REIMAGINING REALITY
4-H empowers and prepares youth to build the future of their dreams
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ON THE COVER

Keith Jacobs (right), University of Illinois Extension 4-H youth development specialist, is helping youth reimagine reality and build the future of their dreams through 4-H. Of the 300,000 4-H project enrollments in Illinois, 61% are STEM related, from animal science and welding to computer science and robotics.

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In the fall of 2017, the University of Illinois Urbana-Champaign campus launched its most ambitious campaign in our history: we will raise $2.25 billion by 2022, with which the future of this university will be built. As I witnessed the mesmerizing launch of the “With Illinois” campaign in the State Farm Center, a photo of Dr. John Laughnan flashed across the screen. Dr. Laughnan is famously known as the father of “supersweet sweet corn” and less famously as my mentor. It took my breath away to see the man who sparked my love for plant breeding honored as one of the most influential contributors in the history of this campus. In that moment, I realized that everything I have accomplished in my career to date has been done “With Illinois.”

With Illinois validating my potential, I embarked on a journey toward understanding scientific discovery as a graduate student at the University of Wisconsin. With Illinois as my foundation, I built a wheat breeding program at Washington State University that still sets the standards of excellence for varieties grown in that region. With Illinois as my inspiration, I became an innovative leader who reinvigorated academic programs in my former college. With Illinois in my heart, I embraced the opportunity to return to my alma mater to lead the College of Agricultural, Consumer and Environmental Sciences (ACES) to the next level of excellence, knowing that the essence of extraordinary is alive and well here.

As part of the “With Illinois” campaign, ACES aspires to raise $200 million to support transformative initiatives in every department and unit across the college. To develop a collective vision for moving the college forward, we have identified the highest priority needs — concept notes for our top-priority advancement projects across ACES are available at advancement.aces.illinois.edu/with-aces. Each note describes the objectives of the initiative as well as the expected impacts the initiative will create. I invite you to review these concept notes and join us on the next phase of the ACES journey.

Taken together, these concept notes frame an inspiring vision that will propel us to higher levels of excellence. Resources will be used to develop leadership trainings, support faculty endowments, build cutting-edge infrastructure, and create new programming designed to meet current and future talent needs in our industries. If successful, these initiatives will expand our resource base to create a more stable, diversified funding portfolio for the college, which we desperately need in this challenging budget climate. The “With Illinois” campaign creates a gateway for us to dare to dream about what we want to become and provides a mechanism for making our dreams reality. This is our moment to stand shoulder to shoulder with our alumni, donors, friends, and supporters to set the stage for manifesting a vibrant future for ACES.

I ask you to reflect upon your journey “With Illinois.” What threads of hope, opportunity, or adventure has your Illinois experience brought to your life? With Illinois we create pathways—to support improving the quality of people’s lives through the transformational discoveries of our research programs, by inspiring graduates to be thought leaders and world-class innovators, and by engaging with local residents to create positive change in our communities.

With Illinois, and the help of all of you, we will ensure a vibrant future for the College of ACES. Please join our advancement team and me in embracing the opportunity to contribute time, energy, or resources to making this campaign a success. We are grateful that you are part of the ACES family, and we look forward to building our future with you.

Kim Kidwell, Dean of ACES

From the DEAN’S DESK
Science drives new discoveries daily, and with them, new technologies to reimagine reality. We may not know what is coming next, but we do know who will create it: youth empowered and prepared to build the future of their dreams.

Illinois 4-H is entering the world of virtual reality (VR) thanks to a $1.5-million gift from Google to 4-H programs around the country. Google has done the heavy lifting up front, creating virtual learning spaces for youth to explore a variety of topics.

