

[HTTP://NEWS.CALS.VT.EDU/INNOVATIONS](http://news.cals.vt.edu/innovations)

The College of Agriculture and Life Sciences



Professor of Horticulture Alex Niemiera and Elizabeth Wilson of Axton, Virginia, discuss career options while visiting the college's greenhouses. Wilson is finishing her undergraduate degree in environmental horticulture while taking classes toward a master's degree in career and technical education.

Academic advisors help students thrive in college — and **beyond**

By Amy Loeffler

The college student of the 21st century needs to do more than just check off boxes on a sheet of paper to fulfill the class requirements for graduation. There are internships, study-abroad opportunities, and countless experiences beyond the classroom to consider.

Today's millennial students crave a well-rounded education that is not only challenging but also prepares them to be outstanding job candidates who go on to rewarding careers. And that is where the college's system of academic advisors comes into play.

Each CALS academic department has a go-to advisor who guides students through the labyrinth of university policies and offers advice and guidance when students are applying for internships or undergraduate research opportunities. The college and departmental advisors help students fulfill their degree requirements while providing moral support throughout their academic careers.

"We have a well-established network that supports our students in not only the nuts and bolts of adhering to policies, but that also encourages students to pursue interests that will enrich their academic careers and build relationships with faculty members to prepare them to compete in the job market," said Susan Sumner, associate dean of academic programs in the college.

Analit Chambi-Rojas, a sophomore from Annandale, Virginia, majoring in crop and soil environmental sciences, has used the services of her department's advisor, Jennifer Stewart, to apply for internships. She



recently applied for one with the Urban Water Undergraduate Research program in Fairfax, Virginia.

"If I hadn't had that guidance, I wouldn't have had a good idea of where to start," said Chambi-Rojas.

Department of Horticulture professor and student advisor Alex Niemiera said knowing the students and their career goals is a big part of being a good advisor. It's also important that advisors know what career paths are out there.

"Right now there are five horticulture jobs for every student," said Niemiera, a recipient of the Award for Excellence in Career Advising and assistant dean of student programs. "You have to know how to align a student's strengths with where they want to go professionally and academically."

That formula has helped one of Niemiera's former students go on to become the lead horticulturist for all of the federal buildings in Washington, D.C.

Jennifer Stewart provides academic and career advising to Analit Chambi-Rojas, a sophomore in the Department of Crop and Soil Environmental Sciences.

Niemiera recalls that his own undergraduate advisor was less than helpful, and while he eventually landed in a fulfilling career, it was a long journey to figure out how to get from obtaining his undergraduate degree in biology to his current position.

Frenda Haynie, who received the 2015 Provost's Award for Excellence in Advising, sees her role as an academic advisor in the Department of Agricultural and Applied Economics as establishing a rapport with students to uncover each one's academic path.

"Building relationships with the students is the most rewarding part of my job as an academic advisor. They know I am here for them," said Haynie. "The college and the department allow me to be very student-focused."



Featured CONTENT

Academic advisors help students thrive..... 1
Dean's Update..... 2



Beyond the classroom: Strengthening academics with personal training

2

Scientists discover way to potentially track and stop human and agricultural viruses 2
Powering fuel cells 3



Virginia Tech hops into the farm-to-glass craft beer movement with new brewhouse

3

4-H'ers visit Virginia State Capitol..... 4
Freshwater shrimp 4



Dairy Science Ambassador Program helps attract the crème de la crème

4

Around the College..... 5
Alumni Happenings..... 6
Is your water safe? 7



Students chow down on invasive species

7

Horizons a smile wide..... 8
Alumnus gives back to the university 8

Keep up with all the exciting research, academic, and Extension news at the College of Agriculture and Life Sciences' website, www.cals.vt.edu, or find us on social media.



Online extras, videos, links, and an interactive version of Innovations can be found at

<http://news.cals.vt.edu/innovations>



Scan the QR code to access Innovations from your mobile device.



Dean's Update

Greeting from CALS,

This spring, we will launch another class of new alumni, most of whom will be entering careers in the agricultural and life sciences industries or pursuing graduate or professional degrees. CALS student enrollment continues to grow, making the Class of 2016 one of the largest graduating classes in the college's history!

I am confident that our new alumni will flourish much like they have here in Blacksburg. We like to think that CALS has contributed to at least some of their success to date and that we have prepared them for rewarding careers. This issue of Innovations includes some highlights of programs in CALS that emphasize the value of the Virginia Tech student experience.

The cover story describes the network of advisors in CALS who are enhancing student success, helping students navigate their plans of study, mentoring and connecting them to opportunities so they maximize their education, and challenging them to achieve their greatest potential.

The college alumni organization is also developing a new mentoring program, which will pair up students with industry leaders who will share their experiences and wisdom. We continue to expand capstone experiences and projects that immerse students in solving real problems in communities and industry settings. And as our alumni are increasingly called upon to work around the world, we are encouraging students to spend time studying abroad where they gain meaningful global perspectives.

