

ANFS Scratchings

The Newsletter of the Department of Animal and Food Sciences at the University of Delaware

Issue 5

December 2011

Message from the Chair

The Department is concluding a busy and exciting year. Four faculty members joined ANFS in 2011. In September, two new hires, Erin Brannick and Behnam Abasht came aboard, and two faculty members, Eric Benson and Hong Li moved over from Bioresources Engineering (BREG) to ANFS. Details on our new colleagues appear in this newsletter.

Dr. William Saylor retired after more than 30 years of service to UD. Many students were fortunate to have Bill in his sophomore level core class "Animal Nutrition" and his upper level "Monogastric Nutrition" course. Dr. Conrad Pope also retired this year after 25 years of service. Although Conrad taught some formal courses in "Animal Histology" in concert with UD Department of Biological Sciences faculty, much of his teaching involved one-on-one research instruction with upper level undergraduate and graduate students. Dr. Saylor and Dr. Pope continue to live in the area and stop by the Department to visit.

I also wanted to give you a little background on our students in ANFS. Undergraduate ANFS degrees continue to be sought-after by prospective students. In 2011, 94 new Blue Hens enrolled in the following majors; 12 in Food Science - a nice increase over previous years, 14 in Animal and Food Sciences, and 68 in Pre-veterinary Medicine and Animal Biosciences. We continue to be attractive to students from states in the Mid-Atlantic region DE (29), NY (19), PA (15),

NJ (13), MD (4), DC (3), and southern New England, CT (7) but also had students from outside the area; CA (2), OH (1) and TX (1). Female students represented 86% of the class. ANFS students make up about 60% of the undergraduate student body in the College of Agriculture and Natural Resources.

Our graduate programs continue to grow with the addition of our new faculty. Currently we have 28 students, 16 of which are pursuing the PhD and 12 the MS degree.

Eighty-two students earned BS degrees and nine students were awarded graduate degrees at ceremonies in January, May and August 2011. Many of our undergraduates seek admission to graduate or professional schools. Ten to fifteen students are admitted each year to veterinary schools such as University of Pennsylvania, Virginia-Maryland Regional Veterinary College, University of Georgia and Kansas State, to name a few.

We are very proud of our student's accomplishments and love to hear from alumni. We are planning to expand our internship opportunities for our students, so please let us know if this is something you might like to help us with.

Happy Holidays and best wishes for 2012.



Jack Gelb, Jr.

ANFS People, Groups and Events*

What difference do 50 years make?



Two broiler chickens, both of the same age. What

makes them so different? The chicken on the left is a descendent of chickens as they were in the 1950's; the one on the right is the product of 50 years of intensive breeding. More muscle mass, a four times faster growth rate and a number of other changes distinguish the modern broiler chicken from its ancestors. Not a lot is known how 50 years of selection for productivity traits have changed the genetic make-up of the chicken, but research is being done to find out more about these changes. Is it possible that chickens gained certain characteristics and lost others in the last few decades? Heat stress in poultry houses is a challenge for the poultry industry, and this problem will likely become more acute as more intense heat waves are expected in the future.

Carl Schmidt, Associate Professor in our department, is

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Edited by Rolf Joerger
and Tanya Gressley

one of the researchers trying to find an answer. He is focusing on the question, have all these efforts to produce the largest, fastest growing chickens impacted how chickens deal with heat?

Schmidt and his associate Janet de Mena, ANFS doctoral student Liang Sun, and Shurnevia Strickland, ANFS master's student, are collaborating on the research with Susan Lamont and Max Rothschild from Iowa State University and Chris Ashwell from North Carolina State University. The group received a \$4.7 million, five year grant from the Climate



Carl Schmidt candling an egg

Change Initiative of the United States Department of Agriculture's National Institute of Food and Agriculture (USDA-NIFA).

The researchers hope to identify specific gene alleles that help chickens survive heat stress. By knowing which genes are important for heat tolerance, the poultry industry could try to breed the alleles into their production lines. While it will take considerable research to find the genetic basis of differences in how chickens deal with heat stress, Schmidt has already observed a behavioral difference. The heritage birds actually are using water from their drinkers to cool themselves, while the modern chickens just stand and pant without using water for additional cooling.