What is virtual reality? Think back to the days when you first heard stereo sound. Now take that to the visual level; instead of stereo sound, you have stereo graphics. With the use of special viewing eyewear, people can view and explore a three-dimensional environment, as real as if they were in it.
Google provided 1,000 cardboard VR viewers when it visited the Illinois State Fair last summer to make its million-dollar grant announcement. It has also created a virtual 4-H world expedition. Without leaving home, participants take a virtual tour through many of the adventures 4-H members experience in real life. The expedition has a strong agriculture flavor, says Keith Jacobs, University of Illinois Extension 4-H youth development specialist in STEM—science, technology, engineering, and math. “Apps allow you to choose the virtual tour you wish to go on,” Jacobs says. Instructors take classrooms on virtual trips courtesy of educational guides included with the software. “Step on board the International Space Station or travel to Mars—it’s all possible in the virtual world.” It all works by placing a smartphone in the viewer headset. The headset splits the image, much like when one puts on 3-D glasses to watch a movie. Since virtual reality is recorded in 360-degree format, the gyroscope in the cellphone lets participants change the field of view by turning their head to enhance the experience.

“Having the equipment provided by Google allows us to introduce virtual reality to the masses before the technology is widespread,” Jacobs says. “With this tool, 4-H members will expand their capabilities and possibilities in whatever direction they choose, and they’ll become creators of content instead of just consumers.”

Illinois 4-H hopes to reach 10,000 youth this year with the technology.

“With virtual reality cameras, youth will begin to take 360-degree videos and images, edit them with software, and upload them to their viewers to create their own expeditions to share around the world,” Jacobs says. As soon as summer 2018, youth can exhibit their own virtual reality videography at their summer 4-H fairs.

“Our goal is to get youth to see computer science as a multifaceted field with endless possibilities to apply what they learn and create,” Jacobs says. For example, graphic designers can use technology available now to design and render 3D-printed clothing.

“We believe this wave of technology will be the new ‘hook’ to greatly expand the number of youth joining 4-H,” Jacobs says. The new initiative fits the 4-H model of learning-by-doing, except these young people will conduct experiential learning in environments they’ve never before had access to. “With no boundaries, they’ll be able to experience far-off places as though they’re actually there,” Jacobs says.

This new work is coupled with another new tech 4-H project—unmanned aerial vehicles, also known as drones. The UAV curriculum will include building a drone, navigating FAA regulations, starting a drone business, and getting a commercial license.

To get youth interested, Jacobs has begun to plan exhibitions of drone racing (yes, that’s a thing). Drone enthusiasts are constantly looking for ways to expand use of drones, from crop scouting to emergency-rescue guiding. As drones become more commonplace, people have created ways of using them for entertainment, such as racing as fast as possible.

“The biggest barrier to these new technologies is that people just don’t know about them,” Jacobs says. “If our youth aren’t introduced to them, there’s no hope of preparing them for what’s coming next in their world.”

Jacobs has an ambitious plan of introducing drone education in a classroom setting. Imagine a national park ranger virtually speaking to students in several classrooms at one time with the use of a drone. Students will see live the natural wonders as the ranger discusses where the drone is flying, and they will be able to ask questions and get answers in real time.

"With no boundaries, they’ll be able to experience far-off places as though they’re actually there."
"By inhabiting the virtual sphere, 4-H can now teach and contribute to the body of knowledge without having to meet in the physical world," Jacobs says.

Jacobs will soon have Illinois 4-H flying high. He is working with private space companies that will allow youth to send 4-H satellites to space. The Arduino-based satellites will be coded by 4-H members to do anything from track weather patterns to send a tweet from space back to earth. The goal, provided enough funding, is to have 27 of the $8,000 satellites, one for each of Extension’s 27 operating units in the state.

Illinois 4-H members are hungry for STEM projects. Of the 300,000 4-H project enrollments, 61% are STEM related, from animal science and welding to computer science and robotics. More than 110 4-H clubs are devoted solely to robotics, and the annual robotics competition in 2017 included 60 teams, with 500 club members participating.

Champaign County 4-H member Aja Capel, 14, has served as president and captain of her robotics team, Invader Bots, for the past three years.