Continued investment in facilities that support our education and research missions is also a high priority. We are grateful for the new funding proposed by the governor and the Virginia General Assembly to upgrade the college's livestock and poultry facilities. We thank our government and industry leaders for their support for this important project, which includes significant state funding to address the first phase of construction and renovation.

I hope you join me in wishing our new alumni well and encouraging them to stay engaged with Virginia Tech. The alumni and friends of CALS are important to what we do as a land-grant university. Thank you for all you do to help us!

Sincerely,

Alan Grant
Dean

Online extras at
<http://news.cals.vt.edu/innovations>



Alan Grant, dean

“I am confident that our new alumni will flourish much like they have here in Blacksburg. We like to think that CALS has contributed to at least some of their success to date and that we have prepared them for rewarding careers.”



Joey Viray uses what he learns in his physiology classes when he is working with fellow students as a personal trainer.

Beyond the classroom: Strengthening academics with personal training

By Joey Viray, a junior from Richmond studying human nutrition, foods, and exercise

“If I keep running, can I still gain muscle?” That was a question I got the other day from one of the clients I see in my job as a personal trainer — which is how I spend my time when I'm not hitting the books for my classes in human nutrition, foods, and exercise.

I started thinking about the conflicted pathways of muscle growth and aerobic capacity. I silently congratulated myself for paying attention in a lecture that covered this topic last semester and explained to the client that while it's possible, the two systems will hinder each other.

Ever since I became a personal trainer last year, I started seeing the material I learn in class in a whole new way. During every lecture, I find myself thinking about how this material applies to my job now and the one I hope to have after graduation.

I learned the science behind the exercise tests we do by performing a maximum oxygen consumption test in the lab. I've also learned ways to develop my career because a class required me to write a resume and cover letter for a summer internship. Whether it's exercise physiology, management, or psychology, every class affects my job and gets me closer to my long-term goal of becoming a dietitian and personal trainer.

In my three years at Virginia Tech, my interactions with clients have improved, my programs have become more grounded in research, and I have learned how to conduct myself as a professional. The best part is, it's a two-way street. By referencing my classes to my personal training clients, I'm reinforcing the material and effectively studying while I train.

It's been a fabulous experience, and because of it I've come a long way from the admittedly not-so-old days of, “When am I ever going to need to know this?”

Scientists discover way to potentially track and stop human and agricultural viruses

By Amy Loeffler

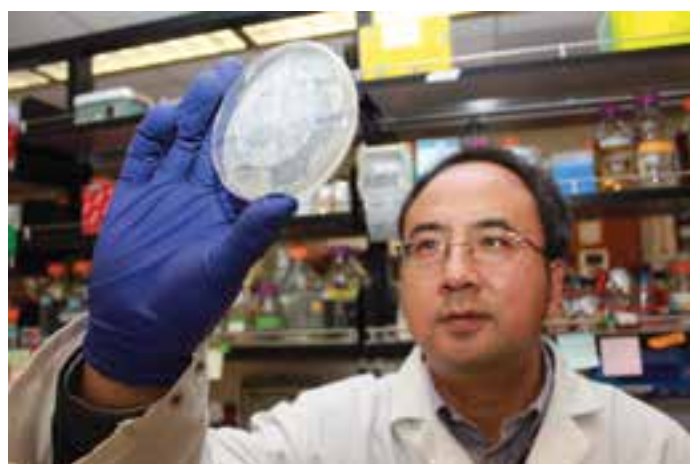
Viruses are molecular thieves that take from their hosts under the cloak of darkness. But now a Virginia Tech scientist has found a way to not only track viral hijackers, but also potentially stop them from replicating.

The discovery has broad-ranging applications in stopping viral outbreaks such as hepatitis C in humans and a number of viruses in plants and animals because it applies to many viruses in the largest category of viral classes — positive-strand RNA viruses.

“Even though these viruses infect very different hosts, they all replicate similarly across the board, so what we learn from one virus can potentially be translated to control viruses in agricultural production as well as human health,” said Xiaofeng Wang, an assistant professor of plant pathology, physiology, and weed science who recently published his findings in the Proceedings of the National Academy of Sciences.

Wang's discovery could target any number of plant viruses. One virus Wang has studied — the cucumber mosaic virus — affects pumpkin, squash, and gourds in 1,200 species in over 100 plant families.

Potentially, sprays could be developed to halt the virus on plants, saving millions of dollars in agricultural sectors.



Xiaofeng Wang, assistant professor of plant pathology, physiology, and weed science, studies viral replication.

Keep up to date with all the college's news and upcoming events at

www.cals.vt.edu



Researchers discover a royal flush in powering fuel cells with wastewater

Two Virginia Tech researchers have discovered a way to turn your toilet into the first component of an energy-generating battery.

