

The Department of Animal & Dairy Science

Newsletter

Fall 2019

Professor Dean Pringle works to build a better understanding of meat quality

Article by Merritt Melancon

From engaging first-year students in how to make hotdogs so they understand where their food comes from to guiding graduate students in their meat science research, Professor Dean Pringle has helped introduce more than 3,500 students to the world of animal science.

Coming from a family of teachers, Pringle's dedication to teaching comes as no big surprise. His students describe him as approachable, helpful, caring, knowledgeable and demanding. His courses provide practical knowledge and build critical thinking and communication skills. Pringle has been recognized for his teaching at the department, college, university and national levels.

Since beginning his time at the University of Georgia Department of Animal and Dairy Science in 1993,



Dean Pringle

Pringle's dedication to teaching and his robust research program into the link between animal nutrition and meat quality have helped to build UGA's national reputation for excellence in animal science.

While his name is most often associated with cattle, he's also focused on meat quality in small ruminants, pigs and even broilers. Currently his research is focused on understanding and improving feed efficiency and carcass quality in beef cattle. This work is supported by the Georgia Commodity Commission for Beef, Brasstown Beef, and the American Angus Association and was featured

in the October 14th, 2019 "Angus Report." The next step is to dive into the microbiome to determine how it influences these economically important traits.

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Department Info

Department of Animal & Dairy Science

E.L. Rhodes Center
425 River Road
Athens, GA 30602
706-542-1852
ads.caes.uga.edu



College of Agricultural &
Environmental Sciences
UNIVERSITY OF GEORGIA

From the Department Head



Francis Fluharty, Animal and Dairy Science Department Head

I've been in Georgia 18 months now, and I'm impressed with the willingness of many of our alumni to help move us forward. Today, one of the main challenges we face is giving our students real-world experiences in Animal and Dairy Science. We have developed a plan to have registered cattle herds in the Department of Animal and Dairy Science, in Athens, to enhance the undergraduate education of our students. We have gone through a cultural shift in rural America over the past 40 years, and we need to be realistic about this and develop more experiential learning. In the 1940's through the 1980's most Animal and Dairy Science programs were populated with young people who were raised on farms. Over the past 70 years, the youth from farms went to college and became doctors, lawyers, physicists, business owners, and entered a variety of other professions. They were successful, because they had a work ethic that was ingrained in them from the time they were old enough to help with chores. They knew how to prioritize duties, and plan, because they learned things working on farms as they grew up. Today's undergraduate students are approximately 70 to 85% urban and suburban. They need to be very intelligent in order to get into UGA. However, they have little practical experience regarding the time and dedication to detail that running a livestock farm entails. This is in no way their fault. Nevertheless, the companies that hire our graduates expect them to understand economics, the impacts of their advice on the farming and ranching families who take their advice, and to know how to relate to somebody who has been up all-night assisting heifers during calving season. Our plan is for the Angus and Hereford herds

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Upcoming Events

[FABricate Information Session](#)

November 5, 5:30-6:30 p.m.

[Live \(on Facebook\) from the LAB](#)

**ADS faculty member
Alexander Stelzleni
November 8, 10 a.m.**

[D.W. Brooks Lecture and Awards](#)

November 12, 3:30 p.m.

[Live \(on Facebook\) from the LAB](#)

**ADS faculty member
Todd Callaway
December 6, 10 a.m.**

[UGA Commencements](#)

December 13

- **Fall Undergraduate Ceremony 9:30 a.m.**
- **Fall Graduate Ceremony 2:30 p.m.**

[CAES Convocation](#)

December 13, noon



From the Department Head

Francis Fluharty

Department of Animal & Dairy Science

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in Athens to be run by students, under the direction of production-minded faculty, and to have these students be directly involved in beef marketing so that they can learn about assets and liabilities, as they will need to do the farm income statements, track feed and medicine bills, do the vaccinations, assist with the artificial insemination and estrus synchronization and breeding program, do the bull selections with the help of experienced faculty and industry personnel, and leave college with a competitive advantage over students from other universities.

