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AVS Corner

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AVS Corner, May 2014

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AVS CORNER

TEACHING • RESEARCH • EXTENSION

MAY 2014

INSIDE THIS ISSUE:

- 2014 LNA SHOW HIGHLIGHTS
- NEW FACULTY, STAFF AND GRADUATE STUDENTS
- RECENT RETIREMENTS
- CLUB AND ORGANIZATION NOTES
- AVS NEWS AND UPDATES
- AND MORE!



ROOM TO GROOM: AVS student Kelsy Robinson with Atlas

In the Limelight at LNA

By MICHELLE BRAUNEIS

LITTLE NORTH AMERICAN LIVESTOCK EXHIBITION SHOWCASES AWARD-WINNING LIVESTOCK, SUPERIOR STUDENTS AND EXPERIENCED TEACHERS.

The Little North American Livestock Exhibition, held annually in Clemson, took place April 5 at the T. Ed Garrison Cattle Complex. This show is a time-honored tradition within the Animal and Veterinary Sciences Department and has continued to grow each year.

True to tradition, we have continued showing dairy cattle, horses, swine, sheep and poultry. We had more than 70 students who worked hard halter-breaking and preparing their animals for the show, as well as upperclassmen planning the entire event. This experience allows students to learn the importance of animal exhibition and evaluation to animal agriculture industries. Students involved in planning the event gain leadership, organizational skills and extension experience, while others act as undergraduate teaching assistants and teach the lab portion of the course, showing the students how to properly exhibit their respective species as well as lead them through the course.

This year, we had the opportunity, with the generosity of the T. Ed Garrison Arena and Coca-Cola, to award a student a \$500

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Notes From the Corner Office

Hello, and welcome to the first full edition of the AVS Corner, a publication highlighting news from across our three key areas: teaching, research and extension!

For those who do not know me, I am the relatively new department chair (hired January 2, 2013) and a former graduate (M.S. Nutrition, 1990; Ph.D. Nutrition, 1992) of the AVS department. The first months of my tenure here at Clemson have been a whirlwind. During this time, the department has conducted two faculty position searches: ruminant nutritionist and animal physiologist.

The ruminant nutritionist position was filled by Gustavo Lascano, and by the time you read this newsletter we should have filled the animal physiologist position. We have also hired a grant writer/development officer for the department: Johanna Johnson, who will be helping to enhance our funding/resource base for both teaching and research. In addition to the new faculty and staff, who you can read more about in this newsletter, we have established a Stakeholder Advisory Board, which had its first meeting earlier this month. I am particularly excited about this development, as the board is one of our efforts to reconnect with our animal production and allied industry stakeholders, as well as aid development of departmental programs.

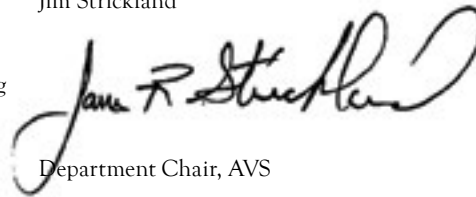
Although the department has wrestled with diminished faculty numbers while experiencing increasing undergraduate student numbers (430 undergraduates this past academic year with nearly 100 graduating), faculty members have been able to maintain high-quality teaching programs through their extra efforts on behalf of our students. Graduate student numbers also are on the rise, and I expect to see this trend continue as we add new faculty and resources. As we proceed through the remainder of this academic year and the next, we will be looking at replacing two of our department

members: Mickey Hall (associate professor) and Roxanne Bernard (student services manager), who have elected to retire this summer and move on with the next phases of their lives.

The department will continue its renewed efforts to reconnect with and benefit our alumni and stakeholders, while also continuing our efforts to train the next generation of animal science professionals for a growing world population. This newsletter represents just one of the first steps the department is taking to reengage and serve our larger Clemson AVS family.

I hope you take the time to read and enjoy the newsletter, and that you will look forward to reading future editions as much as we look forward to writing them! I also hope you will choose to work with us to provide the best possible experience for our students and solutions for our stakeholders. If you have comments you would like to share with me, please feel free to contact me at jrstric@clemson.edu.

Thank you,
Jim Strickland



Department Chair, AVS



TEACHING • RESEARCH • EXTENSION

MAY 2014

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AVS Corner editors:

Kathy Still
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Michelle Brauneis
Tina Rowland

scholarship: Cameron Hinson, representing sheep, received it based on her showmanship, judging contest and stockman's quiz score. After all the species completed showing, we held a round robin, where the top two students from each species had to show an animal of each species. The champion showman this year was Melissa McNabb, representing swine, and reserve showman was Allie Dann, representing sheep.

At the end of the day, it all comes down to the superior species title. Each year, students in each species group fundraise and participate in various events that all count toward this achievement. In recent years, it has been dominated by poultry. Even with some close competition from swine and sheep, poultry prevailed for another year.

At the end of the day,
it all comes down to the
superior species title.



For more information on LNA or to find out how you can be involved next year, please contact Brain Bolt (bolt@clemson.edu) or visit the AVS website at clemson.edu/cafls/departments/animal_vet_science/little_north_american.html.

From the Field: Clubs & Organizations

CLEMSON UNIVERSITY POULTRY SCIENCE CLUB

TRAVEL AND LEARNING

Members of the Clemson University Poultry Science Club (CUPSC) had a wonderful time at the International Products and Processing Exposition in January. Mickey Hall and club members braved the Atlanta, Ga., snowstorms to attend the annual exposition. Students had the invaluable opportunity to interact with industry leaders and interview for internships and jobs.

Now that the weather is improving, CUPSC has many projects in the works. In conjunction with students from the Poultry LNA (Little North American) class, the club will be having a farm cleanup at the Poultry Environmental Chamber building and student-run aviary to help give back to the community. The club also enjoyed making omelets for the Animal Co-Products Research and Education Center breakfast on March 25 and helped with a Future Farmers of America judging contest on April 26. The club isn't all work and no play though: Members coordinated a hiking trip before finals' week to help blow off steam along with their end-of-the-year BBQ at adviser Hall's house!

-TINA ROWLAND



Block & Bridle

BLOCK AND BRIDLE, BULLS AND BBQ!