“We design, build, wire, make 3D parts for, and program a robot to win points for completing tasks on a game field each season,” Capel says. “I met my mentor, Keith Jacobs, through this 4-H robotics team.”

Capel says Jacobs helped her win a Disney “Be Inspired” grant allowing her to partner with 4-H to hold a STEM exposure event for underrepresented youth using the drone platform.

“4-H has provided me with leadership training and opportunities to put what I learn into practice,” Capel adds. “I’ve traveled to national conferences, served on statewide committees, and met many influential people. 4-H has solidified my desire to become a mechanical engineer, and I ultimately want to use my engineering skills in the field of animal sciences.”
Sometimes to get the upper hand in battle, you have to think like the enemy. Put aside for a moment the fact that plants don’t think, and instead picture this battlefield: Long rows of corn seedlings stretch out in front of you. The plants are a modern hybrid: each one genetically identical, designed for high yields, uniform height, and easy harvest.

You, a rogue weed, sprout up from a seed left over from last year and go to work putting down roots. But your main goal is making babies—lots and lots of babies. You grow between corn stalks, opening clusters of tiny flowers, waiting for the wind to bring you your mate. Others of your kind germinate beneath you throughout the spring and summer, quietly crowding the corn.

Along comes the farmer. His transport might not be the armored tank we see in footage of modern warfare; instead, his tank rides on the back of a tractor, full of herbicide. He can safely spray his growing corn—the hybrid has been genetically modified to tolerate the chemical, after all. It’s you, rogue weed, that he’s after.

The first few years, the herbicide works like a charm. You wither and die before setting seed, and most of your siblings do, too. But one year, a few of you survive long enough to reproduce.

Every year the farmer comes back with more of the same chemical. But every year now, a few of you withstand the attack. Like any consistent outside force—predators, environmental change, disease—the herbicide kills off the weaker among you, but the stronger slowly figure out a way to survive. Soon, a few become many.

This is the story of herbicide resistance in agronomic weeds, a growing phenomenon that costs farmers and the U.S. economy well over a billion dollars every year, and one that, in the worst-case scenario, threatens to take down farming as we know it.

Fortunately, scientists in the crop sciences department at Illinois are working to prevent that fate.

**WEED WARRIORS**

The scientists at the heart of the ACES weed science group are experts in biology, ecology, integrated weed management, quantitative modeling, taxonomy, crop production, plant physiology, genomics, proteomics, biochemistry, and molecular genetics.

You might think researchers from such far-flung disciplines would stay in their own lanes, but the opposite is true.

“We often hand the baton off when trying to trace the mechanism of resistance,” says Professor Dean Riechers. But the relay race doesn’t start or stop at finding the means by which the resistance occurs (though the group has
identified the mechanisms of resistance, including specific genes, for a number of herbicide classes).

Whether or not the genetic basis of a herbicide's resistance is known, farmers still need to control weeds in their fields. The weed science group helps with that, too, identifying effective herbicides for vegetable crops, providing tools to help farmers identify resistance in their fields, and proving that new management practices can be more effective than traditional ones.

**KNOW YOUR ENEMY**

There are a lot of nuisance weeds out there, but to corn and soybean farmers in the United States, the worst offenders are waterhemp and Palmer amaranth. The two weeds, both members of the pigweed family, are responsible for yield losses of 30 to 80 percent in these key crops. And many populations of the weeds are resistant to multiple herbicide types. In fact, the weed science group was the first to document waterhemp plants resistant to two, three, four, and five types of herbicides.

"We don’t really know why this group of plants is capable of withstanding all these herbicides better than any other plants out there. They appear to be doing something unique, and that’s interesting to us as scientists,” says Assistant Professor Chance Riggins. And that’s of practical concern to farmers as well.

No one knows exactly why these plants got lucky, but the weed science group knows how.

"Resistance is just evolution, but we can study it at warp speed—it’s happening in real time. Most people that study evolution have to go back to the fossil record. With herbicide resistance, we can study evolution in 5 or 10 years," says Professor Pat Tranel, also the interim department head.

