

College of Agriculture and Life Sciences

CALS

magazine



COLLEGE OF AGRICULTURE
AND LIFE SCIENCES
VIRGINIA TECH

2024

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Read this
issue
online





FROM THE DEAN

CALS DATES *to* REMEMBER

Greetings,

As I reflect on the past 15 years in the College of Agriculture and Life Sciences, I find myself incredibly humbled and grateful for the opportunity to work alongside such talented and passionate individuals—students, faculty, staff, alumni, and friends alike.

Together, we have embraced the land-grant mission and our pivotal role in shaping a better future through research and education. Our collective efforts are focused on expanding access to more affordable education, providing experiential learning opportunities for all students, sharing new discoveries and innovations, and helping create thriving communities. These endeavors have garnered global recognition for our contributions to making the world a better place.

As you read the pages of this magazine, you will discover firsthand the remarkable stories of our people and the monumental efforts underway that continue to elevate the positive impact and reputation of the college, Virginia Cooperative Extension, Virginia Agricultural Experiment Station, and the university.

Last year, we welcomed Mary Burrows as the new associate dean and director of the Virginia Agricultural Experiment Station. With her expertise and leadership, she will oversee vital research initiatives that not only address the needs of Virginia but also extend our reach globally. Collaborating closely with Mike Gutter, associate dean and director of Virginia Cooperative Extension, Susan Sumner, associate dean and director of academic programs, and Tom Thompson, associate dean and director of CALS Global, our faculty, staff, and students are discovering and translating best practices and innovative technologies that are strengthening industries and communities in Virginia and beyond.

As we navigate the ever-evolving challenges of the agricultural and life sciences industries, I am confident that our collective efforts have positioned us for continued success. The best is yet to come, and I look forward to celebrating our future achievements together.

It has been an absolute honor and privilege to serve alongside each and every one of you.

Go Hokies!

Alan L. Grant
Dean

Pictured above - Left to right: Cyril Clarke, executive vice president and provost; Tim Sands, president; and Alan Grant, dean of the College of Agriculture and Life Sciences.



Scan to see more



JUNE

6-9: Cornerstone and Alumni Weekend

18-21: Virginia 4-H Congress

24-27: Virginia FFA Convention

AUGUST

25: Classes Begin

OCTOBER

3: GAP Report Launch (Washington, D.C.)

25-26: Virginia Tech Homecoming

NOVEMBER

7: Virginia 4-H Alumni & Friends Reception (Richmond, VA)

9: CALS Alumni Org Tailgate w/ Clemson

Virginia Cooperative Extension is a partnership of Virginia Tech, Virginia State University, the U.S. Department of Agriculture, and local governments. Its programs and employment are open to all, regardless of age, color, disability, sex (including pregnancy), gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, military status, or any other basis protected by law.



AROUND THE AG QUAD

New director of communications and marketing

Tom Soladay was appointed as the director of communications and marketing for the College of Agriculture and Life Sciences, effective Feb. 1, 2024. In his new role, Soladay leads strategic communications and marketing efforts to boost the college’s visibility and support its research, teaching, and outreach missions. Bringing experience from global brand representation, including roles with Chip Ganassi Racing and Circuit Sport, he aims to enhance the college’s reputation through effective storytelling and marketing strategies.

Stefan Roberts named head of the Department of Biochemistry

Stefan Roberts has been appointed as the head of the Department of Biochemistry at Virginia Tech. Bringing significant expertise from his previous role at the University of Bristol, England, Roberts is set to focus on enhancing research and teaching within the department. His research has contributed to understanding gene expression regulation in cancer and normal cells, including discovering a core promoter element. With an impressive record of research funding and publications, Roberts is dedicated to expanding the department’s strong contributions to biochemistry.

Students study food security in South Africa

Ozzie Abaye, a professor in the School of Plant and Environmental Sciences, led a group of 14 students during winter break to complete programs focused on urban agriculture, food security, and sustainable farming in and around the cities of Cape Town and Johannesburg, South Africa. Students including Clara Betts (above, third from left) helped create community gardens and school greenhouses as part of the service-learning trip.

Longtime Extension agent coaches Livestock Judging Team

Matthew Miller, an alumnus and longtime Extension agent, has returned to Virginia Tech as the new coach of the Livestock Judging Team. With nearly 25 years of experience in Virginia Cooperative Extension, Miller brings a wealth of knowledge in competitive livestock judging. He plans to form a team of 7-10 students to compete nationwide, emphasizing the importance of agriculture, public speaking, decision-making, and building relationships. Miller’s commitment to student success and his competitive spirit aim to elevate the team’s performance and impact.

Former first-generation college student embraces new role as Virginia’s assistant secretary of education

Zach Jacobs, a Virginia Tech alumnus and former first-generation college student, now serves as Virginia’s assistant secretary of education. His role involves collaborating with the General Assembly, university presidents, and higher education liaisons to enhance Virginia’s educational system. Jacobs’ journey from a first-generation college student, actively involved in FFA and working various jobs to fund his education, to a key educational policy maker exemplifies dedication and the impact of mentorship and hard work. His efforts aim to ensure Virginia’s education system remains top-notch for future generations.



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VIRGINIA
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SOCIAL MEDIA HIGHLIGHTS



Instagram

 vtcals



Help slow the spread of the invasive [#SpottedLanternfly](#) by doing the Spotted lanternfly Stomp! Stomp it, squish it, spray it, or scrape it. Watch how! [#StopTheSpot](#)

Instagram

 virginia_cooperative_extension



Last night at the Virginia FFA State Convention, First Lady Suzanne S. Youngkin became the first First Lady in 97 years to give a keynote address at the annual event.

Instagram

 virginia4h



It's officially [#summer](#), which means it's time for [#4HCamp](#)! 🏡 What is (or was) your favorite part of 4-H camp? 🌿 🍷 [#ThisIs4H](#) [#Opportunity4All](#) [#Virginia4H](#)

GET SOCIAL WITH CALS!



ALAN GRANT LEAVES A LEGACY

By Mary Hardbarger



Alan L. Grant, dean of the Virginia Tech College of Agriculture and Life Sciences (CALs) since 2009, announced his retirement, effective fall 2024.

Grant will have served 15 years as a dean at Virginia Tech and will have spent 44 years of his educational and professional careers at four different land-grant institutions across the United States.

“It takes a team,” Grant said. “I have received an immense amount of support throughout my career. At Virginia Tech, there is a culture of collegiality and collaboration. People want to do great things and they want to work together.”

During his leadership as dean, Grant mentored faculty, students, and countless colleagues with great compassion. By fostering an environment of respect, support, and humility, he built a collegewide team that is both knowledgeable and caring.

“Alan has always aligned his vision for the College of Agriculture and Life Sciences with the tenets of Virginia Tech’s land-grant mission and our commitment to serving students, faculty, and university partners,” said Executive Vice President and Provost Cyril Clarke. “His outstanding leadership not only helped the college advance institutional goals and priorities, it enhanced CALs’ standing as an integral part of the comprehensive educational

experience we offer students and as a beacon for faculty talent and expertise. I want to thank Alan for his years of distinguished service and leadership as well as his friendship and wish him the best in his retirement.”

The College of Agriculture and Life Sciences, along with the College of Natural Resources and Environment, Virginia-Maryland College of Veterinary Medicine, Virginia Agricultural Experiment Station, and Virginia Cooperative Extension, comprise Virginia’s Agency 229. Together, with partners across the commonwealth and around the world, scientists bring innovation and secure agriculture, food, and health through basic and applied research.

Since Grant arrived after serving 19 years at Purdue University, the College of Agriculture and Life Sciences has experienced substantial growth across the board. In 2009, the college’s undergraduate student enrollment stood at about 2,400 and has since risen to close to 3,000. Graduate student enrollment has risen to about 700. Sponsored research funding has increased from less than \$40 million to nearly \$75 million annually. During his tenure, the college raised more than \$100 million in philanthropic support.

Grant was engaged in the university’s largest grant to date, an \$80 million grant

awarded to the College of Agriculture and Life Sciences and funded in 2023 by the U.S. Department of Agriculture. The funding will be used to pilot a program that will research climate-smart practices and pay producers to implement climate-smart practices on farms of all sizes and commodities.

Grant was also instrumental in launching the CALs Global office, expanding the college’s impact beyond the commonwealth and showcasing the university as a global leader and influencer of innovative and effective agricultural practices.

Grant oversaw the formation of the Center for Advanced Innovation

“Under his leadership as dean, Grant mentored faculty, students, and countless colleagues with great compassion.”

in Agriculture, a bold, transdisciplinary initiative designed to drive innovation and advance agriculture and food systems. The list of faculty affiliated with the center has grown to more than 150 researchers from across the university.

“Alan never lost sight of the vital role that College of Agriculture of Life Sciences plays in a land-grant institution,” Clarke said. “His leadership not only helped the college cement its role as a foundational bedrock of Virginia Tech, but also set a course for its increasingly important role as we look to the next 150 years. We owe a debt to Alan and thank him for his leadership — the impact of which will resonate for years.”

Across Virginia, Grant championed funding to update facilities and equipment at the university’s 11 Agricultural Research and Extension Centers. There, faculty work together with Virginia Cooperative Extension specialists to develop best practices and technologies to assist growers. Developing and sharing methods to serve and better the lives of others is paramount to the mission of land-grant universities, Grant said, and a big reason he has been a part of these institutions for decades.

As an integral part of both Virginia Tech and Virginia State University, Extension works in communities across the commonwealth to share knowledge, support businesses, and implement research that advances the well-being of all Virginians.

Today, Extension also operates out of 107 local offices, 11 research and extension centers, and six 4-H centers across the commonwealth. Agents, specialists, and volunteers work to assist businesses, educate youth and adults, and guide responsible resource management.

“Land-grant universities like Virginia Tech are making positive impacts on communities and businesses, in urban communities and rural communities, and not just in Virginia – well beyond the state lines,” Grant said. “To me, a land-grant institution is all about serving the needs of others and working with communities and businesses to help them succeed.”

Virginia, Grant said, is well-positioned to meet the challenges of the continuously changing agricultural and life science industry, thanks in part to the work of those in Virginia Cooperative Extension, Virginia Tech, and the university’s partnering land-grant institution, Virginia State University.

