At the university’s Kentland Farm, students in the new Dairy Science Complex are working with professors on projects that address issues ranging from milk quality to nutrient management. Meanwhile, in the life sciences precinct on campus, researchers are collaborating in the new labs of the Human and Agricultural Biosciences Building 1 to tackle some of society’s grand challenges related to alternative energy production, water quality, and food security.

While these students and professors work in the newest facilities in the college, they won’t be our newest structures much longer. Soon, a second phase of construction to complete the Dairy Science Complex will be underway that will include three new buildings to support research and education. This construction will be followed by another extensive project to renovate and upgrade many of the livestock and poultry facilities near campus. And early planning has begun for the second biosciences building in the life sciences precinct.

“This has been a tremendous time of growth for the college,” said Dean Alan Grant. “In addition to some new facilities, we’ve been fortunate to recruit many new faculty members at the college’s on- and off-campus sites, the faculty is attracting increased levels of grant funding to support research and education, and the college’s student enrollment continues to grow.”

This past year, the National Science Foundation ranked Virginia Tech sixth of all U.S. universities for research expenditures in agricultural sciences. Much of this research is carried out in CALS and is indicative of Virginia Tech’s commitment to being a leading land-grant university. This increased research activity is providing greater opportunities for students to engage in experiential learning and is aligned with the university’s mission to provide a hands-on, minds-on education.

Creating environments that maximize the learning experience will become even more important with a growing student population. The college’s ongoing focus on renovating existing buildings and constructing new facilities will ensure that students will be able to work alongside professors in some of the most state-of-the-art facilities designed for research and education.
Dean’s Update

Greetings from the College of Agriculture and Life Sciences.

As you will read about in this issue of Innovations, this is a great time of growth in the college. We recently celebrated the opening of several new facilities, and we are looking toward the construction of at least three new groups of buildings in the coming years that will benefit our students, researchers, and Virginia Cooperative Extension.

As part of this growth, we are looking at ways we can increase the visibility and impact of our learning, discovery, and engagement programs in key areas.

A good opportunity to do this is the proposed creation of the School of Plant and Environmental Sciences.

The school will put the departments of Crop and Soil Environmental Sciences, Horticulture, and Plant Pathology, Physiology, and Weed Science together to fuel innovation and productivity while making new investments to boost our capacity and tackle the many challenges in agriculture and food security, the green industry, plant biology, and the environment.

The increased collaborative activity will serve our external stakeholders better, and it will also give faculty members opportunities to review and revise curricula that will attract more students who will be prepared for careers that encompass these disciplines. The university’s new provost, Thanasia Rikakis, has championed a goal of becoming more transdisciplinary in our work, which aligns well with the goals of the school.

The school is also a target for new investments. Recruitment of faculty members and construction of new facilities, such as the next building in the Human and Agricultural Biocenosis Precinct, will ensure that Virginia Tech is a global leader in plant and environmental sciences.

You can learn more about the school at http://news.cals.vt.edu/spes.

As the college continues to grow, I look forward to working with you to find ways we can continuously improve an already great institution.

Sincerely,

Alan Grant
Dean
dagrant@vt.edu

INNOVATIONS Winter 2016

Spends summer running to raise awareness of cancer

Hannah Ricketts took a road trip this past summer from San Francisco to Baltimore. Except she wasn’t in a car — she was powered by her own two feet.

Ricketts, a sophomore majoring in biochemistry from San Francisco, Virginia, participated in the Ulman Cancer Fund for Young Adults run to raise funds and awareness about issues that affect young adults dealing with the complications of cancer.

But that isn’t the only way Ricketts is tackling cancer. As a student in Professor David Barlow’s computational biology lab, Ricketts works on modeling enzymatic reactions that could potentially target specific kinds of cancer.

For Ricketts, participating in the 49-day run was the culmination of a lifelong dream to give back to Dee and Larry Head, two people in her life who died of leukemia. Though they were not blood relatives, the Heads were more like her grandparents when Ricketts was growing up. The couple often took care of her when her parents were at work or when she was sick.

