tech community.

Harriet Williams was in charge of instrumentation and building maintenance. She began working in the Department of Food Science and Technology in 1972, specializing in fruit and vegetable research. Later, she became involved in almost every aspect of food science research, as well as instructing many food science lab classes and workshops.

In 1990, Brian Smith transferred to FST from the Department of Plant Pathology and Weed Science. He oversaw microbiology labs and was an expert in handling anaerobic microorganisms. Smith trained many students in microbiological techniques, and he served as food microbiology teaching lab coordinator for many years.

Walter Hartman joined the department in 1983 as the dairy pilot plant manager. He served as an instructor for many laboratory classes and provided research support to faculty, staff, and students. Hartman also coached the dairy products judging team and traveled around Virginia to assist dairy processors when they needed to troubleshoot problems at their facilities.

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All three have helped “generations” of faculty, graduate students, and undergraduate students with research and teaching by sharing their knowledge, skills, and enthusiasm. We wish them all the best for the future.

A reception was held on May 31 at Hahn Pavilion to celebrate their years of dedication and to wish them a fond farewell.
FST Researchers Create Global Aquaculture Market

Each year, millions of oysters are grown in Virginia hatcheries and released into the Chesapeake Bay, resulting in millions of dollars for the state’s economy. In 2011, hatcheries began seeing unexplainable deaths of billions of larvae. To address the issue, David Kuhn, FST assistant professor, and other university researchers conducted first-ever water quality tests in Virginia’s oyster hatcheries. The researchers suspect the high mortality rate at the hatcheries may be caused by polluted water pumped in from the bay, and they plan to install filters or treat the water.

“There has never been a water-quality program where the hatcheries are located,” Kuhn said. “This is important data for anyone concerned about the bay.”

“We’re trying to look at a wide range of variables that could be contributing to the high mortality rates,” said Daniel Taylor, FST senior research specialist. “In the end, we could present some kind of solution where one mitigation effort will assist with another one, and we could come up with a program that addresses one or two issues simultaneously.”

Once the reason for the larval die-off is identified, Virginia Tech can take several measures to remedy the problem. If the problem is ocean acidification, calcium and bicarbonate can be added to the water. Filters also can be used to remove pollutants from the water and to inactivate disease-causing bacteria.

Kuhn’s work is only one of the aquaculture projects around the commonwealth in which Virginia Tech researchers are involved. Other environmentally sustainable programs focus on water chemistry, ocean acidification, and pathogenic bacteria, which cause disease in fish and shellfish.

“Out our efforts in aquaculture around the state are helping make Virginia a competitor in the growing global market,” Kuhn said.

“From the corners of Southwest Virginia to the Chesapeake Bay, Virginia Tech is involved in a variety of projects to help aquaculture drive the economy and help save the environment,” said Joe Marcy, FST department head.

2012 Spring Awards Celebration

Food Science and Technology’s annual awards recognition ceremony was held on April 26th. Following the awards presentation, a cookout and picnic was hosted at the Department.

Departmental and Industry Awards:

Elizabeth Chin (Herndon, Va.)
Boyd-Arline Award

Julie McIntire (Sterling, Va.)
FST Achievement Award

Courtney Beckett (Paterson, N.J.)
Paul Large Scholarship

Shane Pasch (Virginia Beach, Va.)
Anne Ickes (Lewisburg, W.Va.)
W.F. Collins Scholarship

Amanda Salinas-Jones (Pulaski, Va.)
Brandon Pov (Ridgeway, Va.)
Harvey Scott Scholarship

*Andrew Smithson (New Cumberland, Pa.)
R.F. Kelly Award

*Ashley Rose (Chesapeake, Va.)
Mid-Atlantic Dairy Food Boosters, Inc.