And, no doubt, thanks to Grant’s dedication to and appreciation for agriculture and the life sciences.



Pictured top left; top right, center and bottom: Dean Alan Grant has been a steadfast champion for students, faculty, staff, and Virginia agriculture.



Scan to see more





PAYING MENTORSHIP FORWARD

By Tim Skiles

Shajaesza Diggs transferred to Virginia Tech during the pandemic in the middle of her junior year. Even though courses were online because of COVID, Diggs' hard work and strong potential caught the eye of one of her instructors, Clément Vinauger, an associate professor in the Department of Biochemistry.

When Diggs met Vinauger in person for the first time at graduation, he offered her the opportunity to join the Vinauger Lab as a technician.

Vinauger, a first-generation college graduate, enjoys mentoring students to pursue research opportunities and graduate school, and advising them in their careers.

"We take people, not for what they can do now, but for the potential that they have to reach the next step of their careers," Vinauger said.

After observing Diggs' passion for research as a lab technician, Vinauger suggested that she consider leveraging her lab experience to pursue a master's degree. Although the process of getting into a master's program seemed daunting for Diggs, she successfully applied to the program with the guidance of Vinauger and Chloé Lahondère, both faculty in biochemistry.


Today, Diggs is a master's student in biochemistry, working on a National Science Foundation grant project that focuses on how mosquitoes feed. Her research specifically looks at nectar-feeding mosquitoes and blood-feeding mosquitoes to see if nectar feeders can transition to blood as a food source.

Diggs investigates how mosquitoes' muscles work by giving them a blue-dyed sucrose liquid that mimics the nectar of plants and gives visual verification that the mosquitoes have fed. She then uses electrodes to record and analyze the mosquito's activity. The data Diggs collects will be instrumental in answering whether a nectar-feeding mosquito can transition into a blood-feeding one.

The guidance and support Diggs received has inspired her to pay it forward. She serves as a transfer student mentor as part of Transfer Experience, a living-learning community on campus where she shares resources and her firsthand experiences with her fellow students.

"Reach out. If you need help, there are so many resources," Diggs said. "You just have to ask."



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LET'S GO



MAKING EDAMAME A HOME GARDEN STAPLE

By Marya Barlow

If you aren't growing edamame in your home garden yet, talk to Patrick Bewick.

Bewick, a Ph.D. student in the School of Plant and Environmental Sciences, believes edamame is an ideal specialty crop. He's trying to build enthusiasm for growing the nutritious, bright-green soybean by distributing free seed packets to home gardeners across the commonwealth.

"Edamame is a perfect home garden crop," Bewick said. "It's easy to grow and maintain, has a high yield, and is an excellent vegetable protein that can be used in so many ways."

Bewick acquired his passion for edamame while working in the lab of Associate Professor Bo Zhang, who leads a USDA-funded effort to develop edamame beans for U.S. growers. Zhang's research team developed "VT Sweet," a tasty edamame cultivar perfect for commercial production in the mid-Atlantic states. However, widespread adoption has been slow due to the costs of new equipment needed to harvest edamame mechanically.

So, with Zhang's backing, Bewick created a program to introduce edamame to home gardeners – a fast-growing market of more than 55 million American households. Backed by a grant of nearly \$50,000 from Virginia Tech Intellectual Properties' LINK + LICENSE + LAUNCH Proof-of-Concept Program, Bewick brought the program to life.

"Edamame is projected to be a \$300 million global market by the end of this decade," Bewick said. "But 90 percent of edamame sold in the U.S. is imported – mainly from China. If we can get home gardeners and small farmers growing and distributing it to consumers, it

may lead to an increase in demand that will help larger producers follow their lead."

With the help of Virginia Cooperative Extension agents and Extension Master Gardeners, Bewick has distributed more than 2,000 packets of VT Sweet for use in home, school, and community gardens throughout the state. Bewick surveys the gardeners to learn more about how they use VT Sweet, their challenges, and future demand for the product.

"People are hungry to learn more about edamame and they feel valued when we ask for their participation in the survey," said Joanne Royaltey, an Extension master gardener and the consumer horticulture program associate in VCE's Frederick County office. "Patrick has been a conduit from the research lab into the community."

In the future, Bewick hopes to expand the seed company to sell packets in garden stores. He continues to work with Zhang, supporting her research to develop and breed new and improved, herbicide-tolerant soybean varieties for the Mid-Atlantic region.



Scan to
see more



Pictured - Left: Shajaesza Diggs, a master's student in the Department of Biochemistry, stands outside of Steger Hall, where she conducts her research on mosquitoes.

Above: Doctoral student Patrick Bewick is working to introduce the edamame bean as a home garden crop as a first step toward more widespread adoption on U.S. farms.

A 'SOUPER' PARTNERSHIP

By Max Esterhuizen



A real-world collaboration puts skills into action for food science and technology students.

Standing in her white lab coat with the blue safety gloves, Erin Kelley gently held a container of packaged soup, inspecting it carefully for signs of initial spoilage.

A bulging container? Nope. Normal color? You bet. Smell? Normal – whatever that is.

The container passed inspection before moving on to a more thorough second round that involves more scientific methods.

A junior in the Department of Food Science and Technology at Virginia Tech, Kelley, from Santa Fe, New Mexico, is a member of Alexis Hamilton's food microbiology lab.

As a Virginia Cooperative Extension Specialist, Hamilton routinely works across the commonwealth to help companies and individuals improve their food safety. When one of her industry partners, a local Washington, D.C.-based, woman-owned business called Soupergirl, shared that they wanted to expand the distribution of their soups by increasing the shelf life, Hamilton instantly saw how she – and her talented lab of students – could contribute.

Many soups use salts and other

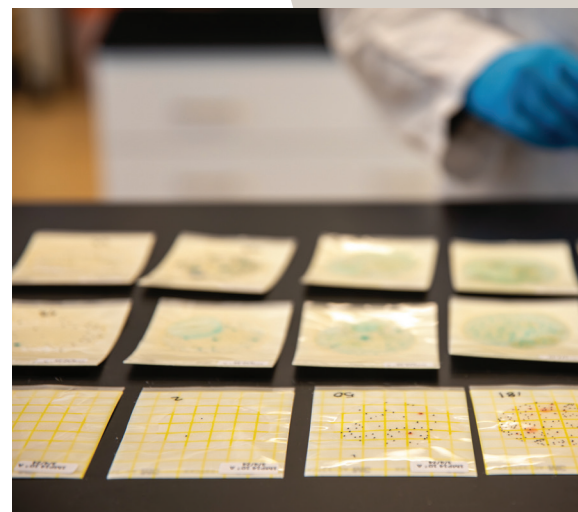
preservatives to increase shelf-life.

Soupergirl wants to increase the shelf-life of their soups while keeping a “clean label,” or ingredients that are found in most kitchens or pantries, explained Sara Polon, who co-founded Soupergirl with her mother. Notably, this does include some naturally occurring preservatives.

Hamilton's lab is helping Soupergirl by testing her soups at various stages of product distribution, looking at the pH, sensory qualities, and much more. The data gathered could be used to slightly tweak the soup formulas to extend shelf life in stores. Currently, the shelf life of the soups stands at 56 days. An increase of just three days could have a profound impact on the business.

With soups in stores from Florida up to Maine – the entire East Coast – an increase in shelf life means expansion can head westward. Because it can take more than two weeks for the soups to make it into a supermarket, Polon is hoping Virginia Tech can help show that new formulations can extend that 56-day shelf life, while maintaining flavor, texture, and more.

“Virginia Tech is doing incredible



work on the research frontier, helping the community, and educating the next generation of food safety experts and researchers,” Polon said. “I'm grateful for the opportunity to work with the food safety program and help students gain practical, hands-on experience.”

The partnership was born from the Food Producer Technical Assistance Network, led by Melissa Wright, at Virginia Tech. What started with a very simple question of “How do I make a safe food product?” has blossomed into a collaboration to enhance the shelf life, quality, safety, and distribution reach of a product.

“I am really fortunate to have a strong



team of student researchers,” Hamilton said. “Undergraduate, graduate, and some postgraduate students work in my lab, and what they’re getting to do with this project is take some of those fundamental microbiology concepts that we learn in the classroom and apply that in a practical way that they would very likely see in the industry, which prepares them for the workforce.”

This project has provided students a unique professional development opportunity.

“They’ve gotten to work with materials that the industry uses and that we typically don’t see in a teaching laboratory,” Hamilton said. “Very often, they’ve gotten to build their own professional development and technical training skills. They’ve worked on science communication and how they might

switch between talking about data in the lab and interpreting what it means in the boardroom.”

There are numerous ways that a food product can be made safe, and Hamilton’s lab looks for indications that a product is changing over time and could spoil before a customer eats it.

“One of the ways that small businesses can be strong competitors is through the quality of their products,” said Isa Maria Reynoso, who is from the Philippines and pursuing her Ph.D. at Virginia Tech. “Our work in the lab will help Soupergirl be even more competitive.”

Soupergirl, a Washington, D.C.-based soup company that launched in 2008, is Sara Polon, a former stand-up comedian turned soup-maker/CEO and her mom, Marilyn Polon, a home-taught pro in the kitchen.

The ‘Souper’ process in the Hamilton Lab

After a product is received on any one of the sample days, the ultimate goal is to see what microorganisms are present in that product that might impact its shelf life over time.

First, the research team brings that product into the lab out of storage,

whether that’s stored at ambient room temperature or refrigerated.

Next, a portion is weighed out, diluted, and placed on Petrifilm. The lab team then goes through the process of dilution, plating, and incubation.

The team finally looks for the number and type of microorganisms that show up on the film, with thresholds that indicate the quality of the product for consumption.

Top left: Alexis Hamilton (second from right) and students from her food microbiology lab are helping Soupergirl - a Washington, D.C.-based soup company - expand distribution and increase shelf life of their soups.

Top and bottom center: Students in the microbiology lab test the pH and sensory qualities of the soups.



