VirginiaTech
College of Agriculture and Life Sciences

Volume 1, Issue 2

INNOVATIONS

HTTP://NEWS.CALS.VT.EDU/INNOVATIONS

Virginia Tech helps cultivate new farmers

by Lois Caliri

An international animal feed trader is creating a new life for himself on 126 acres of rolling pasture in Southwest Virginia, where he is raising and processing goats, cattle, chickens, and sheep to meet the increasing demand for meat processed according to Muslim standards.

Khondker Mazharul Islam, 53, is a first-generation farmer from Bangladesh whose dreams of starting a halal meat processing plant were shattered in 2004 when regulations prevented him from opening his business in Bosnia.

"I could not succeed," Islam said. "I knew I had to look elsewhere."

Now, thanks to the Virginia Beginning Farmer and Rancher Coalition Project, Islam has started a farm in Bedford County, Va. The project is housed in the Department of Agricultural and Extension Education, and Virginia Cooperative Extension is one of the project's many partners.

The program received a $740,000 grant from the U.S. Department of Agriculture and was created to reverse the steady decline in the number of people entering farming. Today, the average age of the American farmer is 57, compared with an average age of 50 in 1978. In 2007, more than a quarter of all U.S. farmers were 65 or older.

"As our farming population ages, it is essential that we support, educate, and cultivate new communities of farmers," said Kim Niewolny, project director and assistant professor of agricultural and extension education.

Using a coalition approach, the project is a collaboration of 26 Virginia organizations that help beginning farmers enhance the viability of their new enterprises. The project also has a mentoring network that new farmers can use to gain technical assistance and marketing insight from experienced farmers.

Anne Pendrak of Floyd County, Va., toured a farm in Floyd because she wants to start her own vegetable operation. She has established relationships with several farmers, including Tenley Weaver, owner of Good Food-Good People, a local fruits and vegetable distribution business.

"The experienced farmers will teach me how to market my products," Pendrak said.

As our farming population ages, it is essential that we support, educate, and cultivate new communities of farmers," said Kim Niewolny.

Anne Pendrak of Floyd County, Va., wants to start her own vegetable operation and is looking for technical assistance and marketing insight from experienced farmers.

Khondker Mazharul Islam is a first-generation farmer who credits the Virginia Beginning Farmer and Rancher Coalition Project with helping him start a livestock operation in Bedford County, Va.

Using the coalition's curriculum, project partners provide classroom, online, and hands-on learning opportunities that last from six months to one year. Short-term classes are also available. Participants develop a whole-farm plan that includes the following topics: family resource assessment, land acquisition, marketing, business planning, and sustainable production practices.

"The program has been an excellent resource," Islam said. "I have met so many people who have given me courage, moral support, and technical advice. I also learned how to write a business plan."

His plan includes a three-year lease with an option to buy the land. He has a contract to sell his livestock to a company that produces USDA-approved halal meat.

Jim Hilleary, coalition partner and coordinator of the Northern Piedmont Beginning Farmer Program, said business plans help farmers make rational decisions free of emotion.

"We provide beginning farmers with the complete picture of what it takes to start and operate a farm so they can make decisions that will benefit them and their families," Hilleary said.

To learn more, visit www.vabeginningfarmer.org.

Featured CONTENT

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.

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Dean's Update

Living the legacy of the Morrill Act

This is one of my favorite times of the year in Blacksburg. The crisp fall air is buzzing with excitement as students settle into the new semester and acclimate to the nuances of campus life.

The College of Agriculture and Life Sciences welcomed 677 new students this year — the largest number in our history and a bright, enthusiastic group that will carry on our tradition of excellence and exploration. I had the pleasure of meeting many of them, as well as the HokieBird, during our annual Fall Kickoff Picnic.

Our enrollment numbers reflect a national trend: Many agriculture and life sciences colleges are seeing increased interest. In a time when environmental concerns, land use, obesity, infectious and chronic diseases, energy, water, and food security are very real societal issues, our college is uniquely poised to develop solutions and educate students to address these challenges.

This year's new students have another notable distinction. They are joining our college as we celebrate the 150th anniversary of the Morrill Act.

Abraham Lincoln's signature on the 1862 legislation gave rise to the land-grant system, which not only provides access to higher education, but also equips the next generation with the knowledge to deal with some of the most pressing problems facing our world.

An integral part of Virginia's land-grant system is the relationship between Virginia Agricultural Experiment Station and Virginia Cooperative Extension, which work together to solve problems and share discoveries through education, extension, and outreach efforts.

Our cover story on the Virginia Beginning Farmer and Rancher Coalition Project illustrates how we are spreading our knowledge across the commonwealth to educate a new crop of farmers. Other stories in this issue highlight how we are putting the land-grant mission into action — from improving water quality in the Chesapeake Bay to creating a new generation of agricultural leaders.