Xueyang Feng, an assistant professor of biological systems engineering, and Jason He, an associate professor of environmental engineering in the College of Engineering, have developed a method to maximize the amount of electricity that can be generated from the wastewater we flush down the toilet.

They did it by tracing bacteria, which led them to discover that the relationship between two specific substrates produced more energy than either did separately. This took the mystery out of how electrochemically active bacteria create energy and allowed the fuel cells powered by bacteria to be supercharged.

Nationwide, wastewater treatment plants use 5 percent of the country's entire energy store, so helping to alleviate their energy expenditures is not only a sustainability measure, it also helps keep utility bills low, which leaves more money in consumers' pockets.

Watch an animated video that shows how waste is turned into energy at

<http://news.cals.vt.edu/innovations>.

A student spoons out spent grain from the brewhouse container into a trash can while classmates look on. The professional-grade brewhouse is similar to what most craft-beer-making facilities use, but it is optimized for teaching.



Virginia Tech hops into the farm-to-glass craft beer movement with new brewhouse

By Amy Loeffler

The college has long been a steward of the commonwealth's wine industry through enology and viticulture research and outreach efforts.

Now, the advent of a state-of-the-art, shiny new brewhouse and malting system in Human and Agricultural Biosciences Building 1 will allow the college to shepherd along beer research as well.

The recently installed system allows students to learn the latest in malting, brewing, and fermenting techniques, while faculty members further the university's land-grant mission by supporting industry research in fermentation and brewing.

The 250-liter, professional-grade, German-made Esau & Hueber brewhouse was designed so breweries can develop new varieties of ales and lagers while researching experimental, locally sourced ingredients without having to take their own facilities offline. The system, which can produce 66 gallons of beer in one brewing cycle, is very similar to the ones used in commercial craft brewing operations around the U.S.

"We've got all the pieces of the brewing puzzle here and ready to go," said Brian Wiersema, who oversees the brewhouse for the Department of Food Science and Technology.

The brewhouse is just one way that Virginia Tech is helping the commonwealth's beer industry, which has an annual economic impact of more than \$8 billion and contributes \$2.9 billion in total annual tax receipts, according to the Beer Institute. The brewhouse will help make the brewing industry more environmentally friendly by developing methods to turn spent barley into plastic and fuel — which is what university researchers are doing in the lab across from the brewhouse. The brewhouse is also making it possible for the university to pursue global education opportunities with the Technical University of Munich, where students could put their classroom experience to use in the heart of Bavaria — a mecca for beer production.

Now, who wants a Land-Grant Lager?



Joe Marcy, head of the Department of Food Science and Technology, meets with brew masters from local craft brewing companies.

The brewhouse is just one way that Virginia Tech is helping the commonwealth's beer industry, which has an annual economic impact of more than \$8 billion and contributes \$2.9 billion in total annual tax receipts, according to the Beer Institute.



Online extras at
<http://news.cals.vt.edu/innovations>

INNOVATIONS

SPRING 2016

Dean Alan Grant
Director of Communications and Marketing.....Thea Glidden
EditorZeke Barlow
Contributors Zeke Barlow, Lori Greiner, Amy Loeffler, Jamie Lucero, Joey Viray, and Tim VanReenen
Graphic DesignerNickola Dudley
Copy Editor Bobbi A. Hoffman
PhotographersZeke Barlow, Matt Eick, Amy Loeffler, and University Relations

Office of Communications and Marketing
130 Smyth Hall (0904)
185 Ag Quad Lane
Blacksburg, VA 24061
540-231-5309

Innovations is published by the Virginia Tech College of Agriculture and Life Sciences, 104 Hutcheson Hall (0402), 250 Drillfield Drive, Blacksburg, VA 24061.

Please email address changes and circulation inquiries to calseditor@vt.edu. Editorial inquiries and other comments should be sent to Innovations Editor, 131 Smyth Hall (0904), 185 Ag Quad Lane, Blacksburg, VA 24061 or calseditor@vt.edu.

Innovations is produced by the Office of Communications and Marketing in the College of Agriculture and Life Sciences.

Virginia Tech does not discriminate against employees, students, or applicants on the basis of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, veteran status, or any other basis protected by law.



4-H members and volunteers participated in 4-H Day at the Virginia State Capitol in Richmond in February.

4-H'ers visit Virginia State Capitol

More than 800 4-H members and volunteers from around the commonwealth visited the Virginia Capitol on Feb. 23. Participants met with their local representatives to share their 4-H experiences and learn about the role of legislators in government.

As part of the day's activities, 4-H members delivered DVDs to state lawmakers highlighting various aspects of 4-H programming. After lunch, many of the 4-H'ers participated in tours, viewed House of Delegates and Senate sessions, and visited other sites to learn more about Richmond.

4-H Day has been celebrated at the state Capitol for more than 20 years, usually at the start of a new legislative session in late January or early February.