Scan to see more



MANRRS STUDENTS TAKE HOME NATIONAL AWARDS

By Marya Barlow



- **Manette Tanelus**, a Ph.D. student in entomology, took first place in the graduate oral research competition, division I.
- **Taelor Baber**, a master's student in animal and poultry sciences, won first place in the national theme contest.
- **Charles Sterling**, a Ph.D. student in biological systems engineering, received first place in the graduate oral research competition, division II.
- **Zoie McMillian**, a Ph.D. student in wildlife conservation, earned second place in the graduate research poster category.
- **Kara Crudup**, a senior in animal and poultry sciences, won second place in the photograph contest.
- **Arogeanae Brown**, a Ph.D. student in Agricultural, Leadership, and Community Education, received third place in the graduate oral research competition, division II.

Virginia Tech's chapter of Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS) took home six awards during the organization's national conference last year.

The annual event brought more than 2,000 MANRRS participants from 74 collegiate chapters to Atlanta for several days of speakers, training, networking, and friendly competition. Five students from the College of Agriculture and Life Sciences and one student from the College of Natural Resources and Environment earned awards.

Crudup, who earned her bachelor's degree in animal and poultry sciences last year and is now pursuing a master's degree in the Department of Agricultural, Leadership, and Community Education (ALCE), is president of the 30-member campus group.

"MANRRS has not only opened my eyes to a plethora of opportunities but has

also served as a crucial safe space for me, particularly as a minority in this field," she said. "Attending MANRRS conferences has been particularly inspiring, as I've had the chance to witness individuals who look like me holding significant roles in agriculture, natural resources, and related sciences fields."

Brown, an ALCE doctoral student, is researching Black leaders' motivations to establish community-based spaces and organizations to promote agricultural education among Black youth.

"Having been a member of MANRRS for over a decade, I've experienced significant personal and professional growth within agricultural affairs," she said. "As a longstanding member, I am able to extend the resources and support of MANRRS to my peers throughout their educational and professional journeys."



Pictured - Top left: Students from Virginia Tech's Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS) chapter celebrate winning six awards at the organization's national conference in Atlanta.



FACULTY AWARDS

Paul Siegel receives national lifetime research award

Paul Siegel, a university distinguished professor and professor emeritus in the School of Animal Sciences, was honored late last year with the Golden Goose Award.

The award, managed by the American Association for the Advancement of Science, recognizes researchers whose federally funded work has resulted in breakthroughs with tremendous human and economic benefits.

Siegel, who began his career at Virginia Tech in 1957, is well-known as a pioneer in poultry genetics whose work laid the foundation for modern methods of raising and breeding chickens.

Though he officially retired in 2000, Siegel continues to work with chickens about 50 hours a week in the poultry houses that bear his name.



Ozzie Abaye honored for national teaching excellence

Ozzie Abaye, a professor of crop and soil environmental sciences, was honored with the 2023 Excellence in College and University Teaching Award for Food and Agricultural Sciences.

The award, which recognizes exemplary dedication to teaching and service to students, was presented by the Association of Public and Land-Grant Universities and the U.S. Department of Agriculture.

Abaye, the Thomas B. Hutcheson Jr. Professor of Agronomy, is a beloved teacher and mentor to countless students who integrates field trips, service-learning, and hands-on exercises into her courses.

She is known internationally for her extensive work to improve the livelihoods of farmers, women, and children in West Africa through sustainable agriculture.



Tim Jarome earns Virginia's highest faculty honor

Tim Jarome, an associate professor and neuroscientist in the School of Animal Sciences, received a 2024 Outstanding Faculty Award from the State Council of Higher Education for Virginia (SCHEV) and Dominion Energy.

Outstanding Faculty Awards are the commonwealth's highest honor for faculty at Virginia's public and private colleges and universities. Jarome was one of two "Rising Star" faculty recognized for early career achievements.

Since he joined Virginia Tech in 2018, Jarome has established an internationally recognized research program that has attracted more than \$6 million in grant funding from the National Institutes of Health.

His research has shed new light on molecular mechanisms in the brain that control fear-based memory formation.



Pictured - Left: Paul Siegel earned a Golden Goose Award for his lifetime contributions to poultry research.

Center: Ozzie Abaye was honored for teaching excellence by the Association of Public and Land-Grant Universities and the USDA.

Right: Tim Jarome, associate professor in the College of Agriculture and Life Sciences, received the State Council of Higher Education for Virginia's Outstanding Faculty Rising Star Award.



PRESERVING & RECLAIMING PAST KNOWLEDGE THE FUTURE

By Mary Hardbarger

Members of five tribal communities gathered on Virginia Tech’s campus to revitalize their ancestral language and build connections based on their ancestral knowledge of homelands, foods, and history.

Community and connectivity. Family and ancestry. Healing and reconciliation. Learning and preserving. History and traditions. Foods and homelands.

“Reclaiming my identity.” “Reclaiming our language.” “Reclaiming our ancestral knowledge and foodways.”

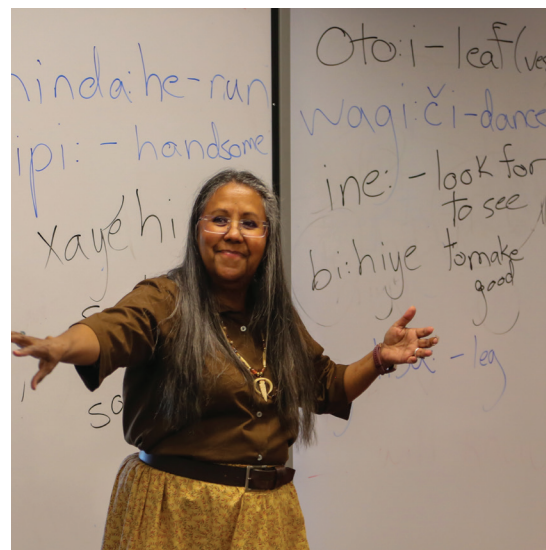
These were common themes and words shared among participants of the Yesa:sahj’ Language and Lifeways Immersion Conference, which was held on Virginia Tech’s campus and organized by the Yesa:sahj’ Language Project with support from their community partners, Indigenous East, 7 Directions of Service, and NDPonics.

The Yesa:sahj’ Language Project is an Indigenous-led nonprofit organization that has representation from the Monacan, Haliwa-Saponi, Sappony, Occaneechi, and Ohio Saponi tribal communities. The project’s mission is to preserve the ancestral language and catalyze a strong future for their culture and communities by restoring Yesa:sahj’ to everyday use.

Virginia Tech’s Blacksburg campus is located on land that is the ancestral homeland of the Yesá. The word Yesá translates to “the people” in Yesá:sahj’ or the Tutelo-Saponi language and is used to refer to individuals

and communities descended from the Monacan Alliance, an eastern Siouan people who, today, belong to five tribal communities that include the Monacan Indian Nation, the Occaneechi Band of Saponi Nation, the Sappony Tribe, the Haliwa-Saponi Tribe and the Saponi Nation of Ohio as well as other Tutelo descendants.

Hosted by the College of Agriculture and Life Sciences and the Department of Agricultural, Leadership, and Community Education, the six-day workshop brought together a diverse group of people from Yesá communities in Virginia, North Carolina, and Ohio. Some participants traveled from the Midwest and upstate New York to attend. All were motivated by a shared passion for preserving Yesa:sahj, the language of their ancestors that in recent years has seen an increase in community efforts to revitalize it.



Scan to see more



Learning the language

The conference convened at the Virginia Tech Turfgrass Research Center, where participants gathered under the pavilion for a show-and-tell session led by conference organizer Desiree Shelley Flores, a graduate student in the Department of Agricultural, Leadership, and Community Education and board member of the Yesa:sahi Language Project.

Participants were asked to share a story, item, or something about themselves or their community. Shelley

Flores, a citizen of the Monacan Indian Nation, brought a potted Maypop, explaining her passion for native plants and the significance of Maypops as an edible and medicinal plant native to this region.

She explained that Maypop is an example of how we use the English language to understand our relationship to other living things.

“The name Maypop signifies the month in which the vine reemerges in spring after winter dormancy,” she

said. “Yesa:sahi has lost many of our plant names that also hold traditional knowledge about the life cycles of these plants and how we use them.”

Victoria Ferguson, a citizen of the Monacan Indian Nation and director of the Solitude-Fraction Site with InclusiveVT, read a traditional story and teaching passed down in her family of the Bearskin Coat that cautions listeners never to take more than they need from their natural environment.

Exploring ancestral knowledge

Outside the classroom, participants and leaders from tribal elders to knowledge keepers joined in conversation about an array of ancestral topics, such as the Yesá 4 Daughters lunar and agricultural calendar, and learned about traditional food practices. They enjoyed lengthy discussions at the lunch and dinner table, including during the last day of the conference, where they learned how to make Three Sisters

Succotash, a summer dish of corn, green beans, and squash.

For many, this field trip was one of the most important experiences of the conference as it brought together community members to learn language, forage for wild traditional foods and medicines, and enjoy recreational free time and relationship building.

Future steps and partnerships

The conference was funded by the Community Viability Grant Program, an initiative of Virginia Cooperative Extension that supports innovative and interdisciplinary outreach between the College of Agriculture and Life Sciences and communities, schools, or industries.

The immersive language conference is held annually. This year, the conference was split into two parts, a late spring gathering at the College of William and Mary, followed by the gathering at Virginia Tech. This was the first time Virginia Tech hosted.

In addition to Shelley Flores, Donna Westfall-Rudd recently

received additional funding from the Monuments Across Appalachian Virginia project to continue the program. Westfall-Rudd, associate professor in the Department of Agricultural, Leadership, and Community Education, has been a steadfast advocate for building relationships between tribal communities and Virginia Tech.

“This was an incredibly important and meaningful conference as we, Virginia Tech and the College of Agriculture and Life Sciences, continue the work to build a positive relationship with all of the Native communities in this group,” Westfall-Rudd said.



Top left: More than 50 participants of varying backgrounds and ages attended the conference, a mix of in-classroom learning of the language and immersive experiential learning of traditional Yesá lifeways through the context of history, food, agriculture, and land.

Middle left: Victoria Ferguson, a citizen of the Monacan Indian Nation and director of Solitude at Virginia Tech, gives a talk on Eastern Siouan traditional food practices.