The future is promising. We recently finished the college's six-year strategic plan and we look forward to unprecedented growth and prosperity — building on the excitement of today and the history that brought us here.

Sincerely,

Alan Grant

Alan Grant, dean

> The College of Agriculture and Life Sciences welcomed 677 new students this year — the largest number in our history and a bright, enthusiastic group that will carry on our tradition of excellence and exploration.

College Ambassador Program enters second decade

By Lois Caliri

Throughout the years, student ambassadors in the college have served as tour guides for prospective students and their parents, shared their knowledge and experience at college open houses, and hosted alumni receptions and events. More than 160 students have participated in the College Ambassador Program since it started in October 2001.

Now, the program's focus has been redesigned to incorporate those same skills while also promoting leadership and professional development, sharpening communication skills, and enhancing teamwork among the ambassadors. The ambassador's responsibilities extend well beyond assisting with college activities.

"I envision the legacy of the ambassador program as the creation of lifelong advocates for the college who spread the college message globally," said Susan Sumner, associate dean and director of academic programs.

Kevin Lacy, a junior in human nutrition, foods and exercise from Chesapeake, Va., wanted to get involved in the inner workings of the college. He provided input on the college's 2012-18 strategic plan, bringing a student voice to the administration.

Participating in a close-knit, nurturing organization also enables ambassadors to feel more connected to the students and the college.

"Students are often unclear about what the college has to offer, and I like knowing that I may have helped a student make a decision about what he or she wants to do in the future," said Molly Johnson, a senior in human nutrition, foods and exercise from Ashland, Va.

Karen Park, a senior in animal and poultry sciences from Fairfax, Va., said she enjoys promoting the college and everything it has to offer.

"I love being part of this amazing Hokie family," she said. "I will be representing the college for the rest of my life."

College Ambassadors Karen Park, second from right, and Brittany Neal welcome students to the college during a fall reception.

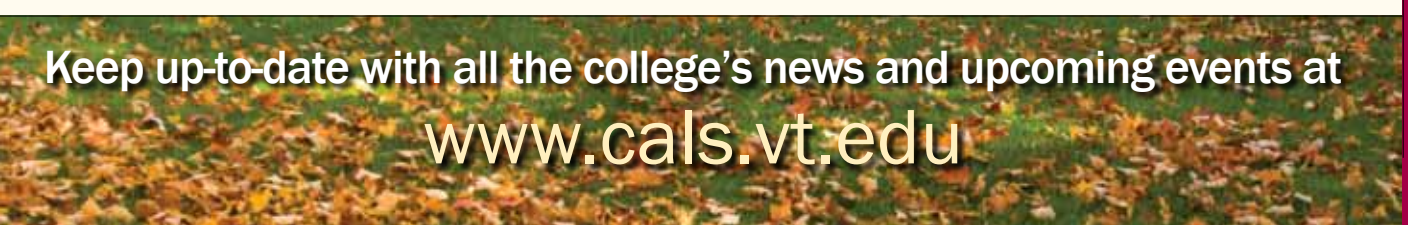
Alumni making a difference

Molly Stedfast, a 2010 biochemistry graduate, was never much of a cyclist, but when the chance to raise money for multiple sclerosis research came up this summer, the entomology graduate student from Norfolk, Va., jumped at the opportunity. Stedfast rode for two days with other entomology graduate students James Wilson of Southport, N.C., Tim Jordan of Staunton, Va., and Brittany Delong of Rome, Ga., as part of a fundraiser for Bike the US for MS — a nonprofit based in Blacksburg, Va. The trek through Southwest Virginia was part of a larger cross-country ride that has raised more than $40,000 in donations and pledges.

"I gained a whole new appreciation for road biking and a great respect for the riders who were raising money and awareness for an awful disease," Stedfast said.

Do you know of alumni living up to the Ut Prosim *motto? Send nominations for the next Alumni Making a Difference feature to Jamie Lucero, director of alumni relations, at 540-231-9666 or jlucero@vt.edu.*

Entomology graduate students, from left, Molly Stedfast, Tim Jordan, and James Wilson cycle through Southwest Virginia to raise money for multiple sclerosis research.



INNOVATIONS Fall 2012

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

Please email address changes and circulation inquiries to calseditor@vt.edu. Editorial inquiries and other comments should be sent to Editor, *Innovations*, 229 Smyth Hall (0904), 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.

