

ANIMAL SCIENCES

Spring 2015

The Inside Scoop



WASHINGTON STATE  UNIVERSITY

APPLIED RESEARCH • EXTENSION & OUTREACH • INNOVATION & TECHNOLOGY • TEACHING

ANIMAL SCIENCES:

Moving Forward



Dr. Margaret E. Benson
Professor and Chair,
Department of
Animal Sciences

~GO COUGS!

Welcome to the 2015 edition of *The Inside Scoop*! I am pleased to give you a glimpse of the growth, successes, and achievements of our department over this last year.

We continue to work hard in the preparation of job-ready animal scientists, extending valuable and impactful information to our diverse stakeholders, and discovering and translating new science-based findings from our research. Our faculty and staff remain dedicated to delivery of outstanding programming in our teaching, Extension, and research missions. I hope this is evident in the following pages where a few of their activities and accomplishments or those of their students are highlighted.

One of my favorite subjects is the success of our undergraduates in finding excellent career opportunities. For those who finish their degrees and aggressively pursue employment, the placement rates in very diverse career paths are outstanding. This is important as we have record numbers of students in the department. Employers remark that their strong science backgrounds and experiential learning opportunities have and will continue to serve our students well.

Read on to hear about several undergraduate internship experiences—experiences that are invaluable for opening doors to exciting careers. We continue to encourage our students to seek out those opportunities.

Our graduate students are also finding exciting career paths working with faculty members in diverse sectors of animal science research and their projects span a wide range of subjects.

Our research faculty had another outstanding year in a highly competitive research funding arena with numerous grant awards and recognized peer-reviewed publications.

Change is a constant and we continue to see personnel changes. This last year, Dr. Don Nelson retired to California after 25 years of dedicated service to WSU Extension as a beef cattle specialist. We are excited however to welcome Dr. Amber Adams-Progar to the Extension Assistant Professor ranks, where she has gotten off to a fast start in assisting our dairy producers as a dairy management specialist with a focused interest in animal behavior and well-being. We also welcome a new Beef Cattle Operations manager, Brent McCann.

Supporters of our department are a valued and important part of our department, allowing us to accomplish our missions in teaching, research, and Extension. Gifts are essential in supporting us to deliver unique and diverse student experiences, provide undergraduate and graduate scholarships, contribute to the conduct of impactful research, and support additional department needs. Many of the accomplishments reported this year would not be possible without the resources generously provided by our donors. I want to thank each and every one of our donors for your continuing support. We will continue to be good stewards of these gifts and use them in preparing the next generation of animal scientists and advancing animal science and animal agriculture.

Thank you for your interest and support!

ANIMAL SCIENCES

The Inside Scoop

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Cover: Undergraduate McKenzie Corpron showing her Holstein heifer in AS172, Dairy Cattle Management Laboratory



From L to R: Mike O'Neil, Ferris Forar, Pedro Calderon, John Swain, and Jerry Glass

WSU KNOTT DAIRY NEWS

Crew Ensures a High Quality Product

In 1962, the **WSU Knott Dairy Center** began milking cows. Now, 50 years later, the dairy is milking 174 registered Holsteins a day, 34 of which belong to Cooperative University Dairy Students (CUDS). Cows are milked twice a day and the milk is sold to the WSU Creamery where it is turned into Cougar Gold cheese and ice cream. The dairy center is heavily integrated into the animal sciences curriculum and is an active location for research studies.

Educating students and producing high-quality milk at the same time takes a concerted effort by a cohesive group of people who work hard and work well together. Leading this group is John Swain who received his B.S. degree from California Polytechnic State University and his M.S. degree in animal sciences from WSU in 1985. He then went to work coordinating the Dairy Herdsman Program at Utah State University. As the dairy center Farm Manager at WSU, Swain is ultimately responsible for the health and comfort of the dairy cattle and carries out production, marketing, and financial decisions that meet the goals of the Department of Animal Sciences. He also manages employees, coordinates activities, and is involved in teaching many of the classes that use the dairy.

Ferris Forar is one of two dairy center herdsman. Forar earned a master's degree in animal sciences from WSU in 1981 and was recently honored for his 40 years of service to WSU and the dairy center. Forar's main duty as herds-

man is yard manager, coordinating the cleaning of animal facilities and making sure the cows are fed and well cared for. The other herdsman is Mike O'Neil, whose primary job is to ensure animal health and reproductive efficiency. Also a WSU alum, O'Neil earned a B.S. in animal science, then served as a Peace Corps volunteer in Colombia. He also worked as an artificial insemination technician in Pasco.

Pedro Calderon and Jerry Glass are key to milk harvest at the dairy. Calderon has been milking cows during the day shift since returning to Pullman from Sunnyside a year ago. When Calderon came to WSU from Colombia as an undergraduate student knowing very little English, he attended the WSU Intensive American Language Center and was involved in CUDS and Cougar Cattle Feeders. He graduated in 2005 with degrees in animal sciences and economics. Glass has lived in the Palouse all his life and graduated from Lewis-Clark State College in Lewiston, Idaho, with a degree in chemistry. He has been the night-shift milker for the past four years.