“I was looking for a way to honor them for a long time, and this event seemed like a good opportunity,” she said.

The summer was a test of her physical and mental strength. The runners dedicated days to people in their lives who had battled cancer and wrote the names on their clothes. Less than midway through the race, Ricketts had an especially tough day running at high elevation in Colorado. It was a day she had dedicated to the Heads, who had calmly reminded her that Head didn’t have the option to stop and neither did she.

“When I started the run, I didn’t think I would make it to the end,” Ricketts said. “Now I feel like I have that mental toughness to push through anything.”

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Graduate Teaching Scholar Program fosters relationships for fruitful careers

By Amy Loeffler

The college’s Graduate Teaching Scholar Program fills the gap that exists between the course work that students take and the research they do by encouraging collaboration, camaraderie, and mentorships between new doctoral students and faculty members — which in turn produces confident scholars and gifted instructors.

The GTS Program allows participants and faculty members to form deep relationships that often shed light on the more practical aspects of teaching that aren’t learned in a book.

Former GTS participant Gabrielle Fundaro, an assistant professor of exercise science at Georgia Southern College in Lawrenceville, Georgia, currently teaches introductory science, sports nutrition, anatomy, and physiology.

“Participating in the GTS Program was invaluable,” Fundaro said. “It enriched my whole graduate experience, and getting feedback from my collaborative professors, Associate Professor Donna Weathers-Rudd and Associate Dean Susan Summer, was one of the reasons I found the program so helpful.”

Even though Fundaro was an instructor of record at Virginia Tech, she would not have been prepared to teach effectively had it not been for participating in the program, she said. She learned to employ the new technologies and positive teaching structures that helped her develop curriculum for students who are nontraditional learners and primarily first-generation students.

Another participant, human nutrition, foods, and exercise student Angela Bailey, is a three-quarter-time instructional faculty member in health and exercise science at Rowan University in Camden, New Jersey. She received her doctorate in December.

As a GTS participant, Bailey took advantage of networking opportunities such as the Center for Instructional Development and Educational Research’s workshops and conferences. These events allowed greater interaction with faculty members who offered tips, advice, and a forum for discussing higher education teaching methodologies.

At one event, Bailey learned how to engage students in a large classroom and steer away from passive lectures by using clicker technology to take spontaneous, real-time polls of students, which is an effective engagement tool for large classrooms.

The College of Agriculture and Life Sciences and the mentoring relationships it fostered helped me understand how to design my instruction for more effective learning.”

Angela Bailey
GTS participant

Michael Groene and Elizabeth Galbreath at the Agriculture Future of America Leaders Conference.

AFA creates future AGRICULTURE LEADERS

By Amy Loeffler

The future of farming may depend on students like Elizabeth Giraldo.

Giraldo, a junior agribusiness major from St. Louis, Maryland, is the campus ambassador for Agriculture Future of America, an organization that identifies, encourages, and supports high-achieving students by preparing them for careers in the agriculture and food industries.

As an ambassador for AFA, Giraldo is the go-to for information on campus about the organization and its mission and goals. As well as its main event, the AFA Leaders Conference, which hosts about 600 students every year in Kansas City, Missouri.

This year, in addition to helping students navigate the competitive application process for the conference, Galbreath set up a number of AFA-related events. She’ll attend the conference with 11 other students from the college who were invited to be future agents of change.

Being a voice for agriculture has resonated well with Giraldo, who grew up on a dairy farm and is a self-described ‘dairy princess.’ She wants to improve communication between consumers and producers by making sure that nonfarming civilians know the story behind how their food is grown and promote AFA’s philosophy of being open and thoughtful about agricultural production.

‘AFA has allowed me to understand that we’re all in this industry together as producers. The different way of farming, whether it’s conventional, organic, or small family farm, requires all of us working together to get the message out that farmers are making a safe, healthy product that we take pride in,’ Giraldo said.

Galbreath presented at this year’s TedxVirginiaTech event in November.