VT/1012/130739/CALS-160

Virginia Ag Expo keeps on growing

By Lori Greiner

A record crowd of more than 1,800 farmers, industry leaders, merchants, and others converged on Chuck McGhee's Grainfield Farm in Mechanicsville, Va., on Aug. 2 for the 2012 Virginia Ag Expo. The annual event — co-sponsored by Virginia Cooperative Extension, the Virginia Grain Producers Association, and the Virginia Soybean Association — featured field plot tours and more that 100 exhibitors who showcased everything from tractors and machinery to seed protection technology and crop insurance.

The College of Agriculture and Life Sciences teamed up with Virginia Cooperative Extension to provide an exhibit tent that featured several of their departments and programs.

The night before, Ronnie Gill, president of the CALS Alumni Organization, welcomed more than 60 alumni and friends of the college who gathered for the third annual pre-Ag Expo dinner.

Guests were treated to a homestyle buffet dinner at the Eastern Hanover Volunteer Fire Department in Mechanicsville, followed by updates from Dean Alan Grant and Ed Jones, director of Virginia Cooperative Extension.

In keeping with the 2012 Ag Expo theme, "Virginia Agriculture: Rich in History – Focused on the Future," Tom Thompson, head of the Department of Crop and Soil Environmental Sciences, provided a historical perspective of his department and shared how crop and soil science research has contributed to the development of agriculture in Virginia.

Jim McKenna, a CSES professor emeritus, took the audience back in time with a history lesson on the Morrill Act that President Lincoln signed 150 years ago. The act established the land-grant system that led to the creation of the Virginia Agricultural and Mechanical College, now called Virginia Tech.

The 2013 Ag Expo will be held on Aug. 1 in Virginia Beach at Land of Promise Farms, which is owned and operated by the Don Horsley family.

David Holshouser, Extension agronomist based at the Tidewater Agricultural Research and Extension Center, above, provides an update on an on-farm soybean variety foliar fungicide field trial being conducted at five locations across the state. Virginia Cooperative Extension field crop specialists and entomologists were on hand at the Virginia Ag Expo to provide research results and information regarding a variety of topics.

Dean Alan Grant addresses the audience at the annual pre-Ag Expo dinner.

Ag Tech students dig into Catawba Sustainability Center

By Lois Caliri

Located on 377 acres of pastureland, the Virginia Tech Catawba Sustainability Center is an outdoor learning laboratory where students gain first-hand experience with land management practices that lead to better environmental stewardship.

The center, situated in the Upper James River Basin, was once a dairy supplier to the Catawba Sanitarium, now known as Catawba Hospital. In 1988, the hospital transferred its former dairy farm to Virginia Tech.

Students in the two-year Agricultural Technology Program use the center while they earn an associate degree in either applied agricultural management or landscape and turf management. Their projects vary; some students have done soil testing, while others developed architectural landscaping designs using plants that require little-to-no fertilizer or other chemicals.

Agricultural technology student William "Rooster" Watson loved going the center, where he used a handheld GPS and a measuring wheel to survey the land and calculate how many posts, gates, and other supplies he needed to build fences.

"I loved doing things with my hands rather than sitting in a classroom being told how it should be done," Watson said.

Josh Nease, the director of the center, said, "Hands-on projects allow students to gain actual experience during the learning process, and the center benefits from their hard work and recommendations."

Watson was so inspired by his agricultural technology classes and his hands-on work at the center, he decided to pursue a bachelor's degree in agricultural sciences at Virginia Tech.

"Before coming to Virginia Tech, I was not planning on going to college. I wanted to stay on the family farm," Watson said. "But enrolling in agricultural technology was one of the best decisions I've ever made."

Agricultural technology students gain hands-on experience at the Catawba Sustainability Center.

Employee of the Year

Dean Alan Grant and Dianne Bourne.

Dianne Bourne, a lab and research specialist who has worked at Virginia Tech for more than 40 years, was named the 2012 Employee of the Year for the College of Agriculture and Life Sciences.

Bourne, of Christiansburg, Va., supervises laboratory research in the Department of Food Science and Technology.

"Dianne employs unusual care and commitment in designing and conducting research studies," said her anonymous nominator, who described her work as meticulous, scientific, and timely.

Every year, the college honors a staff member who demonstrates enthusiasm, commitment, and professionalism and takes the initiative to perform beyond the expectations of regular work assignments.

Zac Mackey, an assistant professor of biochemistry, is working on ways to develop a drug to combat sleeping sickness — a disease that has enormous impacts on a wide swath of sub-Saharan Africa.

KNOCKING OUT sleeping sickness

By Zeke Barlow

Not many people in the United States think about the tsetse fly, much less the sleeping sickness infection it carries.

But in 37 countries in sub-Saharan Africa — a footprint of land as big as the U.S. — the disease infects hundreds of thousands of people each year and puts a stranglehold on the impoverished region's economy.

Domesticated animals also die from the parasite, which delivers a tremendous blow to the agricultural economies of these countries because they can't raise livestock to sell.