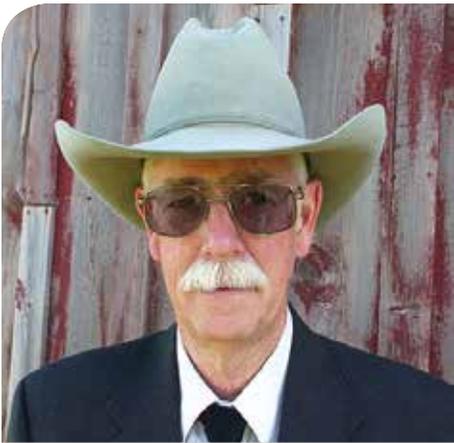
The Department of Animal Sciences Knott Dairy Center has a long standing reputation of excellence in production, education, and research. With John Swain at the helm, these four men ensure the Dairy Center is always presentable to visitors, is a source of student employment, and allows students to gain practical experience in a working dairy.

Time for a facelift

The WSU Dairy Center is currently getting a little bit of a face lift thanks to funds provided by the university, college, department, WSU creamery, and CUDS. New parlor equipment was installed in November—complete with radio-frequency identification (RFID) readers for automatic cow identification, and even WSU logos on the floor. Construction of updated manure handling facilities to meet environmental requirements will begin in the spring. A new feed truck is also streamlining feeding chores.

These new updates allow the dairy to take advantage of current technologies and help students learn about the dairy industry in a more industry-standard environment.





MARK L. NELSON

A Man of Many Hats

Mark L. Nelson, associate professor and Extension specialist, has worn many hats during his career at WSU. Most recently, Nelson was acting chair of the department when Margaret Benson was out, recovering from an injury.

“Mark’s commitment to the department was clearly evident when he served as acting chair during part of fall semester,” said Benson. “He kept all the day-to-day functions moving and covered my class even though he already had a busy teaching semester and many other commitments. I very much appreciate and value his expertise and service as a team player.”

The Education Hat

Nelson is committed to excellence in education—both in and out of the classroom. Since coming to WSU in 1984, Nelson has developed, taught, or lectured in 19 classes. At present, he engages with over 200 students each year, including teaching Feeds and Feeding, a course required by all Animal Sciences majors. Other current teaching responsibilities include Principles of Nutrition and Beef Feedlot Systems.

To date, Nelson has advised 14 M.S. and 3 Ph.D. students in animal sciences, and currently advises two students pursuing their M.S. in agriculture. Nelson is also formulating a proposal to create a non-thesis M.S. degree program in animal science. This program will serve as an externship where participants learn business skills and gain expertise in nutrition of all species.

Nelson’s contributions to undergraduate and graduate education in animal science were recently recognized by the Western Section of the American Society of Animal Science (WSASAS) who named him recipient of their 2014 Distinguished Teacher Award. He received the award at the 86th annual meeting in San Angelo, TX in July.

The Service Hat

Outside of the classroom, Nelson has been a 4-H leader, a faculty advisor for numerous undergraduate research

projects, and the arena assistant for the Palouse Area Therapeutic Horsemanship program. Nelson is now active in the WSU Writing Program where he evaluates junior writing portfolios, which are used to determine if students can handle upper division and Writing-in-the-Major courses.

“I enjoy reviewing the junior writing portfolios,” said Nelson. “I identify students that need more help developing writing skills and also those that are deserving of awards—it’s very fulfilling work.” Nelson is also the advisor of Cougar Cattle Feeders, providing guidance and expertise to the students learning to feed and manage feedlot cattle.

The Extension Hat

As an Extension specialist, Nelson has provided leadership for all animal programs. He has been especially instrumental in short courses designed to enhance a livestock producer’s understanding of food animal production and prepare them to make informed decisions to improve quality and profitability of their products in ways that are environmentally friendly and protect animal well-being.

The Research Hat

Formally trained as an animal nutritionist, Nelson earned a B.S. and an M.S. in animal science with research in equine nutrition from the University of Minnesota. He completed a Ph.D. in ruminant nutrition at the University of Nebraska-Lincoln. Over his years at WSU, his research program in ruminant nutrition has provided much data related to growth performance of cattle and beef quality. These days, Nelson is transitioning out of a formal research appointment and will be focusing his efforts on teaching and Extension activities, but plans to remain actively involved in research projects. In fact, he is a major contributor to a new USDA-funded study that begins this spring, testing the hypothesis that vitamin A supplementation during early development will elevate preadipocyte formation in muscle and enhance marbling in beef cattle.

TING JIANG

Making an Impact

Life is good, for Ting Jiang in Chicago. In 2011 with her Ph.D. from WSU in hand, Jiang moved to Alabama where she began work as a postdoctoral scholar in meat science in the animal science department at Auburn University. Almost a year later Jiang accepted a scientist position in research and development at Hillshire Brands in Chicago, where she has been working in lunchmeat manufacturing and snack product development for the past year and a half.

Jiang grew up in Yangtai, a coastal city in northwestern China that is known for high quality Fuji apples, pears, and cherries, as well as scrumptious seafood barbecue. She graduated from Yangzhou University with a B.S. in animal science in 2006 and wanted to pursue post-graduate degrees in the same field.

Why WSU?

After researching animal science programs around the world, Jiang felt the Department of Animal Sciences at WSU had an excellent reputation and fit her interests perfectly. Jiang added, "Also, the Pacific Northwest sounded like an awesome place to live!"

