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welcome

Welcome to the College of Agriculture, Forestry and Life Sciences

The Clemson University College of Agriculture, Forestry and Life Sciences embodies the land-grant mission and vision of Thomas Green Clemson. The college's interdisciplinary programs in five departments offer 32 undergraduate and graduate degree programs that prepare students for challenges facing our state, nation and world. Cutting-edge research is conducted by faculty housed on campus and at the Experiment Station's six Research and Education Centers across the state. True to our mission, the College's Cooperative Extension Service delivers the latest research-based information to South Carolinians through offices in every county. Additionally, Regulatory Services and Livestock Poultry Health play vital roles in protecting animal, environmental and human health. Together, these units extend the reach of CAFLS, supporting public health, economic development and environmental sustainability throughout South Carolina and beyond.

Looking Back, Moving Forward

As I reflect on my first few months as dean of the College of Agriculture, Forestry and Life Sciences, one thing stands out above all—the incredible people who make up this community. From our students, faculty and staff to alums, donors and partners, each of you plays a vital role in the success of the College. It's been an exciting time to join CAFLS and I'm thrilled to share some of the highlights from this past year.

This year has been transformative for CAFLS. We've celebrated major milestones, like breaking ground on the new Forestry and Environmental Conservation building and helping reinstate peach exports to Mexico after a 10-year hiatus. We also launched the Clemson Global Research Initiative, expanding opportunities for international collaboration and positioning CAFLS to address global challenges with innovative solutions and fresh perspectives. One of the most exciting developments this year has been further integrating Regulatory Services and Livestock Poultry Health into the CAFLS family. These teams bring invaluable expertise and leadership to our College, enhancing our ability to serve South Carolina.

Our commitment to making an impact is at the heart of everything we do. We're not just growing programs or checking off goals—we're shaping a future where CAFLS becomes a center of excellence in innovation, sustainability and collaboration.

As you explore the past year's highlights in this report, I hope you feel the same pride and optimism I do. Thank you for being part of this journey. I'm excited about what we'll accomplish together in the coming year and I can't wait to see what the future holds for CAFLS.

mother) I. 19

MATTHEW "MATT" HOLT DEAN, COLLEGE OF AGRICULTURE, FORESTRY AND LIFE SCIENCES



STUDENT SUCCESS

freshman retention 93.2% 6-year graduation **87.1**% **GRADUATE ENROLLMENT** 246 179 Master's Doctoral





ENROLLMENT BY DEPARTMENT 2024-2025

UNDERGRADUATE	1,910	GRADUATE	427
AGRICULTURAL SCIENCES	341	AGRICULTURAL SCIENCES	38
ANIMAL AND VETERINARY SCIENCES	565	ANIMAL AND VETERINARY SCIENCES	29
FOOD, NUTRITION AND PACKAGING SCIENCES	432	FOOD, NUTRITION AND PACKAGING SCIENCES	57
FORESTRY AND ENVIRONMENTAL CONSERVATION	432	FORESTRY AND ENVIRONMENTAL CONSERVATION	192
PLANT AND ENVIRONMENTAL SCIENCES	140	PLANT AND ENVIRONMENTAL SCIENCES	109

UNDERGRADUATE STUDENTS



DEGREE PROGRAMS

AGRICULTURAL SCIENCES

Agricultural Education (B.S., M.Ag.E., Post-B.S. Cert) Agricultural Mechanization and Business (B.S.) Agribusiness (B.S.) Agriculture (M.S., Ph.D.) Applied Economics and Statistics (M.S.)

ANIMAL AND VETERINARY SCIENCES

Animal and Veterinary Science (B.S., M.S., Ph.D.)

FOOD, NUTRITION AND PACKAGING SCIENCES

total college

enrollment

Food and Human Nutrition (B.S.) Packaging Science (B.S., M.S.) Food, Nutrition and Culinary Sciences (M.S.) Food, Nutrition and Packaging Sciences (Ph.D.)

FORESTRY AND ENVIRONMENTAL CONSERVATION

Environmental and Natural Resources (B.S.) Forest Resource Management (B.S.) Wildlife and Fisheries Biology (B.S., M.W.F.R., M.S., Ph.D.) Forest Resources (M.F.R., M.S., Ph.D.)

PLANT AND ENVIRONMENTAL SCIENCES

Horticulture (B.S.) Plant and Environmental Sciences (B.S., M.S., Ph.D.) Turfgrass (B.S.) Entomology (M.S., Ph.D.)



619 residents from other states



29 countries represented



122 international students



With a state resident **undergraduate** enrollment of 1,456 students, the current college student body represents all 46 counties in South Carolina.

*All numbers are for Fall 2024 unless otherwise noted.

STATEWIDE IMPACT

Clemson University College of Agriculture, Forestry and Life Sciences is at the heart of South Carolina's growth and resilience. delivering tangible solutions that benefit the state's people, environment and economy. Through units like Clemson Cooperative Extension, Livestock Poultry Health and Regulatory Services, we address critical challenges in agriculture, natural resources and public health. Whether advancing sustainable farming practices, safeguarding food supply chains, or protecting animal health, our faculty, staff and students work collaboratively with communities and industry to drive progress. Together, we're shaping a prosperous and sustainable future for all South Carolinians.

EXTENSION AT A GLANCE



46 county Extension offices

198K+

participants

in educational

programs



10,714 programs offered



4,734 4-H volunteers ADULTS AND YOUTH









- Left: Officials with the Clemson University Department of Plant Industry destroyed multiple secondary nests of the invasive yellow-legged hornet in South Carolina near Hilton Head Island.
- Center: Each year, more than 300 commercial and emerging crop varieties are field-tested at Pee Dee REC. The resulting performance data is published to guide farmers in making informed seed selection decisions.
- Right: CAFLS is advancing efforts to keep South Carolina safe by developing a flood evacuation tool to ensure safe evacuation routes.



EXPANDING INTERNATIONAL MARKETS

Leading agricultural excellence

Clemson University's Department of Plant Industry has demonstrated the power of regulation through collaboration. enabling 2.5 million pounds of "Pride of the Ridge" peaches to enter the Mexican market. By working closely with state and federal agencies, Clemson's regulatory specialists helped South Carolina peach growers navigate Mexico's rigorous phytosanitary requirements. These efforts included implementing pest management strategies, conducting inspections and ensuring compliance with the standards necessary for export approval.

This collaborative approach highlights the importance of partnerships in addressing complex regulatory challenges. By ensuring compliance, DPI has not only helped open the Mexican market to South Carolina peaches but also strengthened trust in the state's agricultural products on a global scale. This achievement has the potential to provide South Carolina growers with access to new revenue streams while bolstering the state's reputation as a leader in agricultural excellence.

The successful export of these peaches marks a significant milestone for the state's agricultural economy. It highlights Clemson's commitment to fostering international trade opportunities and showcases the exceptional quality of South Carolina's produce to a global audience.

 Program participants get plenty of hands-on experience during a two-day intensive training session.



SEALING A LEGACY

Clemson University's first Master Food Preserver Cohort

Cohort in 2024. Spearheaded by Faith Isreal, a dedicated agent within the Food Systems and Safety team, the program trains individuals to extend Clemson Extension's research-based food preservation education to adults and youth.

The first cohort brought together participants from 12 counties across South Carolina, collectively dedicating 630 hours of volunteer service during their training. These certified Master Food Preservers are now equipped to lead food demonstrations, mentor community members and promote sustainable food practices in their regions. Their work will be instrumental in strengthening local food systems, enhancing public health and inspiring sustainable food practices.



TRANSLATING SOLUTIONS

Bridging communication gaps for invasives awareness

The Asian longhorned beetle, an invasive species first detected in Charleston County in 2020, poses a significant threat to hardwood trees, leading to economic and environmental concerns. With many landscape, nursery and tree removal workers in the affected areas being Spanish-speaking, clear communication about identifying and reporting the beetle is critical to eradication efforts.

In 2024, Clemson University students partnered with the Department of Plant Industry to address this need by translating educational materials about ALB into Spanish. This initiative, integrated into a service-learning course, allowed students to apply their language skills to a real-world problem while supporting inclusive community outreach.

The translated materials have been vital in raising awareness among Spanish-speaking workers, equipping them to recognize and report infestations effectively. This collaborative effort highlights DPI's commitment to sustainability, experiential learning and bridging communication gaps to tackle pressing environmental challenges.

EXTENSION OPENS TEACH CENTER

Bringing education and agricultural resources to Charleston communities

Clemson Extension opened the TEACH Center, located in Charleston's Citadel Mall, enhancing community access to training, education and agricultural resources. TEACH—Training, Education, Agriculture and Community Health—provides a 6,000-square-foot space for regional programming, including gardening support, soil testing and health and nutrition education.

The center supports programs like Rural Health and Nutrition, offering chronic disease prevention and healthy lifestyle initiatives and houses the School and Community Gardening Program. Equipped with flexible classroom space and a planned teaching



kitchen, the center hosts workshops, demonstrations and community events.

Master Gardener volunteers are available to assist with gardening questions, soil samples and distributing free seed packets, strengthening Clemson Extension's commitment to serving South Carolina's communities.