"No other disease that I know of can affect the ecology of an entire continent the way this does," said Zac Mackey, assistant professor of biochemistry. Mackey is investigating new ways to develop drugs to combat the sleeping sickness parasite.

If Mackey's research is fruitful, it could help buoy an entire region.

Though drugs are currently available to treat sleeping sickness, they can cost up to 300 times the monthly salary of those afflicted. Reports suggest that as many as 300,000 people in Africa are affected by the parasite annually, but up to 80 percent of cases go unreported. Countless die from the relentless infection that spreads through the body and causes the brain to swell, inducing the symptoms of daytime exhaustion for which it is named. The antiquated drugs that are available cause major side effects that can cause serious damage, including heart and kidney failure.

So Mackey is working on a solution.

He examines the parasite — *Trypanosomoa brucei* — by studying a protein kinase that may be responsible for controlling DNA replication and repair. He thinks this kinase can be targeted to kill the parasite without causing severe side effects in people. But unlike other drug development that only looks at one approach to inhibiting a protein, Mackey is looking at three ways.

The first involves the traditional approach — figuring out ways for a drug to directly inhibit the kinase's biological activity.

Mackey is also exploring what associations the kinase has with other proteins in the parasite, essentially casting a wider net to identify drugs that can block those associations from occurring.

In addition, he is identifying the molecules from the host that activate the kinase and keep the parasite alive so he can block the parasite's access to those host molecules.

"Exploring three different avenues opens up the options on how to treat the disease and gives us more opportunities to develop better therapies," Mackey said.

His work could help many people in addition to those afflicted with sleeping sickness.

"The ideas and methods that Zac is pursuing should be translatable to understanding and combating other parasitic diseases," said Peter Kennelly, head of the Department of Biochemistry.

Better treatments for sleeping sickness can help people lead healthier and more profitable lives.

"One of the things I admire about Zac is that he was drawn to the problem by its human cost," Kennelly said. "That says a lot about who he is."

> "No other disease that I know of can affect the ecology of an entire continent the way this does."
>
> *— Zac Mackey, assistant professor of biochemistry in the College of Agriculture and Life Sciences.*

New lab aims for the sky and sea

The Kentland Experimental Aerial Systems Laboratory provides 2,000 square feet of space for students and faculty members to conduct unmanned systems research.

In August, the College of Agriculture and Life Sciences and the College of Engineering at Virginia Tech celebrated the opening of a new, shared laboratory at Kentland Farm that will be key to developing advanced technology for unmanned aerial and underwater vehicles.

The Kentland Experimental Aerial Systems Laboratory will also be used to educate and train the next generation of agricultural scientists and engineers to conduct research using remote-controlled planes and submarines.

David Schmale, associate professor of plant pathology, physiology, and weed science, leads a team that has developed technologies with small, unmanned aerial vehicles to sample microbes far above the Earth. Some of these microbes have the potential to cause devastating plant diseases.

"An increased understanding of plant pathogens in the atmosphere is essential for mitigating potentially damaging events targeted at our nation's agriculture and food supply," Schmale said.

Soil testing goes digital

Farmers, homeowners, and landscapers can now receive the results of their soil tests online, thanks to the Virginia Tech Soil Testing Laboratory in the Department of Crop and Soil Environmental Sciences.

The lab typically processes more than 50,000 soil samples annually for farmers and urban clients. It used to take five to eight business days to perform a routine soil fertility analysis and for clients to receive the results in the mail.

"Now, the grower can see the results immediately after the reports are generated, which may be just two or three days after the lab receives the soil sample," said Steve Heckendorn, laboratory manager. "Clients are still encouraged to contact their local Virginia Cooperative Extension agents with help in interpreting the results."

For more information, visit www.soiltest.vt.edu or contact your local Extension office.

Steve Heckendorn checks on the progress of an analysis at the Virginia Tech Soil Testing Laboratory.

Curbing pollution, saving agriculture

By Zeke Barlow

When farmers on Virginia's Eastern Shore were told they had to curb the amount of nitrogen and phosphorous seeping from their fields into the Chesapeake Bay, Zach Easton stepped in to find a solution.

Easton, an associate professor of biological systems engineering, may have found a way to save the bay while maintaining farmers' profits with the development of a bioreactor buried under the coast's fertile agricultural grounds.

"The ultimate hope is that this will be a cost-effective system that producers can use to protect water quality and help keep agriculture profitable in Virginia," said Easton, who is a Virginia Cooperative Extension specialist located at the Eastern Shore Agricultural Research and Extension Center. Virginia Tech's Institute for Critical Technology and Applied Science also provided funding for the project.