Amanda Salinas-Jones (Pulaski, Va.)
*Marvin Poster Memorial Scholarship

Caroline Ryan (Downington, Pa.)
Robert Whitman Award

*Daryan Johnson (Belleville, Ill.)
*Georgianna Mann (Marietta, Ga.)
Dairy Recognition & Education Foundation

Clara Hintermeister (Oakton, Va.)
IDFA Award

National Awards

Elizabeth Chin (Herndon, Va.)
Byer Scholarship

* Awards presented to recipients at the 2012-2013 Scholarship Banquet held at The Inn at Virginia Tech on September 13, 2012.
Food Science Club (FSC) Update

The Food Science Club was very active during the fall semester. In September, the club set up a booth at Gobblerfest where interested students could try a variety of spicy peppers such as Poblanos, Habaneros, and Serranos. After they tried the peppers, they won a popsicle to help with the heat.

October was the month for recruiting dinners. ConAgra came on October 2 to talk about job and internship opportunities. Hillshire Brands Company visited on October 11. During the meeting, Liz Royston (Treasurer) and Julie McIntire (FSC member) gave presentations on their summer 2012 Chicago internships.

The club participated in Oktoberfest, held in the Hahn garden. Members sold plate dinners of German sausages and other food items. A special thank you to Susan Duncan, Ph.D., for sending volunteers from her Functional Foods class and to the FST graduate students for their assistance. They put a great amount of effort into the event.

At the November 15 meeting, club and non-club members made their very own Sauerkraut. Students went through the entire process and were able to take home a small jar for themselves to let ferment for four to six weeks.

A new group for the Food Science Club was added to the Facebook page. FSC members can join and view updates, events, and upcoming meetings.

Extra Mile Award

Anibal Concha-Meyer, FST Ph.D. candidate, was the recipient of the 2012 Extra Mile Award. The award was presented by Payton Pruett (M.S. ’90, Ph.D. ’93) and Richard Linton (M.S. ’91, Ph.D. ’94). Pruett and Linton established the scholarship in 2010. Each year, one FST graduate student is selected for leadership skills, peer mentoring, teaching, research, publishing, creativity, and service.

Outstanding Ambassador Award

Jason Levy, FST M.S. candidate, received the Outstanding Ambassador Award for 2012. Ambassadors represent the CALS student body and must demonstrate exceptional leadership and service skills. They are active as tour guides for prospective students and their parents, they represent the College at university sponsored recruiting events, and they serve as hosts and hostesses at alumni events. Levy has chaired meetings, organized brown bag lunches on generational diversity in the classroom, and even endured long hours on exercise equipment at McComas Hall to get the perfect photo for marketing materials. His enthusiasm helps motivate his fellow ambassadors to be better leaders. When Levy received the award, he was an FST senior conducting undergraduate research and serving as a peer leader to freshman. He is a member of the Food Science Club, the Food Product Development Team, and the Triathlon Club.
Staff Awards

Mary Mainous, laboratory technician, was the January employee of the month. Her knowledge of laboratory procedures and equipment and willingness to provide assistance positively impacts her colleagues. Her excellence at conducting research, organizing the laboratory, and her meticulous record keeping are an asset to the department.

Dianne Bourne, laboratory and research specialist, was selected employee of the month in March 2012. Bourne has been an employee at Virginia Tech for 44 years. She identifies potential projects for extramural funding and assists with grant preparation. She is excellent at designing and conducting microbiological research studies, and her meticulous laboratory work and analysis of data have earned respect in government agencies, private industry, and amongst colleagues. In July, Bourne was named the 2012 CALS Employee of the Year. This monetary award is how the college honors a staff member who demonstrates enthusiasm and commitment, excels in professionalism, and takes the initiative to perform beyond the expectations of regular work assignments.

Kim Waterman, laboratory and research specialist, received the Laboratory Employee Professional Development Network’s (LEDPN) Individual Staff Award for Outstanding Performance in Labs in October 2012. The award recognized Waterman for providing leadership and training, ensuring safety requirements are met, assisting with assays and data collection, and mentoring on more than 50 undergraduate and graduate research projects. She is also active in teaching undergraduate and graduate labs, managing teaching assistants, preparing equipment and course materials, and developing new material.