Virginia Cooperative Extension once again held its popular Extension Day at the State Fair, which included educational exhibits on food safety, 4-H youth development programs, gardening, emergency preparedness, nutrition, aviculture, and much more. Students in the Ag Econ/MMA Club handed out granola bars during the fair, while Block & Bridle members served up its popular barbecues.

A Peek Inside the Agricultural Biotechnology Conference in Danville, which is geared toward boosting biotech companies around the state.

Professor Glenda Gillaspay is recently named head of the Department of Biochemistry. Gillaspay’s research focuses on molecular pathways that plants use to respond to the environment, which is important for developing strategies to increase crop yield in stressful or nutrient-poor soil conditions. She also does extensive outreach work with local elementary and high school students.

“Stinky Phil” bloomed for the first time in 11 years, unwashing a malodorous starch akin to nailing nails. More than 1,500 people came out to see the flower in the Jacob A. Lutz Garden Center, and Phil became a local celebrity and social media sensation with the hashtag #stinkyphil generating 17.1 million impressions on Twitter. Check out a video of the unfurling flower at http://news.cals.vt.edu/innovations.

Daniel Giraldo, who is majoring in biochemistry and human nutrition, agriculture, and emergency preparedness, 4-H youth development, youth, and science, spoke about the value of the scholarships and thanked his mom, Elena Lewis, during his talk.

The college held its annual Scholarship Banquet in October, when students who received more than 240 available scholarships were able to personally thank and meet some of the people who made the more than $1 million in scholarships possible.

The AFA College Diversity Council hosted a Diversity Showcases in October. Groups from around the university gathered to share their ideas on how to promote and expand inclusion efforts around the college and the university.

The 2015 Agency 229 Annual Report that highlights the impacts of Virginia Cooperative Extension and Virginia Agricultural Experiment Station was published last fall. The report describes how research and outreach from the two organizations touch daily production, forestry management, food security, and youth development, among other topics.

The report can be viewed online at http://news.cals.vt.edu/innovations.
Researchers, students, and industry all benefit from new dairy science complex

By Zeke Barone

More than 1,500 people celebrated the grand opening of the new Dairy Science Complex – Kentland Farm in July.

Virginia Tech President Timothy D. Sands and Virginia Secretary of Agriculture and Forestry Todd Haymore, along with Mike Allen, head of dairy science, and Ed Jones, director of Virginia Cooperative Extension, were among the many speakers at the opening who talked about the importance and impact of the new facility.

The event was held in conjunction with a field day put on by the Virginia State Dairymen’s Association and the Virginia Cattlemen’s Association.

Shortly thereafter, the Virginia Tech Board of Visitors approved the proposal usage for the second phase of the complex. The $7.6 million facility will include an applied reproductive physiology facility adjacent to the Virginia-Maryland College of Veterinary Medicine, an intensive metabolic research facility at the Kentland Farm complex, and a bovine extension, teaching, and research facility on Plantation Road.

“The new facilities provide great opportunities for students desiring a hands-on, educational education,” said Alan Grant, executive vice president and chief operating officer.

They enable the faculty to conduct innovative research that is important for the dairy industry.”

Growing 4-H SCIENCE

By Lori Griner

During the first week of October, middle school students from Richmond got to experience first-hand Virginia’s No. 1 industry agriculture.

The students, along with parents and educators, traveled across the state exploring Virginia’s $55 billion agriculture industry during the four-day tour.

The 4-H Science, Commodities, and Industry Tour was designed to teach STEM (science, technology, engineering, and math) and career awareness through experiential learning in agriculture and to support positive youth development in the city of Richmond.

It was sponsored by the Growing 4-H Science grant and Richmond 4-H.

On the first day of the tour, a send-off was held at the Science Museum of Virginia with messages from Secretary of Agriculture and Forestry Todd Haymore and Agriculture and Consumer Services Commissioner Sandra Adams.

Adams told the students that only 2 percent of U.S. citizens are engaged in farming, and that the remaining 98 percent don’t always understand where their food comes from.