ELEVATING VETERINARY MEDICINE IN SC

Dr. Patty Scharko: 2024 SCAV Distinguished Veterinarian

r. Patty Scharko, a distinguished faculty member in the Department of Animal and Veterinary Sciences and newly founded Harvey S. Peeler Jr. College of Veterinary Medicine, has been recognized as the 2024 Distinguished Veterinarian of the Year by the South Carolina Association of Veterinarians. This prestigious award celebrates her exceptional contributions to veterinary medicine and her dedicated service to the agricultural community in South Carolina.

Scharko serves as an Extension and field veterinarian with Clemson's Livestock Poultry Health division in Columbia, where her work focuses on supporting livestock producers. Her expertise spans key areas such as biosecurity measures, Beef Quality Assurance, the eradication of Scrapie (a fatal disease affecting sheep and goats), and parasite control in small ruminants. Through hands-on training and education, she has played a critical role in advancing livestock health and production standards across the state.

LEARNING IN ACTION

Clemson University College of Agriculture, Forestry and Life Sciences students are tackling real-world challenges with creativity, determination, and purpose, exemplifying the power of hands-on learning to create meaningful change. Whether revitalizing landscapes, contributing to food security, or engaging in cuttingedge research, CAFLS students turn their education into action. These experiences prepare them to lead with purpose, tackle the grand challenges of today and shape a brighter future for the world.



CULTIVATING CONNECTION

Zay Barton transforms an overgrown space into the thriving MANRRS Redfern Community Garden

orticulture major Zay Barton revitalized an overgrown area near the Redfern Health Center, transforming it into the vibrant MANRRS (Minorities in Agriculture, Natural Resources and Related Sciences) Redfern Community Garden. This space now serves as a hub for experiential learning, sustainability and community engagement. Featuring a diverse array of fruits, vegetables and flowers, the garden is not only a source of organic produce but also an example of the impact of student-led initiatives on campus.

The garden supports Clemson's efforts to address food insecurity by supplying fresh produce to the campus community, including donations to Paw Pantry. This integration of hands-on learning and service embodies the University's mission to cultivate wellrounded, socially responsible leaders. The project also provides students with opportunities to connect with agriculture and natural resources in meaningful ways, fostering both personal and professional growth.

Barton's dedication and vision have captured the attention of

the Clemson community and beyond. His work has inspired multiple job offers, illustrating the value of innovative and practical applications of academic knowledge. The MANRRS Redfern Community Garden stands as a testament to the transformative power of student initiative in creating sustainable solutions and promoting wellness on campus.

> Zay Barton gives a tour of the MANRRS (Minorities in Agriculture, Natural Resources and Related Sciences) Redfern Community Garden.

the experience



Renee Dooley (L), Clemson Facilities Career Progression Manager, and Zay Barton (R) in the MANRRS Redfern Community Garden.

Left to right, top to bottom: Tim Oeser, Sathiska Hewage, Pierce Hall, Emma Riser, Caroline Munter, Martha Robinson, Hannah Dickson, Alejandra Carranza-Lima, Sophia Stoddard, Meredith Clem, Mary Kathryn Gillespie, Adelaide Thomas, Kayla Palacio, Josie Nasekos, Margaret Milani, **Christopher Thomas**





A NEW GENERATION OF GREEN LEADERS

Clemson FRESH empowers students to drive sustainable change through hands-on learning and industry connections

Launched with its inaugural cohort, the Clemson FRESH Sustainability Leadership Program is preparing students for impactful careers in sustainability through a series of seminars, workshops and handson learning experiences. Students engage with industry experts to explore essential topics such as green skills, sustainable business strategies, networking and translating purpose into profit.

This program brings together students from diverse academic disciplines, emphasizing leadership development and practical insights. By connecting classroom learning with real-world applications, Clemson FRESH is cultivating a new generation of professionals dedicated to advancing sustainable practices and driving meaningful change in their industries and communities.

TAKING LEARNING TO NEW HEIGHTS

Students blend technology, culture and research in a groundbreaking course on South Carolina's coastal wetlands

xperiential learning is key to helping students tackle realworld challenges by turning classroom lessons into practical skills. Doctoral students Akshit Suthar and Crystal Anderson embraced this idea when they created the course "Historical **Rice Fields and Tidal Wetlands** of Coastal South Carolina: Drones. Ducks and Decision Support." The course gives undergraduates the chance to step out of the classroom and gain hands-on experience in the field, blending learning with real-world problem-solving.

Students visited sites such as the Tom Yawkey Wildlife Center, Hobcaw Barony, and Sandy Island, engaging directly with the Gullah-Geechee community to explore the cultural and historical significance of antebellum rice fields. They applied cuttingedge technology by conducting South Carolina's first waterfowl drone survey, capturing aerial data to monitor wildlife populations. Additionally, they developed social surveys to assess hunter satisfaction with current regulations, integrating ecological, technological and social science approaches. A standout achievement of the course was that all students earned their drone pilot license, equipping them with a valuable certification for future careers.

The program not only gave students a comprehensive understanding of coastal wetlands management but also allowed them to contribute to ongoing research at the James C. Kennedy Waterfowl and Wetlands Conservation Center. With plans for students to be listed as co-authors on future publications, this course is a prime example of how CAFLS prepares students for impactful careers through experiential learning opportunities that combine academic rigor with real-world impact.



The Creative Inquiry class captured this "bird's-eye" view of the pristine salt marsh at Hobcaw Barony, Georgetown, S.C. during their class trip.

Ethan Cashwell of the Pickens County Library System uses a Clemson miniature museum to show Pre-K students insects that are native to South Carolina.



MAKING BUGS COOL

Inspiring young minds to see the big impact of bugs

Insects play a crucial role in our environment, and Clemson entomology students are eager to share this with young learners. They've created miniature museums —compact drawers containing about 100 insect specimens, including beneficial insects, pests and invasive species—to educate Pre-K through 5th-grade students. These mini museums come with lesson plans and fact sheets, making it easy for teachers and librarians to introduce the fascinating world of insects to children.

Funded by sponsors like the Entomological Society of America Chrysalis Fund, the mini museums are free to public schools and libraries in South Carolina. The Pickens County Library reports the exhibits are popular with patrons of all ages, sparking curiosity and helping dispel myths about insects.

The project, managed by Clemson students with faculty guidance, promotes interactive learning and fosters appreciation for insects' ecological importance. Teachers and organizations can apply for free mini-museums to enhance science education across the state.



HELPING HANDS

Students support storm recovery efforts

n the aftermath of Tropical Storm Helene, which caused significant damage across Upstate South Carolina, College of Agriculutre, Forestry and Life Sciences students mobilized to support affected communities. Recognizing the widespread devastation, various CAFLS clubs applied their specialized skills to aid in recovery efforts.

The Forestry Club played a pivotal role by assisting at Connie Maxwell Children's Ministries in Greenwood, an orphanage that had sustained substantial damage with numerous trees uprooted, blocking paths and posing dangers to the children. Equipped with their own tools, club members efficiently cleared debris and restored the landscape, ensuring a safer environment for the residents.

Additionally, the Block and Bridle, and Agricultural Mechanization clubs contributed by clearing yards and removing tree debris around Clemson, aiding residents in the cleanup process. Packaging Science students also volunteered by constructing more than 300 drop boxes for goods collection sites, which were utilized by charitable organizations throughout the Upstate to distribute essential supplies to those in need.

One notable effort involved aiding Amy Sanders, a former CAFLS advisor who retired in August 2023. Sanders' property suffered considerable damage, with eight downed trees, including some that were uprooted and one resting against her home. Associate professor of Forest Health Jess Hartshorn, the Forestry Club's advisor, canceled a lab so students and club members could dedicate their time to clearing debris. This act of kindness was meaningful way to support one of CAFLS' own and express gratitude for Sanders' years of dedication and impact within the College.

the experience

A RECIPE TO COMBAT 'HIDDEN HUNGER'

Students craft a pulse-focused cookbook to address global malnutrition through affordable, nutrient-rich meals

Students from the Pulse Quality and Nutritional Breeding program, led by professor Dil Thavarajah, have created the "Tiger Gardens: Pulse Cookbook" to address the global issue of "hidden hunger." This term refers to malnutrition caused by nutrient deficiencies, excesses, or imbalances, affecting individuals worldwide, including those who appear well-nourished. The cookbook features affordable, nutrient-rich recipes using pulse crops like beans, chickpeas, lentils and peas, known for their high protein content and low cost.

The online collection includes diverse recipes contributed by students, complete with nutritional information, cost per serving, and preparation details, aiming to educate and encourage healthier eating habits. For example, Jacob Johnson, a junior in plant and environmental sciences, offers a healthier take on guacamole with his "Garbanzomole," made with chickpeas to enhance nutritional value. Other recipes include Chicken Tortilla Soup, Smoky Refried Lentils, and Butter Chickpeas, showcasing a variety of cuisines and innovative uses of pulse crops.

The creation of this cookbook also celebrates the 10th anniversary of the student-run Tiger Gardens, a model for year-round access to nutritious vegetables focusing on micronutrients and proteins. By sharing these recipes, the students aim to increase awareness of the benefits of pulses and contribute to combating hidden hunger by promoting affordable and healthy dietary options.