Virginia 4-H sponsors the annual trip to Richmond for 4-H'ers from across the commonwealth to learn about the legislative process and to express their gratitude to state delegates and senators who support 4-H youth development programs.

More 214,000 youth are enrolled in Virginia 4-H's hands-on educational programs.



Dan Kauffman (left) is helping shrimp producers expand their markets through shrimp boils.

Extension helps expand market for freshwater shrimp

Online extras at
<http://news.cals.vt.edu/innovations>

By Zeke Barlow

As the freshwater shrimp in his ponds continued to grow and multiply, Charles Carter knew he had a good product to sell.

In his second year of production, Carter wanted to create product buzz to sell a portion of his production to local consumers. Carter, whose family has owned the Shirley Plantation in Charles City, Virginia, for 11 generations, knew just where to look for assistance — Virginia Cooperative Extension.

Enter Dan Kauffman, Extension seafood marketing specialist at the Virginia Seafood Agricultural Research and Extension Center in Hampton.

Kauffman has been working for about four years on helping freshwater shrimp producers get their products to market, which also involved one of his other passions — shrimp boils.

Kauffman, along with community viability specialist Martha Walker, helped Carter put on a shrimp boil, which greatly helped him market his product and introduced him to new clients.

Though freshwater shrimp are common in states south of Virginia, they have only started to take off in the commonwealth in recent years. Raising freshwater shrimp can add diversity to a producer's portfolio and generate extra income.

"There is already a robust marine shrimp market, but people don't often know about freshwater prawns," said Kauffman, who is in the Department of Agricultural and Applied Economics. "There is definitely room to grow this market, but you need to market your product well, and that's where we can help lend a hand."



Students in the Dairy Science Ambassador Program create a direct connection between future Hokies and the Department of Dairy Science.

Dairy Science Ambassador Program helps attract the crème de la crème

By Amy Loeffler

Ambassadors are generally known for maintaining communication and performing ceremonial duties.

Students who work as dairy science ambassadors play similarly important roles in promoting the Department of Dairy Science and recruiting new students to the department by being engaging diplomats.

"We're excited to have these students representing us at alumni events and helping us with recruiting," said Katharine Knowlton, the Col. Horace E. Alphin Professor of Dairy Science.

Ambassadors serve as department representatives and perform a variety of duties as the face of dairy science. Activities include attending departmental events, following up with future students who might have questions after a campus visit, and taking visitors on tours of the new Dairy Science Complex-Kentland Farm. By serving as point persons, ambassadors also gain valuable leadership and professional networking skills.

Some students who participate in the program come from dairy farms and are dairy science majors, but student majors vary. All of the students have one thing in common however — their enthusiasm for the department.

"Our undergraduates have always been our department's greatest asset, and that's as true today as ever. There is no better way to attract the best and brightest students to Virginia Tech than to have current students talk to recruits directly about their experiences, the opportunities they've had, and the reasons they chose dairy science," Knowlton said.

AROUND THE COLLEGE

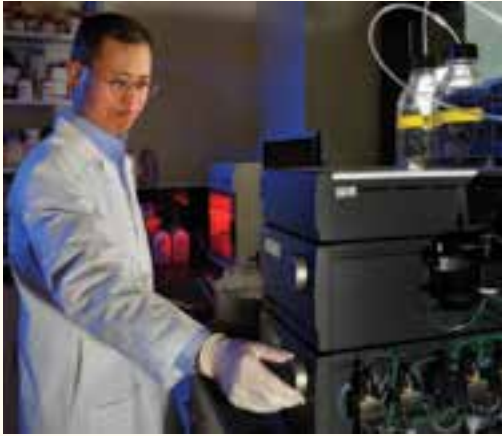


Bob Pitman (left) and Tony Wolf were recently recognized as the recipients of the 2016 **Land-Grant University Award from the Virginia Agribusiness Council.**

Pitman, the superintendent of the Eastern Virginia Agricultural Research and Extension Center in Warsaw, specializes in agricultural engineering. Wolfe is a renowned viticulture expert and director of the Alson H. Smith Jr. Agricultural Research and Extension Center in Winchester.

The council presents annual awards to faculty, staff, and administrators of the commonwealth's land-grant universities for meritorious or exemplary service to the agribusiness industry during their careers.

Virginia Tech's ranking for federally funded research and development expenditures for 2014 rose to fifth in the nation, securing the university and its research faculty as leaders in helping to manage the nation's forests and feed a rapidly growing global population.



Overall, the university's expenditures in agricultural sciences rose to more than \$103 million in 2014, an increase of more than 15 percent over the last five years. Federally financed research dollars rose to more than \$36 million.



Susan Duncan, professor of food science and technology, has been named **associate director of the Virginia Agricultural Experiment Station.**

Virginia Agricultural Experiment Station engages in innovative research to discover new scientific knowledge and disseminates science-based applications that contribute to economic viability and environmental sustainability.