Outstanding Senior Award

Elizabeth Chin, of Herndon, Va., received the 2012 Outstanding Senior Award for FST. In addition to her Food Science degree, Chin also majored in biological sciences and minored in chemistry. She graduated with honors and was named to the dean’s list every semester, while enrolled in 15-22 credit hours per semester. Since her first semester at Virginia Tech, she was involved in undergraduate research. She served as Food Science Club president, led the Product Development Team, and was a member of the college quiz bowl team. Her summers were also busy with internships at Hershey and PepsiCo. Chin is now at UC Davis pursuing a Ph.D. in Food Science.

FST’s College Bowl Team

Virginia Tech hosted the Central Atlantic Area Meeting and the area College Bowl competition on Saturday, April 14, 2012. Team members included undergraduate students, Fatema Girnary and Tori Linville, and graduate students, Katie Goodrich and Margo Duckson. Four teams participated: University of Delaware, University of Maryland, North Carolina State University, and Virginia Tech. NC State won the competition.

On Friday night after the teams arrived, FST’s team hosted a mixer and dinner at Hokie House. Saturday morning, before the competition, the team provided breakfast followed by a tour of campus. After the competition, the teams dined together at Bull and Bones.
Fall 2012 Dean’s List

Thet Aung, senior, Herndon, Va.
Joshua Burch, junior, Prince George, Va.
Anna Cala, junior, Alexandria, Va.
Kevin Carny, freshman, Downington, Pa.
Christopher Caver, junior, Hampton, Va.
Moomyong Choi, senior, Vienna, Va.
Emily Clarke, junior, Fairfax Station, Va.
Samantha Cooper, senior, Alexandria, Va.
Victoria Dowling, junior, Cincinnati, Ohio
Kendall Fogler, freshman, Manasquan, N.J.
Andrew Gilley, junior, Bel Air, Md.
Laura Gotthardt, junior, Hillsdale, N.J.
Ryan Henson, senior, Williamsburg, Va.
Clara Hintermeister, senior, Oakton, Va.
Samantha Hunt, senior, Pulaski, Va.
Anne Ickes, sophomore, Lewisburg, W.Va.
Tamzin Kaiser, sophomore, Blacksburg, Va.
Adam Kienzle-Pappala, senior, Greensburg, Pa.
Melissa Limbaugh, senior, Glen Allen, Va.
Amanda Marx, freshman, Oakton, Va.

Julie McIntire, senior, Sterling, Va.
Jordan Newkirk, junior, Centreville, Va.
Ian Niblock, junior, Lovettsville, Va.
Shane Pasch, junior, Virginia Beach, Va.
Nicholas Peavy, sophomore, Mount Airy, N.C.
Allison Piesiczko, junior, Lansdale, Pa.
Ashley Rose, senior, Chesapeake, Va.
Elizabeth Royston, senior, Shamong, N.J.
Caroline Ryan, junior, Downingtown, Pa.
Amanda Salinas-Jones, sophomore, Pulaski, Va.
Haleigh Simonpietri, junior, Fredericksburg, Va.
Stephanie Such, junior, King George, Va.
Michael Torti, senior, Downingtown, Pa.
Nicole Van Schaack, freshman, Wall N.J.
Nathan Walters, senior, Wytheville, Va.
Christina Weaver, senior, Hockessin, Del.
Marilyn Wingfield, senior, Appomattox, Va.

FST Outstanding Alumni Awards

Corey Berends (Ph.D., ’96) was awarded the FST 2012 Outstanding Alumnus Award (10+ years). Berends is Vice President of Grocery, Dairy, and Culinary Research and Development for ConAgra Foods in Omaha, Neb. He has published several research papers and is author of several food-packaging patents. Corey is Chairman of the FST Advisory Board and serves on the department planning committee for the new HABB1 building and pilot plants.