Regulations mandate that farmers curb their nitrogen and phosphorous in groundwater by as much as 30 percent. Easton's new bioreactor surpasses that by removing up to 90 percent of the nitrogen and 45 percent of the phosphorus. It costs about $260 an acre — a one-time expense over its 20-year lifespan, which is much cheaper than some other solutions.

The bioreactor is a large vat buried underground that is filled with woodchips. Water from the fields is funneled toward the container, where microorganisms feed off the wood chips and nutrients in the water. Because it is buried underground, there is little loss of productive land.

During the feeding process, the microorganisms convert nitrogen in the water into harmless nitrogen gas, which makes up 78 percent of the atmosphere. They also incorporate the phosphorus into their microbial biomass. The added substrate, biochar, can also remove phosphorus from the water.

Easton and BSE graduate student Emily Lassiter are examining the bioreactor to make sure it is producing inert gasses that are not harmful to the atmosphere.

"We don't want this to have adverse downstream consequences," said Lassiter, of Onley, Va.

Easton said they hope to have a market-ready bioreactor by next year. When it is ready, its applications could extend well beyond the Chesapeake Bay.

"We believe this is an economic and viable solution to curb water pollution while protecting farmers' bottom lines," he said.

Zach Easton, left, an associate professor of biological systems engineering, explains how his new bioreactor curbs pollution in the Chesapeake Bay to Mary Leigh Wolfe, head of BSE, and Saied Mostaghimi, the college's associate dean for research and graduate studies.

Transfer agreement provides guaranteed admission

By Lois Caliri

When Cindy Green started her academic career at a community college in Northern Virginia, she knew her education would not stop there.

Her first two years at Lord Fairfax Community College gave her the opportunity to save money and concentrate on her studies so she could continue her education at Virginia Tech through a guaranteed admission program.

Green earned a bachelor's degree in agricultural sciences in 2008 and a master's degree in career and technical education with a focus on agricultural education in 2010 — both from Virginia Tech. She is now teaching agricultural education to high school students in Columbus, N.J.

"Transferring to Virginia Tech was a smooth transition for me," Green said. "I didn't have to worry about anything."

The transfer agreement — called the Pathway to Excellence Guaranteed Admission Initiative — facilitates a seamless transfer of students from any of the 23 Virginia community colleges to the College of Agriculture and Life Sciences.

In fall 2005, five students transferred to the college through the new program; now, more than 30 students complete the entry requirements of the college's guaranteed admission program annually.

Green zeroed in on the university's academic opportunities and also participated in extracurricular activities. She studied in South Africa for one semester, joined the Agricultural Economics/National Agri-Marketing Association, and participated in the College Ambassador Program.

"I embraced everything the university had to offer," she said.

In order to qualify for guaranteed admission, students must complete a transfer associate degree, take specified courses, and maintain a cumulative grade point average of 3.0 or higher.

"This provides multiple admission pathways for students interested in the College of Agriculture and Life Sciences," said Bobbie Potter, coordinator of recruitment and community college liaison. "The program allows students to make a connection with the college and the university prior to their transfer, which promotes academic success when they arrive on campus."

More information can be found at www.admiss.vt.edu.

Susan Sumner, associate dean and director of academic programs for undergraduate studies, talks with students and their family members about transferring to the college under the guaranteed admission program.

Taylor Allen, front, of Atlanta, Ga., and Morgan Conklin of Richmond, Va., attend the first-ever Virginia Tech Summer Academy to get a head start on their college careers.

Summer Academy helps students get a leg up on university life

By Lois Caliri

The inaugural Virginia Tech Summer Academy was advantageous for the first-year students who shortened their summer breaks to jump-start their academic careers. The program allows students to earn course credits before the fall semester starts while learning the ropes of university life.

It also helps alleviate any jitters students may have before coming to a big campus, said Michael Herndon, director of university summer sessions.

"The small classes and academic workshops in study skills, test taking, and career development prepare students for a seamless transition from high school to the university environment," Herndon said.

Of the students who attended the academy, 18 were enrolled in nutrition, foods, exercise, and sports classes in the College of Agriculture and Life Sciences. Some courses fulfill general education requirements, while others satisfy requirements for specific majors.

"I couldn't have imagined a better introduction to campus life than the Summer Academy," said Taylor Allen of Atlanta, Ga., who wants to double major in biochemistry and human nutrition, foods and exercise. "My advisors were always there for me and they encouraged me to push myself even harder to succeed."

Among the college's students were soccer players Wesley Saupe of Richmond, Va., and Deven Mason of Alburquerque, N.M. They enrolled in the academy as part of Virginia Tech's summer conditioning program, a precursor to the fall soccer season. While working on their studies, they were also working out five days a week.