Clemson's chapter of Block and Bridle has been one of CAFLS' largest clubs for quite some time now. We currently have more than 70 paying members and numerous joiners who come out and enjoy our meetings and events whenever they can. We meet biweekly in either the auditorium of Newman or the Poole Agricultural Center on Thursday nights at 7. This year, we have had some great speakers from many different facets of the animal sciences industries come speak to us about how they found their place in this big family that is the agricultural community.

Our most popular events are our famous initiation, which takes place at the Rodeo Arena across from Tri-county Technical College and more recently our annual fundraiser, Bulls and BBQ. This year's Bulls and BBQ was held Friday, March 28. We were excited to have Cody Webb join us for some entertainment, in addition to a mechanical bull-riding competition. There were raffles and, of course, BBQ plates.

This semester, we also have a small group of students who will be attending the National Block and Bridle Convention, which will take place in Springfield, Mo., at the University of Missouri. We are so proud to have a group of students represent our school at this event this year!

-JESSICA RUTLAND

From the Field: Clubs & Organizations



CLEMSON UNIVERSITY LIVESTOCK JUDGING TEAM BACK IN THE SADDLE!

After nearly two decades of being dormant, the Clemson University Livestock Judging Team is back in action. We're excited to have officially kicked off our second year of competition this March.

The 2013 team's season began last January and ran through the fall semester. The opportunity for students to travel and gain helpful industry experiences are perhaps the greatest perks to participating on the livestock judging team. During the 2013 season, the team traveled to places including Houston, Texas, Knoxville, Tenn., Harrisburg, Pa., Kansas City, Mo., and Louisville, Ky., places that might not otherwise be visited by students. Additionally, the team visited some of the most elite livestock operations in the country, where they were able to see firsthand the importance of the livestock industry.

The 2014 team is preparing for their competition season, practicing several times a week and visiting various producers. The current team includes nine members, and we're very excited for the potential to gain a unique skillset through hard work, dedication and participation on the team. We are extremely honored and motivated to represent Clemson University at Intercollegiate Livestock Judging Competitions this spring and fall.

-RICHELLE MILLER

CLEMSON COLLEGIATE HORSEMEN'S ASSOCIATION

CLEMSON HOSTS NATIONAL CONVENTION

Clemson Collegiate Horseman's Association (CCHA) is Clemson University's un-mounted equestrian club and is a branch of the American Collegiate Horsemen's Association (ACHA), whose goal is to unify collegiate horsemen of all levels and disciplines through the promotion of leadership, education, service and national affiliations.

To gain education and experience in the horse

industry, Clemson's chapter participates in various events around Clemson. Events include working with the rodeo circuits at the T. Ed Garrison arena, hosting two open horseshows a year, visiting different local horse farms, entertaining speakers from unique sectors of the industry and watching professional clinics on horsemanship. CCHA also does volunteer work through Kids' Day, where once each semester kids from the community can visit the Clemson

University Equine Center to learn more about horses.

This year is a special year for CCHA as the club is hosting ACHA's National Convention in Aiken. The convention is passed from one university to another, and all affiliated branches of ACHA in the nation are invited to the host university's state in order to experience the horse industry opportunities around that school. CCHA is planning many farm tours in Aiken,

and the convention will culminate with the Carolina Cup steeplechase in nearby Camden. CCHA is tremendously excited to be hosting such a wonderful educational event and for the opportunity to continue to keep up Clemson University's chapter of ACHA. We hope you'll consider coming out to join or support our club!

-ALI LEFORT

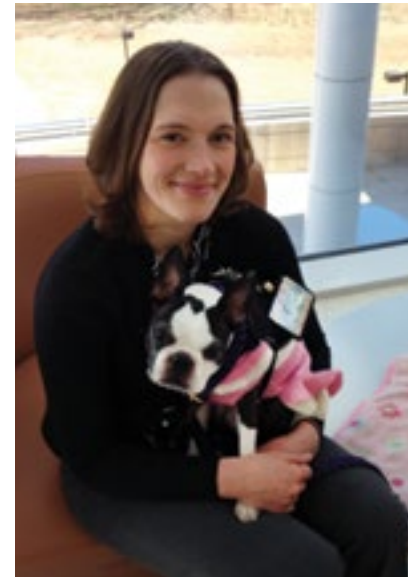
STUDENT ADVISORY BOARD

POSITIVE CHANGE FOR CAFLS

The College of Agriculture, Forestry and Life Sciences (CAFLS) Student Advisory Board is a group of students representing each major in Clemson's agricultural college. It was established with the intent of bringing positive change to CAFLS in the form of improved communication between professors and students, collaboration with student government, and the promotion of CAFLS successes and events. If students have any questions or concerns regarding their major or the college itself, they are more than welcome to approach any member of the Student Advisory Board, who will in turn do their best to see their concerns addressed.

For more information, please contact Allie Winter at aewinte@g.clemson.edu.

-MEGAN KELLEY



PRE-VETERINARY CLUB

MEMBERS SUPPORT SERVICE DOG, MIA BELLA

The Pre-Veterinary Club is an organization that was created with the main focus of preparing students for post graduate and veterinary school. It's not all work for these students, though, as they take part in the fundraisers, service projects and field trips the club participates in every year. One service opportunity that the club rallied behind this year was for one of Clemson's own grad students, who has a Seizure Alert Service dog named Mia Bella. Mia Bella was having problems with luxating patellas (floating kneecap) in both of her hind legs and needed surgery to correct the issue. But being a grad student, her owner needed help with funding. Af-

ter a successful fundraiser at the 356 Restaurant in downtown Clemson and the sale of homemade dog treats, the Pre-Veterinary Club was able to help Mia Bella and her owner get closer to their goal of a full-quality and pain-free life.

-MEGAN KELLEY

AVS AMBASSADORS

YOUR CLEMSON CONNECTION

Clemson's AVS Ambassadors group is currently comprised of 13 students, 11 of whom are enrolled at Clemson with two student ambassadors studying abroad. The AVS Ambassadors serve as a bridge between current and prospective students and faculty in AVS. In the fall, the ambassadors help with the CAFLS alumni tailgate as well as Fall for Clemson, where we talk with prospective students and introduce them to the department. The Ambassadors are available to answer questions and provide tours for prospective students, and we occasionally take prospective students to classes with us!