Bottom: Young Yesa language conference attendees participate in cooking demonstrations.

Above: Desiree Shelly Flores of the Monacan Indian Nation leads a cooking demonstration.

BOOSTING SHELTER DOG ADOPTIONS

By Max Esterhuizen

Virginia Tech and Arizona State researchers found that shelter dogs who had a brief outing or fostering stay were more likely to be adopted.

After a long day at work, you open the door to the place you call home. A chorus of furry happiness rushes toward you, the sound of unconditional canine love. With your return, your dog's world is whole.

Virginia Tech and Arizona State University researchers are working to help more shelter dogs experience this kind of love, safety, and happiness in an adoptive home.

The research team found that implementing shorter-term fostering programs at animal shelters vastly improves adoptions for our canine friends.

Spending time with a dog is one of the most consistently effective ways to improve a dog's life in the shelter. Time out of the kennel with a person can reduce physiological measures of stress,

as can a single night or more in a foster caregiver's home.

In this study, the researchers assessed the effects of outings of just a few hours and fostering stays of one to two nights on dogs' length of stay in the shelter and their adoption outcomes.

The researchers found that brief outings and temporary fostering stays increased dogs' likelihood of adoption by five and more than 14 times, respectively. The team also found that these programs were more successful when a greater proportion of community members were providing outings and stays to the shelters' dogs as well as when these programs were carried out by shelters with more resources.

While short in their duration, these fostering programs can make a big

impact on the lives of shelter dogs.

The research was funded with a \$1.7 million grant from Maddie's Fund, a national family foundation established by Dave and Cheryl Duffield to revolutionize the status and well-being of companion animals, and was published recently in the journal *Animals*.

Pictured - Lisa Gunter, who worked on the project at both Virginia Tech and Arizona State University, walks her dog, Sydney, in Roanoke.



Scan to
see more





Helping man's best friend

At Virginia Tech, the project was spearheaded by Erica Feuerbacher, an associate professor in the School of Animal Sciences, and Lisa Gunter, an assistant professor in the school who originally worked on the project as the Maddie's Fund Research Fellow at Arizona State University.

In previous work, the team investigated how outings and temporary fostering stays influenced dogs' stress and activity levels but did not consider if these experiences helped homeless canines find their forever homes. The answer, based on the research, is yes.

"It's a really exciting finding. Our prior work showed how beneficial sleepovers were for reducing dogs' stress," Feuerbacher said. "It's wonderful to know that it also helps them get adopted."

The results showed that for foster

outings, about 4 percent of the people ended up adopting the dog. For overnight stays, the number increased to about 12 percent. Both results show that the vast majority of adopters were not the foster families.

"We saw that the majority of people adopting the dogs weren't the caregivers that were taking the dogs on

outings or letting them stay in their homes. These dogs were being seen in the community, meeting new people, and caregivers were sharing their stories," Gunter said. "This increased exposure likely helped the dogs find their adopters."





NEW SWINE AND CATTLE FACILITIES GROW VIRGINIA AGRICULTURE

By Marya Barlow

Updated animal science facilities support Virginia's No. 1 private industry.

Two new facilities at Kentland Farm are advancing research and education that will help the swine and beef cattle industries thrive far into the future.

The Swine Center includes a swine production and research facility, classroom, boar housing and gestation areas, and rooms for farrowing, nursery, and finishing. Inside the 24,000-square-foot, state-of-the-art buildings, students are exposed to all aspects of swine care and production.

“We’ve set up a facility that’s on par with what students will see in the industry and provides the best possible opportunities for students to learn,” said Swine Center Manager Jessica Neary M.S. ’22.

Neary is currently starting a breeding herd from 60 sows and hopes to gradually grow capacity to about 1,000 hogs.

“We are fortunate to have a facility where we get to work with all the life stages – from farrow to finish,” said Dana

Dougherty B.S. ’23, M.S. ’24, a student researcher and worker in the Swine Center. “I’ve been able to get hands-on experience in the production and research sides of the swine industry.”

School of Animal Sciences researchers are using the center for studies aimed at improving swine and human health and industry profitability.

The Beef Nutrition and Physiology Research Facility is a 33,000-square-foot, mostly open-air structure that includes 20 stalls for feed and nutrition studies, loading chutes, a feed mixing room, laboratory space, grain and bulk commodity bins, and a hay shed.

Research and student programs in the facility support the cow-calf industry—Virginia’s second-largest commodity—and focus on enhancing health, sustainability, and profitability in beef cattle production.

“The new Swine Center and Beef Nutrition and Physiology Research Facility place Virginia Tech at the forefront of livestock production technology, education, and research.”

Assistant Professor Rodrigo Marques in the School of Animal Sciences is using the new facility to study how certain nutrients minimize stress and enhance cow and calf performance. Beginning next fall, he will teach courses on applied nutrition and animal health in the facility.

“You can bring any company or student here and they will be amazed by what Virginia Tech has here,” he said. “We will be able to add a lot of value to Virginia’s cattle operations through the research and teaching that takes place in this facility.”

Virginia is among the top 20 cattle-producing states in the U.S. and Virginia Tech is dedicated to producing the

research and workforce that helps the industry remain profitable and thriving.

The new teaching and research facilities are the latest in a number of technological advances and facility updates that support the university’s commitment to smart farming and modern research and agricultural methods.

“Along with our new equine and poultry facilities, the new Swine Center and Beef Nutrition and Physiology Research Facility place Virginia Tech at the forefront of livestock production technology, education, and research,” said Dave Gerrard, director of the School of Animal Sciences. “We aim to keep agriculture – Virginia’s No. 1 private industry – growing for the future.”

Pictured - Left: Assistant Professor Rodrigo Marques conducts research on cow and calf nutrition at the new Beef Nutrition and Physiology Research Facility at Kentland Farm.

Below: Swine Center Manager Jessica Neary (front) and master’s student Dana Dougherty greet sows at the new state-of-the-art facility at Kentland Farm.



Scan to see more



Out-of-this-world technology supports agricultural insurance initiatives

with

NASA HARVEST PARTNERSHIP

By Melissa Vidmar



Elinor Benami

Virginia Tech faculty engage in evaluating and improving the design of agricultural insurance programs using satellite data with NASA’s global consortium of researchers and practitioners.

Extreme weather is a major factor affecting agricultural productivity, and it poses particular challenges for vulnerable and resource-constrained small-scale farmers worldwide.

In a new, multiyear series of projects, NASA Harvest — NASA’s global food security and agriculture consortium — is working to help lessen the impacts of extreme weather among small-scale farmers and their households.

Building on an earlier phase of NASA Harvest’s research that showed using remotely sensed data can help rapidly identify agricultural conditions and weather extremes over large areas, researchers at Virginia Tech are now working to help translate this work into applications for agricultural risk management products, such as agricultural insurance.

Within the scope of the broader NASA Harvest mission, Virginia Tech researchers, led by Elinor Benami, an

assistant professor with the Department of Agricultural and Applied Economics, seek to identify and evaluate opportunities to maximize the positive development effects of index insurance programs.

With index-based insurance, payouts occur when an “index” closely correlated to agricultural losses falls below a predetermined threshold, often called a “trigger.” Index-based insurance is most useful where there is a widespread, shared risk that is expected to harm agricultural production significantly and can be approximated by an “index,” such as temperature or soil moisture.

Index insurance may be one of the few types of cost-effective insurance available for small-scale farmers in developing countries, as the high costs of individual loss assessment often render conventional claims-based insurance infeasible.

The recent geospatial data revolution has further propelled enthusiasm for index insurance.

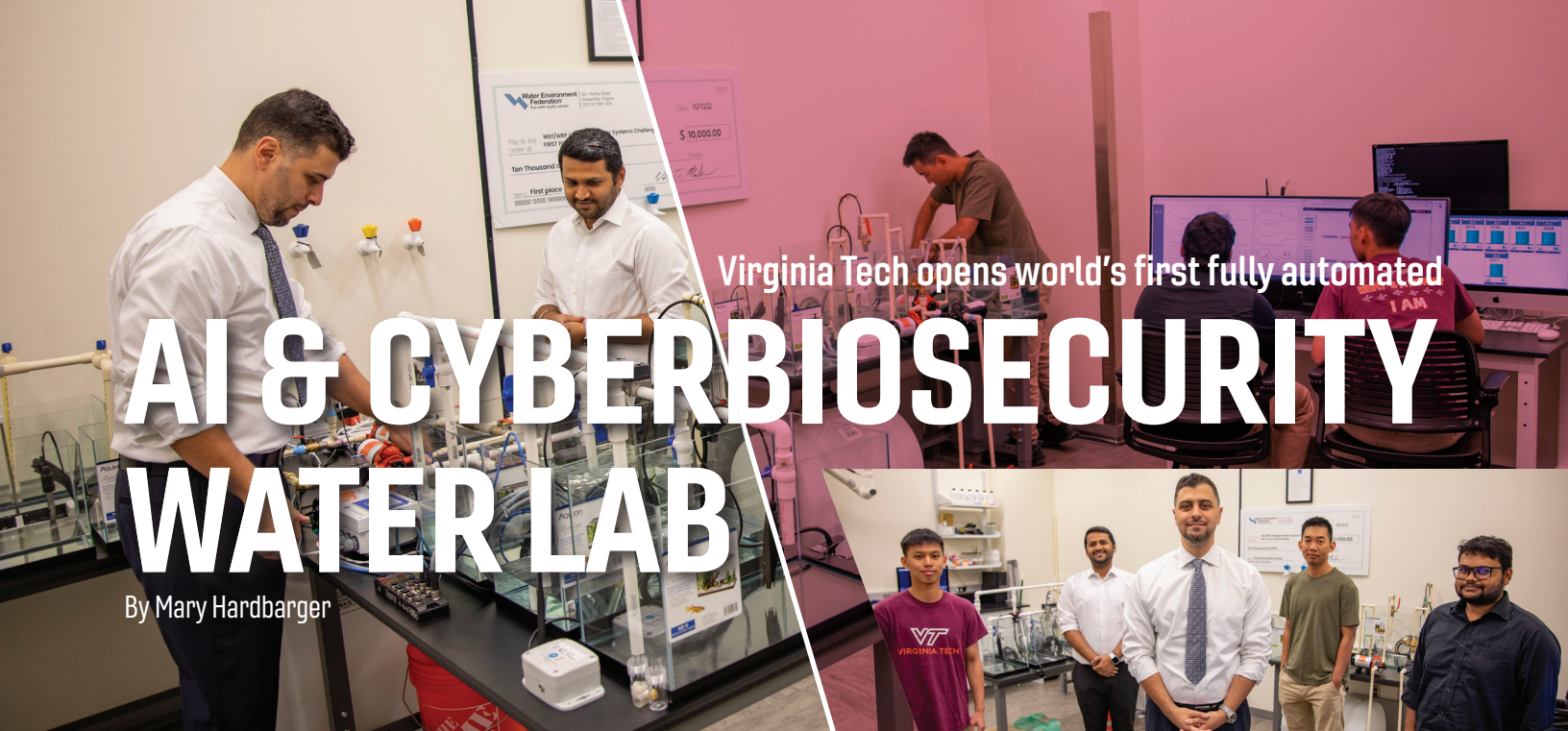
Several opportunities exist for the effective use of earth observation to help inexpensively identify fields, develop crop-type maps, detect crop stress, and optimize field sampling activities – all important inputs to effective agricultural risk monitoring.