Jiang earned both an M.S. and a Ph.D. under the direction of advisor Mark Nelson and co-advisor Jan Busboom. As a graduate student, Jiang focused on meat quality and studied the impact of diet and post-mortem aging on beef fatty acid composition, sensory attributes, and compounds that contribute to beef flavor and off-flavor.

According to Jiang, the graduate training she received at WSU was invaluable to her professional growth. "As a product developer, it is important to have fundamental knowledge in both animal and meat sciences," said Jiang. "Drs. Nelson and Busboom helped me become a more confident and independent researcher and showed me how to be a good scientist and teacher. They appreciated my research interests and provided resources to support them."

She also explained that her job requires a lot of creativity, critical thinking, management and communication skills, leadership, and the capability to design and execute tests. She added, "These are qualities you cannot get solely from textbooks and classes. My graduate training at WSU improved these skills tremendously."

Advice to students

For students who are interested in a similar career path, Jiang advises, "Look for internship opportunities in the food/meat industry." She also explained that networking is very important and added, "Get out of your comfort zone and talk to people at conferences and career fairs."

Jiang is pleased that her education at WSU has led to a rewarding career and said, "I can apply what I learned from my graduate programs to the real world and make an impact on regular people's lives. I do not have the power to cure cancer, but I can certainly try to make some delicious and nutritious food."



"I do not have the power to cure cancer, but I can certainly try to make some delicious and nutritious food."

Moving in New Directions

BRENT McCANN

Beef Cattle Operations Manager

“The animals are a large part of why I do what I do,” says Brent McCann, who took over as manager of WSU beef cattle operations when he moved to Pullman last June with his wife and their three children. He not only enjoys his work, but is also really good at it and has a lot of experience working in the beef cattle industry.

Eager to work with students at WSU beef cattle facilities, he said, “I hope that I can help young people get excited about working in the beef industry.”

McCann grew up on his family’s ranch in Montana where they raised cattle and sheep and did some dryland farming. After high school, McCann went to the University of Montana where he earned a bachelor of arts in liberal studies and a master’s degree in journalism. After college, he returned to the family ranch, worked there for a few years and decided his future lay elsewhere.

Ready for new challenges, he moved away from home and worked at several different ranches in Montana where he gained more experience and was given more responsibilities. While working at various beef cattle operations over the years, McCann thought that some things could be done better and realized that there was a lot of opportunity in ranch management.

“Ranch management is an interesting livelihood,” said McCann. Seeing an opportunity for professional devel-

opment and knowing that management of the large and complex ranches of today requires managers with exceptional skills in business, wildlife and rangeland management, and animal science, he decided to attend the King Ranch Institute for Ranch Management at Texas A&M University—Kingsville. Over the course of the two-year master’s degree program, McCann took 42 graduate credit hours and interned at ranches that took him out of his geographical comfort zone and required him to think about resource management at a different level.

After graduating from the program in 2010, McCann returned to Montana and went to work as foreman of a historic ranch. While there, he helped remedy some production issues and assisted in developing a strategic plan; meanwhile he supervised 12 employees and was responsible for the management of 1500 cows and thousands of yearlings. Also in the four years McCann was there he helped the owners of the 70,000 acre ranch transfer his position to a member of the family’s fifth generation. Fortunately for WSU, the ranch’s loss is the Department of Animal Science’s gain.

These days, McCann is busy teaching undergraduate students and managing the WSU beef cattle operation sites. Like at cattle operations across the country, sometimes what may have been done in the past is not a good fit for the future. He is eager to apply what he’s learned to enhance ranch and resource management at both the WSU Beef Center and the Cattle Feeding Laboratory.



and Bringing in New Faces

AMBER ADAMS-PROGAR
**Dairy Management
Specialist**

“I look forward to learning more about the dairy industry in the state.”



Mmeet Dr. Amber Adams-Progar, Dairy Management Specialist, and the newest member of the WSU Department of Animal Sciences and the Dairy Extension program. She strives to understand how current production practices affect dairy cow behavior and well-being, and how management can be improved to promote animal welfare and subsequent production. We are fortunate to have her on board as management practices that favorably affect animal well-being and behavior are top priorities of dairy producers.

Educational Background

Adams-Progar's interest in animal behavior was sparked by a class she took as an undergraduate at the University of Wisconsin—River Falls. With a B.S. degree in animal science, Adams-Progar delved deeper into animal behavior when she went to Oklahoma State University and earned an M.S. degree in zoology. She then studied the effects of transit stress on Holstein calves as part of her Ph.D. program at Texas A&M University. As a post-doctoral research associate in the animal science department at the University of Minnesota, Adams-Progar developed best management practices for automated calf feeders on Midwestern dairies, with health and behavior data she collected from over 10,000 calves on 38 dairies in Iowa, Minnesota, and Wisconsin.

Since arriving in Pullman last July, Adams-Progar spent a lot of time on the road—visiting farms and attending industry meetings in order to introduce herself to dairy producers in Washington.

“I know that the dairy industry of the Pacific Northwest is not the same as the midwestern dairy industry,” she said. “I want to learn what challenges Washington dairy farmers face.”