 Clemson doctoral student Sonia Salaria prepares Pulse and Veggie Wraps.

CLASS OF 2024

OUR GRADS IN FOCUS

During their time at Clemson University, College of Agriculture, Forestry and Life Sciences students fully immerse themselves in the tutelage of highly-skilled faculty so that when they eventually walk across the stage at commencement, they are prepared to represent the College well. Meet a few of our 2024 grads.



Tim Oeser says the words when reflecting on his four years at Clemson there's something in these hills — and realizes

how it sounds: a little cliché. The hills and that feeling of belonging brought him here, but they didn't lead Oeser in the direction he thought they would. The Simpsonville, South Carolina, native came to Clemson as a lover of science — biology in particular. That all expanded after a random conversation with a packaging science senior.

"I was enlightened to a world that I didn't even know existed," he says. Oeser received his bachelor's degree in packaging science in December from the College of Agriculture, Forestry and Life Sciences. Because packaging science students are required to participate in a six-month co-op, Oeser is thankful for the experience he gained. For his co-op, Oeser worked for Pregis, a packaging company headquartered in Chicago.

"I was enlightened to a world that I didn't even know existed."

He started out consulting for e-commerce companies that experienced damages to their products, assisting them with finding solutions. After expressing a desire to grow his interpersonal skills, Oeser was allowed to cold call customers and arrange meetings with the sales team. Oeser found that to be true when he applied for an internship this past summer at Dow Chemical Company in Houston.

"That was a selective opportunity," said Greg Batt, associate professor and director of the Sonoco Package Testing Laboratory. "They only took one person and I believe they shopped multiple universities, multiple packaging programs. I know the guy who made the final decision on Tim and he said to me, 'This was easy for us.' Tim really crushed it. He knocked it out of the park."

After graduation, Oeser headed to St. Louis to work for Nestlé Purina where he accepted a position as a packaging specialist in its pet care division.

"What I really wanted to do is get my feet on the ground in manufacturing plants that use packaging," Oeser said. "This role will give me that opportunity. The other side of that is developing new, more sustainable packaging. I'm super ecstatic to be going. I give all the credit to Clemson University for what they've done."



Christian Wilhelm wanted to make a difference in whatever she did. Whether it was

being a College of Agriculture, Forestry and Life Sciences Ambassador, or secretary and later president of the Block and Bridle club, or on the dean's student advisory board, Wilhelm looked to be supportive and uplifting to others.

After graduating in December with a bachelor's degree in animal and veterinary sciences and minor in biological sciences, the first-generation college student looks to carry that same approach with her into veterinary school. "It's honestly humbling because I get to experience something my family never has," Wilhelm said. "Not only am I going to complete my B.S., but also potentially a DVM (Doctor of Veterinary Medicine) degree. I know that my family is proud. I hope to continue to make a difference along the way as far as encouragement of people that may not have been supported completely. I think anything is attainable with the right community and support."

Coming to Clemson from Enoree, South Carolina, Wilhelm sought out various leadership positions. The Block and Bridle club, a Clemson club founded in 1937 that holds a rich tradition of livestock appreciation and fellowship, had a big influence on her.

"I think anything is attainable with the right community and support."

As a CAFLS Ambassador, Wilhelm saw an opportunity to not only be an avid spokesperson for CAFLS, but she felt a calling to be a conduit for first-generation students and their parents.

Wilhelm is currently waiting to learn which veterinary medical school she will be attending. One thing is for certain – she will look to make a difference there, too.

"Christian is everything right about the students in the AVS department," said Matt Hersom, acting chair of Clemson's Department of Animal and Veterinary Sciences.

"She is engaged, passionate and high achieving. Christian saw the numerous opportunities available in the department and made the most of them. Every one of our students brings a unique experience to the department and we are better for having Christian Wilhelm as a graduate."

Lucas Clay was



finishing up his final semester in Clemson University's forest resources doctoral

program when he landed a job in September as an ecologist with the Clemson Experimental Forest.

Clay had already been working on carbon markets and naturebased solutions through the doctoral program and his previous role as an Extension associate. It just so happened that the experimental forest was looking for someone with that skill set.

"They were excited to have somebody who already had some in-house expertise on carbon markets and carbon accounting to help with our experimental forest," said Clay, who completed his doctorate in December.

Clay is looking at potential options for how to manage the experimental forest for carbon sequestration, which is the process of capturing and storing carbon dioxide to reduce the amount of carbon in the atmosphere and limit climate change. Managing the forest may mean more sustainable forestry, longer rotations and managing for all the ecosystem services it offers, he said.

"Lucas Clay is an incredible asset to the Clemson Experimental Forest, as he is applying the knowledge he gained from his Ph.D. at Clemson on ecosystem services with Dr. Tom O'Halloran, specifically to the CEF," said Robert Baldwin, executive director of the Clemson Experimental Forest and the Lloyd Endowed Chair of Conservation Ecology.

class of 2024

"Lucas is especially skilled at carbon accounting. As we look to the future of the Clemson Experimental Forest, Lucas' work will be core to developing our management plans and revenue streams."

Managing the forest could include increasing the amount of time the trees stand on landscapes so that they sequester more carbon. Forest management could also change how harvesting is done, such as fewer clearcuts and doing more single tree selection or group selection, which could lead to less carbon being removed and leaving more carbon in the long term. It also could include increasing how many stand stages are in the forest because different aged trees provide more habitat and ecosystem service benefits for wildlife and create a more resilient ecosystem.

Clay is originally from Muncie, Indiana. After completing his undergraduate degree in natural resources and environmental management at Ball State University, Clay came to Clemson to pursue his master's degree in forest resources with an interest in carbon.

With grad school complete, Clay hopes he's found his new home – in the Clemson Experimental Forest.



Vishal Manjunatha,

who grew up in India, developed a fascination with food

at an early age. This curiosity eventually led him to Clemson University, where he earned a doctorate in food, nutrition and packaging sciences in August.

Manjunatha has been very involved with students, as well as his research. He plans to apply his expertise to a career in food safety.



"One of the reasons I chose Clemson was because of the research Dr. Xiuping Jiang was doing," Manjunatha said. "She is renowned for her work in food safety, and I wanted to learn from her expertise."

"My time here has been transformative, inspiring, challenging, rewarding and unforgettable."

Jiang offered Manjunatha a graduate research assistantship in her laboratory in 2018. His research focuses on potential natural alternatives to antibiotics for the poultry industry. These alternatives include black cumin, kefir and bacteriophages. His dissertation, titled Exploring natural products as alternatives to antibiotics in mitigating necrotic enteritis and evaluating their impact on the gut microbiota of broiler chickens, delves into this area.

As he begins the next chapter in his life, Manjunatha looks back on his time at Clemson.

"My time here has been transformative, inspiring, challenging, rewarding and unforgettable," he said. "I am grateful for the opportunities I was given. To current and future students, I encourage you to get involved with campus organizations and fully embrace your time as a Tiger."

 Wildlife and fisheries biology graduate in their decorated graduation cap.



 Caleb Smith, horticulture major from Lexington, SC, recieves his diploma at the December 2024 commencement.



Kylie Randberg combines her degree in animal and veterinary sciences with knowledge gained from a stint in

the United States Army Reserve Officers' Training Corps program at Clemson University to fulfill her passion to "make a difference in animals' lives."

Randberg is from Bohemia, New York – a small town on Long Island. Following her passion for animals, she enrolled in the Clemson AVS program.

"I've always been fascinated by biology and the intricacies of animal health," Randberg said. "I wanted to pursue a career where I could directly contribute to animal welfare and veterinary medicine."

Randberg's understanding of animal biology and health management will help her provide effective veterinary care for military working dogs.



Randberg now serves as an officer in the Medical Service Corps where she plans to care for military working dogs.

"I chose to serve in the Medical Service Corps with the aim of attending veterinary or physician assistant school," she said. "This specialization aligns with my interests in health care and animal care, allowing me to serve both my country and pursue my professional goals simultaneously."

The Army offers the Interservice Physician Assistant Program and pays for officers to participate. Her time as a Clemson AVS student and ROTC member, as well as serving in the South Carolina National Guard, has taught Randberg knowledge and skills that will directly apply to her duties in the Army postgraduation.

"I wanted to pursue a career where I could directly contribute to animal welfare and veterinary medicine."

After graduating from Clemson, Randberg was commissioned as a second lieutenant, and was in charge of a platoon of cadets during summer training at Fort Knox in Kentucky. She now serves in the Basic Officer Leader Course at the U.S. Army Medical Center of Excellence at Fort Sam Houston in Texas.

"These experiences will prepare me for my duty station for the next four years where I'll continue to apply my skills and training to serve both in the medical field and as a military officer," Randberg said.

Trust

For generations, Clemson has been a trusted ally to South Carolinians. Our dedication to delivering excellence in education, research and outreach solidifies the bonds we share with farmers, industry leaders, policymakers and families. By providing impactful solutions and innovative insights, we honor the confidence placed in us, ensuring that we remain a reliable partner in shaping a brighter tomorrow.

 Clemson professor of plant pathology Tony Keinath talks about a kale variety trial he is conducting at the Coastal Research and Education Center.