“Index insurance can be an important safety net to quickly help producers weather meaningful losses, when it’s well-designed. However, many existing products weren’t designed with the needs of local producers in mind. Therefore, our work seeks to help blend technological advances with good design, and in turn ensure farmer resilience,” Benami said.



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Virginia Tech opens world's first fully automated

AI & CYBERBIOSECURITY WATER LAB

By Mary Hardbarger

The multidisciplinary AI and Cyber for Water and Ag lab aims to protect the world's water resources from cyberattacks.

In 2021, a water treatment facility in Oldsmar, Florida, was hacked by an unknown adversary.

It was a cyberattack, and the sensor responsible for measuring how much sodium hydroxide is in the water was compromised.

Within seconds, the hacker attempted to change the water supply's levels of sodium hydroxide, moving the setting from 100 parts per million to 11,100 parts per million. At this level, sodium hydroxide severely damages any human tissue it touches and, in some instances, can cause fatalities.

Luckily, the treatment plant identified

the cyberattack and stopped pumping the poisonous water before it reached Oldsmar residents.

Why Oldsmar, a small city of about 15,000 people — a third of the population of Blacksburg?

That's still unclear.

But what is clear is that these types of attacks can happen anywhere, on any given day — and they do.

In response to the ongoing threats to the world's water utilities, Virginia Tech recently opened the AI and Cyber for Water and Ag (ACWA) lab — the first lab in the world to combine cyberbiosecurity and artificial intelligence automation to research water security.

The multidisciplinary lab is in the Human and Agricultural Biosciences Building on the university's Blacksburg campus and is run by a team of artificial intelligence (AI) experts whose focus is water and agricultural systems.

Feras A. Batarseh, an associate professor with the Department of Biological Systems Engineering, leads the research team of master's students, Ph.D. candidates, and postdoctoral associates: Ajay Kulkarni, Siam Maksud, Chhayly Sreng, Justice Lin, and Reilly Oare. Batarseh is also associated with

the Commonwealth Cyber Initiative (CCI), Virginia's main access point for cybersecurity research, innovation, and workforce development, and a collaborator of the ACWA lab.

The lab consists of multiple topologies, sensors, computational nodes, pumps, pipes, tanks, valves, smart water devices, soil beds, central processing units, graphic processing units, as well as databases and AI models that control the system.

Its main goal is to address critical challenges in the water and agricultural domains by utilizing cutting-edge AI and data-driven technologies. These challenges include cyberbiosecurity, resources management, access to water, sustainability, and data-driven decision-making, among others.

"ACWA lab is aimed at creating a test bed for water supply systems, water distribution systems, and water treatment plants in the United States to test potential incidents, like cyberattacks, and protect against them," Batarseh said. "The lab is able to provide data sets that are not easily created anywhere else in the world by combining the cyber components and computational components with water quality and quantity aspects, such as water flow, pH and nitrogen rates, and more."

Pictured - Above: The AI and Cyber for Water & Ag (ACWA) lab at Virginia Tech is the first lab in the world to combine cyberbiosecurity and artificial intelligence automation to research water security.

Inset: The ACWA team includes (from left) Justice Lin, Ajay Kulkarni, Feras A. Batarseh, Chhayly Sreng, and Siam Maksud. Reilly Oare is not pictured.



Scan to see more



MARY BURROWS

Leading the Virginia Agricultural Experiment Station

By Max Esterhuizen



Mary Burrows started as the director of the Virginia Agricultural Experiment Station and associate dean for research in July 2023. We sat down with her to talk about her journey to Virginia Tech, how she wants to lead the Experiment Station, and her belief in the land-grant mission.

Tell us a little about yourself.

I grew up in Moorhead, Minnesota, and lived the majority of my life in the colder climates of the United States. My love of scientific investigation started early, and I kept a lab notebook as a kid when I was playing with my two older brothers' leftover chemistry set. My first formal lab experience was in high school at age 16, and my first job was as a dishwasher in a USDA-ARS lab. I've had a love for science and research for a long time, mostly revolving around plants. I really enjoy sick plants, they're more interesting than healthy ones (I'm a plant pathologist), but I also love gardening and giving away lots of (healthy) veggies and preserved foods.

What led you to Virginia Tech?

I've held leadership roles over the years that have allowed me to give back to my communities. This position is an opportunity for me to make connections among needs and opportunities in a large and diverse agricultural system. The faculty and alumni are very proud of Virginia Tech and there are strong stakeholder relationships. I'm always

excited to learn, and there's never a dull moment in Virginia.

What value do the ARECs bring to the commonwealth and beyond?

The Virginia Agricultural Experiment Station's threshold in the community is our Agricultural Research and Extension Centers (ARECs), but many people don't know that more than 80 percent of our faculty and staff are here on Virginia Tech's Blacksburg campus. Our basic and applied research activities and our engagement with stakeholders makes a real difference in our communities, the commonwealth, and beyond. Every day, knowledge generated by Virginia Tech is used by individuals and businesses to make lives better.

What do you see as the future of the ARECs and the Virginia Agriculture Experiment Station?

Our future lies in communicating the good work that we do every day, supporting our youth and talent, and working with our stakeholders to anticipate and meet challenges.

Fast Facts

Education: B.A. in Biology from the University of Minnesota-Moorhead; Ph.D. in Plant Pathology from the University of Wisconsin-Madison

Experience : Postdoc at the USDA-ARS at Cornell University; Extension Plant Pathology Specialist, Professor and Associate Director of the Montana Agricultural Experiment Station at Montana State University

Family: Husband, Sean, two children, Ceb and Abi, mini goldendoodle (Pinky), five cats (Potato, Princess, Thunder, Pepper, and Pumpkin), two ex-4-H rabbits (Hermoine and Lucky), and two horses (Bigz and Daisy)

Some fun facts about you: "I like to knit at meetings so I can sit for long periods of time. I've been knitting the same pattern baby blanket for over 20 years, so I don't have to think about it."



2023 GAP REPORT

By Max Esterhuizen

Only by working together will agricultural productivity meet demand.

Agricultural productivity growth is crucial for ensuring food security and for meeting the nutritional needs of a growing global population while simultaneously meeting environmental goals.

However, the growth of global agricultural productivity has significantly contracted and current efforts to sustainably expand production are inadequate, according to the 2023 Global Agricultural Productivity Report, or GAP Report, that was released through the College of Agriculture and Life Sciences at Virginia Tech on Oct. 3, 2023, at an event at the National Press Club in Washington, D.C.

New findings from the GAP Report, titled “Every Farmer, Every Tool,” suggest that not enough producers are able to access productivity-enhancing technologies and efficient practices. To correct course,

the world must reach a higher target productivity growth rate of 1.91 percent annually to meet global agricultural needs without relying on unsustainable practices.

Pressure is mounting to find solutions to both short- and long-term challenges facing local, regional, and global food systems. Major global shocks, climate variability, and rapidly changing demand for agricultural products show that a new mode of operations is needed to reach the target growth rate.

“To increase agricultural productivity, we must produce more outputs with the same or fewer resources used,” said Tom Thompson, associate dean at the college and director of CALS Global. “Global agricultural productivity growth has continued its downward trend. We must change this trajectory together so that we can improve and enhance food and nutrition security, sustainability, and resilience. Every farmer needs to have the tools in their hands to be as successful as possible.”



Tools are available to help

There are well-established tools - including technologies, practices, and strategies - that have demonstrated success in improving farm efficiency and productivity by optimizing resource utilization and minimizing environmental and economic costs. Ongoing research, especially at land-grant institutions such as Virginia Tech, improves existing tools and identifies new ones to sustainably improve productivity, producer livelihoods, environmental and human health, and economic growth.

Pictured - Panelists speak about the 2023 Global Agricultural Productivity Report, or GAP Report, that was released through the College of Agriculture and Life Sciences at an event at the National Press Club in Washington, D.C.



Scan to see more



SAVE the DATE

October 3, 2024

GAP Report launch in Washington, D.C.

OPPONENTS COLLABORATORS

on the field off the field

By Max Esterhuizen

Virginia Tech and Purdue University researchers work together to find real solutions for industry and homeowners to common turfgrass management issues.

When Virginia Tech and Purdue kicked off a much-anticipated football game on Sept. 9, 2023, it wasn't the only time the two universities shared a field.

The two turfgrass programs have a long-standing partnership that began in the 1960s with Bill Daniel and Dick Schmidt. This relationship continues today, and the current researchers continue to collaborate and bounce ideas off each other to further the impact of their land-grant missions.

From the mid-Atlantic to the Midwest, brown patch is the most common lawn disease for tall fescue. In 2021, a collaborative project combined the efforts of Virginia Tech alumnus Cale Bigelow '93, M.S. '95, a professor of horticulture at Purdue; Purdue turfgrass research associate Jada Powlen; and Virginia Tech College of Agriculture and Life Sciences Associate Professor David McCall to find real, usable solutions to the problem.