Kate Lomaka, one-fourth of the first set of quadruplets to enroll at Virginia Tech, is graduating this spring with a degree in human nutrition, foods, and exercise. She is headed to Virginia Commonwealth University's Doctor of Physical Therapy Program. Read more about Lomaka and her three brothers at <http://news.cals.vt.edu/innovations>.

The state has proposed funds to construct **new buildings around campus that will benefit the university's livestock, poultry, and horse programs.** The new buildings will help students who are working alongside researchers to develop solutions to challenges facing these fields and will also benefit the industries that rely on Virginia Cooperative Extension for the latest scientific knowledge.



The many ways in which Virginia Cooperative Extension affects people's lives are as diverse as the clientele it serves. When agents and specialists from across the state were asked how they impact lives, they gave answers ranging from "by keeping dairy farming alive" to "through small business education."

Follow a yearlong photo essay that documents their responses on the VCE Facebook, Twitter, and Instagram accounts using the hashtag #IAmExtension.



The **Virginia Agriculture Leaders Obtaining Results** program recently received the 2015 National Association of Agricultural Educators Outstanding Postsecondary/Adult Agricultural Education Program Award.

The award was presented at the National Association of Agricultural Educators annual convention in New Orleans on Nov. 18. Virginia Agriculture Leaders Obtaining Results is one of only four programs nationwide that received the 2015 award.

Some of the commercial chemicals most commonly used to kill bedbugs are ineffective because the pesky insects have built up a tolerance to them, according a paper in the Journal of Medical Entomology by Assistant Professor Troy Anderson.

"While we all want a powerful tool to fight bedbug infestations, what we are using is not working like it was designed to do anymore, and people are spending a lot of money on tools that aren't effective," he said.



The **Virginia 4-H Livestock Judging Team (right) and the Virginia 4-H Livestock Skillathon Team** placed first and third, respectively, at the recent North American International Livestock Exposition in Louisville, Kentucky. The event is the world's largest purebred livestock show.



Alumni Happenings

Recognizing outstanding faculty and alumni

By Jamie Lucero

Richard Saacke and Paul Siegel were honored as the 2015-16 inductees into the college's Hall of Fame at a recent ceremony at the Inn at Virginia Tech and Skelton Conference Center. Anh Tran of Roanoke, Virginia, received the Outstanding Recent Alumni Award.

Saacke, a professor emeritus of dairy science, joined the faculty in 1965 and devoted his career to excellence in research, teaching, and mentoring graduate students in the field of bovine reproductive physiology and artificial insemination. Nearly 3,500 undergraduate students have been impacted by his Physiology of Livestock Reproduction class. His guidance of 23 graduate students through his laboratory continues to have a global impact on the dairy and livestock industries.

Siegel, University Distinguished Professor Emeritus of Animal and Poultry Sciences, joined the faculty in 1957 and has dedicated his career to advancing poultry education and research. More than 2,000 students have benefited academically from his instruction, and he has directed more than 50 master's theses and doctoral dissertations. The chicken lines he developed benefit poultry research around the globe to this day.

Tran earned her B.S. in biochemistry in 2006 and is a senior research associate at Novozymes Biologicals Inc. She serves as the Virginia Tech alumni representative to Novozymes' Research and Development Recruiting Team, for which she regularly visits campus to share opportunities, expectations, and preparation for careers in the biotechnology industry with students.

For more information on these and other departmental award recipients, visit www.cals.vt.edu/alumni/awards.



Dean Alan Grant (above, center) congratulates Richard Saacke (left) and Paul Siegel (right) on their inclusion into the college's Hall of Fame. Grant and Debbie Day, (below, right) the university's associate vice president of alumni relations, present Anh Trahn with the Outstanding Recent Alumni Award.

Other award winners included

- ▶ Outstanding Ambassador — Amanda Marx of Oakton, Virginia, a senior majoring in food science and technology.
- ▶ Outstanding Faculty Service Award — David Winston, dairy science, '87, '98, of Radford, Virginia, an Extension dairy scientist in the Department of Dairy Science.
- ▶ Outstanding Alumni Leadership Award — Scott Stevens, animal science, '92, of Fincastle, Virginia, manager of the Rockingham Co-op, Troutville branch.
- ▶ Outstanding Alumna in International Programs — Ozzie Abaye, agronomy, '92, of Blacksburg, Virginia, a professor in the Department of Crop and Soil Environmental Sciences.



ALUMNI MAKING A DIFFERENCE: TOMMY AMAL

By Amy Loeffler

If there is one thing Tommy Amal (above, right) does on a daily basis, it's encourage students to be their best.

Amal (M.S., agricultural, leadership, and community education, '14) volunteers as a co-advisor for students in the Minorities in Agriculture, Natural Resources, and Related Sciences program — a nonprofit initiative that promotes academic and professional advancement by empowering underrepresented ethnic groups in agriculture and natural-resource-related sciences.

MANRRS helped Amal when he was an undergraduate studying agricultural leadership, so he knows the value of the program.