In the spring, the Ambassadors help out with Destination Clemson campus visitation event to further showcase everything the AVS department has to offer. We are working on a video to showcase the AVS department to prospective students. The video will include interviews with various professors and AVS faculty, as well as footage of Clemson's farms.

—CHANDLER BRUENING



DAIRY SCIENCE CLUB DAIRY DAYS



Show team at the 2013 S.C. State Fair where AVS shows holstein, red and white, jersey, guernsey and brown Swiss heifers each year thanks to the Lemaster Dairy Farm

In the Fall of 2013, our club showed heifers at the Anderson County Livestock Show and the South Carolina State Fair, bringing home many awards, but most impressively Grand and Reserve Champions for the Holstein and Brown Swiss breeds at Anderson and Grand Champion for the Brown Swiss breed at the state fair, along with first place junior best three females (Holstein) and first place junior herdsman award. In November, six club members traveled to LSU to compete at the Regional Dairy Challenge.

This semester, the club traveled to regional American Dairy Science Association at Virginia Tech. We toured many milking and processing facilities and won first place for our scrapbook and website, and we were named second most-active club in the southern region! CUDSC brought 16 heifers to the Clemson University Spring Dairy Show March 1 and placed well compared to stiff competition. We have also been actively trying to reach out to alumni, so if you are looking for more information about our club or would like to be added to the alumni list, please find us on Facebook and send us a message, or visit our website: people.clemson.edu/~cudsc/index.htm.

—MICHELLE BRAUNEIS

In the past year, the Dairy Science Club (CUDSC) has been through a lot of change, but we continue to be active and successful! In the spring of 2013, we concluded the year with the election of new officers as well as wishing Jillian Fain (our club adviser of several years) the best of luck at the University of Georgia.

WAVS

LIVING AND LEARNING EASES THE FRESHMAN TRANSITION

WAVS (Women in Animal and Veterinary Sciences) is a living-learning community for freshmen women majoring in AVS. Since its inception in 2006, WAVS has been the freshman home to almost 300 members and currently supports 45 students. Alumnae have gone on to veterinary, medical and nursing schools, Ph.D. programs and pursued careers in agribusiness and equine centers with companies such as Tyson Foods, Murphy Brown LLC and Keeneland sports venue and stadium.

The WAVS program was developed by Mickey Hall and Roxanne Bernard to help foster retention and develop a sense of community

among students transitioning from high school to college. Professional development is promoted through events like an etiquette dinner and professional dress dinner and through mentoring relationships with former WAVS, called lifeguards. WAVS also participate in stress busters like trips to the rodeo and pottery painting.

University statistics show that WAVS has one of the highest retention rates of any group on campus. In the last year, Kathy Still has served as co-advisor for WAVS, and following the retirement of Hall and Bernard she will be responsible for future WAVS adventures.
—ROXANNE BERNARD



WAVS residents get to participate in events and trips.

AVS Spotlight

NEW CONNECTIONS

Horses changing lives

The Clemson Equine Assisted Therapy Program (CLEAT) began as a research project in the fall of 2012. In the spring of 2013, Marc and Sherre Watson moved to the area from Orlando, Fla., and learned of this program through the development office. Having enjoyed the benefits of therapeutic horses themselves, they were excited about the chance to share that experience with others and



established an endowment for the program. Now renamed the Watson Family Clemson Equine Assisted Therapy Program, CLEAT has continued to grow and meet needs within our community.

One offering of the CLEAT program is a partnership with Central Elementary School, which exposes high-risk students to horses. Twenty-one students come to the horse farm one Friday morning a month where they are able to participate in a riding lesson, a stable-management activity like grooming or feeding their horse and a classroom reflection time. These students have also enjoyed personal interaction with the Watsons, as well as many other volunteers. Following an interaction with these students Marc reflected, "It appears the two very impactful student responses are their relationship with

their individual horse (a sense of trust that they do not find elsewhere) and a growing self-confidence in their abilities based on this trust with their horse. I noted that it wasn't just 'students with horses,' but a 'student with his or her horse.' This personal bond between student and horse is the foundation for the student's ability to gain both trust and self-confidence."

As a symbol of the important connection between the student, his or her horse and this program, the Watson's purchased a personal helmet for each rider and awarded them during a special helmet ceremony. The program continues to have an impact on the lives of these students.

In addition to the partnership with Central Elementary, CLEAT also has a partnership with Clemson LIFE, a

two-year certificate program on Clemson's campus for students with intellectual disabilities. Several students from Clemson LIFE receive lessons in riding and basic horsemanship skills. The program also serves individuals in our community with disabilities by offering therapeutic riding lessons for riders of all ages and abilities.

The CLEAT program is in need of continuing support from volunteers and donors as we continue to grow and serve more members of the community. Our volunteers enjoy time with the horses and seeing the riders grow in their confidence and skill. If you're interested in learning more about or becoming involved with CLEAT, contact Meredith Donaldson at mcole@clemson.edu. We would love to hear from you!

—MEREDITH DONALDSON

in pet foods, livestock feed and organic fertilizer. The students really enjoyed the chance to spend some time with Bagwell and are looking forward to using the money to enrich student experiences at Clemson.

—KAITLYN NEUMANN



GETTING CONNECTED WITH TOMMY BAGWELL

Owner and CEO of American Proteins Inc.

From January 28-30, 2014, right in the middle of one of our big snowstorms, six students from the Clemson University Poultry Science Club traveled with Mickey Hall to the International Production and Processing Expo in Atlanta, Ga. Once there, students were able to participate in the college student program, which allows students opportunities to interview for internships and full-time jobs in the poultry industry.

At the conference, Tommy Bagwell, owner and CEO of American Proteins Inc., presented Clemson University with a check for \$3,000 to improve student experiences. Bagwell is a Clemson alumnus, and American Proteins Inc. is one of the largest rendering companies in the world, processing about 5.2 billion pounds of raw material into 750,000 tons of finished product each year. These finished products are used as the ingredients

GETTING CREATIVE WITH CREATIVE INQUIRY

Photographic Atlas of Ruminant Anatomy
Creative Inquiry projects at Clemson University offer opportunities for small groups of undergraduate students to become more

engaged in research, while working closely with a faculty adviser. Professor Heather Dunn's Creative Inquiry has created a comprehensive textbook filled with 100 percent original photography and artwork illustrating the different features of ruminant (cattle, sheep, goat) anatomy.