To provide Washington dairy producers with the latest scientific information, Adams-Progar is writing a quarterly publication, “The WSU Dairy Newsletter,” available at www.dairynews.puyallup.wsu.edu. She is also revamping the dairy Extension Website with help from colleagues in Extension, and planning workshops, seminars, and other programs that will cover key topics, provide resources, and present current WSU research.

Adams-Progar is championing implementation of low-energy animal handling techniques through the Dairy Stockmanship program created by Don Höglund, DVM. This certificate program will not only improve worker safety and animal well-being on Washington dairy farms, but it will also augment the National Dairy FARM Program and help producers pass animal care and handling audits.

Research Focus

When she isn't travelling Washington highways for Extension purposes, Adams-Progar will conduct research that focuses on animal behavior and well-being. She noticed that there aren't many dairies in the state using automated calf feeders, mostly due to expense of installation and uncertainty in proper management. She is working to install an automated calf feeder at the WSU Dairy so she can document, then provide for producers, the sound management practices that will promote animal well-being and save money. In the meantime, Adams-Progar will examine cow isolation behavior, that is when a cow wants to alone, and determine if it is related to health status or some other factor.

Excited to be in Pullman, Adams-Progar says, “I enjoy working with producers. Washington dairy producers are progressive and open to new ideas. I look forward to learning more about the dairy industry in the state.”

ANIMAL SCIENCES STUDENT CLUBS



Block and Bridle (B&B) is an organization for students interested in any aspect of animal agriculture. The club provides opportunities for members to expand their knowledge of agriculture through hands-on experiences, tours, events, and guest speakers. Some of Block and Bridle's activities this year included attending and assisting with the Evergreen Exclusive Angus Sale in Yakima, touring many agriculture facilities, preparing steers for the WSU Club Calf sale, competing in the Little I Livestock Showmanship Competition with the University of Idaho B&B, and helping fund club activities by processing and selling Cougar Smokies.



Dairy Club is a group of students enthusiastic about dairy foods, dairy animals, and the dairy industry! Each weekly meeting is full of information, educational activities and, of course, cookies and milk. Members attend dairy industry conferences throughout the year. A big highlight is attending ADSA's joint annual meeting and having a team participate in the Dairy Quiz Bowl competition. Dairy Club's community outreach includes Dairy Olympics at the Knott Dairy Center, and fundraisers such as Dairy Banquet and cheese sales at Farm Credit Services in Spokane. Other activities include Spring Barrel Tasting in Prosser, and Cougar Youth Weekend. As members say, "Dairy Club is UDDERLY fantastic!"



The Companion Animal Club (CAC) actively supports community education and companion animal activities in Pullman/Moscow and Whitman/Latah counties. Members donate service hours to the Whitman County Human Society (WCHS) shelter, the Humane Society of the Palouse, the Palouse Area Therapeutic Horsemanship (PATH) program, and Orphan Acres, a horse rescue organization. Club members have contributed hundreds of hours to the Mutt Strut educational/fundraising activity hosted by the WCHS. The CAC also assists the WSU Dean of Students Office with the "Pet Stress Away" event held during each finals week. In this event, WCHS brings animals to campus for students to interact with, pet, and receive comfort as a means to cope with stress.



Collegiate Horsemen's Association (CHA) is an organization for anyone interested horses. All are welcome and encouraged to join, regardless of horse experience. CHA is currently undergoing reorganization. Members are working to plan events for fall semester 2015, such as volunteering at horse rescue operations, tours of local horse facilities, seminars, and clinics. Past club activities included visiting the Appaloosa Horse Museum, talks and meetings with an equine dentist, a farrier, and an equine veterinary resident. For more information, look for their Facebook page (WSU Collegiate Horsemen's Association) or email: wsucollegiatehorsemens@gmail.com.

ANIMAL SCIENCES STUDENT COOPERATIVES

Each year students are selected through an application and interview process for membership in the award-winning **Cooperative University Dairy Students (CUDS)**. Students manage a working dairy herd of about 35 registered Holstein cows and an equal number of young stock and dry cows. All members work together to make decisions regarding all attributes of management in their herd. CUDS members learn to formulate and execute management decisions as well as perform the day-to-day duties of milking, feeding, record keeping, barn maintenance, heat detection, and artificial insemination. CUDS provides an excellent experience for its members to enhance their leadership and time management skills as well as gain unique understanding of the dairy industry.



Cougar Cattle Feeders (CCF) is a student-run cooperative advised by Dr. Mark Nelson and the Beef Committee. CCF members feed and care for approximately 50 feeder cattle including heifers and steers from the Ensminger Beef Center and donated steers from various beef producers in Washington. CCF is responsible for managing animal care and health, formulating diets, cleaning cattle facilities, and marketing cattle. Funds raised by the group are used to finance both educational opportunities for CCF members and scholarships for WSU students involved or interested in the beef industry.



Student Swine Cooperative (SSC) is a student organization for members to learn about swine production and to share their knowledge and expertise with 4-H and FFA members. SSC members have restructured their co-op and are currently finishing two small groups of pigs a year in their new location. In the past, SSC has participated in numerous events including the Palouse Empire Fair, Latah County Fair, Swine Information Day in Moses Lake, and show pig auctions. Members plan on participating in these events again this year. SSC members are excited about the changes to the cooperative and can't wait to see how it will continue to grow in the future.



WSU Premium Beef

More Than Great Steaks!