Saupe learned how to create a blog, one of the many new skills that students learned through the courses and workshops. The program also helps students by focusing on one activity at a time.

"Students do not get distracted by the rigmarole of school year obligations," said Jay Williams, a professor in the Department of Human Nutrition, Foods and Exercise. "They don't have to worry about juggling homework for five classes and social activities."

Inaugural VALOR class named

The inaugural VALOR class includes, from left, Ben Grove of Blacksburg, Va.; Jim Hilleary of Marshall, Va.; Matt Hickey of Staunton, Va.; Dana Fisher of New Market, Va.; Andrew Smith of Beaverdam, Va.; Teresa Lindberg of Jarratt, Va.; C.J. Isbell of Rockville, Va.; Ian Heatwole of Weyers Cave, Va.; Hunter Richardson of Shacklefords, Va.; Ken Ryan of Edinburg, Va.; and Roger Elkins of Jonesville, Va.

By Lori Greiner

The inaugural class of the Virginia Agriculture Leaders Obtaining Results Program met at Virginia Tech in September to kick off the two-year leadership training program.

The College of Agriculture and Life Sciences' VALOR Program is designed to develop leaders who can effectively engage all segments of the Virginia agricultural community to create collaborative solutions and promote agriculture inside and outside the industry.

"I am excited to be a part of the inaugural class of the VALOR Program," said Dana Fisher, an agricultural education teacher at Central High School in Woodstock, Va., and one of the 11 professionals chosen for the program. "At a time when the majority of our state and country are far removed from production agriculture, it is vital that competent leaders step up to inform the public about the challenges and successes of an industry that provides us with the world's safest yet most inexpensive supply of food, fiber, and natural resources."

Program participants will take part in 12 experiential seminars spanning a total of 48 days over 24 months. The seminars will address social, political, and economic issues impacting the agriculture industry and its viability in a variety of settings throughout the commonwealth and beyond, including exploration of global agricultural issues. The program will culminate with an experience abroad.

"I am excited about the group we have compiled for the inaugural class," said Megan Seibel, VALOR director. "They will lay the foundation for the program and establish its reputation for greatness among industry stakeholders. We anticipate their tremendous impact as strong industry leaders for years to come."

Application to the program was open to public and private sectors of Virginia's agriculture industry, and more than 100 nominations were submitted. Selection was based on an extensive application and a face-to-face interview.

Class members will gain and share experiences throughout the program that will take them to local, national, and international destinations.

For more information about the VALOR Program and how to support the program and its participants, contact Megan Seibel at 540-231-2375 or visit www.valor.aee.vt.edu.

Horticulture program teaches job skills to detention home residents

By Kelly Robinson

Residents at the W.W. Moore Jr. Juvenile Detention Home in Danville, Va., are learning skills they'll be able to use the rest of their lives, thanks to the Green Thumb Nursery horticulture program.

Students in the program learn basic horticulture skills, including plant care and landscape design. However, Jane Clardy, a teacher at the detention center, thinks students in the program are actually learning something beyond horticulture — they're learning to care about their future.

In 2001, Virginia Cooperative Extension got involved with the program after Clardy invited Stuart Sutphin, a horticulture Extension agent in Danville, to start a horticulture jobs program.

"The Danville Cooperative Extension office has given constant support to our program," said Clardy. "We would never have developed it to the stage it is now without the help of these individuals."

Before he began working as an Extension agent, Sutphin was the grounds maintenance superintendent for the Danville Public Works Department, a job that made him acutely aware of the need for entry-level horticulture workers. Sutphin and Clardy set out to create a program that helped students learn valuable horticulture skills that could help them land a job later in life.

Over the 10-week course offered in the fall and spring, Sutphin teaches everything from plant botany to pest control. Those who pass the final exam receive a horticulture job skills certificate.

According to Sutphin, when three students were told they were about to be released from W.W. Moore, they asked the judge to let them stay until they finished the program.

"They're learning how to run a business, how to market the trees, and how they're supposed to look when they're going out," Clardy said. "People don't like to think about detention homes, and people don't realize there are real kids here with potential. The more we can get our kids out where they are meeting the public, even if the kids don't go into horticulture, it gives them self-esteem."

Nutritional supplement earns Food Science and Technology Team second place

The Department of Food Science and Technology Team finished second in the Developing Solutions for Developing Countries competition in Las Vegas in June. The students, all food science and technology majors, developed a mango-based product called Uji Mate that can be added to Kenyan porridge to increase its nutritional content and flavor. It is also used to sweeten foods that taste good with mango.

The Institute of Food Technologists Student Association sponsored the contest and awarded the team a $2,500 check.