AVS Corner conducted a Q&A with Dunn about her ongoing research project:

When can we expect to see the second edition of the Ruminant Anatomy textbook?

It will be completed and sent to print in early May [2014].

Last summer, a few of your students went to Indianapolis to promote the book, which led to it being translated into Portuguese and Spanish. Are there any upcoming promotional dates or trips?

Yes! We will be going to Kansas City, where the book will be promoted and sold at the annual ADSA conference. And actually, we will be presenting data about the text's effectiveness in Montana at NACTA [North American Colleges and Teachers of Agriculture].

Where does the money raised from the book sales go?

We have a university revenue account. One hundred percent of the sales goes to the account. The money helps fund undergraduate travel and undergraduate programs in animal science.

What are you most proud of with regards to the book and your Creative Inquiry group?

The excitement of the students in the project and watching them promote the educational material they created. When we were driving to Indianapolis, I sent a clipboard around to have three people sign up for each shift at the booth, but everybody was there the entire time! Everybody wanted to be there and be involved. I wouldn't have predicted it in a million years.

—MEGAN KELLEY

Research & Creative Inquiry



THE VALUE OF SWEET WATER

RESEARCH PROJECT: SUPPLEMENTATION OF GLYCEROL OR FRUCTOSE VIA DRINKING WATER TO ENHANCE MARBLING DEPOSITION AND MEAT QUALITY IN FINISHING CATTLE

A team of AVS students and staff led by professors Susan Duckett, Scott L. Pratt and John Andrae are working on a project funded by the National Cattlemen's Beef Association that aims to determine whether supplementing glycerol or fructose in steers in the finishing period could stimulate marbling deposition and enhance meat quality.

Glycerol is a byproduct of the biodiesel industry, and it can be utilized in livestock

diets. High fructose corn syrup is produced from corn milling and has become the leading sweetener utilized in the beverage industry. However, despite readily accessible quantities, if glycerol or fructose are fed to cattle, they are fermented in the rumen and little actually reaches the tissues. Therefore, the goal of this study is to find a way to bypass the rumen and deliver glycerol and fructose directly to the small intestine where it can be absorbed and available in the tissues.

Considering that more than 60 percent of drinking water bypasses the rumen, the team is taking a closer look at whether adding glycerol or fructose to the drinking water might offer the solution. The project is expected to reach completion in May. Be sure to keep an eye out for the results!

—Gabriela Volpi Lagreca

CLEMSON EXTENSION BULL TEST

BALANCING PERFORMANCE AND
EFFICIENCY TO MAXIMIZE PROFITS

It's a good time to be in the cattle business. Although product input costs for managing a cattle business have reached record highs, cattle prices are also high. New technology promises to help beef producers get a handle on their costs through increased efficiency. At Clemson, this has meant installation of a new feeding system to help measure individual feed intake.

For more than 30 years, Clemson University Extension Bull Test has been operating as a concentrated, performance-based bull test. The new GrowSafe (GrowSafe Beef Systems, Alberta, Canada) feeding-system supplements current feeding measures by providing precise-feed intake, as well as indicators for residual-feed intake.

It is important to remember that our goal as producers in applying selection pressure is to keep everything in balance. We certainly don't want to over-select for certain traits or completely forget about other variables. The beef industry has made available a multitude of different indexes, EPDs and ratios to help us select for better cattle based on our individual parameters, but efficiency of individual animals has escaped our grasp until now. Clemson University Bull Test Facility has a current capacity of about 80 animals on test at any given time. The 2014 Clemson Bull Test sold 55 bulls and averaged a sale price of \$2,975/bull.

Nominations for the 2015 Bull Test are due in July with a 112-day test running from September to December and the sale the first Saturday

of February 2015. For more information please visit clemson.edu/extension/livestock/beef/bulltests-cubt.

- MATTHEW BURNS
Clemson University Cooperative Extension animal scientist-beef specialist
- PHOTOGRAPHY BY REBECCA DALHOUSE

Animal scientist-beef specialist Matthew Burns of the Clemson University Cooperative Extension works with the University's bull test facility, which has a current capacity of about 80 animals.



The Changing Face of AVS

RETIRING

Mickey Hall

Mickey Hall has touched the lives of thousands of students over the course of 30 years of teaching at Clemson University. Her energetic personality matches perfectly with her species of choice, which is poultry. Hall's favorite part about teaching and the secret to her youth is her students: They are full of surprises and help keep her young and on her toes. She has particularly enjoyed teaching smaller classes because they allow her to develop personal connections with students. Outside the classroom, she has always maintained an open-door policy to further encourage student interaction.

Hall is often a go-to when students need letters of recommendation, and she always encourages students to take advantage of the many opportunities presented at Clemson by joining clubs, becoming involved and getting to know their professors. Her sunny disposition not only has made her a favorite among students but also garnered the admiration and respect of her peers. When asked to describe



Hall, Roxanne Bernard, a longtime friend and co-worker at Clemson said, "Mickey, the most wonderful, giving, unselfish person you'll ever meet. She is the best friend I could ever have."

Although Hall says she will miss teaching at Clemson, she looks forward to enjoying retirement with her husband, chickens, mules, cats and two dogs (Jack and Jill). But one thing she won't miss? The paperwork!

Roxanne Bernard

After 26 years, Roxanne Bernard will also be saying goodbye to Clemson. Her absence will leave quite a hole. Longtime partner-in-crime Mickey Hall says of Bernard, "She is my best friend, so student-oriented, so valuable. There will never be another Roxanne. She's a mother hen. She's the glue that holds the students together."

In June 1988, Roxanne left her position at Baylor, and she and her husband made their way home to South Carolina and Clemson University. Since then, she has seen some changes: The department has expanded

considerably, she has watched the structure change, and she has seen a surge in the number of female students. What hasn't changed is the department's unwavering commitment to students. As a critical part of that culture, Bernard hopes she'll be remembered for being kind and caring about people, and she knows she'll never forget the kindness she received when she most needed it.

Roxanne has served as a research specialist, lab instructor and, most recently, the freshmen adviser, a position she says is the best thing that ever happened to her. In retirement, Bernard plans to travel, spend more time with family, get a library card and become involved in volunteer work. We're not losing her completely though: She also hopes to stay involved with her AVS family and with WAVS, carrying on the legacy that she and Mickey Hall began in 2006.