SIMPLIFYING THE Switch to organic

Clemson University helps South Carolina farmers navigate the transition to organic certification

Clemson University's Department of Plant Industry plays a pivotal role in supporting South Carolina farmers as they explore the transition to organic farming. Through a five-year cooperative agreement with the USDA's Agricultural Marketing Service Transition to Organic Partnership Program, Clemson offers workshops, mock inspections and personalized guidance to help farmers navigate the often-challenging certification process. These efforts provide practical solutions that make the shift to organic practices more approachable and achievable.

"Our program is designed with the state's farmers in mind. We know our agricultural producers put a great deal of work into delivering highquality organic products to the public and we want to make the certification process as effortless for them as possible."

STEVEN LONG, ASSISTANT DIRECTOR OF CLEMSON DPI

The Organic Certification Program simplifies a complex system, giving farmers the tools and insights needed to comply with organic standards. By addressing concerns about feasibility and compliance, DPI helps farmers feel confident in their ability to succeed in a new and growing market. This hands-on approach ensures that farmers are supported every step of the way, from initial education to the final stages of certification.

These programs reflect CAFLS' commitment to empowering South Carolina's agricultural community to innovate and adapt. By fostering sustainable practices and providing actionable resources, CAFLS strengthens its partnership with farmers, helping them thrive in a changing agricultural landscape while continuing to support the state's rich farming tradition.



Ivy Prince's "Cooking Capable" empowers differently-abled youth

Clemson University's 4-H program empowers youth across South Carolina to change their communities and their worlds, one 4-H project at a time. A shining example is Ivy Prince, a 17-year-old 4-H member who developed the "Cooking Capable" series. This initiative teaches differently-abled youth to prepare simple, nutritious meals, fostering independence and confidence while addressing a critical community need. Ivy's program, inspired by her siblings' disabilities, exemplifies how 4-H nurtures innovative ideas and transforms them into meaningful action.

Supported by Clemson Cooperative Extension, Ivy secured funding and expanded Cooking Capable's reach, even engaging state officials to amplify its impact. This program is a testament to how 4-H encourages young people to address local challenges with creativity and determination, equipping them with the skills to become change-makers. Through handson experiences and leadership opportunities, Clemson's 4-H programming consistently prepares youth to make a difference in their own communities.

Stories like Ivy's are mirrored across South Carolina, where 4-H members are initiating programs, engaging with lawmakers, and tackling issues that matter to their communities. By fostering leadership, civic engagement and a spirit of service, Clemson's 4-H programs help shape the next generation of leaders dedicated to building a better future.

STEADY IN THE STORM

How CAFLS supports South Carolina's agriculture and communities in times of crises

When you hear "emergency response," you might think of first responders like firefighters or paramedics. What might not come to mind is Clemson University's College of Agriculture, Forestry and Life Sciences. Yet, through the work of three indispensable units— Livestock-Poultry Health, Regulatory Services and Cooperative Extension—CAFLS helps safeguard the state's agriculture, animals and natural resources by coordinating with other state agencies during times of emergency.

Emergency response isn't just about reacting when disaster strikes—it's a year-round task, and our units work tirelessly to ensure South Carolina's agricultural systems are prepared for the unexpected.

Kathryn MacDonald of LPH leads Emergency Support Function 17, which focuses on protecting the state's agriculture and animal industries. Throughout the year, MacDonald coordinates with local, state and federal agencies, collaborates with private industry stakeholders, develops mitigation strategies and response plans, conducts drills and exercises and refines all-hazard preparedness and response standards to better prepare South Carolina for emergencies.

Regulatory Services mitigates risks to crops by managing pesticides, invasive species, plant pests and diseases, as well as water analysis—critical to preserving agricultural resources during and after disasters. Meanwhile, Cooperative Extension agents are the "boots on the ground" educating farmers and communities about preparedness, building resilience and preparing communities to respond effectively to emergencies. Immediately after emergencies, Extension agents work within communities to identify impacts on farmers, connect those individuals to available resources and coordinate activities with the State Emergency Operations Center.

In 2024, these year-round efforts were put to the test. Tropical Storms Debby and Helene caused widespread flooding and infrastructure damage, threatening the state's agriculture and impacting the economy. The three CAFLS units worked together to seamlessly respond to the impact of these storms.



 Ksenija Gasic, professor of horticulture, peach genetics and breeding, tends to her peach orchard at the Musser Fruit Research Center.

The State Emergency Operations Center in action during an operations briefing.





INNOVATIVE PEACH VARIETIES

Reshaping resilience in the orchard

Senija Gasic is at the forefront of peach research, working to develop varieties that not only thrive in South Carolina's unique growing conditions but also address the specific challenges growers face. Her research combines traditional breeding techniques with advanced genetic tools to create peaches that are more resilient, flavorful and marketable.

Through years of dedication, Gasic and her team have patented several new peach varieties. These varieties are specifically bred to extend South Carolina's peach growing season, resist common diseases, withstand environmental stresses and produce high-quality fruit that meets the demands of both growers and consumers. Each new variety represents a step forward in safeguarding the state's peach orchards against an unpredictable future.

WHEAT WITHOUT WORRY

Growing gluten sensitivity solutions

Gluten sensitivity and celiac disease impact millions worldwide, causing dietary restrictions and health challenges. Our researchers are striving to create wheat varieties that are safer for individuals with gluten-related conditions, helping improve their quality of life while maintaining wheat's nutritional and agricultural value.

Led by molecular breeder Sachin Rustgi at the Pee Dee Research and Education Center, a team is developing wheat varieties with reduced immunogenic gluten proteins using innovative genetic techniques. This research employs multi-gene editing and nanoparticle-based gene delivery to target gliadin and glutenin proteins, the primary causes of adverse reactions. Researchers are also fortifying wheat with lysine, an essential amino acid, to enhance its nutritional profile.

This work has the potential to revolutionize global food systems, offering safer and more nutritious wheat options for consumers. Additionally, the project incorporates public outreach, high school STEM internships, and consumer opinion studies to advance societal acceptance of genome-edited crops.



Clemson graduate student Zachary Jones (L) and Clemson molecular breeder Sachin Rustgi (R) are working to develop less-immunogenic wheat varieties at the Pee Dee REC.

 Julie Northcutt, Chad Carter and Scott Whiteside review building plans.



BLUEPRINT FOR SUCCESS

Clemson Extension and Spinx innovating food safety and growth

In 2024, the Spinx Company, a longstanding South Carolina business with 80 locations and over 1,400 employees, turned to Clemson Cooperative Extension for expert guidance on a pivotal project: designing a state-of-the-art food processing facility in Charleston. This facility would not only supply readyto-eat meals to 25 Lowcountry stores but also serve as a prototype for future operations across the Southeast.

Recognizing the multifaceted challenges of facility design, food safety, and regulatory compliance, Clemson Extension assembled a multidisciplinary team of experts, including Julie Northcutt, Scott Whiteside, Paul Dawson, Chad Carter and Daniel McKamy. Together, they have collaborated with Spinx to refine layouts, address food safety considerations and tackle operational challenges.

This partnership exemplifies the confidence South Carolina industries place in Clemson's expertise. For Spinx, it's more than a project; it's a blueprint for growth, food safety and economic impact that extends well beyond Charleston.

TACKLING Player Safety

Clemson University CHIP Lab pioneers new methods to enhance player protection and reduce head injury risks

Chemson University's research into helmet safety highlights the increasing importance of player safety, particularly in light of growing concerns about concussions and their long-term effects on brain health. The Clemson Headgear Impact Performance Lab, led by professors John DesJardins and Greg Batt, has pioneered a method to evaluate the performance of helmet faceguards, a critical but often overlooked component of player protection. Their work ensures that faceguards maintain structural integrity during high-impact scenarios, addressing a key aspect of reducing injury risks in contact sports.









- Far left: John DesJardins, Distinguished Professor of Engineering and Leadership, CU Bioengineering (second from right), and Greg Batt, associate professor and director, Clemson Packaging Dynamics Laboratory (third from right), pose with their students in the Clemson Headgear Impact Performance Lab.
- Top: The helmet drop test machine is one way the lab measures impact.
- Bottom: Madison Cardinal, a fourth-year Ph.D. engineering student from Clayton, Wisconsin, prepares a dummy head to test facemasks in the Clemson Headgear Impact Performance lab.



The CHIP Lab's patented testing technique focuses on the connection between faceguards and helmets, a critical interface that can affect the overall safety of the equipment. By using precision tools to measure the durability of faceguards without causing damage, Clemson researchers are uncovering vulnerabilities that could compromise protection during play. This emphasis on rigorous testing reflects the heightened awareness of how head impacts influence long-term cognitive and neurological health, underscoring the need for advancements in sports safety equipment.

With concussion awareness now at the forefront of sports health discussions, Clemson's research contributes to broader efforts to protect athletes from the cumulative effects of head trauma. Improving helmet and faceguard design aligns with a growing movement to prioritize player well-being on and off the field. The lab's focus on enhancing the safety standards of sports equipment demonstrates a commitment to reducing the risk of head injuries and their potentially life-altering consequences.