The team included, from left, Emily Duckett, a fifth-year student from Christiansburg, Va.; Alaina Herrera, a senior from Woodbridge, Va.; Jian Wu, a graduate student from Bejing, China; Liyun Ye, a graduate student from Jiangsu Province, China; and Angelique Ameerally, a senior from Charlotte, N.C. Fatema Girnary, a senior from Burke, Va., is not pictured.

Virginia Tech sheep sale grosses $29,700

Buyers place bids at the 13th annual Virginia Tech Sheep Center production sale.

Buyers from Virginia, West Virginia, North Carolina, South Carolina, Tennessee, Wisconsin, and Nebraska purchased sheep at the 13th annual Virginia Tech Sheep Center production sale, held Sept. 1, 2012, at the Alphin-Stuart Livestock Teaching Arena in Blacksburg, Va.

The sale, held annually since 1999, grossed $29,700 and featured 59 lots of Suffolk and Dorset rams and ewes.

"All the proceeds from the sale go back to the Department of Animal and Poultry Sciences to help support teaching, research, and Virginia Cooperative Extension programs, including the farm operations and facilities such as the Copenhaver Sheep Center," said Scott Greiner, professor of animal and poultry sciences and Extension sheep specialist.

Next year's production sale will be held on Saturday, Sept. 7. For more information about Virginia Tech's sheep flocks, contact Greiner at 540-231-9159.

Students reap rewards from internships abroad

By Lois Caliri

Katie Elliott designed vegetable gardens for schools in Belize so hungry children and their families could eat locally grown foods. Olivia Ellis interned in Mexico, where she discovered that prickly pear cactus could treat stomach ailments.

For these two students, the experiences they had in the summer of 2012 enriched their lives, challenged their assumptions, and broadened their perspectives.

Elliott, a senior from Bluemont, Va., is majoring in environmental horticulture. She performed independent research for Peacework, a nonprofit organization based in Blacksburg, Va., whose programs foster economic development and social change around the world.

Elliott's research focused on the design of model gardens that Peacework can use for future projects.

She visited the rural village of Pomona, Belize, where she learned the kinds of food that could be grown in different climates and soil conditions. The gardens she designed provide an outdoor classroom where students and teachers learn how to grow their own foods for school lunches while also generating income.

Elliott saw students in schools surrounded by barbed wire fences and young children begging for food on the streets, both of which enhanced her awareness of poverty and disenfranchised learning environments.

"That would never happen in the United States, let alone allowing a 5-year-old to walk the streets alone," said Elliott.

Ellis, a junior human nutrition, foods and exercise major from Vienna, Va., completed a three-month internship at Rancho La Puerta, a destination fitness center in Mexico. She prepared nutrition plans for the center's weight loss program that included the nutritional and medicinal benefits of the prickly pear cactus, which adds a melon flavor to food.

Ellis also developed health education programs, taught group exercise classes, and led the center's guests on challenging hikes.

"Working at the ranch was a unique experience because most of the people in class were a bit older than the students who work out at Virginia Tech's gyms. The visitors at the ranch typically had more health issues and were taking multiple fitness classes in one day. I would still challenge them, keeping in mind they were fatigued," Ellis said.

Right: Katie Elliott, a senior environmental horticulture major from Bluemont, Va., designed vegetable gardens for hungry children and their families in Belize.

Below: Olivia Ellis, a junior human nutrition, foods and exercise major from Vienna, Va., discovered the nutritional and medicinal uses of prickly pear cactus while interning at a destination fitness center in Mexico.

Awards for Research Excellence

From left, Dean Alan Grant, Jeffrey Derr, Igor Sharakhov, and Saied Mostaghimi.

Two scientists in the College of Agriculture and Life Sciences received the college's annual Award for Research Excellence for their significant accomplishments within their fields.

Jeffrey Derr, professor of plant pathology, physiology, and weed science and Virginia Cooperative Extension weed specialist, was presented with the 2012 Award for Excellence in Applied Research.

Igor Sharakhov, associate professor of entomology, received the 2012 Award for Excellence in Basic Research.

"The work that Drs. Derr and Sharakhov conduct illustrates how the combination of intellectual curiosity and a sharp mind can make a difference — not only in scientific research, but in the world at large," said Saied Mostaghimi, associate dean for research and graduate studies.

2012 Andy Swiger Land-Grant Award recipient

Gordon Groover, associate professor of agricultural and applied economics and Virginia Cooperative Extension economist, was awarded the 2012 Andy Swiger Land-Grant Award.

The award — created by an endowment established to honor former Dean Andy Swiger — is given annually to a faculty member for creative accomplishments in research, teaching, or extension.

"Dr. Groover epitomizes the land-grant university mission of service and improvement to agriculture," said Steven Blank, head of the Department of Agricultural and Applied Economics. "He is one of the nation's most knowledgeable experts on the economics of pasture-fed beef systems."