In addition, I want to be able to have a feed and water intake recording system installed at the Double Bridges feedlot. We would be able to do growing studies with the heifers and bulls born at the Athens farm, and this will be a tremendous training, research, and Extension outreach opportunity. I envision short courses where we have judging classes of heifers and bulls, so that producers can

place them according to phenotype. Then, we can have faculty like Daniela Lourenco and Dr. Ignacy Mizstal, who developed the single-step genetic evaluation method that is used by the American Angus Association, give talks on the use of genetically-enhanced EPD's in selecting replacement heifers and bulls. We can develop our own genetically superior replacement females and herd sires. This past year, fifteen farms donated over 200 embryos and 400 units of semen to our department to assist in this effort. **WE ARE EXTREMELY THANKFUL FOR THEIR SUPPORT!** On September 24, we hosted a dinner for these donors as a small way to show our appreciation.



*Donor Appreciation Dinner
September 24, 2019*

However, all of this takes money, and if you want to support our efforts, directly, your donation to our newly established Beef and Meat Science Research Fund would be greatly appreciated! To donate online, visit **gail.uga.edu/commit**, select the College of Agricultural and Environmental Sciences, and in the designation box, select the Animal and Dairy Science Beef and Meat Research and Teaching Fund – 90261000, or the Animal and Dairy Science Discretionary Fund – 81192000. Please feel free to contact me if you would like to discuss any of this with me. My email is [FFluhart@uga.edu](mailto:FFluharty@uga.edu) and my direct office number is 706-542-1017.

Sincerely,

Francis Fluharty
Department Head and
Professor Dept. of Animal and
Dairy Science
University of Georgia



News

John Gonzalez works to improve the experiences of grad students and meat consumers

Article by Merritt Melancon

John Gonzalez is relatively new to the University of Georgia, but he's been investigating meat and quality and hog health topics for almost a decade.

Throughout his career and since arriving at UGA his research program has focused on multiple areas. Gonzalez was an associate professor at Kansas State University before coming to UGA in spring 2019.

He has produced several publications that focus on meat quality and ways to improve consumers' sensory experience of meat products — including pork and beef. He has also worked to research consumers' attitudes toward meat products.

More recently Gonzalez has turned his focus to the physiological mechanisms that affect meat quality — specifically muscle fiber size and type in pork and beef.

He also studies the biochemical mechanisms that contribute to muscle fatigue during the transportation of pigs and cattle to find nutritional strategies to combat fatigue.

Yet another of Gonzalez's research interests involves improving the nutrition of mother sows during gestations to help improve the health of her piglets. He is investigating animal management strategies and feed supplements as well as breeding strategies meet these goals.

While Gonzalez is focused on pigs and cattle, he hopes that what he finds out about muscle physiology and development may



Associate Professor

John Gonzalez

also enhance our understanding of the chemistry and physiology of human muscle nutrition. This work could help aid individuals who are malnourished or suffer from wasting diseases.

“Hopefully what we find that can help us better understand human nutrition and be used to develop treatments for myopathies,” Gonzalez said.

Outside of his research work, Gonzalez is also in charge of graduate student professional development seminars for the department. He finds the role of supporting young scientists very rewarding.

“It was my passion at K State as well; just training graduate students to be able to communicate with other scientists and get them ready to talk about their work in an impressive way.”

Gonzalez received his doctoral degree in Animal Sciences from the University of Florida in 2008. He attended Texas A & M for his undergraduate degree and attended high school up in San Antonio, Texas.



Live from the LAB update

By Merritt Melancon for CAES News

Back for its fourth semester, the University of Georgia College of Agricultural and Environmental Sciences' Live from the Lab series will be taking Georgians back inside the college's labs to talk to world-class researchers about their work.

In this semester's Facebook Live broadcasts, UGA CAES' Live from the Lab will talk to two Animal and Dairy Science faculty — Alex Stelzleni at 10 a.m. on Nov. 8 and Todd Callaway at 10 a.m. on Dec. 6.

During the broadcasts, the scientists will talk about the nuts and bolts of their labs, how they got started and possible real-world applications of their research.

So stay tuned to www.facebook.com/UGACAES and get your science questions ready.