Together, they hope to find ways to reduce fungicide use in turf-type tall fescue lawns. This would help lawnowners save both money and energy in the upkeep of their lawns while maintaining the desirable characteristics of a lawn.

Virginia Tech's Blacksburg campus serves as a sister site for the research, with Bigelow often making visits back to his

alma mater to monitor the project.

Similar trials are being done at both locations, with the big benefit being that of geography.

"This is key to the project," McCall said. "We can show what works in each location and extrapolate that to the areas in between. Regarding home lawns, brown patch is one of the things that homeowners spend a significant amount of money to try to manage."

Having locations at two geographically distant universities opens the door to a much larger audience served by the project results.

With a plot at Purdue University and at Virginia Tech, consisting of two varieties of turf-type tall fescue, the research team spent considerable time establishing the plots precisely. The establishment of the plots followed the procedure of:

- Clearing the space
- Adding a prescribed amount of topsoil
- Tilling the soil
- Seeding each plot by hand for uniformity

A big part of the project was letting the fescue grow naturally and respond to brown patch without interference.

"A lot of money is spent on maintaining lawns for a variety of purposes," McCall said. "One of the

biggest obstacles is disease management, so whether it is a homeowner or a lawn care operator, a lot of money is spent on applying fungicide. One of the important things about this project is we can show ways that you can reduce the overall amount of disease without having to rely on fungicides quite as often."



Pictured - Virginia Tech Associate Professor David McCall shows tall fescue with brown patch disease.



Scan to see more



UNDER THE MICROSCOPE

Research from around the college

Supporting urban agriculture

Virginia Tech and Virginia State University (VSU) are partnering on two projects as part of a USDA \$40 million investment in education, technical assistance, outreach, and research for urban producers.

VSU's Small Farm Outreach Program and Virginia Tech's Center for Food Systems and Community aim to build a bridge between the USDA and urban farmers, who represent a growing source of green space and access to fresh produce for many urban consumers.

Project activities will include mini grants, an online resource center, an urban agriculture tool lending library, a summit and smaller regional meetings, an urban agriculture certification program hosted by VSU, equity trainings for practitioners, and an assessment of urban agriculture.

Taking soil health outreach to Senegal

Lydia Fitzgerald, the Virginia Tech/Natural Resource Conservation Service Partnership soil health and integrated conservation agronomist, traveled to Senegal last year to bring soil health outreach and education to Senegalese farmers.

Her workshops on soil health supported an ongoing effort by Ozzie Abaye, the Thomas B. Hutcheson Jr. Professor of Agronomy, to increase production of mung beans as a nutritious and sustainable crop in Senegal.

Creating a pollinator paradise

Trying to attract more pollinators to your garden? Margaret Couvillon, assistant professor in the Department of Entomology, and her former graduate student Micki Palmersheim '21 have recommendations based on two years of research that examined what combination of plants attract and feed the most – and most diverse – insect pollinators.

Their findings? For a tempting bee garden, incorporate lots of Black- and Brown-eyed Susans, purple coneflowers, Joe-Pye weeds, Helen's flowers, and sedum. For a diverse pollinator garden, try purple coneflower, Helen's flower, dwarf goldenrod, zinnias, yarrow, and catamint.

Developing the faba bean as a sustainable mid-Atlantic crop

Professor and Virginia Cooperative Extension Specialist Maria Balota is piloting a \$2.7 million multistate project funded by the USDA's National Institute of Food and Agriculture Specialty Crops Research Initiative to introduce the faba bean as a sustainable fall and winter crop in the mid-Atlantic region.

Balota says faba beans are great sources of protein and fiber, as well as good cover crops that improve soil health, slow erosion, and control pests, disease, and weeds.

In addition to cultivating faba beans that can thrive in the fall and winter months,

researchers plan to develop the most nutritious and flavorful beans and share the project's outcomes with growers.

Training dogs to sniff out the spotted lanternfly

"Dog detectives" trained by researchers in the School of Animal Sciences may soon be on the front lines of detection of spotted lanternfly eggs. Associate Professor Erica Feuerbacher and Ph.D. candidate Sally Dickinson are completing a study to train a network of dogs and their handlers to locate the invasive pests.

Feuerbacher and Mizuho Nita, a Virginia Cooperative Extension specialist and associate professor in the School of Plant and Environmental Sciences, partnered with researchers at Texas Tech University for the project, which is funded by the USDA Agriculture and Food Research Initiative.



garden

KATAMANSO COMMUNITY
GARDEN

BUILT BY: G4A

FACEBOOK: HOME GARDENING, GHANA

SAFE FOOD FOR EVERY HOME

SAFE FOOD FOR EVERY HOME

By Max Esterhuizen

Two Virginia Tech students traveled to Kpone Katamanso, Ghana, over spring break to build a community garden.

It was a blisteringly hot day, near 100 degrees Fahrenheit. Normal, though, in March for Kpone Katamanso, Ghana.

Sweat dripped and combined with dirt, building the texture we all know from days working in the garden. Chicago maroon t-shirts – and even a few emblazoned with 4 The Soil – scattered the backdrop. As did the smiles each person wore while covered in the sweat and soil. Even though they were nearly 5,500 miles from Blacksburg, Virginia, much remained the same.

The group carefully, but excitedly, constructed a community garden for the community of Katamanso. While commonplace in the United States, community gardens are relatively new to Ghana.

The shared goal of safe food for every home united every person in the community and is what brought two Virginia Tech students to Ghana during their spring break in March 2024.

With a passion for food sovereignty and food security for all, Mary Michael Lipford Zahed, a graduate student in the School of Plant and Environmental Sciences at the Eastern Shore Agricultural

Research and Extension Center, and Megan Pollok, a senior in the College of Agriculture and Life Sciences, built upon Zahed's expertise and experience to help a global community.

"We wanted to find out the needs of this specific community and work from there," Zahed said. "While most of us involved with the project had worked in Ghanaian communities before, this was a new area of the country for us. We learned about the community needs and the space so that this would be something that the people could maximize to help their lives and community excel."

The community garden plans were developed in conjunction with Jeanette Ankoma-Sey, a Ghanaian-American professional landscape designer in northern Virginia, and a Virginia Tech Horticulture alumna.

The design focused on feedback from the community to help family members produce enough food for their families. Specifically, foods they enjoy and look forward to eating, such as okra, tomatoes, hot peppers, and carrots.

"Every step of the way, we made

sure that this garden is something that is sustainable," Zahed said. "Every decision we made was intentional and made jointly with the Katamanso community so that they were a part of the process from day one."

The community garden needed to be truly theirs, she added.

"I learned about this in the classroom, but how do I create this and make this a project that's sustainable?" Pollok said. "Sometimes when we think about doing work in communities, we have an idea in our mind about what that should look like. This project helped me to see that really at the forefront of everything, you must keep the community members in mind and ask what they need and what you can do for them."

"You must keep the community members in mind and ask what they need and what you can do for them."

This work began years ago as a seed of inspiration from Ozzie Abaye '92, a professor in the School of Plant and Environmental Sciences, who has spent years helping communities in Africa.

Zahed didn't know she wanted to study agriculture, but Abaye, the Thomas B. Hutcheson Professor of Agronomy, showed her the impact that agriculture has on the world.

Zahed learned that without basic needs met, people can't be the best versions of themselves, which led her to take a life-changing position 5,100 miles away from home in Ghana in 2021.

From there, she saw an opportunity to connect with her mentor about a cross-cultural collaboration.

Frank Kwekucher Ackah, a professor of crop science at the University of Cape Coast in Ghana, visited Virginia Tech's Blacksburg campus in August 2023 to gather ideas and methods to improve community gardening in Ghana and see how Cooperative Extension in Virginia works. Ackah started a Facebook group called Home Gardening Ghana, which has grown to more than 287,000 members and now spans beyond the Ghanaian border. He's focused on fighting food insecurity through urban agriculture and urban community gardening, including home gardening. Ackah wants to expand this work across West Africa.

"This visit helped me know more about U.S. food systems and how

Virginia Tech and Virginia Cooperative Extension services are working together to support community garden groups in the region," Ackah said. "It also exposed me to the various community garden groups, their structures, and how they operate so that we can build on it to improve food security in Ghana and other African countries, through restructuring of the activities of Home Gardening Ghana."

This was where Pollok first met Ackah – and instantly connected to his vision.

"His purpose was something that I was extremely excited to be a part of and to help in any way that I could," Pollok said. "We really leaned on each other a lot through our knowledge and experience. We challenged each other and how we could make the community garden a reality."

Ackah's insights into the operational strategies of community gardens in the U.S. provided a solid foundation for collaborative efforts aimed at enhancing food security and sovereignty in Ghana.

Ackah's visit in August 2023, as well as Zahed's work as both an undergraduate and graduate student at Virginia Tech, has led to cross-cultural collaboration from Virginia Tech and the University of Cape Coast on fighting food insecurity. It also helped Ackah gain practical tools to expand Home Gardening Ghana upon returning to Cape Coast.

"You never want to devote yourself to something that doesn't matter," Zahed said of her year-long experience in Ghana. "[My year in Ghana] was a personal growth year for me. But we maintained our relationship and I hear from at least one of [the villagers] every day. That experience wasn't just about me. It is much bigger than just one person and I'm thrilled to be able to help, even in a small way."

This is the power of Virginia Tech and the College of Agriculture and Life Sciences – helping communities across the world, both large and small, thrive.



Left: One of the community garden member leaders helping build the tool shed and training area.

Above: Professor Frank Kwekucher Ackah from Ghana's University of Cape Coast leads a gardening training session for villagers.

Below: From left to right: Selorm Akaba, Frank Ackah, Mary Michael Lipford Zahed, Megan Pollok in the garden.



Scan to see more



VIRGINIA FFA



Andrew Seibel signs off as national FFA president

In a whirlwind year as full-time leader of the nation's largest student-run organization, Andrew Seibel traveled to 40 states and South Africa, met the U.S. president and leaders of global companies, and made countless new friends and colleagues.

Now back at Virginia Tech as an agribusiness major in the College of Agriculture and Life Sciences, Seibel is reflecting on his legacy as president and looking forward to a bright future in agriculture.