Students might come into majors with rigid ideas of what they think they want or need to do in order to follow a particular career path. Amal helps them see other options and opportunities.

"Helping students unlock mental boundaries really opens up so many different doors," Amal said. "I assist students by helping them find out about nuts and bolts things like access to internships. I also help them figure out long-term goals, like what they want to do with their majors and how undergraduate research can enhance their academic pursuits as well as their careers."

He is also giving back to the organization that had such a profound effect on him. The Virginia Tech chapter was recently recognized as a Chapter of Excellence.

"I think service a lot of times can be as simple as connecting a student with a resource or just helping students think beyond boundaries," said Amal.

Alumnus recalls how college and change led to real-world success

By Tim VanReenen, '06, '08, president of the CALS Alumni Organization

My student experience in the College of Agriculture and Life Sciences started with a dream — I wanted to return to my family farm in Hillsboro, West Virginia, but I always struggled with the question of how to make space in the operation for myself.

This question and many others were answered in two courses I took while earning my degree in agricultural economics — small business management and agricultural finance. I remembered Professor David Kohl and Instructor Alex White speaking about diversification being a way to bring individuals — and money — back to the farm.

Now that I had answered one question, many more were created. How should I diversify? How do I get from where I am to where I want to be? Can I be profitable? To answer these questions, I relied on the courses I was taking and the wisdom of my professors.

I learned how to develop a business, which helped me figure out how to diversify and develop a new segment of the farm. Using financial projections from my agricultural finance course, I learned how to create a budget and could see where a profit could be made.

With my degree in hand, I returned to my family farm and successfully implemented a new plan to diversify into hay and row crop production along with the existing cattle herd. My education was a roadmap to my dreams.

As the head of the CALS Alumni Organization, I'm constantly meeting other alumni who have similar success stories of how they are putting their degrees to work and how one professor or class in particular made all the difference in their careers.

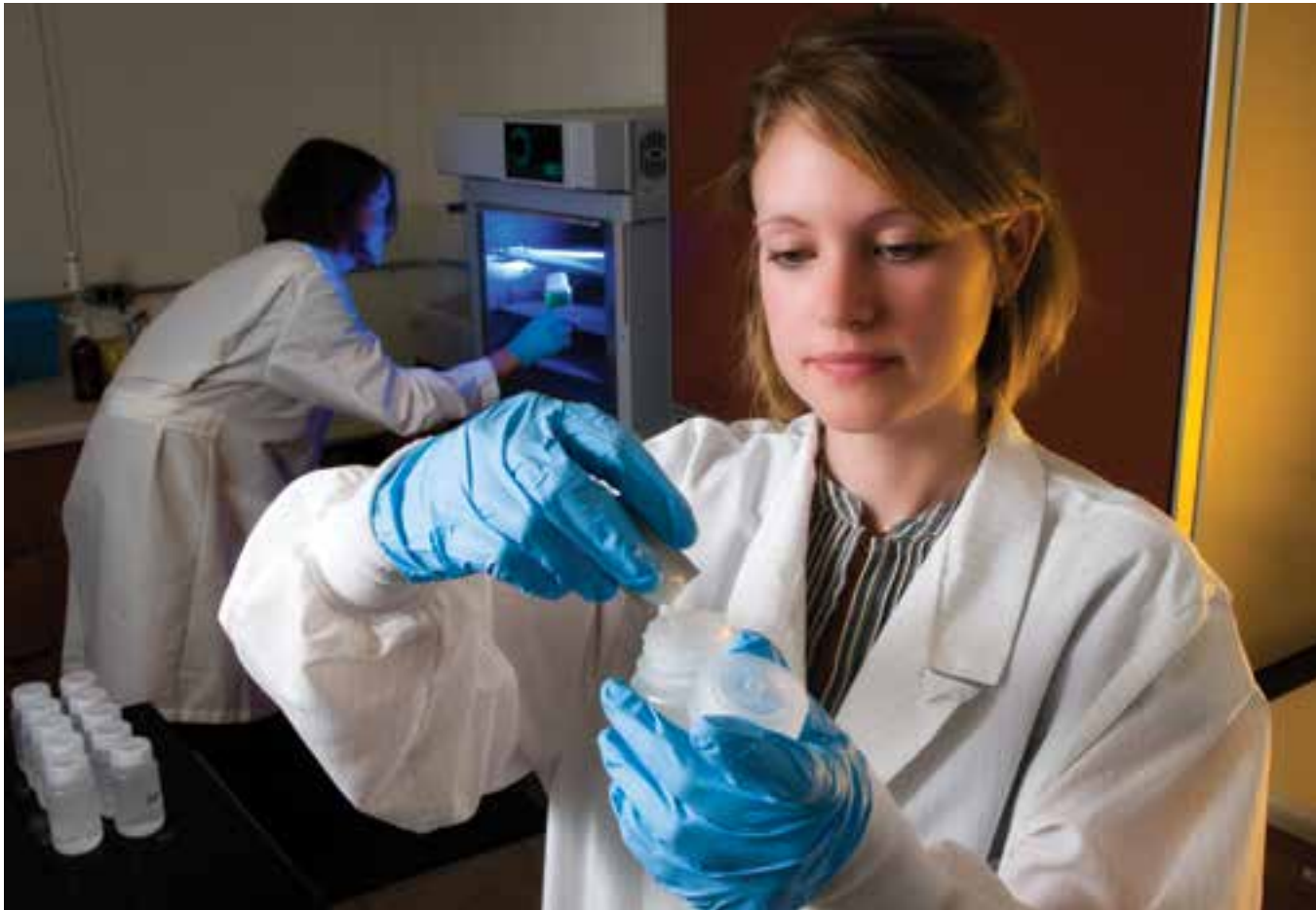
All these years later, I'm still thankful to Kohl and White!