The Animal Sciences Students of Entrepreneurship developed a business plan for the WSU Premium Beef Program, which has been implemented by the Beef Team.

This program offers students the unique opportunity to learn about all stages of the beef production cycle. Not only can students get involved with sire selection, calving, nutrition and feeding, selection of animals that will be used in the program, and harvest, but they can also get experience in marketing a natural, locally raised, and high-quality product.

Only the best beef cattle are selected from our herd for the WSU Premium Beef Program. The students' plan recommended two lines including Premium Angus, which is comparable to beef served in high-end restaurants, and Wagyu, which is famous for its tenderness and rich, buttery flavor.

If you would like more information about WSU Premium Beef, please visit our website: www.ansci.wsu.edu/facilities/beef/wsu-premium-beef, or contact us:

phone: 509.335.1002

email: ansci.premium.beef@wsu.edu

Graduate Studies

Focus on five major areas of research

RESEARCH AREA	STUDENTS (DEGREE, ADVISOR)
<p>Behavior & Well-Being</p> <p>Research is focused on identifying environmental and genetic contributions to the health and well-being of animals.</p>	<p>Lindsay Ellsworth (PhD, Newberry/Johnson), Leticia Fanucchi (PhD, Newberry/Johnson)</p>
<p>Environmental Sustainability/Nutrition</p> <p>Air, land, and water quality are examined to understand how they are affected by animal agriculture and to develop management strategies for sustainable production. Basic and applied research in nutrition is conducted with beef and dairy cattle. This work includes animal metabolism, energy nutrition, and utilization of by-product feedstuffs.</p>	<p>Yanting Chen (PhD, Harrison), Christopher Gambino (PhD, Johnson), Rafael Gomes (Visiting student, Johnson), Katherine Hilt (MS, Harrison), Guiling Ma (PhD, Harrison), Jacob Mutch, (MS, Johnson)</p>
<p>Genetics/Genomics</p> <p>Research projects include understanding genome structure, function, and evolution, and developing quantitative and molecular genomic approaches for improving animal production, product quality, and health.</p>	<p>Carolina Filardi (Visiting student, Jiang/Du/ Dodson), Jennifer Kiser (MS, Neibergs), Rui Li (PhD, Jiang), Mahesh Neupane (PhD, Neibergs), Hongyang Wang (Visiting student, Jiang), Shuwen Zhang (PhD, Jiang)</p>
<p>Growth/Muscle/Meat Science</p> <p>Projects span the continuum from basic to applied research and include defining the molecular mechanisms of muscle development, physiological responses to growth regulators, and meat quality improvement.</p>	<p>Xing Fu (PhD, Du), Shawn Harris (PhD, Du), Naisi Li (MS, Rodgers), Joe Maricelli (PhD, Rodgers/SMB), Carl Rogers (PhD, Du), Bo Wang (PhD, Du), Qiyuan Yang (PhD, Du)</p>
<p>Reproductive Biology/Physiology</p> <p>Research in reproductive biology/physiology includes endocrinology and embryo development that is both basic and applied, using cattle, sheep, swine, and rodent models.</p>	<p>Kelsey Brooks (PhD, Spencer), Gregory Burns (PhD, Spencer), Brooke Compton (MS, Pru), Brenda Jesernig (MS, Spencer), Andrew Kelleher (PhD, Spencer), Melissa McCallum (MS, Pru), Joao Moraes (PhD, Spencer), Peng Wang (PhD, Spencer)</p>



Recent graduates (L to R): Benjamin Enger (MS, Fox), Robin White (PhD, Johnson), Meghan Munter (MS, McClean/Pru), Ashley Conway (MS, Johnson)

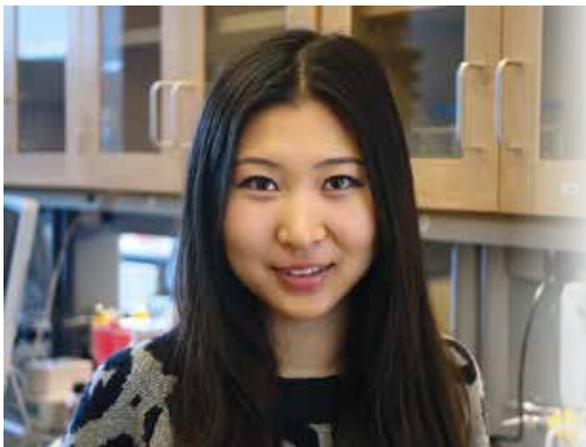
GRADUATE STUDENT AWARDS

Christopher Gambino was named as a Thomas S. Foley Institute for Public Policy and Public Service Graduate Student Fellow in 2014, and received the 2013–2014 Graduate and Professional Student Association Senator of Excellence Award.

Benjamin Enger placed first in the ADSA Production Division Graduate Student Poster competition at the 2014 national meeting in Kansas City, Missouri.

Robin White placed first in the Agriculture and Natural Science division of the Dr. William R. Wiley Research Expo in February 2014, was recognized as a Harriet B. Rigas Outstanding Woman in Doctoral Studies by the Association of Faculty Women in March 2014, and was the 2014 Department of Animal Sciences Outstanding PhD student.