"It's definitely good to have a routine again and see my friends on a consistent basis," he said. "Thanks to my time as FFA president, I have a little more pep in my step."

Seibel was the 13th national officer from Virginia and the fifth to become president since the FFA was founded at Virginia Tech in 1925. He led an organization of 945,000 members and

spent 340 days on the road, speaking at schools and conventions, meeting with FFA chapters, holding leadership workshops, visiting farms and industry leaders, and serving on the FFA's Board of Directors.

In November, he gave a farewell address to thousands of participants in the FFA's national convention to tears and hugs, retired the blue FFA jacket he's worn since 2013, and headed home to Virginia.

"It was a whirlwind, but I wouldn't trade it for the world," he said. "It was such a special experience. I try not to take it for granted."

The FFA has always been part of Seibel's life. Growing up on a third-generation beef cattle farm, he tagged along with his dad, Virginia FFA chief executive Andy Seibel, to conventions, and watched his two older



sisters win FFA competitions and become national FFA officers. His mother, Megan Seibel, who is the director of the Virginia Agriculture Leaders Obtaining Results (VALOR) program at Virginia Tech, served as Virginia's deputy secretary of agriculture and forestry from 2016-18.

Seibel says the greatest reward of being president was the individual connections he made over dinners and ice cream with FFA members across the country.

"It was incredible to be able to go around the country and have people take care of me and welcome me into their homes," he said. "FFA makes such a positive impact on students. I want to continue to be involved in some way."

Right: Carroll County Middle School FFA's student presenters react with surprise after being announced as the winners of the Middle School Model of Excellence competition at the National FFA Convention & Expo. From left to right: Magen Key, Natalie Culler, Chapter Advisor John Carpenter, and Madelyn Caviness.

Below: At the national FFA Convention & Expo, Andrew Seibel (center) honored his parents, Andy Seibel (left) and Megan Seibel (right) with Honorary American FFA Degrees.



Carroll County Middle School recognized as the nation's top middle school FFA program



Carroll County Middle School's Virginia FFA chapter was named the 2023 National Middle School Model of Excellence winner during the National FFA Convention & Expo. The competition's judges recognized the chapter and its 436 members as the best in the nation for their efforts to grow leaders, build communities, strengthen agriculture, and provide enriching educational opportunities.

Madelyn Caviness, Natalie Culler, and Magen Key represented their chapter as presenters at the national finals, with the help of presentation assistant Keri Alderman.

In front of an audience of judges and conference attendees, the girls described some of the chapter's community service and educational outreach activities over the past year. The projects included an agricultural literacy program for children and parents during the Carroll County Public Library's Agricultural Literacy Month; a petting zoo at the Back to School Bash to attract more students to agriculture classes; and a Christmas tree decoration contest and food drive to support the American Cancer Society.

"To be the national champion FFA chapter means the world to me," Key said. "We have come so far as a chapter and being able to show the world all of our accomplishments is a major thing. I'm so glad to be a part of the Carroll County Middle School Chapter."

The group is led by Carroll County agricultural educators and FFA advisors Myra Leonard, John Carpenter, and Makenzie Carter, all of whom are Virginia Tech alumni.



National FFA Convention & Expo honors 11 Virginians for outstanding contributions to agricultural education

Eleven Virginians earned top honors for their longstanding contributions to agricultural education at the 96th National FFA Convention & Expo, held in Indianapolis. The honorees included eight Virginia Tech faculty members and alumni who were recognized with the Honorary American FFA Degree, the FFA's highest honor, and the VIP Citation, which honors individuals who have dedicated more than 20 years of service to FFA and agricultural education.

The awardees were:

Alan Grant, dean of Virginia Tech's College of Agriculture and Life Sciences.

David Kohl, professor emeritus in Virginia Tech's Department of Agricultural and Applied Economics.

Robert Mills Jr., 1994 Virginia Tech alumnus, farmer, and former member of the Board of Visitors.

Melessa Suder, an FFA advisor and agricultural educator at Eastern View High School in Culpeper, past president of the Virginia FFA Association, and 1998 Virginia Tech graduate.

John Carpenter, an agricultural educator at Carroll County Middle School and 1982 Virginia Tech alumnus.

Margaret Jones, an agriculture teacher and FFA advisor at Amelia County High School.

Brian Cavey, a National FFA Foundation retiring board member and senior vice president of corporate communications and government affairs at CoBank.

Jared Hill, a national FFA Foundation retiring board member and senior director of government and industry affairs at Bunge.

Andy and Megan Seibel also received Honorary American FFA Degrees, presented by their son, departing national FFA President Andrew Seibel. Andy is the chief executive of Virginia FFA and Megan is the director of the Virginia Agriculture Leaders Obtaining Results (VALOR) program at Virginia Tech.

Philip M. Fravel, a professor of agricultural education at Clemson University and Virginia Tech graduate and former instructor, earned the National FFA's VIP Citation Award recognizing 42 years of combined service to agricultural education and the FFA.





VIRGINIA 4-H

4-H'er inspires bill to officially recognize the Chincoteague pony

By MARY HARDBARGER



The Chincoteague pony is now Virginia's official pony thanks, in part, to the efforts of a Virginia 4-H'er.

Sophia Gallivan, a 17-year-old student at Broadwater Academy on the Eastern Shore, worked for months with her local representatives to pass two bills in the Virginia Legislature to make the Chincoteague pony the official pony of the commonwealth.

The bills were signed into law by Gov. Glenn Youngkin last July, after being introduced in the legislature by the Eastern Shore delegation, Del. Robert Bloxom and Sen. Lynwood Lewis.

Gallivan, an equine enthusiast, has been riding and training horses since she was a child. As a member of the Chincoteague Pony Drill Team and a 4-H Virginia Horse Ambassador, she participated in numerous events during the Chincoteague Island Pony Swim Week, an event that draws thousands of visitors from across the world.

For the past four years, she's been active in the 4-H club Hoof Beats by the Beach. Each club member, including Gallivan, owns a horse, and members travel across the state for competitions. It was after one of these horse shows when Gallivan, along with her father, Tom, started brainstorming the pony bill.

"We were talking about state emblems and state horses, and we wondered if the Chincoteague pony was the Virginia state pony," Gallivan said. "Of course, we learned it wasn't recognized at all, and that planted the seed for us."

Gallivan started researching the legislative process, and with the support from the Chincoteague Volunteer Fire Department, presented the bill to Bloxom and Lewis.

The bill passed unanimously. The Chincoteague pony joins a diverse list of state emblems and designations, such as the Virginia big-eared bat and the American dogwood, the state tree.

Gallivan was recognized for her efforts at the Virginia 4-H Day at the Capitol by first lady Suzanne Youngkin, who is also a horse enthusiast.

"This experience has been unbelievable," Gallivan said. "4-H helped me make a smart goal and achieve it. I am appreciative of all the support and how open and welcoming people were of my idea. I have learned so much about the legislative process here in Virginia, and I am grateful for this experience."

Pictured - Sophia Gallivan (third from left) with Virginia 4-H state leader Jeremy Johnson (fifth from left) and members of her equestrian team.



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William A. Hazel Family Foundation honored as Friend of Virginia 4-H

By MARYA BARLOW

The William A. Hazel Family Foundation received the Friend of Virginia 4-H Award at the 2024 Evening with 4-H celebration and ceremony in Richmond, Virginia.

The award recognized the Hazel Family Foundation for enabling creation of the Eleanor Hazel 4-H After-School Program for Fauquier County. The program, launched in 2022, is offered at five Fauquier County elementary schools and provides free after-school programming to youth that otherwise would not have the opportunity to participate in extracurricular activities.

“The Eleanor Hazel 4-H After-School Program has introduced more than 330 students in Fauquier County to fun, hands-on exploration of STEM through activities focused on agriculture, energy, robotics, outdoor exploration, and more,” said Jeremy

Johnson, an associate director and the state 4-H leader for Virginia Cooperative Extension.

Eleanor Hazel, the program’s namesake, grew up on a Loudoun County farm, where 4-H was a crucial part of her daily life. She served for many years as a 4-H club leader in Fauquier County, teaching crafts and international cooking to hundreds of students. She was inducted into the 4-H Hall of Fame and continued to support Fauquier County 4-H until her death in 2020.

Eleanor and her husband, Bill, a prominent businessman and developer who died in 2012, were widely known for their civic involvement and support of education.

“We are thrilled that our mother’s leadership legacy is being recognized,” said Ruth Hazel, one of the couple’s five grown children who helps run the William A. Hazel Family Foundation. “Even today, we meet adults who fondly recall their 4-H experiences thanks to Eleanor Hazel.”



Pictured - (From left) Ruth Hazel and Bill Hazel accepted the Friend of Virginia 4-H Award on behalf of the William A. Hazel Family Foundation at An Evening with Virginia 4-H. The family was honored for supporting expanded 4-H after-school programs for children in Fauquier County.



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Nancy Moga receives the Virginia 4-H Emerald Clover Award

By MARYA BARLOW

Nancy Moga of Covington, Virginia, has been honored with the Virginia 4-H Emerald Clover Award, in recognition of her decades of service to the youth of Virginia as an educator, volunteer, and role model.

Moga, a retired school principal from Alleghany County, began her involvement with Virginia 4-H in 1963 as a fifth-grade student in Louisa County.

“I was hooked from the beginning,” she said. “4-H has been part of me for more than 65 years – from all my different youth projects to camp to district and state meetings to serving as Big Chief of the Virginia 4-H All Stars.”

Moga, a 1976 Virginia Tech alumna, enjoyed a 42-year career in education, spanning the roles of teacher, assistant principal, and principal. She retired

in 2018, after 25 years as the principal of Callaghan Elementary School in Covington. A past president of the Virginia Association of Elementary School Principals, Moga was named the National Distinguished Principal for Virginia in 2001. She earned Virginia Tech’s Alumni Distinguished Service Award in 2017.

Moga has remained an active member of the Virginia 4-H All Stars – an honorary service organization for veteran 4-H’ers – since 1970. From 2000 to 2022, she led the All Stars as “Big Chief” through the pandemic and helped organize the group’s in-person Centennial celebration at Virginia Tech in 2022. She has dedicated countless hours to service on multiple boards of directors, including for the Virginia 4-H Foundation and the Virginia Tech Alumni Association, throughout the past five decades.