This duo has worked in tandem since Roxanne's arrival, and they have been responsible for everything from dollar dances, to omelet breakfasts, to educating and supporting students as they navigated the road to a college degree. What's next on their list? "We're going to Dollywood!"

-TINA ROWLAND & JOHANNA JOHNSON

NEW FACULTY HIRE

Gustavo Lascano, ruminant nutritionist

This semester, Clemson University welcomed Gustavo Lascano to the AVS family. Lascano was born in Ecuador and grew up in several places in Latin and North America. He received his B.S. in animal science and production from El Zamorano University in Honduras. In 2007, he obtained his M.S. from Pennsylvania State University, and he completed his Ph.D. at Penn State in 2011 with a specialization in ruminant nutrition.

After completing his Ph.D., he spent three years at Cal Poly, San Luis Obispo, where he developed and led the ruminant nutrition lab

for the dairy science department. Lascano says, "The ruminant nutrition lab prepares students for industry while allowing them to network and collaborate with other universities, companies and countries." He plans to continue this at Clemson University while also working with students in classroom and research settings. Lascano has taught classes including introduction to dairy nutrition, advanced dairy cattle nutrition and metabolism and integrative dairy cattle management, and he has been developing an international animal production



management class that he hopes to incorporate into the AVS curriculum at Clemson.

His research has been presented in several international conferences and been published in several peer-reviewed journals including *Journal of Dairy Science*, *Livestock Science* and *CABI* journals. His research interests include increasing nutrient utilization and animal performance and the interaction of both with the environment, identification of enzymes and microbial modifiers to enhance dietary contri-

butions in ruminants, the use of livestock production to reduce poverty and environmental impact, and the implementation of efficient techniques to support milk production in a sustainable manner. He is excited about getting to know his new colleagues, students and all those who are part of the larger Clemson network, and he is very much looking forward to tailgating this fall!

-MICHELLE BRAUNEIS

NEW STAFF HIRE

Johanna Johnson, grant writing and coordination support

Our newest AVS staff member is Johanna Johnson, a Ph.D. and M.S. graduate in industrial/organizational psychology from Pennsylvania State University. Johanna received a B.S. in psychology from Michigan State University. She came to us from Cal Poly in San Luis Obispo, Calif.

She is eager to provide grant writing and coordination support for AVS faculty. Through involvement in program development and collaborations with other Clemson organizations, Johanna plans to increase alumni and community engagement with the development of this AVS newsletter.

In her spare time, she enjoys whistling, bargain shopping, playing soccer, cooking and being outdoors and on the water! We are incredibly excited to have Johanna joining our department and look forward to the new energy and enhancements she will undoubtedly bring.

-KATHY STILL



Grads on the Go

THE FEW. THE PROUD. THE GRAD STUDENT ASSOCIATION

Although we may be few, we are mighty: The graduate students at Clemson University strive to be the best. Together we form the AVS Graduate Student Association (AVSGSA), which exists to encourage camaraderie and collaboration among the graduate students, no matter their discipline of study. Each year, new graduate students are welcomed into the Clemson family, by AVSGSA. The existing graduate students take pride in showing them the ropes and introducing them to the Clemson spirit. Additionally, this organization employs the power of giving back by participating in two philanthropy projects each year. One of our recent projects has been volunteering our time at Concerned Citizens for Animals events.

– ALLISON MILLICAN,
SECOND-YEAR M.S. CANDIDATE

MEET OUR GREAT GRAD STUDENTS!

1. Gabriela Volpi Lagreca

Degree Program: Ph.D.

Major Adviser: Susan Duckett

From: Argentina

Undergraduate Institution:

Lomas de Zamora University

M.S. Institution: Mar del Plata University

Research Focus: Nutritional effects on meat quality by evaluating the supplementation of finishing cattle with glycerol or fructose via drinking water with the objective of enhancing marbling deposition

"I love Clemson because it is a very friendly place that makes me feel at home."

2. Mariano Alende

Degree Program: Ph.D.

Major Adviser: John Andre

From: Bahía Blanca, Argentina

Undergraduate Institution:

La Plata University

Masters Institution:

Mar del Plata University

Research focus: The nutritional quality of rye grass, with special focus on the effect of sugar content in ruminal fermentation and beef cattle performance.

"I like Clemson because of its quietness, the beauty of its lakes and the outdoor activities you can do."

3. Samantha Calcaterra

Degree Program: Ph.D.

Major Adviser: Scott L. Pratt

From: Birmingham, Ala.

Undergraduate Institution:

Clemson University

Research Focus: MicroRNA expression in boar and bull reproductive tissues, male fertility and semen analysis

"I love being able to be involved in both the on-farm and laboratory aspects of animal research. I like to see things come full circle and to partake in the entire process."

4. Allison Millican

Degree Program: M.S.

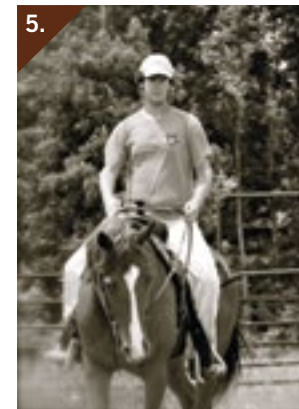
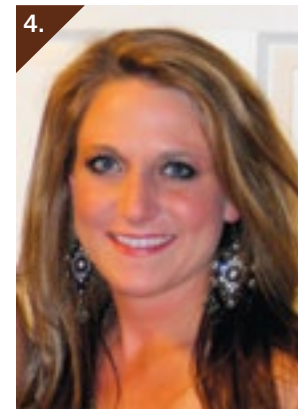
Major Adviser: Kristine Vernon

From: San Angelo, Texas

Undergraduate Institution:

Texas A&M University

Research Focus: Nutritional strategies utilized to help mitigate or decrease the incidence of osteoarthritis in horses



"Being here at Clemson has not only given me an opportunity to work alongside a fantastic group of professors, but I have loved being able to immerse myself in the camaraderie and spirit that goes along with being a Clemson Tiger!"

5. Bryce Pinson

Degree Program: M.S.

Major Adviser: Kristine Vernon

From: Greenwood

Undergraduate Institution:

Clemson University

Research Focus: Equine reproductive physiology

"I like the area around Clemson, and I have had a positive experience with my professors."