Friday, Nov. 8, 10 a.m. — Alex Stelzleni

What makes a great steak different from a sad, stringy hunk of beef? How can we help beef producers become more profitable? How can we make meat products safer for the consumer? There's more to meat than meets the eye, and Alex Stelzleni of the Department of Animal and Dairy Science is ready to share its secrets. Stelzleni, who comes from a family of butchers, has studied the relationship between beef cattle production and meat quality, flavor and the other factors that impact great steak.

Friday, Dec. 6, 10 a.m. — Todd Callaway

The digestive tract of a cow is home to a diverse population of bacteria and microbes representing about 4,000

different species. There are good guys. There are bad guys. Todd Callaway of the Department of Animal and Dairy Science studies how a cow's microbiome can impact the safety of our food supply and help control human disease outbreaks.

For more information about the series, visit www.facebook.com/UGACAES and look under events.



In this series of Facebook Live broadcasts, UGA CAES' Live from the Lab will introduce the public to 10 researchers in disciplines from across the college.



Existing drug could treat aggressive brain cancer

Charlene Betourney

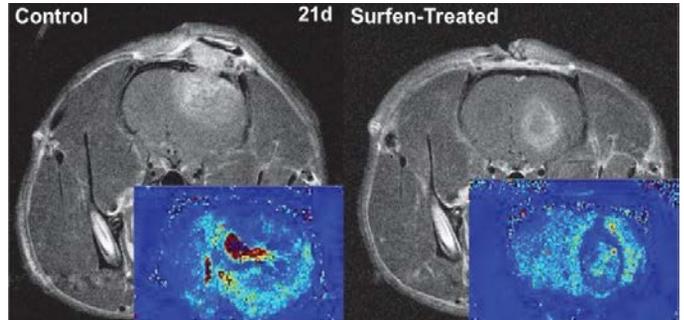
A research team from the [University of Georgia's Regenerative Bioscience Center](#) has found that a compound molecule used for drug delivery of insulin could be used to treat glioblastoma, an aggressive, usually fatal form of brain cancer.

Glioblastoma, also known as GBM, is a fast-growing, web-like tumor that arises from supportive tissue around the brain and resists surgical treatment. Described by some as “sand in grass,” GBM cells are hard to remove and tend to reach out in a tentacle-like fashion through surrounding healthy brain tissue.

According to the National Foundation for Cancer Research, more than half of newly diagnosed GBM patients die within the first 15 months. Late U.S. Sens. John McCain and Ted Kennedy both died from GBM, raising national awareness of the deadly disease.

Surfen, a compound molecule first described in 1938, is a pharmaceutical agent used to optimize insulin delivery. The UGA researchers identified that surfen-treated cells were “blocked” from tumor growth, and the spread of tumor cells in the brain.

“[This study](#) shows that we can stifle the growth of invasive brain tumors with a compound that has a substantial clinical advantage, and can aid in the reduction or refinement of mainstream treatments, particularly radiation and/or chemo,”



MRI imaging showing the control vs. the surfen-treated example. (Photo provided by UGA Regenerative Bioscience Center)

said Lohitash Karumbaiah, associate professor of regenerative medicine in UGA’s College of Agricultural and Environmental Sciences.

Published ahead of print in the FASEB Journal, the study is the first known use of surfen as an application to treat GBM. To test the approach, the research team first used cultured cells to observe binding properties of the surfen compound. Next, they introduced live rodent models with cells that could grow into invasive tumors. The researchers found that surfen-treated animals demonstrated smaller tumors and substantially reduced brain hemorrhage volume than control animals.

“In basic terms, surfen is highly positively charged and will bind to negatively charged things,” said Meghan Logun, a graduate student working with Karumbaiah. “Since we study sugars in the brain, which are highly negatively charged, we then asked, ‘Why not try using positive charges to block off the negative ones?’”