Angela Hartman (B.S. ‘99, M.S. ’03, Ph.D. ’06) received the 2012 Outstanding Recent Alumnus Award. She is a Senior Research Scientist at Pfizer R&D headquarters where she has led several multi-disciplinary poultry and cattle vaccine development projects.

She has received seven Individual Performance Awards at Pfizer in the past two years. Hartman has worked with several CALS departments to provide students job opportunities at the Grocery Manufacturers Association and at Pfizer.

Robert (Bob) Reinhard (B.S. ’94, M.S. ’95) received the 2013 Outstanding Alumnus Award. Reinhard is Vice President for Food Safety, Quality, Regulatory Affairs, and Technical Services for The Hillshire Brands Company. Reinhard is an active member of the Virginia Tech Alumni Association and is on the FST Advisory Board. He developed an intern and graduate hiring program between Sara Lee/ Hillshire Brands and the Virginia Tech College of Agriculture and Life Sciences and he contributes to the FST scholarship program.

John Koontz (B.S. ’00, M.S. ’03, Ph.D. ’08) was the recipient of the 2013 Outstanding Recent Alumnus Award for FST. He is a principle investigator and chemist at the FDA Center for Food Safety and Applied Nutrition (CFSAN), where his research focuses on food packaging safety. Koontz developed a Thermal Processing Specialist certificate program in collaboration with IIT scientists at the National Center for Food Safety and Technology, and he has received the CFSAN 2010 Honor Award. Koontz is Communications Chair for the Chicago Chapter of the Virginia Tech Alumni Association, and he is on the Scholarship Selection Committee.

Spring 2012 Dean’s List

Sharon Auria, junior, Pittsburg, Pa.
Nathan Briggs, senior, Herndon, Va.
Zoe Brilakis, junior, Washington, D.C.
Elizabeth Chin, senior, Herndon, Va.
Samantha Cooper, senior, Alexandria, Va.
Alaina Herrera, senior, Woodbridge, Va.
Clara Hintermeister, senior, Oakton, Va.
Anne Ickes, sophomore, Lewisburg, W.Va.
Tamzin Kaiser, sophomore, Blacksburg, Va.
Julie McIntire, junior, Sterling, Va.
Shane Pasch, junior, Virginia Beach, Va.
Nicholas Peavy, sophomore, Mount Airy, N.C.
Caroline Ryan, junior, Downingtown, Pa.
Amanda Salinas-Jones, sophomore, Pulaski, Va.
Haleigh Simonpietri, junior, Fredericksburg, Va.
Andrew Smithson, sophomore, New Cumberland, Pa.
Michael Torti, junior, Downingtown, Pa.
Christina Weaver, senior, Hockessin, Del.
Marilyn Wingfield, senior, Appomattox, Va.

College of Agriculture and Life Sciences
Research Highlights

Bovine lactoferrin may reduce metallic flavor perception
Taste disorders are a common trait among many aging individuals. One such result of these disorders is an increased sensitivity to metallic flavor. A study was conducted to determine whether lactoferrin administration, a milk protein known to react with metallic iron ions, could reduce one’s perception of metallic flavors. When lactoferrin was present in a pre-rinse, an 11 percent reduction was observed after exposure to an iron solution. Lactoferrin could be an affordable method of reducing the side effects associated with taste disorders.

Antimicrobial effects of thymol, eugenol and cinnamaldehyde in combination with apple flavorants
Thymol, eugenol, and cinnamaldehyde are potent antimicrobials, but their uses are limited by their negative organoleptic effects and limited solubility. Their efficacy, in combination with naturally occurring apple flavorants (hexanal, 1-hexanol and trans-2-hexanal), was evaluated for the purpose of lowering effective concentrations needed to inhibit pathogen growth. Eugenol, in combination with hexanal, 1-hexanol and trans-2-hexanal were effective in preserving apple-based food products without altering the natural profile of the food.