Dean Alan Grant, left, presents Gordon Groover with a $2,000 check, which will be used to fund programming.

New research instrument opens avenues of discovery

Perhaps the most interesting thing about the College of Agriculture and Life Sciences' new liquid chromatography-mass spectrometer isn't that it is quicker and has 1,000 times more sensitivity than older ones — it's how it allows researchers to see the bigger picture and the dynamic molecular environment of an entire system. The instrumentation is used to detect the presence of individual chemicals in complex mixtures.

By being able to capture that larger view, it will help to determine how corn can better respond to drought, how to reduce water pollution, and how to develop more effective drugs, among other things.

"We are able to ask questions that we could never ask before," said Rich Helm, an associate professor of biochemistry.

Ten different departments, colleges, and institutes across campus helped purchase the $800,000 machine — a testament to how vital such a tool is to the university's researchers.

"This is going to help us continue to be a leader in finding the answers to some of today's most pressing problems," said Saied Mostaghimi, associate dean for research and graduate studies. "It opens up a whole new avenue of scientific discovery."

Rich Helm, an associate professor in the Department of Biochemistry, says researchers are lining up to use the new liquid chromatography-mass spectrometer.

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Sowing a beautiful legacy | Reaping lifetime income

The Hahn Horticulture Garden is a special part of the Virginia Tech experience for Dawn Lerch (horticulture '73, M.S. '75) and her husband Gary (mechanical engineering '72, M.S. '75). It's also part of their financial and estate planning.

The Lerches' charitable trust will one day support the Virginia Master Gardener Association Endowed Fund and the Hahn Horticulture Garden, as well as scholarship endowments for the Corps of Cadets and the College of Engineering. In addition to shaping a meaningful legacy, the couple's gift is also paying them lifetime income.

A charitable remainder trust is one of several life income gift plans designed to provide growth for your gift and for you. It's a double harvest to keep and to share. You receive lifetime income and you create a meaningful legacy for the area you choose.

Contact the College of Agriculture and Life Sciences Development Office to learn how you can establish your own legacy with a bequest, beneficiary designation, or even with a gift that pays you income.

College of Agriculture and Life Sciences Development Office
540-231-5546 or 800-533-1144
vmeacham@vt.edu or ben.grove@vt.edu — www.cals.vt.edu/giving

Alumnus creates professorship with global reach

> "Every company, from the smallest to the largest, is working around the globe. The hope is that this donation helps to prepare Virginia Tech students for that international market where they can be competitive and successful."
> — C. Gordon Thornhill

C. Gordon Thornhill recently established the Thornhill Professorship of Agricultural Trade.

By Zeke Barlow

C. Gordon Thornhill — owner of one of America's largest livestock exporting businesses and a 1975 graduate of the university's animal science department — has established the Thornhill Professorship for Agricultural Trade. The professorship will help the College of Agriculture and Life Sciences expand its international programs and cement Virginia Tech's reputation as a leader in agriculture — both nationally and globally.

"This is a global market we are competing in today. It's no longer just big companies that are trading with Europe, Asia, and Africa," Thornhill said. "Every company, from the smallest to the largest, is working around the globe. The hope is that this donation helps to prepare Virginia Tech students for that international market where they can be competitive and successful."

The new professorship will not only benefit the students at Virginia Tech. According to Alan Grant, dean of the college, it will also have a wide-reaching influence on government agencies and private businesses involved in international trade through Virginia Cooperative Extension.

"As Gov. Bob McDonnell and others have been emphasizing, agricultural trade has an enormous impact on the Virginia economy," Grant said. "Virginia Tech is committed to growing its presence internationally, and this professorship will help us build relationships around the world that will benefit the university, the state, and private businesses."

Thornhill, owner of Culpeper, Va.-based T.K. Exports Inc., has been a generous contributor to Virginia Tech. In addition to the Thornhill professorship, he has supported leadership initiatives in the college by establishing two undergraduate scholarships and providing significant start-up funding for the Virginia Agriculture Leaders Obtaining Results (VALOR) program.

The faculty member holding the Thornhill professorship will have a primary emphasis on teaching and Extension. The professorship will also help leverage Virginia Tech's relationships with government agencies, businesses, and stakeholders to broaden trade opportunities and increase the value of Virginia and U.S. agricultural products abroad.

Thornhill knows well the value of an education that focuses on international agriculture trade.

He quickly went from being the first member of his family to finish college to being the president of an international company that exports dairy and beef cattle to more than 45 countries around the world.

Thornhill hopes his gift will inspire others to contribute to the university so it can continue to expand its international reach and prepare students to be global leaders.

"Virginia Tech opened the world to me," he said. "I wanted to give back to the university."