Graduate Student Research Highlights



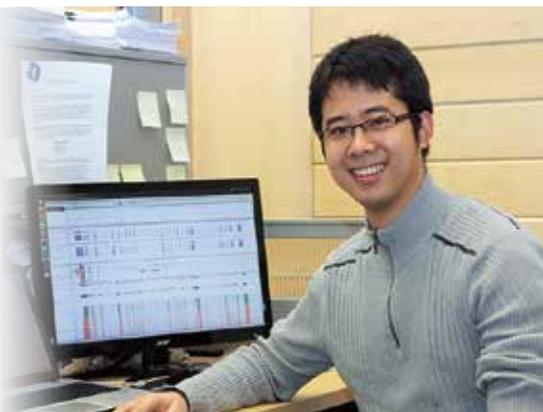
*Naisi Li, MS Candidate
Advisor: Dan Rodgers*

Knowing How Fat Cell Growth is Regulated May Lead to Treatments for Obesity and Diabetes

Myostatin is a protein that directly regulates skeletal muscle growth and total adiposity, or body fatness, although the mechanism of action is unclear. Studies on mice who lack the myostatin gene suggest that it suppresses fat accumulation rather than adipose tissue growth. In Dan Rodger's lab, I am working to better understand how myostatin works in fat cells. We hypothesize that myostatin reduces adiposity and alters stem or progenitor cell pools that ultimately influence the ability of a tissue to differentiate into specialized types. To test this hypothesis, we identified stem cells in adipose tissue of both normal and myostatin-deficient mice. So far, my research has shown that myostatin-deficient mice are born with more fat stem cells and more mature adipose cells, despite smaller tissue weights, than normal mice. These results suggest that myostatin regulates fat growth by altering stem cell pools. This knowledge may ultimately lead to improved clinical treatment of obesity and type II diabetes.

Using Technology to Unravel the Functional Diversity of Genes

Ribonucleic acid (RNA) is a polynucleotide that serves primarily as a messenger, transporting instructions from DNA to direct synthesis of proteins. Addition of long strands of adenosine (one of the building blocks of RNA) to the end of RNA, in a process known as polyadenylation, is an essential step in the comprehensive process of gene expression. Alternative polyadenylation creates functional diversity and is important in regulating gene expression. In Zhihua Jiang's lab we have developed a method that uses next-generation sequencing technology to examine alternative polyadenylation. My job is to develop and use bioinformatics tools to analyze the data from tens of thousands of genes, and rigorously characterize the effects of alternative polyadenylation on gain or loss of functional elements in genes. What we learn about alternative polyadenylation may be applied to understanding the diversity and genetic complexity of many economically important traits in agricultural animals.



*Rui Li, PhD Candidate
Advisor: Zhihua Jiang*



*Lindsay Madden Ellsworth, PhD Candidate
Advisors: Ruth Newberry and Kristen Johnson*

Shelter Dogs as Therapy for Teens in Substance Abuse Treatment Programs

I am evaluating changes in mood and behavior of adolescents in substance abuse treatment programs after interacting with animal shelter dogs. Results of my pilot study indicated that adolescents who interacted with dogs reported a significant improvement in mood, compared to adolescents who participated in standard substance abuse treatment activities. Participants' attitudes towards the dog activities were significantly more positive than toward the standard activities. My research is an initial step in understanding how human-animal interactions can be incorporated into community-based adolescent substance abuse programs to enhance the effects of established treatment interventions, while also providing evidence-based validation of human-animal interaction effects. Such animal-assisted approaches could provide a cost-effective means for improving substance abuse treatment implementation.



JESSICA SEARS

Cowgirl Up on the Continental Divide

Summer Employment Experience Teaches Valuable Lessons

Imagine working at a job where the views from your “office” are the sweeping vistas and soaring peaks of the Continental Divide. **Jessica Sears**, a senior undergraduate student, enjoyed those magnificent views from the back of a horse every day last summer as she worked as a wrangler for Sombrero Ranches, an outfitter that provides guided horseback riding trips in the Rocky Mountains of Colorado.

How did Sears land a job riding horses all summer in one of the most beautiful areas in the West? She visited with Val Fisher, the department’s Undergraduate Coordinator, who told her about wrangler positions that were available with Sombrero Ranches. Successful applicants needed to have experience with and be able to understand and handle a wide variety of horses, as well as instruct people on how to work with them. Although Sears has never owned a horse of her own, she learned to ride at a local equestrian center near her home in Olympia and has worked with many different horses over the years. She thought the job sounded challenging and adventurous, so she applied and was hired after a phone interview.

Like Living in the Old West

In early June, Sears packed up her cowboy hat and boots and boarded a plane, headed for Glacier Creek Stables in the high country of Rocky Mountain National Park. At the stables, Sears was assigned a bed in a bunkhouse she shared with nine other wranglers. She truly felt like she went back in time and was living in the old west.

The hours were long and the work physically demanding. Six days a week, Sears and the other wranglers started their days at 5:00 a.m. when they groomed and tacked up over 100 horses. Most days she spent between six and seven hours in the saddle, being responsible for a group of riders from the time the first guest mounted up until the last guest dismounted and the horses were in the corral.

Many of the riders she led were children or others who had no previous horse experience, so effective communication skills were imperative. While riding, she taught guests to safely ride their horses and about the Rocky Mountain

National Park and its natural history. In addition, Sears had to be vigilant, watching for wildlife and hazardous changes in the weather.