6. Callie Burnett

Degree Program: M.S.

Major Adviser: Scott L. Pratt

From: Danville, Va.

Undergraduate Institution:

Averett University

Research Focus: The effects of fescue toxicosis on bull reproduction and reproductive tissues

"I like that Clemson is a large university with a small college feel."

Grads on the Go

7. Chris LeMaster

Degree Program: M.S.
Major Adviser: Nathan Long
From: Gaffney
Undergraduate Institution:
 Clemson University
Research Focus: Effects of late gestation nutrient restriction on calf birth and post-natal traits in beef cattle

"I am very thankful that the opportunity arose for me to come back to Clemson. Four years as an undergrad was not enough time to take in all our department has to offer."



8. Kaitlin Iulo

Degree Program: M.S.
Major Adviser: Glenn Birrenkott
From: Hilton Head Island
Undergraduate Institution:
 Clemson University

Research Focus: Comparative anatomy of the domestic dog and cat

"There's just something in these hills! There is a connection and energy among students here that is hard to put into words but is tangible nonetheless. Clemson is truly one of the happiest places I've ever been blessed to know, and I will forever cherish my experiences here and the friends I've made along the way."



9. Karen Taylor


Degree Program: M.S.
Major Adviser: Nathan Long
From: Winder, Ga.
Undergraduate Institution:
 Berry College (Rome, Ga.)

Research focus: Nutrient restriction on early/mid gestation beef cows

"I like the close-knit community at Clemson, despite the number of students."

Meet the Post Doc!

A native of Marietta, Georgia, Ashley Burns was an active member of 4-H and grew up riding and showing horses. She attended the University of Georgia, where she earned bachelor's degrees in animal science and dairy science. She continued her education at Kansas State University with a master's degree, researching omega-3 fatty acid supplementation in horses. She joined the AVS Department at Clemson in 2008 and earned her Ph.D. in 2011 under professor Susan Duckett. Her doctoral research focused on nutritional physiology of ruminant species. Currently, she is a postdoctoral fellow in Scott L. Pratt's lab, investigating the molecular regulation of lipogenesis on a self-funded USDA grant. Ashley and her husband, Matthew Burns, Clemson University Extension animal scientist, live in Pendleton with their two dogs and three horses. They are expecting the arrival of their first child in September 2014.





10. Kayla Mangrum

Degree Program: M.S.
Major Adviser: Nathan Long
From: Peach County, Ga.
Undergraduate Institution:
 University of Georgia
Research Focus: Ruminant nutrition and effects on meat quality

"I was drawn to Clemson because of the research opportunities and the beautiful landscape of lakes and mountains nearby."

11. Matthew Garrett

Degree Program: M.S.
Major Adviser: Annel Greene
From: Originally from New Albany, Miss., however, spent 17 years in Georgia, where he finished grade school
Undergraduate Institution:
 University of Georgia

Research focus: Validating thermal death times of salmonella in rendered animal products

"So far I have enjoyed my time at Clemson. Everyone seems very nice."



12. Sean Nolan

Degree Program: M.S.
Major Adviser: Peter Skewes
From: Seneca
Undergraduate Institution:
 Clemson University

Research Focus: Analyzing movement and population dynamic variations of the house mouse (*mus musculus*) as it reacts to various methods of control around confined animal and feed storage structures.

"Being an avid sportsman, I enjoy the outdoor recreation opportunities surrounding the Clemson campus and the abundant natural resources connected to the University for research purposes."

AVS Research Highlights

AVS has been busy this year presenting and publishing papers to help get important research findings out! See something that looks interesting? Let us know! More information is available on the AVS website at clemson.edu/avs.

Scientific Publications

Bodine, A.B. 2014. Sites of immune cell production in elasmobranchs: lymphomyeloid tissues and organs. In *Immunobiology of the Shark*. CRC Press. (In press)

Duckett, S.K., J.P.S. Neel, R.M. Lewis, W.M. Clapham, and J.P. Fontenot. 2013. Effects of forage species or concentrate finishing on animal performance, carcass and meat quality. *J. Anim. Sci.* 91: 1454-67.

Duckett, S.K. and S.L. Pratt. 2014. Meat science and muscle biology symposium – anabolic implants and meat quality. *J. Anim. Sci.* 92:3-9.

Jenkins, T.C. and K.J. Harvatine. 2014. Lipids feeding and milk fat depression. *Vet. Clin. Food Anim. Book Chapter*. (In press)

Jenkins, T.C., W.C. Bridges Jr., J.H. Harrison and K.M. Young. 2014. Addition of potassium carbonate to continuous cultures of mixed ruminal bacteria shifts, volatile fatty acids and daily production of biohydrogenation intermediates. *J. Dairy Sci.* 97 :975-984.

Kadegowda, A.K.G., **T.A. Burns**, M.C. Miller, and **S.K. Duckett.** 2013. Cis-9 trans-11 conjugated linoleic acid is endogenously synthesized from palmitelaidic (C16:1 trans-9) acid in bovine adipocytes. *J. Anim. Sci.* 91:1614-23.

Kadegowda, A.K.G., **T.A. Burns, S.L. Pratt, and S.K. Duckett.** 2013. Inhibition of stearyl-CoA desaturase 1 reduces lipogenesis in primary bovine adipocytes. *Lipids.* 48:967-976.

Long N.M. and D.W. Schafer. 2013. Sex effects changes in plasma leptin in newborn and postnatal beef calves. *Prof. Anim. Scientist.* 29:601-605

Long, N.M., D.T. Smith, S.P. Ford, and P.W. Nathanielsz. 2013. Elevated glucocorticoids



during ovine pregnancy increase appetite and produce glucose dysregulation and adiposity in their granddaughters in response to ad libitum feeding at one year of age. *Am. J. OB and Gyn.* 209: 353.

Long, N.M., P.W. Nathanielsz, and S.P. Ford. 2013. Transgenerational effects of fetal dexamethasone exposure on the hypothalamic-pituitary-adrenal axis of first- and second-generation female offspring. *Am. J. OB and Gyn.* 208:217

Long, N.M., N. Tuersunjiang, L.A. George, C.O. Lemley, Y. Ma, W.J. Murdoch, P.W. Nathanielsz, and S.P. Ford. 2013. Maternal nutrient restriction in the ewe from early to midgestation programs reduced steroidogenic enzyme expression and tended to reduce progesterone content of corpora lutea, as well as circulating progesterone in nonpregnant aged female offspring. *Biol. Reprod. Endocrinol.* 11:34.