Waterhemp and Palmer amaranth don’t escape the effects of herbicides by running or hiding. Instead, mutations in certain genes make it impossible for the chemicals to bind to target proteins in the plant. Or defensive enzymes go to work to detoxify the chemicals before they reach their targets.

The scientists are looking at the evolution of these molecular changes. So far, Tranel, Riggins, and Riechers have identified the genes involved in resistance to several classes of herbicides. And as a result of the researchers’ efforts, molecular screening tools are available to farmers through the U of I Plant Clinic, allowing farmers to understand what they’re up against and to manage their crops accordingly.

Aaron Hager, the extension specialist in the weed science group, is the point person for any Illinois farmer who suspects a resistant weed population. Hager says tests for resistance existed before his colleagues developed their molecular tools, but the old tests required a lot of steps and even more time.

Riechers is optimistic that molecular information could lead to new herbicide formulations, giving farmers more options in the future. “As long as we know the gene involved, we could potentially knock it out and make the plant sensitive to the herbicide again,” he says. “Or someone could design a chemical to inhibit that one specific protein.”

**NOT-SO-SIMPLE SOLUTIONS**

“Chemical companies said for years that resistance wouldn’t be a problem, but here we are,” says Professor Adam Davis. “This group has been laying the groundwork for years to get ahead of a problem that we expected to develop despite those claims.”

Not only have these scientists been on the forefront of detection, they have proposed and proven management techniques that could slow the rate of resistance evolution.

For example, for years the dominant paradigm has been to rotate between different types of herbicides every year. But the group’s rigorous testing showed that rotation is not as effective in knocking back resistance as applying multiple herbicide types in a single application. “It revolutionized the way the industry operates,” Hager says.

Although mixed herbicides have proven to be effective for corn and soybeans, the tactic isn’t an option for many specialty crops. “Thinking beyond herbicides is important for vegetable growers, who have much shorter lists of herbicides registered for use on their crops,” says Associate Professor Martin Williams. “As such, many growers augment herbicides with nonchemical weed management strategies, such as crop rotation, crop competitiveness, and physical weed control.”

“Corn and soybean growers can learn from this approach,” Davis says. “It turns out you can solve about 90 percent of the weed problem just with a good crop rotation.”

Even though the weed science group has discovered a few weak spots in waterhemp and Palmer amaranth, the weeds aren’t going away any time soon. No matter which direction the farming industry heads, weeds will follow. But the group is ready for the next challenge.

“Just like weeds adapt, so do we. The variety of expertise in our group allows us to adjust to whatever the situation is,” Riechers says.
Why does the farm bill matter, anyway?

By Jennifer Shike

Believe it or not, each farm bill that is enacted impacts your life every day, whatever your connection to the farm. With sections including commodity programs, disaster assistance, conservation programs, and nutrition programs, the bill has a reach extending to many unexpected spaces. During a recent #askACES chat on Twitter, Department of Agricultural and Consumer Economics experts Jonathan Coppess, clinical assistant professor working with the Gardner Ag Policy program, and Gary Schnitkey, professor and farm management specialist, shared their thoughts on negotiations for the next farm bill. Coppess spent eight years in Washington, DC, working for the United States Senate on the 2008 and 2014 Farm Bills, as well as doing some implementation work at USDA. Since 1998, Schnitkey has been studying the farm bill, helping farmers make decisions as a result of its programs. Because ag policy is such a moving target, Coppess and Schnitkey are teaming up with others in their department to share important information about the farm bill currently in negotiation on FarmDoc Daily at farmdocdaily.illinois.edu. In 2018, either a new farm bill will be enacted or the current bill will be extended.

Q: So what exactly is “the farm bill”?