“Some of the trails were little more than goat paths, we were followed by coyotes, almost charged by a bull moose, and the lightening at high altitudes was more than impressive!”

Her work days ended around 7:00 or 8:00 p.m. after the horses were unsaddled and fed. “I learned the true meaning of “cowgirl up” while working as a wrangler,” said Sears.

Although the work was grueling, Sears enjoyed every minute of it. One of her favorite treks was the Continental Divide ride, a 26-mile journey from one side of the mountain range to the other. During the more than 10-hour excursion, horses and riders climb more than 4000 feet, see dramatic changes in landscape, and can experience highly variable weather conditions.

It will be hard to top her summer job as a wrangler, but after graduation, Sears plans to work in Alaska where she hopes more adventure awaits. She will be able to use all of the horse experience and people skills learned while guiding horseback riding trips to good use in the future. Sears plans to participate in the Kentucky Equine Management Internship program and also earn a master’s degree in business administration. Eventually, she would like to work in the thoroughbred breeding industry.



KELBY STADT
**A.I. Technician
Extraordinaire**

*Using Internship
Programs to Improve
Skills*



During an internship program last summer with All West Select Sires in Sunnyside, **Kelby Stadt** learned the key to being a successful artificial insemination (AI) technician is consistency. Stadt spent a lot of time riding around with experienced AI technicians and sometimes their dogs, who begrudgingly gave him a little room on the passenger seat. He met with clients, learned about the business side of AI, helped with estrus detection, and inseminated lots of cows during his ride-alongs. At one point during the summer, Stadt went out by himself for several days on a relief route. "I learned there are many different ways to breed a cow," he said of his experiences.

High School Employment Sparked Interest

Stadt first became interested in AI as a high school student when he worked on a dairy farm near Everson. He later took a three-day breeding short course where he learned more about AI and how to handle semen and inseminate cows. At the dairy, Stadt discovered that he enjoyed farm work, had a knack for working with animals, and wanted to learn more about animal production and employment opportunities in the field.

Because of his desire to learn, Stadt came to Pullman and chose to major in animal science.

To make the most of his college career, he got involved in many of the department's extracurricular activities. He was a member of both Dairy Club and Block and Bridle. He lived and worked at the Ensminger Beef Center for several years, where he fed cattle, cleaned facilities, monitored animal health, checked cows for signs of calving, processed calves, and helped with breeding. Stadt was also a member of CUDS for two years, and, at various times he chaired the committee that was responsible for the management of calves, heifers, and dry cows, led the milk quality team, and was head of the group that made breeding decisions for their cows. One of his favorite activities was sire selection.

Stadt recognizes that outside-the-classroom opportunities aren't always advertised. He took advantage of networking with All West Select Sires when their staff members visited the WSU Dairy and Beef Centers and parlayed that into an internship. Stadt's persistence paid off—he will start work as an AI technician with the company after he graduates in May.



Alumnae Offers Advice to Aspiring Vet Students

Heather Hastings (B.S., '11) is currently a second-year veterinary student at WSU. She chose to major in animal sciences as an undergraduate because she was excited by the hands-on courses offered by the department.

All of the department's faculty members contributed to her undergraduate

education, helping Hastings gain acceptance to vet school. But, Dr. Kristen Johnson was particularly influential.

"She helped me improve my résumé by introducing me to internship programs abroad," said Hastings. "Because of this, I spent the summer of 2010 in Sydney, Australia, in an internship at a small animal hospital."

Although Hastings knew she wanted to become a veterinarian, she hadn't really given much thought to a specialty. As a member of CUDS she discovered that she loved large animal medicine.

"This amazing co-op really opened my eyes to large animal production medicine and this is now what I want to practice when I graduate!"

Many undergraduate students in animal sciences hope to go to veterinary school someday. Of course, doing well in classes is important. But, looking back on her mistakes and successes, Hastings offers some advice to students who aspire to become veterinarians:

"Be proactive and gain as much experience as possible."

"Don't focus on one area of the application. For example, volunteer and also get experience in large and small animal practices. This helps make your application stand out."

"Don't underestimate the importance of your GRE scores. Make sure you prepare for the test and score as high as you can!"



Photo by Greg Burns

ENDOWMENT SUPPORTS EXCELLENCE IN RESEARCH Travel Award

The George and Jean Fries Endowment in Animal Sciences was created to recognize and highlight outstanding undergraduate students who have gone above and beyond expected requirements and have genuine passion for research. The Fries hope their endowment will inspire undergraduates to consider research as a career.

Thanks to this endowment, one or two travel awards will be granted each year to undergraduate students who will present their research in oral or poster formats to a national scientific audience. The award is expected to cover meeting registration fees and travel expenses including transportation, lodging, and meals.

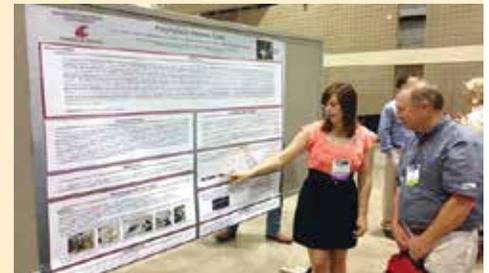
Last year three highly qualified undergraduate researchers submitted abstracts of their work and a budget for the meeting they wanted to attend. Although the competition was very close, the committee of faculty members chose to recognize Kelsey Moss as the recipient of the first Excellence in Undergraduate Research award. We were especially pleased that the Fries were able to attend the 2014 Recognition Program and present the award to Moss in person (see photo of Fries and Moss, left).