Nathanielsz, P.W., S.P. Ford, N.M. Long, C.C. Vega, L.A. Reyes-Castro, and E. Zambrano. 2013. Interventions designed to prevent adverse programming outcomes resulting from exposure to maternal obesity during development. *Nutr. Rev.* 71: S78-S87.

Budak, N.H. E. Aykin, A.C. Seydim, A.K. Greene, and Z.B. Guzel-Seydim. 2014. Review: Functional properties of vinegar. *J. of Food Sci.* (In press)

Pavan, E. and S.K. Duckett. 2013. Fatty acid composition and interrelationships among eight retail cuts of grass-fed beef. *Meat Sci.* 93:371-37

Pratt, S.L., T.A. Burns, M.D. Owens, and S.K. Duckett. 2013. Isolation of total RNA and detection procedures for miRNA present in bovine-cultured adipocytes and adipose tissues. *Methods Mol. Biol.* 936:181-94.

Schmidt, J.R., M.C. Miller, J.G. Andrae, S.E. Ellis, and S.K. Duckett. 2013. Effect of summer forage species grazed during finishing on animal performance, carcass quality and meat quality. *J. Anim. Sci.* 91:4451-4461.

Stowe, H.M., M. Miller, M.G. Burns, S.M. Calcaterra, J.G. Andrae, G. Aiken, F.N. Schrick, T. Cushing, W.C. Bridges, and S.L. Pratt. 2013. Effects of fescue toxicosis on bull growth, semen characteristics and breeding soundness evaluation. *J. Anim. Sci.* 91:3686-3692.

Suarez-Mena, F.X., G.J. Lascano and A.J. Heinrichs. 2013. Behavior of precision-fed dairy heifers on a low- or high-forage ration at four levels of dry distillers grains. *J. Dairy Sci.* 96:5184-5193.

Tuersunjiang, N., J.F. Odhiambo, N.M. Long, D.R. Shasa, P.W. Nathanielsz, and S.P. Ford. 2013. Diet reduction to requirements in previously obese/overfed ewes from at early gestation prevents glucose-insulin dysregulation and returns fetal adiposity and organ development to control levels. *Am. J. Physiol. – Endocrin and Metabolism.* 305: E868-E878

Conference Presentations

Duckett, S. K., M.C. Miller, G. Volpi Lagreca, M. Alende, T.A. Burns, A. Wright, J.G. Andrae, and N.M. Long. Effect of palmitoleic acid on body composition and adipocyte cell size in obese sheep. Presidential Pick Award, poster presented at 2013 ASAS National Meeting.

Duckett, S.K., M.D. Owens, and S.L. Pratt. Sequence identification of bovine microRNA in adipose tissue and their differential expression due to diet. Presidential Pick Award, poster presented at 2013 ASAS National Meeting.

Dunn, H., B. Bolt, C. Deaton, and J. Johnson, Educational impact of student-developed

material for animal science. To be presented at the 2014 NACTA Conference.

Johnson, J.E., N. Popp, and G.J. Lascano. 2013. Profit in practice: understanding the role of human resource management (HRM) in dairy farm efficiency. Oral presentation at 2013 ADSA National Meeting.

Long, N.M., T.A. Burns, S.K. Duckett, and D. W. Schafer. Reproductive performance of beef heifers supplemented with saturated or unsaturated rumen bypass fat. Presented at 2013 ASAS National Meeting.

Long, N.M. and D.W. Schafer. Changes in plasma leptin in newborn and postnatal beef calves. 2013. Poster presented at 2013 ASAS National Meeting.

Zhang Y. Bridges, W.C. Jr., and A.K. Greene. Validation of Thermal Destruction of *Geobacillus stearothermophilus* in Rendered Products. Poster presented at 2013 IFT (Institute of Food Technologists) Meeting.

Popular Press Articles

Mills, B. (2014, April). Timing is everything. *Angus*, 94-97. **Based on research from **S. Duckett and J. Andrae**

Johnson, J.E. and G.J. Lascano. (2014, March 12). Worlds apart, the same familiar challenges. *Progressive Dairyman*, 5, 35-36.

Johnson, J.E. and G.J. Lascano. (2014, February 7). Don't overlook the intangibles: intrinsic, extrinsic motivation. *Progressive Dairyman*, 3, 41-42.

Johnson, J.E. and G.J. Lascano. (2014, January 1). Help wanted: referral systems can be useful. *Progressive Dairyman*, 1, 26-27.

Johnson, J.E. and G.J. Lascano. (2013, December 11). Addressing the "people puzzle" on dairy farms. *Progressive Dairyman*, 18, 32-33.

AVS News, Notes & Events

The Write Stuff

Two members of the AVS department collaborated to win the North American essay contest. In January of 2014, Samantha Calcaterra, a Ph.D. candidate, and Ashley Burns, a post-doctoral fellow, who are both members of Dr. Scott L. Pratt's laboratory in AVS, got the news that they won the 2013 Life Technologies Cell Health Essay Contest. Winning this particular contest is big news for Clemson and the AVS department because their prize happens to be a new Tali® Image Cytometer that is valued at \$14,780.

Calcaterra and Burns collaborated on the 500-word essay that was required to apply for the contest. The essay was geared toward how one's lab ensures the health of cells in culture and its importance in one's research. The essays were critiqued based on completeness, accuracy, focus on cell health, originality and creativity by a panel of five judges.

The combination of Calcaterra's creativity and Burns' expertise in cell culture, quality control and aseptic technique proved to be a recipe for success. The final essay they submitted was a blog-style essay that was written as a day in the life of "Addy, the Adipocyte." Through the joint effort, their essay was selected from submissions throughout the United States and Canada.



Clemson University's AVS department will benefit greatly from the new Tali® Image Cytometer. This piece of equipment is a bench-top assay platform that gives rapid image data of cells, quantitative analysis of green and red fluorescent protein expression, apoptosis, cell viability and so much more. With this cytometer, current projects can utilize additional methods of analyzing samples and a greater amount of information and more accurate data can be efficiently collected. Furthermore, this creates more opportunities for future projects and new research opportunities at Clemson University.