 Anthony Marino, a third-year Ph.D. student in bioengineering from Birmingham, Alabama, works in the Clemson Headgear Impact Performance Lab in Newman Hall.

drop by drop

WATER

Water is one of our most vital resources and the College of Agriculture, Forestry and Life Sciences is leading the charge in research and innovation to address water-related challenges across South Carolina and beyond. From combating saltwater intrusion and restoring coastal ecosystems to improving irrigation efficiency and protecting freshwater resources, our work ensures the sustainability of water systems critical to agriculture, forestry and communities. Through cuttingedge research, education and collaborative outreach, Clemson addresses both immediate needs and long-term challenges, equipping stakeholders with the knowledge and tools to adapt to climate change, protect water quality and manage this essential resource for future generations.



Jacob Bell (R), forest resources management major from Rock Hill, SC, is involved in multiple outdoor extracurriculars in preparation for a hands-on career. He is a member of the Fly-Fishing Club and was recognized by the College of Agriculture, Forestry and Life Sciences as an ambassador to help advocate for the college.

Precision Water Management

College of Agriculture, Forestry and Life Sciences researchers are collaborating with South Carolina cotton growers, leveraging extensive big-data sets from prior research and utilizing the stateof-the-art resources on campus and at the Edisto Research and Education Center to develop tools that enhance farming operations. With challenges like water scarcity, climate variability and the demand for efficiency, this work focuses on providing

Open-source irrigation scheduling for cotton

growers with advanced datadriven solutions to optimize water use, boost productivity and promote sustainability. Led by Vidya Samadi, the team is creating innovative irrigation scheduling software powered by deep reinforcement learning algorithms. These algorithms are designed to adapt to the spatial and temporal variability of in-field conditions, offering intelligent real-time irrigation recommendations. Input from a diverse focus group of growers is shaping the software to ensure it addresses real-world needs. The system is being tested on a 7-acre cotton field at Edisto REC, where a lateral move irrigation system provides the ideal environment to refine and validate this groundbreaking technology. The long-term outcome will be a scalable precision irrigation tool with transformative potential for agriculture. By incorporating local climate, crop and soil data, this technology can serve farmers across regions and crops.



Rooted in Resilience

Unlocking the secrets to climate-smart cotton

Clemson University researchers, led by associate professor Sruthi Narayanan, are tackling a critical challenge for cotton growers in South Carolina and the Southeast: producing high yields in the face of drought and hardpan soils. Hardpan soils, a compacted layer that restricts root growth and limits access to water and nutrients. are a widespread issue across the Southeast, exacerbating the impacts of climate change on agricultural production. These challenges threaten the sustainability of cotton farming, a cornerstone of the region's agricultural economy.

The team's research is

uncovering key root traits in Upland cotton—such as root weight, length, surface area and the volume of very fine roots (less than 0.25 mm in diameter)—to breed varieties that can penetrate hardpan layers, access deeper water reserves and improve water use efficiency. By enhancing these traits, the research aims to develop climate-resilient cotton varieties capable of thriving under drought conditions and in challenging soils.

The impact of this work extends from South Carolina to the Southeast and drought-affected regions worldwide.



"These traits will be valuable in developing the next generation of water-use-efficient Upland cotton varieties."

SRUTHI NARAYANAN, ASSOCIATE PROFESSOR OF CROP ECOPHYSIOLOGY

Supercharged Ponds

Clemson University enhances stormwater ponds with floating wetlands to improve water quality and support wildlife

College of Agriculture, Forestry and Life Sciences researchers and Extension professionals are improving stormwater ponds—now common features in South Carolina's coastal developments—to better protect water quality and property values. By introducing innovative floating wetlands, Clemson is transforming these ponds into more efficient and visually appealing systems for managing polluted runoff.

Floating wetlands, essentially container gardens on water, enhance the ponds' ability to filter pollutants while creating habitats for fish, birds and pollinators.

Led by assistant professor Amy Scaroni and professor Sarah White, the research demonstrates that these wetlands can "supercharge" pond performance without reducing water volume or requiring additional land.

Doctoral student Clare Escamilla's work focuses on identifying salt-tolerant plants suitable for brackish coastal ponds and gauging community preferences to encourage adoption. Escamilla's research has earned top honors at academic conferences and contributes to a plant selection tool for floating wetland installations.



A floating wetland was installed and another was harvested during a workshop for residents and municipal partners in Mount Pleasant, South Carolina.



Catch and Release

Hands-on learning in fisheries management and conservation at Clemson

lemson University fisheries management and conservation students are gaining invaluable hands-on experience while contributing to ecosystem management through a collaborative project involving the university's athletics pond. Led by associate professor Troy Farmer and supported by graduate assistant Jacob Daley, the students partnered with the South Carolina Department of Natural Resources to relocate over 200 largemouth bass from Long Lake in Union County to the athletics pond. This effort aims to restore ecological balance by introducing predator fish to control the overpopulated bluegill population. Through this project, students are immersed in real-world fisheries management, from collecting and tagging fish to analyzing data and implementing sustainable solutions.

The collaboration between Clemson's athletic



Fisheries management and conservation students from associate professor Troy Farmer's class went to Long Lake in Union County, SC, to assist biologists from the SC Department of Natural Resources in removing more than 200 largemouth bass.

department, DNR and Farmer's classes has been ongoing, with this year marking the largest restocking effort to date. Students have relished the opportunity to work directly with DNR biologists, gaining practical insights into fisheries management. For many, the class offered an enriching experience that complemented their academic interests. These field experiences not only enhance student learning but also provide DNR with support in managing state lakes, offering students a glimpse into potential career paths.

This project highlights the value of experiential learning and teamwork in addressing environmental challenges. Farmer's goal is for students to experience the full lifecycle of fisheries management, from data collection to decision-making and implementation.

Alligators as Ecosystem Indicators

Research uncovers contaminants impacting wetlands and wildlife

Merican alligators are proving to be powerful indicators of environmental health. Miriam Boucher, a doctoral student at the James C. Kennedy Waterfowl and Wetlands Conservation Center, is leading groundbreaking research on how environmental contaminants impact ecosystems. Her study focuses on American alligators as key indicators of exposure to pollutants like PFAS, microplastics and mercury.

Through an eight-state collaboration, Boucher's research team has collected more than 400 alligator samples, analyzing diet, blood and tissue to uncover patterns of contaminant exposure. Early findings highlight dietary differences between tidal and non-tidal habitats, providing valuable insights into how contaminants move through ecosystems.

This research not only addresses gaps in understanding emerging contaminants but also supports water quality monitoring and conservation. The project engages students in hands-on research, creating opportunities to contribute to one of the largest datasets of its kind. The findings will guide management strategies for alligators and wetland ecosystems across the Southeast.



Miriam Boucher (R) in the field with the U.S. Fish and Wildlife Service at the Cape Romain National Wildlife Refuge. The photo shows the deployment of a novel crocodilian jaw prop designed and used on this project. The design and testing of this device was published in the Wildlife Society Bulletin June 2024.



Rohit Kambale, a postdoctoral fellow working with Raghupathy Karthikeyan in the department of Agricultural Sciences, looks at the response of different kale genotypes to salinity stress in hydroponic systems.

Salty Success

Developing salt-tolerant crops

Clemson University is pioneering innovative agricultural solutions by developing a controlled environment agriculture platform to grow salt-tolerant crops such as mustard greens, cucumbers and tomatoes using saline water for irrigation. This forward-thinking initiative addresses the pressing issue of freshwater scarcity by exploring the use of brackish groundwater and other saline sources in hydroponic systems, paving the way for sustainable

crop production.

The project, led by professor Raghupathy Karthikeyan, aims to not only mitigate the environmental challenges posed by soil salinization in traditional farming but also to enhance the resilience of crops through targeted breeding programs. By optimizing crop salt tolerance, this research seeks to balance economic viability with environmental stewardship, creating opportunities for yearround cultivation.



drop by drop

Confronting Water Challenges

Innovative approaches to optimize water use and quality in specialty crop production

merging constraints on water use and quality mean that the green industry needs to identify ways to manage water without negatively impacting marketable yields per area and year. Recognizing these issues, Sarah White collaborated to form a multi-state, multidisciplinary research and Extension group to explore innovative solutions for improving water use and quality while maintaining productivity.

The group is focusing on five critical water-related challenges faced by specialty crop producers: irrigation water quality, efficient irrigation management, runoff containment, urban stormwater management and soilless culture optimization.

Each of these areas can play a pivotal role in reducing environmental impacts without compromising yield. For example, researchers are characterizing alternative water sources to determine their suitability for plant production and identifying treatment options to overcome quality limitations. Additionally, they are developing advanced irrigation methods and conservation strategies to optimize water use and mitigate nutrient loss.

Urban stormwater management represents a critical area of this work, with researchers designing biological and engineered systems to reduce runoff and remediate pollutants. These efforts address water quality challenges while advancing environmental sustainability in both urban and agricultural contexts. In parallel, the team is exploring soilless culture systems to understand their effects on water reuse, nutrient retention and plant health, opening new possibilities for innovative growing methods across diverse production environments.

By tackling these pressing issues, this initiative supports the green industry's need for sustainable, water-conscious practices. The findings will empower producers with practical solutions, ensuring the long-term health of specialty crop production systems and the environment.