COPPESS: Quite frankly, the name is a bit of a misnomer. The farm bill is really a food security bill that authorizes a variety of programs that support farmers, conserve natural resources, help rural communities, invest in agricultural and food research, and help low-income families put food on the table through food assistance programs like the Supplemental Nutrition Assistance Program [SNAP].

Q. Who is impacted by the farm bill?

SCHNITKEY: Because the farm bill sets a lot of the federal agendas that relate to food and agriculture, it impacts everyone. However, some of the items that may affect more people in the nonagricultural sector are the food security programs, SNAP, conservation programs, and research funding that could affect future technologies. The farm bill impacts water quality as well.

Q. What programs are included in the farm bill?

COPPESS: Generally, we think a lot about commodity support programs, such as direct assistance to farmers in managing risk, particularly from price risks and production issues. As Gary mentioned, the farm bill invests significantly in conserving natural resources on private lands across the country, which helps everything from habitat to soil erosion to water quality. It also contains programs to improve rural development, rural economic development, and research. More recent farm bills have expanded to include bioenergy and bio-based product investments, trying to help spur that industry. The bill has a very broad reach that goes well beyond the farm gate.

Q. What are your predictions for crop insurance under the new farm bill?

SCHNITKEY: Crop insurance is becoming more of a focus because it’s becoming a larger program, at least relative to the commodity titles. At this point, it’s difficult to say what Congress will do to the commodity title program, but farm groups view crop insurance as very important and are going to great efforts to protect those crop insurance provisions.

Q. How do farm bill programs impact water quality?

COPPESS: The single largest contributor from the farm bill in terms of water quality is the conservation title—containing programs that assist farmers and landowners with conservation practices on their land. Some of these are reserve programs, paying landowners to pull their acres out of production for a number of years. Some are working-lands programs that help cover the costs of conservation practices for farms that continue to grow crops. Overall, we consider the conservation title to be the federal government’s largest investment in natural resource conservation on private lands. As Illinois looks across industries to try to reduce the loss
of nutrients into waterways, these programs assist farmers in adopting conservation practices that help reduce the nutrients we’re losing from farm fields. We are watching closely how the programs work, where Congress places its priorities, and where the funding is going to go. For a state like Illinois, the working-lands conservation programs provide important policies to help those farmers cut that nutrient loss and then help the state meet its goals across the board.

Q: How does the farm bill address animal agriculture?
COPPESS: Livestock producers get some assistance through the farm bill. A disaster assistance program can provide help, for example, if a farmer loses livestock to a natural disaster. We expect policies like these to continue this time around, but they are not usually the biggest battle going on in the farm bill. One of the things we know for certain about this upcoming debate is a strong request from the livestock industry to have Congress invest funds in developing a vaccine bank. Diseases like foot and mouth disease would be devastating to the livestock industry and to the agricultural and national economies as well. So putting some upfront funding into that investment is a priority for the livestock industry. The total agricultural budget has limits. We don’t yet know how it would be paid for or what programs would have to be reduced to cover costs.

Q: How does it impact SNAP and similar programs?
COPPESS: SNAP is the largest program in the farm bill in terms of spending and participants. In fact, about 80% of the spending of a farm bill goes into SNAP, providing assistance to low-income families for putting food on the table. There has been a lot of pressure on this program in the past, with some pretty difficult battles—we saw that in the negotiations for the last farm bill. In fact, when the House defeated a farm bill in 2013, it was largely over SNAP. Previous difficulties with SNAP raise concerns about how Congress will treat the program and what it will do. And of course, if there are big controversies about changes to the program, you’re going to lose votes and have a hard time getting the bill through Congress.