GET INVOLVED!

For more information, please reach out to any board member or our college's director of alumni relations, Jamie Lucero, at 540-231-9666 or jlucero@vt.edu.

www.cals.vt.edu/alumni



Virginia Cooperative Extension's Household Water Quality Program has found that about 20 percent of private water supplies have concentrations of lead that exceeded healthy levels.

Is your water safe?

By Lori Greiner

Virginia Tech's recent discovery of abnormally high amounts of lead in Flint, Michigan's, water system has made safe drinking water a hot topic. While the water in Flint came from a public source, private water supplies are not immune to this problem.

Testing conducted through Virginia Cooperative Extension's Household Water Quality Program has found that 1 in 5 samples had high concentrations of lead that exceeded healthy levels. About 40 percent of the samples contained coliform bacteria and 10 percent contained E. coli.

"Our program works through local Extension offices to offer low-cost, confidential water testing for Virginia's well and spring users. Since these are private water supplies, the owner is completely responsible for maintaining the quality of their drinking water," said Erin Ling, a senior Extension associate in the Department of Biological Systems Engineering. "In addition to learning about their water quality, we work to empower well owners with information about system care and maintenance and to address any problems."

Since 1989 Virginia Cooperative Extension's Virginia Household Water Quality Program has offered drinking water clinics and training to improve the water quality and health of Virginians with private water supplies such as wells, springs, and cisterns.

More than 50 clinics will be held across the commonwealth in 2016.

Clinics begin with a kickoff meeting that introduces the program and gives instructions for collecting the samples. After participants collect their water samples, the samples are taken to two labs at Virginia Tech to be tested. An interpretation meeting is held to review each participant's results and discuss options for addressing maintenance or water quality problems. The cost for a sample kit is \$52.

For more information, visit www.wellwater.bse.vt.edu.

Our program works through local Extension offices to offer low-cost, confidential water testing for Virginia's well and spring users.

— Erin Ling

Students chow down on invasive species

By Amy Loeffler

Any species — be it flora, fauna, or bacteria — can be invasive by spreading and pushing out native organisms.

"Many invasive species can have a detrimental ecological and economic impact," said Jacob Barney, an assistant professor of plant pathology, physiology, and weed science. "But at the same time, many of them are edible."

The students in Barney's Biological Invasive Species class proved these space invaders are actually downright tasty by cooking dishes made with invasive species and bringing them to an end-of-semester potluck.

The potluck featured a smorgasbord that included Italian sausage soup with meat harvested from feral hogs, a Japanese dessert made with kudzu powder, pesto made from garlic mustard, kangaroo chili, and fried catfish, all of which were consumed with gusto.



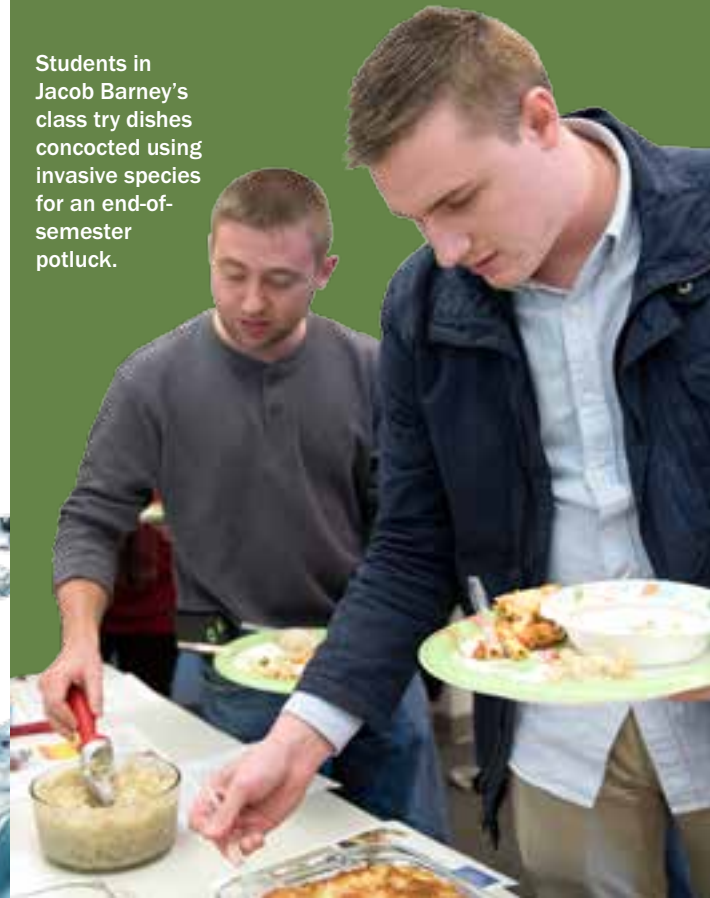
Daniel Steger, of Rochester, New York, a senior majoring in crop and soil environmental sciences, made Italian sausage soup with meat he harvested from a feral hog. Feral hogs are widely considered to be a nuisance from Texas to Florida because of their tendency to root for food and destroy agricultural crops.