Turning the Tide

Pioneering resillient crop production

Saltwater intrusion is reshaping South Carolina's coastal farmland, degrading soil quality, reducing crop yields, and threatening the livelihoods of farmers. To address this, Clemson University researchers, led by Brian Ward, are developing innovative solutions to reclaim salt-affected lands for organic rice production.

Efforts include identifying salt-tolerant rice varieties, testing their performance in greenhouse and field trials, and creating economic tools to guide farmers in adopting sustainable practices. Researchers are also enhancing soil and water quality through organic management while breeding new rice cultivars that combine salt tolerance with traits from historic varieties like "Carolina Gold."

This research has implications beyond rice, offering scalable strategies for other crops facing similar challenges. By addressing climate resilience and agricultural sustainability, these efforts aim to transform unproductive lands into thriving resources, support farmers, and strengthen food systems in coastal farming communities.

Fulbright Scholars



CHRISTIAN BLACKBURN, a wildlife and fisheries biology major from Mt. Pleasant, South Carolina, received an English teaching assistantship in the Czech Republic. A National Scholar and Honors student, Blackburn has a rich background in teaching and mentoring. He plans to inspire students through the learning process while immersing himself in Czech culture

and exploring its natural and musical heritage. After his Fulbright experience, he aims to pursue a master's degree in project management, focusing on sustainable urban green spaces.

Following his ETA experience, Blackburn plans to pursue a master's in project management before working in sustainable city planning, specifically focusing on designing urban green spaces.



AUDIE CHERRY, an agriculture Ph.D. student from Clay, Kentucky, was selected for a research award in the Philippines. He will teach agricultural courses at Cebu Technological University-Barili, conduct research on agricultural education and youth development, and collaborate with local

farmers to improve sustainable practices.

As a Filipino American, the award provides Cherry and his family, who will be traveling with him, an opportunity to return to his roots. Since 2012, Cherry has collaborated with several churches and schools on visits to the Philippines to deliver agricultural education and perform service in the local community. He has been working in and studying agriculture in higher education since 2010 and hopes to continue doing so by addressing knowledge gaps in agricultural education with his Fulbright Scholarship.

UNDERGRADUATE AWARDS

- OUTSTANDING SENIOR
 AND AMBASSADOR:
 Christian Blackburn,
 Wildlife and Fisheries Biology
- OUTSTANDING JUNIOR: Abi-Ruth Jordan, Agribusiness
- OUTSTANDING SOPHOMORE: Sebastian Sanchez, Horticulture
- OUTSTANDING FRESHMAN: Kathryn McCardle, Agricultural Mechanization and Business
- UNDERGRADUATE RESEARCH 1ST PLACE:
- Ashlee Romp, Animal and Veterinary Sciences
- UNDERGRADUATE RESEARCH 2ND PLACE:

Abigail Zirbel, Food Science and Human Nutrition

- UNDERGRADUATE RESEARCH 3RD PLACE: **Tucker Cribb**, Wildlife and Fisheries Biology
- CULTIVATE.CAFLS 1ST PLACE: Deb Hutchins, Food Science and Human Nutrition

Merritt Meeks, Packaging Science

Ryan Barber, *Packaging Science*

ALGERNON SYDNEY SULLIVAN AWARD:

Christian Blackburn, *Wildlife and Fisheries Biology*

• FOCUS ON CREATIVE INQUIRY POSTER FORUM 3RD PLACE:

Ashlee Romp, Animal and Veterinary Sciences

OUTSTANDING STUDENT CLUB/ORGANIZATION: Clemson Entomology Club

UNIVERSITY AWARDS

BLUE KEY ACADEMIC & LEADERSHIP AWARD:

Emma Chin, Food Science and Human Nutrition

PHI KAPPA PHI CERTIFICATION OF MERIT:

Sachaly Rosario Rivera, Horticulture

- 3 MINUTE THESIS 2ND PLACE: Jasanmol Singh, Ph.D. Agricultural Sciences
- 3 MINUTE THESIS 3RD PLACE: Josie Nasekos, M.S. Applied Economics and Statistics

GRADUATE AWARDS

OUTSTANDING GRADUATE STUDENT IN RESEARCH:

Mandeep Tayal, Ph.D. Student, Plant Virology Lab — Plant and Environmental Sciences

OUTSTANDING GRADUATE STUDENT IN RESEARCH:

Milan Panth, Ph.D. Student, Edisto Research and Education Center — Plant and Environmental Sciences

OUTSTANDING GRADUATE STUDENT IN RESEARCH:

Davis Nelson, M.S. Student and Graduate Teaching Assistant — Forestry and Environmental Conservation

OUTSTANDING GRADUATE STUDENT IN RESEARCH:

Patricia Wooden, Ph.D. Student and Graduate Teaching Assistant — Plant and Environmental Sciences "VECTORS OF PLANT DISEASE 2" STUDENT COMPETITION 1ST PLACE :

Mandeep Tayal, Ph.D. Student, Plant Virology Lab — Plant and Environmental Sciences

2024 SOUTH CAROLINA YOUNG CIVIL ENGINEER OF THE YEAR:

Lisa Umutoni, Ph.D. Student— Agricultural Sciences

 APPLIED SOYBEAN RESEARCH COMMUNITY ORAL CONTEST 1ST PLACE:

Bennett Harrelson, *Ph.D. Student — Plant and Environmental Sciences*

GERALD O. MOTT MERITORIOUS GRADUATE STUDENT AWARD IN CROP SCIENCE:

Payton Davis, *Ph.D.* Student – Plant and Environmental Sciences

FACULTY & STAFF AWARDS

 OUTSTANDING SENIOR FACULTY IN RESEARCH:

Dr. Xiuping Jiang, Professor of Food Microbiology — Food, Nutrition and Packaging Sciences

OUTSTANDING JUNIOR FACULTY IN RESEARCH:

Dr. Elizabeth Cieniewicz, Assistant Professor of Plant Virology — Plant and Environmental Sciences

OUTSTANDING SENIOR FACULTY IN EXTENSION:

Dr. Sarah White, Professor – Plant and Environmental Sciences

OUTSTANDING JUNIOR FACULTY IN EXTENSION:

Dr. David Coyle, Assistant Professor — Forestry and Environmental Conservation



SENIOR TENURED OUTSTANDING TEACHING AWARD CATHERINE DIBENEDETTO

ASSOCIATE PROFESSOR OF AGRICULTURAL EDUCATION, DEPARTMENT OF AGRICULTURAL SCIENCES

Catherine DiBenedetto received the Senior Tenured Outstanding Teaching Award. As an associate professor and undergraduate coordinator of the Agricultural Education program, she teaches undergraduate courses and prepares pre-service teachers for their student teaching experiences. DiBenedetto serves as the advisor for the Clemson Collegiate FFA/Alumni and leads the Teach AG campaign, aimed at recruiting and retaining agricultural education teachers in South Carolina. She also serves as co-director of the CAFLS Office of Teaching and Learning Scholars and co-consulting editor of the Land-Grant Press Teaching Section.

DiBenedetto's research focuses on career readiness, teacher effectiveness, self-efficacy and experiential learning in agriscience laboratories. Her work enhances career aspirations and agricultural literacy, engaging teachers and students in real-world experiences that develop the 21st-century employability skills necessary for future leaders. DiBenedetto combines her industry knowledge with pedagogical expertise to benefit the individuals she teaches.



THE ROWLAND P. ALSTON, SR., '42 AWARD FOR EXCELLENCE IN PUBLIC RELATIONS

PAUL Thompson

DISTINGUISHED COUNTY EXTENSION AGENT, YORK COUNTY

The Rowland P. Alston, Sr., '42 Award for Excellence in Public Relations recognizes outstanding Clemson University faculty or staff who enhance the university's visibility through agriculture or natural resources programs. Paul Thompson, a distinguished urban horticulture agent who served York, Chester and Lancaster counties, received the prestigious honor for 2024.

During his career, Thompson, a certified nursery professional with the South Carolina Green Industry Association, coordinated the Master Gardener Program in York, Chester and Lancaster counties while delivering educational programs for both consumers and horticulture professionals. His expertise reached a wide audience through his guarterly column in South Carolina Farmer magazine, regular guest appearances on SCETV's Making It Grow and monthly gardening blogs published on Clemson's Home & Garden Information Center website.

After a career of dedicated service in public outreach and horticultural education, Thompson has since retired, leaving a lasting impact on the industry and the communities he served.