[Article continues on our website.](#)

Student Spotlight

Xiaoxing Xu

Ms. Xiaoxing (Sandra) Xu joined Dr. John Michael Gonzalez's Muscle Biology Laboratory in May of 2019. Xiaoxing was born in Dongying, Shandong Province of China, which is known as the "Eastern Detroit" of the world because of its vibrant car industry. Xiaoxing comes from a scientific background with her father, Rifu, being a professor of avian reproduction in the College of Animal Science and Technology at Jilin Agricultural University.

Xiaoxing obtained her Bachelor's degree in animal science from Huazhong Agricultural University located in Wuhan, Hubei Province of China. During her undergraduate career she became interested in animal growth and development, genetics, and reproduction. After obtaining her undergraduate degree, Xiaoxing attended the University of Hawaii at Manoa where she conducted her Master of Science research in the area of mouse skeletal muscle growth and development under supervision of Dr. Yong-Soo Kim.

In her brief time in the Gonzalez Laboratory, Xiaoxing has worked on projects examining the effects of processing on Alaska pollock protein distribution and collagen characteristics, effects of pH on proteolytic degradation of beef myofibrillar proteins, and assisting Dr. Gonzalez in setting up the laboratory. Xiaoxing's doctoral work will focus on continuing the work Dr. Gonzalez conducted at Kansas



Xiaoxing Xu

State University, which is examining the effect of nicotinamide riboside in ovo injection on avian embryonic muscle development and growth. Specifically, Xiaoxing will focus on examining the effect of the compound on gene and protein expression. Once her degree is completed, Xiaoxing hopes to seek an academic position at a major research university.



Student Spotlight

Taylor Krause

Taylor Krause joined the University of Georgia Animal and Dairy Science Department in the Fall of 2017 after graduating with an Animal Science degree from the University of Illinois.

Taylor developed a passion for ruminants at an early age, she didn't grow up raising sheep or goats.

At her family's farm in Red Bud, Illinois, Taylor helped her parents manage their herd of elk. She was also involved in the family's country store, which sold elk products including antlers and meat.

In the Fall of 2015, Taylor moved from the family farm to Champaign, Illinois, and attended the University of Illinois as an animal science major. As an undergraduate, she worked with the Beef Nutrition group and was introduced to beef cattle research during an internship at the Dixon Springs Agricultural Center. She also spent time working in the Meat Science Laboratory and developed an interest in beef cattle nutrition and its impacts on beef quality.

Taylor completed her master's degree at the University of Georgia in May 2019 under the direction of Professor Dean Pringle. During that time, she was involved in a wide range of research projects including work on bacon palatability, development of a pork quality grading system, adding value to "woody breast" chicken and studying the genetics of horn fly resistance in beef cattle. In her spare time, she served as the lead graduate student for the ongoing "Beef Cattle Efficiency" project at the Northwest Georgia REC in Calhoun, Georgia, which was her thesis project.

Her research was supported by the American Angus Association, the Georgia Agricultural Commodity Commission for Beef and Brasstown Beef. Taylor's thesis was entitled *The impacts of selection using residual average daily gain and marbling EPDs on growth performance and carcass traits in Angus steers*. She will be submitting her thesis for publication in the coming year.



Taylor Krause

Taylor has presented her research at meetings of the American Society of Animal Science and the American Meat Science Association. She has co-authored several articles for the Georgia Cattlemen's magazine. Taylor is in the first year of her Ph.D. program and investigating the biological and physiological mechanisms that regulate feed efficiency in beef cattle. She is currently investigating the role that the gastrointestinal microflora have on feed efficiency, as well as the relationship between the microflora and carcass value, focusing on traits like marbling content and carcass weight.

Beyond her research, Taylor has been an integral part of the teaching program in the Department of Animal and Dairy Science. She has mentored undergraduates and served as a teaching assistant, including lab class coordination and presenting lectures. She has also given invited presentations at U.S. Meat Export Federation workshops and student recruitment programs.

Taylor is a quiet leader among the department's graduate students and will often be found behind the scenes doing the not so glamorous, but absolutely necessary work.

Whether it is in the classroom, working in the laboratory, or out on the farm, Taylor is working hard to ensure that whatever task she sets her hand to is successful. She is a highly valued part of the TEAM in the UGA Animal and Dairy Science department.