Focus on Produce Safety



Hudaa Neeto, Ph.D., ANFS '11 and Haiqiang Chen in the process of treating sprout seed with high pressure

Spinach, tomatoes, cantaloupes...The list goes on of foods that have made people sick after consuming such items contaminated with pathogens. Pathogenic E. coli, Salmonella, and other bacteria, and also viruses can contaminate produce in the

field, during harvesting and distribution. Two ANFS faculty have received grants to help make food safer, particularly high-risk food that is consumed raw or with minimal processing. Cooking is a good way of killing most foodborne pathogens, but cooking also alters the nutritional and sensory characteristics of foods. Technologies that process foods without heating such as high pressure treatment are used more frequently in the food industry, but it is sometimes necessary to ascertain how such technologies need to be applied to rid the foods of as many unwanted pathogenic microbes and viruses as possible.

Haiqiang Chen, Associate Professor, serves as the project

director for a team of researchers who received a five million dollar grant focusing on the "Inactivation of Enteric Foodborne Viruses in High Risk Foods by Non-Thermal Processing Technologies." The study will focus mainly on human noroviruses,

which cause more than 50 percent of foodborne disease outbreaks. Hepatitis A virus and rotavirus will also be studied.

Kali Kniel, Associate Professor, along with Manan Sharma of the USDA-Agricultural Research Service Environmental Microbiology and Food Safety Laboratory and Jeri Barak of the University of Wisconsin, Madison, have received a grant of \$445,000 to study "Plant Responses to Foodborne Bacteria and Viruses".

The researchers will study how norovirus, pathogenic E. coli, and Salmonella colonize plants. The researchers said they are hoping that this will eventually lead them to the more effective use of antimicrobials and good agricultural practices, which will reduce the number of illnesses and harmful effects on public health.



Dr. Kali Kniel (front) and doctoral student Kirsten Hirneisen

New Faculty joining ANFS



joint appointment in 2008. Dr. Benson and his research group

Eric Benson is a recent Associate Professor transfer to ANFS. After graduating from UD with a BS in Agricultural Engineering Technology in 1996, Dr. Benson earned his MS ('98) and PhD ('01) in Agricultural Engineering at the University of Illinois at Urbana-Champaign. Dr. Benson started at UD in 2001 in the Bioresources Engineering Department and joined ANFS as a

specialize in Applied Poultry Engineering, bridging the gap between agricultural engineering and animal science. Dr. Benson worked closely with ANFS colleagues Robert Alphin and George "Bud" Malone to develop new emergency response procedures and equipment for the poultry industry. Dr. Benson, Mr. Alphin and their research group have worked on projects including electroencephalogram-based analysis of stress, development and evaluation of field and equipment disinfection procedures, and application of new lighting technologies for animal housing. Dr. Benson, his wife, Catherine, and son, Ethan (6 months), own six Siberian husky or husky mix sled dogs.

Hong Li joined the Department of Animal and Food Sciences in April this year. He came to UD in Dec 2010 as an Assistant Professor in the Department of Bioresources Engineering. Before that, Dr. Li served as associate scientist and adjunct assistant professor at the Department of Agricultural and Biosystems Engineering at Iowa State University, where he received his Ph.D. in May 2006. Dr. Li's research



interests include animal environmental control, measurement and mitigation of aerial emissions related to animal feeding operations, and assessments of impacts of environmental and management factors on production performance, behavior, and welfare of animals. Dr. Li plans to develop and teach courses in the area of animal environmental control and management.

Erin Brannick joined the Dept. of Animal & Food Sciences as an assistant professor and veterinary anatomic pathologist. She takes over from Dr. Conrad Pope who retired in September. By continuing diagnostic service for UD's Lasher Laboratory and the Salisbury, MD, Animal Health Laboratory, she contributes to disease surveillance for Delaware and Maryland poultry flocks by microscopically evaluating animal tissues. The diagnostic skills she honed during her veterinary and combined residency/graduate programs at The Ohio State University also aid researchers within the department and the university who engage in studies related to animal disease and animal models of human disease. Beyond service duties, Dr. Brannick is currently developing courses in histology (microscopic study of tissues) and the concept of "One Health"- the human, animal, and environmental health interface. Though not yet teaching, she already serves as an advisor to pre-veterinary students to impart insight on the veterinary school admission process and to build connections with students. In her free time, Dr. Brannick, her husband, and their 3-year-old twins enjoy exploring the museums, beaches, forts, and parks of Delaware and the surrounding region and often wrap up their adventures with trips to the UD Creamery.