• OUTSTANDING SENIOR FACULTY IN TEACHING:

Dr. Vidya Suseela, Associate Professor of Soil Ecology — Plant and Environmental Sciences

• OUTSTANDING JUNIOR FACULTY IN TEACHING:

Dr. Elizabeth Cieniewicz, Assistant Professor of Plant Virology — Plant and Environmental Sciences

 OUTSTANDING ADMINISTRATIVE STAFF:

Kim Collins, Administrative Coordinator — Food, Nutrition and Packaging Sciences

 OUTSTANDING PROFESSIONAL STAFF:

Rene Anderson, Post Award Grant Accountant — Experiment Station

• OUTSTANDING TECHNICAL STAFF—FIELD:

Dan Robinson, Agriculture/ Animal Associate II — Edisto Research and Education Center

• OUTSTANDING TECHNICAL STAFF—LAB/OFFICE:

Taylor Martin, Biosystems Research Complex Building Manager — Experiment Station

OUTSTANDING SENIOR EXTENSION AGENT:

Ben Boyles, Senior Agribusiness Agent, Director of the South Carolina New and Beginning Farmer Program — Cooperative Extension

OUTSTANDING JUNIOR EXTENSION AGENT:

Heather Nix, Water Resources Extension Agent — Cooperative Extension

OUTSTANDING ADVISOR & MENTOR: Dr. Bridget Corbett Senior Lecturer and Director of the Didactic Program in Dietetics — Food, Nutrition and Packaging Sciences

DISTINGUISHED ACHIEVEMENT AWARD IN EXTENSION:

Jeremy Greene, Professor of Entomology, Edisto Research and Education Center — Plant and Environmental Sciences

• JEFFERSON SCIENCE FELLOW:

Dil Thavarajah, Professor of Pulse Quality and Nutritional Breeding — Plant and Environmental Sciences

SOUTHEASTERN BRANCH AWARD FOR EXCELLENCE IN INTEGRATED PEST MANAGEMENT:

Fancis Reay-Jones, Professor of Entomology and IPM Coordinator, PeeDee Research and Education Center — Plant and Environmental Sciences

• 2024 AMERICAN PHYTOPATHOLOGICAL SOCIETY FELLOW:

Guido Schnabel, Professor of Plant Pathology - Fruit Crops, Graduate Student Coordinator — Plant and Environmental Sciences

2024 PRESIDENTIAL FIELD FORESTER AWARD:

Janet Steele, Area Forestry and Natural Resources Agent — Cooperative Extension

• NACAA ACHIEVEMENT AWARD:

Mallory Maher, Natural Resources Extension Associate — Cooperative Extension

Sarah Scott, Horticulture Agent—Cooperative Extension

NACAA DISTINGUISHED SERVICE AWARD:

Jaime Pohlman, Natural Resources Extension Associate — Cooperative Extension

Zachary Snipes, Horticulture Agent— Cooperative Extension



ALUMNI AWARD FOR OUTSTANDING ACHIEVEMENTS IN RESEARCH AND GODLEY-SNELL AWARD FOR EXCELLENCE IN AGRICULTURAL RESEARCH CHRISTOPHER SASKI

PROFESSOR OF SYSTEMS BIOLOGY, DEPARTMENT OF PLANT AND ENVIRONMENTAL SCIENCES

Christopher Saski received the Alumni Award for Outstanding Achievements in Research and the Godley-Snell Award for Excellence in Agricultural Research. As a professor in the Department of Plant and Environmental Sciences, he applies his bachelor's degree in microbiology and doctorate in genetics to an interdisciplinary research approach. His work focuses on understanding genome structure-function relationships in agriculturally relevant species to develop genomic and genetic solutions for sustainable agriculture.

Saski's research program aims to enhance crop value, mitigate pests and innovate agricultural products through the analysis of high-dimensional genomic datasets and the dissection of genetic traits. With expertise in quantitative genetics and genome engineering, he continues to earn recognition for securing extensive research funding, publishing peer-reviewed articles and participating in media engagements, highlighting his ongoing commitment to scientific dissemination.

awards and achievements



ALUMNI MASTER TEACHER AWARD **KIRBY PLAYER**

LECTURER, DEPARTMENT OF AGRICULTURAL SCIENCES | COORDINATOR, PALMETTO LEAF | DIRECTOR, SOUTH CAROLINA EXTENSION ADVANCEMENT COUNCIL

The Alumni Master Teacher Award recognizes outstanding undergraduate classroom instruction at Clemson University. Nominated by the student body and selected by the Student Alumni Council, the award highlights the profound impact faculty have on students' academic journeys. For 2024, this honor was presented to Kirby Player '83, '87 and '15, a lecturer in Agricultural Education.

Player earned his bachelor's degree in agricultural education from Clemson in 1983, serving as student body president during his senior year. This leadership role marked the beginning of his lifelong dedication to service and mentorship. He later earned both a master's degree and a doctoral degree from Clemson.

In addition to teaching, Player directs the Palmetto Leadership for the Environment, Agriculture, and Forestry (Palmetto LEAF) program, cultivating future leaders in South Carolina's agribusiness and environmental sectors. He also leads the South Carolina Extension Advancement Council, strengthening Cooperative Extension's community connections.



JUNIOR SPECIAL RANK OUTSTANDING TEACHING AWARD

LILLIE LANGLOIS

LECTURER, DEPARTMENT OF FORESTRY AND ENVIRONMENTAL CONSERVATION

Lillie Langlois received the Junior Special Rank Outstanding Teaching Award. As a lecturer in the Department of Forestry and Environmental Conservation, she teaches graduate courses for the online Master of Wildlife and Fisheries Resources program, including Mammalogy, Ornithology, Wildlife Behavior, GIS and Wildlife Conservation Policy.

Langlois earned her doctorate from Penn State University. Her research interests center on landscape changes associated with shale gas development and their effects on forest bird populations, combining expertise in ecology, ornithology and GIS.

Her earlier research explored avian exercise physiology by simulating migration in wind tunnels at the Max Planck Institute for Ornithology in Germany and the Advanced Facility for Avian Research in Canada. She has conducted fieldwork on birds and mammals across diverse ecosystems, including the Alaskan tundra, New Zealand's temperate forests and landscapes throughout central Europe.



GOZ SEGARS '66 CLEMSON MEDALLION RECIPIENT

Clemson University reserves its highest public honor, The Clemson Medallion, for individuals whose notable and significant service to Clemson exemplifies the dedication and foresight of the University's founder and benefactor, Thomas Green Clemson. Gosnold "Goz" Segars '66 is a welldeserving recipient of this honor.

Segars exemplifies the values of integrity, compassion and dedication in all areas of his life. After earning his agronomy degree from Clemson, Segars built a successful career across multiple industries, including real estate, industrial development, management and agriculture.

As a seventh-generation farmer, Segars remains dedicated to preserving the family's farmland in South Carolina. Segars is also the owner of an Angus beef breeding stock cattle ranch located in southeastern Montana, where he has established experiential learning opportunities for Clemson students through a \$1.5 million gift to the College of Agriculture, Forestry and Life Sciences.



Segars has also left a lasting impact on Clemson University through his leadership and service. In 2003, Segars was appointed to the Clemson University Board of Visitors and served until 2006 when he was elected to serve on the Clemson University Foundation Board of Directors. Segars has been deeply involved in service to the Clemson University Real Estate Foundation and the Clemson University Land Stewardship Foundation. In 2008, as our country went through a significant financial downturn, Segars was chair of the investment committee for the Clemson University Foundation. His successful decision-making throughout this crisis continues to inform the success that Clemson has today.

For his incredible accomplishments at Clemson, Segars has been recognized by the University with multiple awards, including Clemson's Institutional Advancement Award (2011), Clemson Alumni Association's Distinguished Service Award (2012), the Ruby C. McSwain Outstanding Philanthropist Award (2013) and the Margaret Lloyd Award (2022).

Segars' dedication to his family, community and Clemson will serve as an inspiration for future generations, and his legacy will continue to shape the future of South Carolina and beyond through his endowment, which supports scholarships, fellowships and other student engagement programs.

awards and achievements



CLASS OF '39 AWARD FOR EXCELLENCE **ROBERT BALDWIN**

EXECUTIVE DIRECTOR, CLEMSON EXPERIMENTAL FOREST | LLOYD ENDOWED CHAIR OF CONSERVATION ECOLOGY, DEPARTMENT OF FORESTRY AND ENVIRONMENTAL CONSERVATION

Clemson University faculty named Robert Baldwin one of the best among its ranks by awarding him the Class of '39 Award for Excellence.

Over the last five years, Baldwin has published 35 peer-reviewed papers, which include 34 student authors, served on 29 graduate student committees across four departments, graduated four doctoral students and mentored three postdoctoral scholars. Additionally, he has served on eight University committees within the last five years, two of which he chaired.

Baldwin's contributions extend globally. He participates in an international research program in the Central Indian Highlands, focusing on landscape-scale conservation. Multiple international news outlets have profiled his student researchers in India.

He also organized the FEC's contributions on the ClimateSmart Forestry proposal to the National Resources Conservation Service, a division of the U.S. Department of Agriculture.

PHIEANTHROPY SPOTLIGHT

Mac Rhodes '84, M.S. Forest Resources

MAC AND DEE RHODES

ac and Dee Rhodes have made transformative contributions to Clemson University, advancing forestry research, education and outreach. Together, their generosity has empowered Clemson to lead in innovative forestry practices and create opportunities that benefit South Carolina and beyond.

At the heart of their philanthropy is the Mac Rhodes Forest Futures Fund, which has had a profound impact on Clemson's forestry initiatives. This fund catalyzed Clemson's participation in the Climate Smart Grant program, positioning the University as a leader in addressing the challenges and opportunities of the carbon economy. The Rhodeses' focus on faculty and graduate student support ensures Clemson reaches its full potential as a toptier research institution. Their contributions allow Clemson to recruit and retain eminent scholars while providing graduate students with experiences that inspire creative ideas, innovative solutions and reasons to stay in South Carolina.