—KAYLA MANGRUM

2013 CAFLS Outstanding Staff Employee Award

Congratulations to Roxanne Bernard on winning this award. She serves as student services manager in AVS, as well as freshmen academic adviser and co-director of the WAVS Living-Learning Community.

2014 Bradley Award for Creative Inquiry Mentoring

Congratulations to Heather Dunn on receiving the universitywide 2014 Bradley Award for her work in the last year with five Creative Inquiry courses!

Happy AVS Holidays, 2013

The AVS holiday parties are something I look forward to each year. This is not just because of the delicious feast served or the gathering of colleagues; I truly look forward to seeing the retired faculty and staff members of our department. Some remember a very different department, (separate dairy science, poultry science, animal science, etc.). Some share stories of fishing adventures and run-away horse trailers, and all are amazing folks who share fond memories of past students. I am fortunate to have had these professors during my undergraduate years. They inspired me in many ways, but perhaps most importantly, they taught me to enjoy life and to enjoy what I do. I strive to teach my students with the same enthusiasm, passion and caring that these professors provided for me.

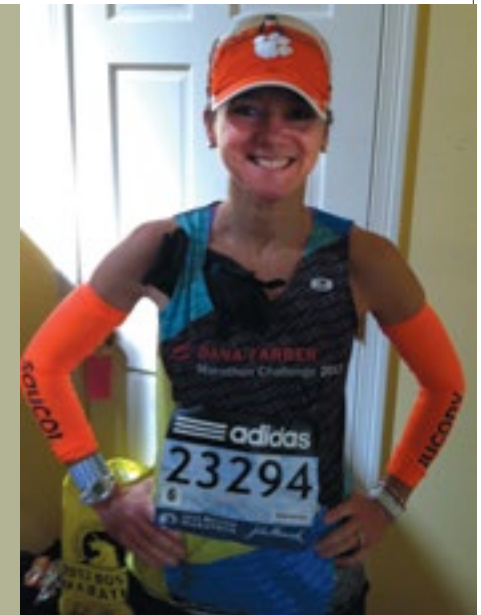
—HEATHER WALKER DUNN, AVS RESEARCH ASSISTANT PROFESSOR

Faculty runs to honor AVS mentor, Budd Bodine

Heather Dunn, a research assistant professor in AVS, ran the 118th Boston Marathon in April with the Dana-Farber Marathon Challenge (DFMC) team to honor her dear friend and mentor Budd Bodine, professor of animal and veterinary sciences. "Dr. Bodine is fighting a courageous battle with cancer," Dunn says. "While he strives to continue many great accomplishments during his treatments, his most important goal is to remain a positive influence on Coleman, his beautiful grandson."

As a DFMC runner, Dunn is out in front of the search to find cures for cancer. DFMC directs 100 percent of the funds it raises to the Claudia Adams Barr Program in Innovative Basic Cancer Research at Dana-Farber, which fosters scientific breakthroughs by advancing the work of gifted researchers in a variety of basic research disciplines. These funds enable scientists at the leading edge of discovery to achieve better cure rates and to enhance patients' quality of life.

Dunn pledged to raise \$5,000, and she continues to invite support for this cause, asking others in the AVS family to give a gift to DFMC and, in doing so, help bring an end to the challenge of cancer. Any amount donated is greatly appreciated! Visit her personal web page, and help her in her efforts to support Bodine, Dana-Farber Cancer Institute and the Jimmy Fund. runDFMC.org/2014/heatherdunn



AVS Student Awards

CU Equestrian Team: Western CUET, Zone 5, Region 3 Western Champion Team and High Point Rider, Rebekah Strunk (AVS), Hunter CUET, currently third in the standings with one final show to go. More than 25 CUET show team members are AVS students.

The CU Dairy Science Club: This group recently took first place in both the scrapbook and website competitions at the regional ADSA-ASAS meeting.

Innovate Poster Competition: In September of 2013 Ashley Burns took first place in the 2013 ASAS Innovate Poster Competition held in Braselton, Ga., for her work around how Palmitoleic (C16:1) acid alters glucose and insulin metabolism in obese lambs.

What's Going On!

2014 Calendar of Upcoming AVS-Related Events

● EQUINE EVENTS

● JUDGING CONTESTS/EVENTS

● CLEMSON AVS DEPARTMENT EVENTS

● GENERAL EVENTS

MAY

● Grass Masters Series

May 8

6:30-9 p.m., soil and pasture fertility, forage variety selection

May 15

6:30-9 p.m., pasture pests, plant physiology

May 22

6:30-9 p.m., poisonous plants, grazing management

May 29

6:30-9 p.m., incorporating annuals and legumes into perennial grass systems, nutritional requirements of livestock on pasture grazing systems

For more information, contact Laurens County extension office, Cassie Wycoff, 864-984-2514 ext. 1117 or email cwycoff@clemson.edu.

● **May 9**

Spring graduation

● **May 17**

CU Equine Center presents "Advanced Equine Management" short course, Clemson

JUNE

● **June 16-July 18**

AVS Orientations

● **June 25-28**

North America Colleges and Teachers of Agriculture (NACTA) conference, Montana State University, Bozeman, Mont. (Graduate student presentation: Erika Pisik)

JULY

● **July 20-24**

Joint annual meeting of American Dairy Science Association, American Society of Animal Science, Canadian Society of Animal Science, Kansas City, Mo.

AUGUST

August 7

Bull test delivery. For more information on nominations, please contact Matt Burns, burns5@clemson.edu

August 17

WAVS Breakfast

August 19

WAVS Beach Party

August 20

CAFLS Bash at the Barre

August 23

Simpson Field Day

August 27

AVS Welcome Back BBQ





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RECONNECT!

Interested in reconnecting with the AVS department? Contact us, and we can talk about what form that might take. Perhaps you're interested in being a guest speaker for one of our classes, acting as a sponsor for a WAVS member or moving a pet project forward. If you saw something here that piqued your interest, let us know! Former club members, students and faculty — we would love to hear about what you're up to and where you are!

Be sure to visit the department website for more information, to join our mailing list (mailing or email addresses) and to suggest stories for future newsletters.

Find us at: clemson.edu/cafls/departments/animal_vet_science/

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