"I learned that invasive species are not always a bad thing," said Steger who regularly hunts feral hogs on managed land.

Even the much reviled kudzu plant has antioxidant properties, and in Japanese cuisine, kudzu powder is used as a thickening agent.

Though it's not possible to erase invasive species through culinary endeavors, said Barney, his students have made a delicious dent.

Students in Jacob Barney's class try dishes concocted using invasive species for an end-of-semester potluck.



horizons a smile wide



Meet **Tara Wilkens**, a junior majoring in environmental science, whose recent study abroad experience in Ecuador expanded her horizons.

What do broader horizons mean for our students? Wilkens' smile says it all.

Helping to create that smile is an estate gift from Mary Ann Johnson. In memory of her husband, agricultural engineering alumnus John H. Johnson, '40, Mary Ann included a gift for his college in her will. She directed the college to decide its best use.

After she passed away, Mary Ann Johnson's substantial gift was placed in the Dean's Fund for Excellence where it helps support many of the college's most critical and often underfunded priorities, such as study abroad.

Explore the many ways that you too can create a gift that will help provide an amazing Virginia Tech experience.

Contact:

Vernon Meacham • 540-231-3071 • CALS.giving@vt.edu

Alumnus gives back to the university

By Zeke Barlow

In many ways, George Allen, his family, and Virginia Tech have grown up together.

When Allen was 14, he came to Blacksburg for the first time for a 4-H Short Course (now called 4-H Congress) and was immediately struck by his surroundings.

While walking across the Drillfield, the boy from Bland County gazed up at newly constructed Burruss Hall, with its Hokie Stone reaching to the sky.

"I thought it was a great big building," said Allen, 92. "There weren't many buildings when I first started coming to Blacksburg. It's hard to believe it has grown so much."

As Allen matured, so did the campus.

When he came back for the Short Course three times during high school, he saw horse barns, a riding ring, and a cattle barn on the edge of campus — facilities that were eventually relocated to accommodate Cassell Coliseum and Lane Stadium.

A few years later, when it was time to go to college, there was only one choice for Allen.

"Virginia Tech was the best school in the state," he said.

But two years into his education, Allen, who was in the Corps of Cadets, was called away to serve in World War II. He returned to Virginia Tech after his stint in the Army Air Corps and realized that he had found a home.

After graduating in 1945 with a bachelor's degree in animal sciences, he took a job with Virginia Cooperative Extension as an agent in Bland and Grayson counties. A few years later Allen was on a bus to Washington County

to help out with a 4-H camp when he met Nadine Cox, who was working for 4-H.

The two immediately hit it off and three years later, they married.

Allen stayed with Virginia Cooperative Extension as a sheep specialist for more than 30 years, during which time he was an integral part of helping the farmers he served. In recognition of his outstanding service to the industry, he was inducted into the Virginia Livestock Hall of Fame in 2010.

In 2013 when Allen had two parcels of land he wanted to donate, two recipients immediately came to mind: his church and Virginia Tech.

"They are two organizations I feel very close to and wanted to make a contribution to," he said.

Allen's gift to his alma mater will fund two endowments — one is in memory of his late wife in recognition of her lifelong love of 4-H. The fund benefits the 4-H program in Craig County.

The second is in memory of his brother, Donald, who graduated with a degree in animal science and was a WWII veteran and an associate professor at Virginia Tech. It will provide scholarships for students in the Department of Animal and Poultry Sciences.

'that is like a second family'



George Allen's home in Blacksburg is just a few miles from campus.

The Allen tradition at Virginia Tech and 4-H continues to this day. All four of his children were active in 4-H, and his son Andy is an Extension agent in Craig County.

As the university has grown, so has George Allen's connection to it.

"I wanted to do something for Virginia Tech," he said. "It is kind of like a second family, really. You like it and you want to see it do well."