Pictured - Virginia 4-H Emerald Clover Award winner Nancy Moga (at left) with Jeremy Johnson, associate director and state 4-H leader. Moga was honored for her decades of dedicated service to the youth of Virginia.



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REFUGEES EMBRACE SHEEP FARMING

By MARYA BARLOW

A group of Afghan refugees who fled their homeland after the Taliban took control is working to start new lives as Virginia sheep farmers with the help of Virginia Cooperative Extension.

Barakat Rahmati, the former Afghan ambassador to Qatar, sought refuge in the U.S. in August 2021, settling in Fairfax County. In the years since, he and other Afghan nationals have come together to explore the idea of forming an Afghan-owned sheep farm and processing operation in Northern Virginia.

“We had to start our lives from scratch,” Rahmati said. “All of us have lost most of the things we could relate to and the only thing remaining for us here was this group of newfound people that could speak the same language.”

Seeking guidance on how to navigate U.S. sheep farming and finding suitable land, the group reached out to Virginia Cooperative Extension’s Loudoun County office. Jim Hilleary, a former Extension agent and career U.S. Army officer, said he and other agents leaped at the chance to help Afghan refugees who had lost so much in the war against terrorism.

“Their story was very moving and compelling,” Hilleary said. “Even setting aside the human aspect, that’s what we are here to do in Extension – help people improve their well-being. If we can help these folks stand up a large-scale sheep operation, it’s the right thing to do for them and the right thing to do for the agricultural community.”

The Extension agents quickly formed

Team Afghan Shepherd Program, composed of members representing six Virginia Cooperative Extension units, the School of Animal Sciences and the Department of Agricultural, Leadership, and Community Education, the Virginia-Maryland College of Veterinary Medicine, the USDA, and the Loudoun County Department of Economic Development. Together, 15 people developed a comprehensive training program to address all aspects of production.

There was just one catch: The lessons and materials had to be delivered in Dari, the Afghans’ preferred language. Working with translators contracted by Loudoun County, the agents developed and presented 16 in-person and online sessions, along with written materials, in topics ranging from animal health and husbandry to budgeting, infrastructure, and sustainable farming. They also hosted the Afghans at the Middleburg Agricultural Research and Extension Center and visited VSU’s Mobile Processing Unit and the livestock auction in Madison, Virginia.

If the refugees can get their sheep operation up and running, they have a strong chance at success. Virginia is home to the nation’s second-largest population of Afghan refugees after California, according to U.S. Census Bureau data. Rahmati says the Northern Virginia and Greater Washington metropolitan areas have large Muslim populations with strong demand for Halal lamb meat, raised and slaughtered

according to Islamic tradition.

Members of the group have purchased a processing plant, which is a key step in reaching their production goals. They are still looking for land, developing a comprehensive business plan, and working with Virginia Cooperative Extension and local government officials on the next steps to fulfill their dream of sheep farming.

“Virginia Cooperative Extension has been such a great resource for us to navigate our path forward in the States and establish ourselves as newcomers,” Rahmati said. “These programs extend beyond technical guidance for business operations; they symbolize a beacon of hope, demonstrating that in desperate times, there are individuals who genuinely care for one another and affirm our belief in forging a promising future. The unwavering assistance provided by these compassionate individuals serves as a profound testament to the power of human kindness.”

Pictured - Afghan refugees visit the Madison Livestock Exchange in Radiant, Virginia, as part of a Virginia Cooperative Extension program designed to help them enter sheep farming.



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COLLEGE OF AGRICULTURE AND LIFE SCIENCES
ALUMNI ORGANIZATION
 VIRGINIA TECH™

From the Director of Alumni and Constituent Relations

I'm so excited to have joined the CALS team at the end of 2023 – thank you all for such a wonderful welcome to my new role.

My entire career has been in higher education, starting out in student activities working with student organizations and new student orientation. While I am not a Virginia Tech alumna, I have been working here for nearly 10 years, and I am truly a Hokie at heart! Prior to CALS, I served in alumni relations roles for the College of Engineering and the College of Liberal Arts and Human Sciences.

I have a passion for serving students and our communities through our land-grant mission, so following my career path to CALS truly feels like I'm home.

My husband, Dave, works at Radford University, and we are raising our two children, Johnathan, age 7, and Maggie, who just turned 1, in nearby McCoy, Virginia. Our little street even backs right up to some of the Kentland Farm cattle fields!

I'd love to connect with you on LinkedIn (www.linkedin.com/in/vt-robyn-stuart), at one of our upcoming events, or by email (RobynES@vt.edu).

Warmly,
 Robyn Stuart



Pictured - Robyn Stuart.

Board

New Executive Board Members

- Scott Stevens '92 (animal science), President
- Zach Jacobs '19 (agribusiness management), Vice President
- Elizabeth Galbreath '17 (agriculture sciences), Past President

New Directors Elected for 2023-2026

- Peter Bachmann '13 (dairy science)
- Jennifer Myers '00 (environmental science)
- Timothy Schell M.S. '91, Ph.D. '94 (animal science)
- Emily Williams '14, M.N.R. '22 (animal and poultry sciences)

Dean's Advisory Council

New Alumni and Stakeholder Appointments

- Ben Rowe, National Affairs Coordinator, Virginia Farm Bureau
- Cathie Woteki '72, '75, professor of Food Science and Human Nutrition, Iowa State University
- Jim Saunders '85, partner, Saunders Brothers, Inc.
- Michael Carter Jr., Small Farm Resource Center coordinator, Small Farm Outreach Program
- Rusty Unterzuber '72, project manager, John Deere Company
- Shelley Butler-Barlow '82, Cotton Plains Farm, Inc.
- Elizabeth Galbreath '17, senior specialist for Future Talent Programs, Merck Animal Health

More CALSAO updates!



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VIRGINIA TECH

ALUMNI WEEKEND

June 6-9, 2024

Come back to Blacksburg and connect with Hokies of all ages! Learn more:



HOMECOMING

October 25-26, 2024

Join us on campus for a parade, fireworks, and a tailgate before the Hokies kick off against Georgia Tech.



Engage

CELEBRATION OF UT PROSIM

The Alumni Organization recognized our annual Celebration of Ut Prosim award recipients on April 5.

Hall of Fame Award Honoree:

Alan Grant

Dean of the College of Agriculture and Life Sciences

Outstanding Recent Alumni Award Honorees:

Elizabeth Galbreath '17 (undergraduate)

B.S. Agricultural Sciences

Sarah Misyak '06, M.S. '08, Ph.D. '14 (graduate)

B.S., M.S., and Ph.D. Human Nutrition, Foods, and Exercise

Alumni Career Achievement Award Honoree:

Matthew Lohr '95

B.S.Ed. Agricultural Education

Outstanding Alumni in the Global Community

Award Honoree:

Mark Mitchell '87

B.S. Animal Science

Honorary Alumni Award Honoree:

Wilmer Stoneman

Vice President, Virginia Farm Bureau Federation - Agriculture, Development & Innovation and Executive Director, Virginia Foundation for Agriculture and Rural Sustainability

Celebration of Ut Prosim:



Read more about our recipients:



OTHER PROGRAMS

We celebrated with the CALS Class of 2024 for the annual **New Alumni Launch Party at The Maroon Door!**

Join us quarterly for our **Hokie Stones of Wisdom** virtual learning and networking series.

To view past digital programs and view new ones, check out this link:



Serve

Volunteer for a CALS Alumni Organization committee to support programming for alumni engagement, student engagement, recognition, and student financial support.

Learn more and sign up:





From the College of Agriculture
and Life Sciences

TO A GALAXY FAR, FAR AWAY

By Max Esterhuizen

Paul Darnell didn't need the force to reach his dream. His focus in the College of Agriculture and Life Sciences determined his reality as a stunt performer.

It was easy to see why Grogu, from Star Wars' "The Mandalorian," became a sensation for Paul Darnell '05, a longtime stuntman. On the set, the little creature that was the same unnamed species as Yoda was more than just real – it was extremely cute.

"People on the set couldn't get enough of Grogu," said Darnell, a graduate of the Department of Human Nutrition, Foods, and Exercise. "You knew that John Favreau, the show's creator, made something special."

Darnell received an Emmy for Outstanding Stunt Performance during the Creative Arts Emmy Awards Jan. 6-7 for his work in "The Mandalorian – Chapter 24: The Return."

"It's an honor to be recognized for the work that you do," Darnell said. "Winning the award is like getting a pat on the back for a job well done. It feels nice."

Darnell's friend was hired to coordinate a new show called "The Mandalorian" and was told it would

focus on a bounty hunter like the infamous Boba Fett. Because most of the characters wear masks, it was a fantastic opportunity for a stunt performer to play multiple characters on set.

Darnell had the opportunity to do just that in the Emmy-winning scene. He played two "super storm troopers," both of which Mando heroically vanquished in a choreographed fight in a hallway surrounded by red lasers.

It takes an entire crew to bring this scene to life with ample preparation – and multiple takes.

"To put an action scene together, a lot of rehearsal goes into place," Darnell said. "Everyone knows their spot and action. You are dressed in your wardrobe and wait in a holding area as the lighting is set up and cameras are placed. You are called to set and do a walk through to show camera movements. Take any notes from the coordinator or director and then they call action, and the battle begins."

What further complicates that kind of scene is also what allowed Darnell and the other stunt performers to play multiple roles – intricate armor.

"Most of the costumes you wear have layers of armor which make it difficult to move and helmets with poor visibility," he said. "It's important to trust the team of stunt performers you are working with who understand those limitations and can adapt as needed. On this show, our coordinator JJ Dashnaw put together an incredible team of performers who knew how to get the job done."

Pictured - Paul Darnell (at right) with his wife, Melanie, at the Emmy Awards. Paul and Melanie Darnell met at Virginia Tech as members of the gymnastics team.



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see more





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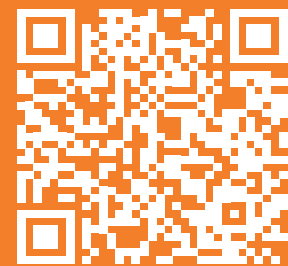
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