Recent indications from the chairman of the House Committee on Agriculture, Mike Conaway, are that he wants to make changes to what is known as “categorical eligibility,” which is mostly a paperwork matter. It permits low-income individuals who qualify for other federal assistance to qualify automatically for SNAP (in other words, they are “categorically eligible” low-income individuals or families). Eliminating categorical eligibility generally is estimated to save significant expenditures because addressing eligibility requirements ultimately makes it more difficult for people to enroll. So fewer would be expected to enroll, and spending would go down because fewer people would receive the assistance. The elimination is controversial for those reasons; it could also make it harder on states, because they ultimately do the paperwork and may not have the resources to meet the needs. Changing eligibility requirements could reduce SNAP costs, savings that could be used either to strengthen SNAP in other ways or to support other programs. Strengthening SNAP would be more palatable to some groups. At this time these are all just reports in the press, and no proposal or legislative language has been put forth.

Q: What are some of the changes we can anticipate?
SCHNITKEY: That is always the big question. One of the items that is going on in the backdrop of this farm bill is the need to be budget-conscious. There may be demands to cut total farm bill spending, leading to negotiations being conducted in a cost-cutting environment. Currently, any increase in spending on one farm bill program results in the need to cut elsewhere. For example, adding a cotton program would require cuts to other programs. And given a fixed budget that probably isn’t going to increase, all of these programs have to occur within that budget. It will be an interesting time to see how these changes impact each other.

Q: When will we know next steps for the farm bill?
COPPESS: The debate is underway in Congress with hearings and initial discussions, so we are watching developments closely. News reports indicate that Chairman Conaway is looking at a difficult legislative calendar and wants to move, but Congress is caught in ongoing disputes over funding the government and immigration, so it is uncertain if Conaway can move ahead and, if so, how much. News reports also indicate that the Senate negotiations are getting started but that the Senate is likely to move much slower than the House, if at all, this year. The big question for the farm bill at this point is budgetary. The tax bill [reform legislation enacted in December] added $1.5 trillion to the deficit. Will Congress get consumed by spending and deficit issues and move ahead with budget reconciliation (reductions in spending)? If so, that is likely to consume the farm bill or make it nearly impossible to achieve outside of the reconciliation process. Typically, this budget process would begin in early February with the president’s budget request, but the timing of everything is up in the air at this point.
Mama Bear murmurs softly as she carries a bright green basil plant, its naked roots dangling, to a table in the middle of the greenhouse.

She gently pots the plant, then raises it to her friend’s nose.

“She’s always talking to her plants,” friend Bridget Ivanov says, laughing.

Mama Bear, whose name is Nancy Gilson, and Ivanov are inmates serving lengthy sentences at the Decatur Correctional Center, a minimum-security women’s prison in central Illinois.

Of approximately 600 inmates housed there, the two are among only a half dozen who get to take part in the University of Illinois Extension Master Gardener training program that began at the start of 2017.

The women are savoring every moment of it.

“This is my passion,” Gilson says. “My No. 1 goal when I leave here is to have a greenhouse and a huge garden. I want to pay it forward a little bit to the community, donate the produce to a food shelter.”

“Let me tell you something,” Ivanov says. “When you’re in the world, you really don’t take time to stop and look at something like this. Once you get locked up, you realize you take a lot of things for granted. Everybody does their time the way they want to. I’ve tried to come here and make the best of it and grow from it. And at the same time, look what I’m learning!”

Staff at the Decatur facility, who pride themselves on innovative programming for inmates, contacted the local University of Illinois Extension office for DeWitt, Macon, and Piatt counties to express interest in starting a pilot Master Gardener program.

Extension horticulture educator Candice Hart and program coordinators Beth Allhands and Vasthi Schwarz, who oversee the training, are not sparing the participants any of the intensity of the program, which on the outside includes attending classes weekly for 11 weeks and passing a final exam.

Beyond teaching the women about horticulture, the educators are providing them real-world job skills they can use once they are released. That’s part of what makes the warden, Shelith Hansbro, such an advocate.

“When the participants get out of here, they’ll have skills that will help contribute to their success,” Hansbro says. “Anything that helps them when they’re outside of this facility is something we believe will have a positive impact on recidivism. They should be able to go out and get jobs at the best nurseries.”