Controlling light oxidation in milk with packaging films
Milk packaged in translucent containers is susceptible to oxidation and nutrient degradation from light exposure. Film overwraps were investigated for their ability to protect nutrients. Packaging that provides a complete light block was found to be the best way to prevent oxidation.

Potential cross-contamination in retail delis
A study focusing on bacteria travel and contamination throughout a deli setting concluded that certain locations in a deli, such as the meat slicer, prep table, and employee gloves, were particularly prone to contamination. Contamination pathways were traced using GloGerm and other materials. The data gathered revealed how deli meat can be contaminated and where bacteria should be monitored in the deli.

Top Food Trends
Healthy eating continues to be in the spotlight for Americans, with 80 percent of the population making an effort to eat healthy. Sales of functional foods and beverages were estimated at $38 billion, and the U.S. healthy foods sector boasts sales of about $140 billion. Oatmeal and yogurt are the products most frequently purchased for their specific health benefits.

Eating more vegetables and fruits and limiting processed foods were the most important components of healthy eating. Sales of foods and beverages that carried a high fiber claim reached $4.2 billion in supermarkets; sales of foods labeled multigrain totaled $1.8 billion.

Organic food sales reached $23.4 billion, and natural food sales were $18 billion. Antioxidant-rich green tea is now the most-consumed tea in the United States. Sales of foods and beverages carrying an omega-3 claim reached $1.8 billion in U.S. supermarkets. Orange juice, followed by cranberry juice, is the beverage most purchased for its nutritional benefits.

Locally sourced meat and seafood top the list of trendy main dishes, followed by sustainable seafood, half-portions and smaller portions, and lower-sodium entrees.

Diabetes and obesity are the top two health conditions that food is used to prevent. More than a billion episodes of cold and flu occur in the United States every year; so 44 percent of consumers are looking to functional foods and beverages for an immune boost. With 83 million Americans already afflicted with some form of cardiovascular disease, the market for heart-healthy products is shifting from general heart health to risk factor reduction. One in five consumers is affected by gastrointestinal issues; digestive health remains a highly sought-after functional food benefit.

Healthy kids’ meals top the list of hot fast food menu items. Choline is the popular ingredient for baby, infant, and toddler foods. Healthy kids’ retail foods are a missed opportunity, with only 40 percent of the $10 billion kids’ food and beverage market. This market is projected to grow to $14 billion by 2014.

David Kuhn Has a Daughter
Assistant professor, Dave Kuhn, Ph.D., and his wife, Meghan, welcomed their first child into the world on October 10, 2012. Ella Beatrice Kuhn (Ella B.) was born at 11:19 p.m. She weighed 8 pounds, 1 ounce, and she was 20.5 inches long.
FST Alum Develops “Most Innovative” Product

Vanessa Teter (M.S. ‘06) developed a new cultured dairy product that received top honors at The Most Innovative Dairy Products Competition in May, 2012. The competition is sponsored by TIC Gums as part of the International Dairy Foods Association’s Milk and Cultured Dairy Products Symposium in Kansas City, Mo. Teter developed the Apple Pie Parfait, which features pieces of real apple and a cinnamon-crunch crust topping for an authentic apple pie taste. “Yogurt-based desserts are a growing trend going into 2012, but pie without the crust just isn’t pie,” said Teter. Teter is Product Development Manager for The YoCrunch Company. “Our new Apple Pie Parfait, one of three in our Pie Parfait line, is the first yogurt in cups to offer real homemade pie taste complete with the satisfying crunch of crumbly crust.”

The Symposium explored cutting-edge innovations in the use of ingredients, processing technology, analytical methods, packaging and product development for milk, dairy beverages and cultured products such as yogurt, sour cream, buttermilk, and cottage cheese.