Beyond the Forest Futures Fund, the Rhodeses have supported other vital Clemson initiatives, including the Wood Utilization + Design Institute and projects that strengthen South Carolina's natural resources infrastructure. Their gifts have enabled Clemson to advance research in climatesmart forestry, open new markets for timber products and build a more sustainable future for the state's forests.

The Rhodes family's impact goes beyond financial support. Mac has hosted field days, led tree farm tours, collaborated on research and Extension programs and served on advisory boards, sharing his expertise to benefit Clemson and the forestry profession. Dee has been a steadfast partner in their shared vision, helping to ensure their contributions make a lasting difference. Together, they are shaping the future of forestry and creating opportunities for generations to come.



Aaron Wood received his bachelor's degree in agricultural education in '01 and his master's in human resource development in '03 from Clemson.

He is currently the assistant commissioner for agency operations at the South Carolina Department of Agriculture, where he has been since 2005. Prior to that, he was an instructor at Piedmont Technical College.

As an instructor, Wood helped upgrade Piedmont Tech's agricultural footprint in South Carolina. He was head of the horticulture program and visited high schools across the state to recruit students to PTC with the intent to continue their education at Clemson.

In his current role, Wood oversees the commissioner's office, information technology, grants management, state farmers markets and administration divisions.



Addie Stone graduated from Clemson in '20 with a bachelor's degree in agribusiness.

In January of 2021, Stone began an internship with the policy and external relations team at the Texas Department of Agriculture. Though she originally planned to go to graduate school in the fall of 2021, she quickly realized that working at TDA provided numerous opportunities for learning and professional growth. In June of 2021, she transitioned to the role of program outreach specialist where she improved her skills in agricultural policy analysis and gained experience in stakeholder engagement.

Stone is currently enrolled in the double degree in political economy of development between Sciences Po in Paris, France, and the London School of Economics.

OUTSTANDING Alumni

Our alumni are leaders, innovators and change-makers who leave a lasting impact wherever they go. Whether advancing turfgrass science, shaping agricultural education, or driving policy innovation, our graduates leave a profound impact. From recognized researchers to influential leaders, CAFLS alumni reflect the excellence of a Clemson education.



Lamber "Bert" McCarty is a professor emeritus of plant and environmental sciences specializing in turfgrass science and management. He graduated from Clemson in 1981 with a bachelor's degree in agronomy and soils and has been a faculty member at his alma mater for 28 years.

McCarty is well known and a sought-after speaker in the world of turfgrass. Several companies have looked to his involvement in testing new herbicides. Being known nationally for this knowledge, dedication and research in the turfgrass industry has led to McCarty receiving numerous awards, including most recently being the recipient of the Distinguished Service Award by the Carolina's Golf Course Superintendent Association in 2018.

In 2014, he received the Fred Grau Award through the Crop Science Society as the top national and international turfgrass science researcher. He is a Societal Fellow, the highest recognition by the society. McCarty was selected as a Fellow of the American Society of Agronomy in 2016. This was the first recipient of either award by a Clemson University professor.

the future



LEADING GLOBAL SOLUTIONS

Harvey tagged to lead Global Research Initiative

The College of Agriculture, Forestry and Life Sciences appointed food systems expert Jagger Harvey as the inaugural director of its Global Research Initiative. Harvey brings more than 30 years of research experience and a track record of leading international teams to address critical food security issues worldwide.

Harvey will collaborate closely with Clemson Cooperative Extension, regional farmers and global stakeholders to advance sustainable, secure food systems.

Few universities in the nation have the proximity and access to the rich diversity of soils that Clemson has — from the permeable loam of the low country to the highly-acidic, mineral deficient soils of the upstate. Such diversity makes Clemson an invaluable participant in advancing solutions to the global challenge of food insecurity. Faculty members James Sternberg (L) and and Andrew Hurley (R) will lead the new Clemson laboratory.



SUSTAINABLE ADVANCES IN PACKAGING SCIENCE

Clemson lab boosts farmers' export opportunities with \$5M USDA grant for eco-friendly packaging

The U.S. Department of Agriculture awarded Clemson \$5 million to develop sustainable food packaging solutions to meet new Canadian and European regulations. The standards aim to reduce plastic waste by eliminating single-use packaging, increasing recycled content and requiring compostable materials.

Clemson's Sustainable Packaging Innovation Lab will collaborate with industry and academia to address these challenges, ensuring U.S. farmers can continue exporting \$143 billion in fruits and vegetables. SPIL brings together expertise in polymer recycling, compostable materials and advanced packaging technologies. The research ensures U.S. specialty crop packaging remains compliant and sustainable for global markets.

the future

BREAKING GROUND

Clemson University breaks ground on the next chapter of forestry and environmental conservation

The Department of Forestry and Environmental Conservation's new 85,000-square-foot home is quickly taking shape and scheduled to open in 2026.

Located at the intersection of Cherry and Perimeter Roads, the four-level building will feature classrooms, laboratories, offices and collaboration spaces, as well as an outdoor lab with access to Hunnicutt Creek. Designed with sustainability in mind, the structure will showcase mass-timber construction, advanced wood product technologies and native landscaping that seamlessly integrates the natural environment into the learning experience.

Clemson's new forestry hub positions the department for future growth at a time when both its undergraduate and doctoral enrollment have reached all-time highs and research funding skyrocketed to more than \$20 million last year from \$2.6 million in 2020. "We were created to serve our state as a land-grant institution and to give people a path to a better future through education; the new Forestry and Environmental Conservation Building will continue to meet the will of Thomas Green Clemson and our mission and vision as an institution."

PRESIDENT JIM CLEMENTS

Forestry is a cornerstone of South Carolina's economy, contributing \$23.2 billion annually and supporting more than 100,000 jobs. This building reflects Clemson's role as a leader in sustaining and growing this vital sector. By fostering innovation, collaboration and talent development, the new facility positions the university to tackle the most pressing environmental challenges of our time, ensuring a sustainable future for the state and beyond.

> Architectural rendering of the new Forestry and Environmental Conservation building, designed to foster innovation and collaboration.

Planting Seeds for Tomorrow

Q&A WITH DR. MATTHEW T. "MATT" HOLT

Dean of the College of Agriculture, Forestry and Life Sciences

WHAT ARE SOME ACCOMPLISH-MENTS FROM THIS PAST YEAR THAT YOU'RE ESPECIALLY PROUD OF?

It's hard to choose, but a few moments really stand out. I'm particularly proud of how the CAFLS community came together in response to Hurricane Helene. Student organizations stepped up to help with cleanup efforts in some of the hardest-hit areas, demonstrating their commitment to service and resilience. Meanwhile, our Livestock Poultry Health and Cooperative Extension teams played critical roles in the state's emergency operations, ensuring the safety and well-being of animals and supporting the agricultural community during and after the storm.

On a global scale, two of our exceptional students were awarded Fulbright scholarships. Their achievements highlight the talent and dedication within CAFLS and underscore our growing reputation as a leader in education and research.

2 YOU'VE BEEN SERVING AS DEAN OF CAFLS FOR A FEW MONTHS NOW. WHAT HAS STOOD OUT TO YOU THE MOST DURING YOUR TIME SO FAR?

Without a doubt, it's the people. CAFLS is full of passionate, driven individuals who care deeply about what they do whether it's our students preparing to solve real-world challenges, faculty conducting transformative research, or alums making a difference in their industries and communities. The energy here is contagious, and it's been a privilege to step into this role and see it firsthand.

3 LOOKING AHEAD, WHAT ARE YOUR PRIORITIES FOR CAFLS IN THE COMING YEAR?

One of my top priorities is guiding CAFLS through our new strategic planning initiative. This will be a collaborative effort to set a clear vision for the future, focusing on areas where we can have the greatest impact. Strengthening our academic programs, expanding research opportunities and growing our outreach efforts will all play a vital role in this process.

We're also focused on building partnerships—within Clemson and beyond—that create opportunities for students, foster innovative research and deepen the college's impact locally, nationally, and globally. And, of course, fostering a culture of belonging remains a cornerstone of everything we do, ensuring that every member of the CAFLS community feels valued and supported.

WHAT EXCITES YOU MOST ABOUT THE DIRECTION CAFLS IS HEADING? I'm most excited about the growing opportunities to make an even bigger impact, both here in South Carolina and beyond. CAFLS has always been rooted in a mission of service and innovation, and right now, we're building on that foundation

in truly transformative ways, like our Global Research Initiative. Whether equipping our students with the skills they need to tackle the world's toughest challenges or expanding research that drives sustainability and food security, our work makes a difference.

5 WHAT MESSAGE WOULD YOU LIKE TO SHARE WITH THE COLLEGE COMMUNITY?

Thank you! Whether you're a student, faculty member, alumnus, or friend of the college, your support and involvement make everything we do possible. CAFLS is more than a college—it's a community, and it's that shared commitment to making a difference that sets us apart. I'm excited to work alongside all of you as we continue to grow and thrive together.