“If you’re a city person from Richmond, you can become a commissioner of agriculture, just think what you can do,” she said.

During the four-day stay, students visited family farms, Virginia Tech’s Agricultural Research and Extension Centers, alternative-farming venues, and related businesses.

“The mission was to engage, educate, and empower through agriculture, and we met the mark,” said Sarah Morton, director of 4-H Science.

Growing 4-H Science in Richmond.

Associate Professor of Entomology Zach Adelmann received the Excellence in Basic Research Award.

He heads a basic research program in molecular and vector biology, focusing primarily on the mosquito and the diseases it transmits, such as yellow fever, dengue, and chikungunya viruses.

Adelmann (center) received the award from Associate Dean Sean Mangham (left) and Dean Alan Grant.

OUTSTANDING faculty recognized

Renee Boyer, an associate professor and Virginia Cooperative Extension specialist in the Department of Food Science and Technology, received the 2015 Andy Swan Land-Grant Award. The award recognizes faculty whose creative accomplishments help fuel the land-grant mission of addressing state and regional needs through teaching, research, or extension.

Boyer’s programs focus on food safety, including routes of fruit contamination and the evaluation of antimicrobial agents. In addition to a plaque, Boyer received a $2,000 award, plus an additional $2,000 in operating funds. She is pictured at right with former Dean Andy Swan (left) and Dean Alan Grant.

Professor of Biological Systems Engineering Patrick Young (center) won the Excellence in Applied Research Award for his outstanding scholarly contributions with a focus on disruptive biomaterials for food biofuels and biochemical production.

Adelmann and Zhang received plaques, and each was awarded $5,000 from the college to be used in support of their research programs.
PILOT PLANT

By Zeke Barlow

Things are really cooking in the Human and Agricultural Biosciences Building 1 pilot plant these days.

In one corner of the 7,100-square-foot room, DuPont Teijin Films is working with researchers from the Department of Food Science and Technology on innovative ways to package and process foods ranging from chicken and bread to broccoli and beans.

Meanwhile, Tyson Foods and Virginia Tech professors have been developing ways to create a new Ball Park product line that uses the best food safety techniques available.

At the same time, Kollmorgen, which manufactures components used in food processing equipment, has been bringing some of world’s biggest food and beverage companies to the pilot plant to learn about advancements in hygienic design and sanitation as they work with the donated machines that fill the room.

There is also a fully operational brewhouse so beer companies in the ever-growing craft beer industry can come and perfect their brewing techniques.

These are just a few of the many relationships the Department of Food Science and Technology has developed in the 18 months since the building was completed. Each one is having a unique benefit to the companies as well as to the university, its researchers, and students.

“What we are doing is building bridges,” said Joe Marcy, head of the department. “Once you build it, you can expand it, make it wider, and make it stronger. The advantages to everyone involved continue to expand.”

For a company, having the space to test the best ways to prepare or package new product lines without shutting down its own manufacturing lines is invaluable.

“Virginia Tech was critical to us assuring the safety of our new product,” said Bob Reinhard (food science and technology, ’90, ’95), vice president of food safety and quality at Tyson Foods, which tested the processing of a new line of products at the pilot plant before launching a manufacturing line in Martinsville, Virginia.

The companies working in the pilot plant often donate the equipment they are testing, allowing researchers to work on the most state-of-the-art food processing machines available. Research that is being sponsored by the companies help make advances in food science fields such as food sensory evaluation and microbiology.

Students have the opportunity to work alongside professionals from some of the biggest names in the food industry, which not only gives them invaluable experience, but also provides them with an entrance into the job market and a network of contacts. Panels of industry leaders often serve as judges for students’ poster sessions, and industry partners are also sponsoring a number of scholarships.

“I call the pilot plant my engagement space,” Marcy said. “This great room brings all our missions together — research, outreach, and academics — in a way that is beneficial to everyone.”

For more information visit www.cals.vt.edu/alumni