Moss was thrilled to receive the award, which supported her attendance at the American Society of Animal Sciences National Meeting in Kansas City, Missouri. Since she is considering graduate school

the meeting provided important networking opportunities for her career planning.

Moss's outstanding research was also recognized by the American Society of Animal Science. At the meeting, she presented a poster titled, "Polymelia in Holstein Cattle", which described her research on the birth defect that causes extra limbs to form on affected individuals, and placed second in the Undergraduate Research Poster competition.

The Department of Animal Sciences has a strong reputation and tradition of encouraging undergraduates to conduct research. Thanks to funds provided by the Fries Endowment, students are rewarded for excellent contributions to research, and who having experienced research firsthand, may consider it as a career option.



Kelsey Moss discussing data on her award winning poster with a participant at the ASAS meeting in Kansas City, Missouri

Noteworthy Items

RETIREMENT

Don Nelson retired after 25 years of service to WSU Extension as a beef cattle specialist. He moved to California to be closer to family.

FACULTY AWARDS

The American Society of Animal Sciences honored **Margaret Benson** with a Fellow award. This award is presented to scientists who have been members of ASAS for at least 25 years and have made significant contributions to animal sciences and the livestock industry.

Mark Nelson received the 2014 Distinguished Teacher Award from the Western Section of the American Society of Animal Science.

Kristen Johnson was recognized for outstanding performance and lasting contributions as an academic advisor by the WSU Graduate and Professional Student Organization in spring 2014.

Martin Maquivar received an Exceptional Professor Award at the first Annual Faculty and Staff Appreciation Day hosted by the Associated Students of WSU Senate in May 2014.

UNDERGRADUATE AWARDS

Dairy Club was recognized as the CAHNRS Club of the Year in 2014.

Stephanie Van Volkenburg, Jessica Levy, Meghan Cihak, and Jennifer Callanan won the National Quiz Bowl Championship at the ADSA meetings in July 2014.

Helen Floren, Jessica Levy, Kevin Gavin, and Hannah Symonds, members of the WSU National Dairy Challenge Team, placed second in their group.

Kevin Gavin, Landon Macy, and Caitlin Quesenberry were on the Platinum award winning team and **Meghan Cihak, Jessica Levy, and Hannah Symonds** were on the Gold award

winning team at the Western Dairy Challenge Regional competition.

Kelsey Moss received a Novice award in the Molecular, Cellular, and Chemical Biology division of the Showcase for Undergraduate Research and Creative Activities (SURCA). She also placed second in the Undergraduate Research Poster competition at the ASAS national meeting in July 2014.

Lance Kidder placed third in the Undergraduate Research Poster competition at the ASAS national meeting in July 2014.

Michelle Chan received a CAHNRS Internship award.

Hannah French was awarded a 2014 Auvil Scholars Fellowship from the WSU University College.

The WSU University College awarded **Natalie Nelson** an Auvil Scholars Fellowship in 2014.

DEPARTMENT OF ANIMAL SCIENCES

30th Annual Recognition Program

April 10, 2015
Ensminger Pavilion

We are pleased to announce that **Dr. Michael Thonney** will be recognized as our Distinguished Graduate in Science, Education, and Technology. Dr. Thonney earned a B.S. in animal sciences from WSU in 1971. As a faculty member at Cornell University, his early research interests focused on growth and body composition of sheep and cattle. He is currently examining the role of fermentable fiber in ruminant nutrition, reexamining lambing and kidding management practices, and leading a program to reduce effects of internal parasites on sheep and goats in the Northeast.

The Outstanding Alumnus Award will be presented to **Barbara Stevenson Jackson**. Ms. Jackson has had a very successful career in sales and marketing since graduating from WSU in 1976 with a B.S. in animal sciences. She has also served on the Arizona State Veterinary Examiners Board, Cattlemen's Beef Board, American National Cattlewomen's Association, and recently received the "Friends of CALS" award from the University of Arizona College of Agriculture and Life Sciences.

Buzz and Jean Berney will receive the Distinguished Service Award. The Berneys graduated from Washington State College in the 1940s and are long-time progressive ranchers in Okanogan County. They have the oldest coordinated range management plan in the state, given 50+ years of service to 4-H programs, provided resources and leadership to the national and state Cattlemen and Cattlewomen Associations, and are active supporters of WSU.

*Join us for an informal
barbecue and help us celebrate
the accomplishments of our
students, staff, faculty,
and alumni!*

Doors open at 4:30 p.m.
Program begins at 5:00 p.m.
For additional information
call 509-335-5523





Gifts Change Lives

Often, life-changing opportunities happen because of a single gift. A student gains from an experience or succeeds because of a scholarship. A faculty member makes a groundbreaking discovery because of generous contributions. A simple thing, really. Making a gift. Changing a life. If you would like to help us achieve our goals, please consider making a gift to the Department of Animal Sciences.

For more information or to find out how you can support Animal Sciences, please contact:

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(509) 335-5523