Behnam Abasht received his Ph.D. in Quantitative and Molecular Genetics in France from INRA-Agrocampus Rennes in 2006, and his bachelor and master degrees in Animal Science, respectively, from Urmia University and University of Tehran in Iran. He then completed a postdoctoral fellowship under Sue Lamont's and Jack Dekkers' supervision at Iowa State University. Dr. Abasht was a Research Geneticist and Genomics Project

Leader at Perdue Farms, Inc. from 2008 until his appointment at the University of Delaware in 2011. Dr. Abasht's area of research is integrative avian biology with emphasis on fine-mapping and functional characterization of quantitative trait loci (QTL) in chickens, using systems-based multi-disciplinary approaches. The traits of his particular interest are adiposity, meat quality and yield and feed efficiency in meat-type chickens. He will also develop and teach a course in his field of expertise. He can be reached

by e-mail (abasht@UDel.edu) or through the Dept. of Animal & Food Sciences office (302-831-2524).

A graduate of the University of Delaware, **Laura Nemeč** was hired this past September as the Laboratory Coordinator for Animal and Food Sciences. Ms. Nemeč received a B.S. in Biology from Juniata College in 2007 and a M.S. in Animal Science from UD in 2010. As Laboratory Coordinator, Ms. Nemeč coordinates and teaches laboratory sections including Introduction to Animal and Food Science Lab, Functional Anatomy, and Dairy Production. She also assists in poultry, dairy and equine laboratories. Ms. Nemeč is also leading an effort to expand the Animal and Food Science internship database.



ANFS is developing an **internship database** for current students. Would you be interested in sponsoring an undergraduate intern? If so, please contact Ms. Laura Nemeč at nemeclm@udel.edu. Would you be willing to be featured on the **Career Services website** and share valuable career advice with current students? Please see the link at <http://www.udel.edu/CSC/spotlight.html>.

Awards and Recognitions

Limin Kung Jr. was named the S. Hallock du Pont Professor of Animal and Food Sciences. This professorship is named after a generous benefactor who supported animal husbandry research at UD for many years.

Eric Benson, Hong Li, Carl Schmidt and **Bob Alphin** received a grant for \$43,254 from the US Poultry and Egg Association to investigate new lighting technologies for poultry housing.

Eric Benson and **Robert Alphin** received \$115,000 from the USDA Veterinary Services to continue evaluation and development of emergency response procedures for poultry.

Megan Caputo (Master's student with Mr. Alphin and Dr. Benson) received the Best Graduate Student Presentation award, at the 2011 North East Conference on Avian Diseases. UD students won several awards at the annual American Dairy Science Association meeting.

Kaylin Young (Degree with Distinction B.S. student in Dr. Kung's lab) was awarded 3rd place in a national undergraduate student competition for her oral presentation on the use of exogenous protease enzymes to improve starch digestibility in corn silage. **Maris McCarthy** (M.S. student in Dr. Gressley's lab) and **Mateus Santos** (Ph.D. student in Dr. Kung's lab) were awarded 1st and 3rd place, respectively, for their oral presentations in the Northeast regional graduate competition. Mateus presented on the potential for spoilage yeasts in silage to have negative effects on rumen fermentation and Maris presented on supplementing exogenous amylase in dairy cattle diets.

Kirsten Hirneisen (Ph.D. student in Dr. Kniel's lab) was awarded first place in the developing scientist competition for IAFFP for her poster presentation entitled "Correlating attachment and infection of norovirus using an ELISA-based system". **Sarah Markland** (Ph.D. student in Dr. Kniel's lab) was the only recipient of the Capital-Area Food Protection Affiliate Travel Award for her work on "Inactivation of superdormant spores of *Bacillus weihenstephanensis* with ozone".

News from Students and their Organizations

To help those in need, the University of Delaware **Food Science Club** teamed up with the Food Bank of Delaware to bake delicious pies for Thanksgiving. The pies were distributed as part of the Food Bank of Delaware's mobile food pantry. Club members baked close to 80 pies using sweet potatoes grown in the UD Garden for the Community and

ingredients bought by the Club.

Animal Science Club members gained hands-on experience by working with cattle, pigs, and rabbits. Social events included a bonfire, costume Halloween party, and trips to Cowtown Rodeo and Longwood Gardens. Guest speakers have discussed topics including therapeutic horseback riding and veterinary school. The president, **Jennifer West**,

and executive board members are planning more activities for the spring semester. In February, members will be traveling to Maine to present research and compete in an intercollegiate quiz bowl and livestock judging competition. Also, about twenty students will be pursuing certification in dairy cattle artificial insemination over spring break. Visit our website (<http://udel.edu/stu-org/ansci/>) for updates!

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College of Agriculture & Natural Resources

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