Decatur is not the only correctional facility in Illinois to tap Illinois Extension for help. About 70 miles north in Eureka, Quinton Arbuckle, facilities and maintenance director at the Woodford County Jail, reached out to the office that covers Woodford, Livingston, and Macon counties hoping to start a gardening program for inmates.

Arbuckle teamed up with horticulture educator Kelly Allsup to develop a program that would work for the population incarcerated in Eureka. The jail usually has 30 to 50 inmates, both men and women, at any given time, and their sentences are shorter. Some are there for minor crimes; others are waiting to be transferred to another facility. This often means the inmates in the gardening program don’t get to see a crop all the way from planting to harvest, but Allsup still teaches them the vegetable production portion of the Master Gardener program. They learn many of the concepts, like soil testing and harvest timing.

“In Decatur, Extension is training participants using the Master Gardener program. They’re going to learn everything in this book,” Allsup says, as she gestures to the 700-page Master Gardener curriculum. “But you don’t stay in county jail for a long time. The inmates here are
I want to pay it forward a little bit to the community, donate the produce to a food shelter.

transient—I’m lucky if I get to work with them three or four times. I’m just getting snapshots, and so are they.”

That hasn’t prevented Allsup and Arbuckle from helping the inmates involved get the most out of the gardening experience. Allsup visits a couple hours every week with the inmates Arbuckle has chosen, whom he terms “the best of the best.” For some, this is their first time gardening; for others it brings back memories.

“I love it,” says one male inmate (who was not allowed to be identified). “I have a garden at home and share a garden with my grandma and my dad. I’ve learned about a few things that I didn’t know, like carrot tops are edible in salad and spinach is a winter crop. Every now and then, you get to try a tomato when you’re out here, so it’s pretty cool.”

When it’s time to harvest, Allsup heads directly to the kitchen with the produce and works with the cooks to expand the jail menu, helping them incorporate all the fresh vegetables.

“I don’t just teach Master Gardeners. I teach everyone,” Allsup points out. “This is not your average audience. These people probably don’t even know what Extension is, which makes me feel even better about what I’m doing.”

All the work being done by these Illinois Extension educators doesn’t surprise state Master Gardener coordinator Sandy Mason one bit.

“To me, it’s extension at its best,” Mason says. “We are responding to local needs, whether they’re identified by an extension educator or the facility itself. That’s often how extension programs happen.”

According to the 2016 annual report from the Illinois Department of Corrections, there are a little over 43,000 prisoners in facilities throughout the state: almost 17 percent have a high school diploma, less than 1 percent have any technical training, and only 1 percent have a college degree.

This lack of education among inmates has made it a priority to equip them with skills they can use once they are released.

Local foods and small farms educator Bronwyn Aly, who serves five counties in the southernmost portion of the state, was approached by the Vienna Correctional Center in Vienna to address those postrelease concerns. This minimum-security facility houses about 1,100 male inmates.

Aly’s program, which started in October 2017, draws not only from Master Gardener training but also from Extension’s education on small-scale fruit and vegetable farming and the business marketplace. Aly is working with about 30 inmates due to be released within the next few years.

“Master Gardening at the University of Illinois has been around for decades,” Aly says. “I’m working to intertwine our tried-and-true research-based curriculum with these offenders’ reality to hopefully provide them credibility and an opportunity once they are released.”

For someone like Shelia Harris, an inmate at Decatur who’s worried about the prospect of getting a job or owning a home of her own, this experience is one she can use to plan her future when she’s done serving her time.

“You know,” Harris admits, “you tend to lose yourself being in a place like this. But now with the Master Gardener program,” she says with a big smile, “I got good people taking me up under their wings and giving me the outlet that I would need to go further—once I do get out.”
Bradley Wolter loves talking about human capital. “That’s the biggest concern for our growing industry. It’s all about people,” says Wolter, president of The Maschhoffs, the fourth-largest swine production company in the country. Brothers Dave and Ken Maschhoff own the fifth-generation family business, along with their wives, Karen and Julie.

The swine industry has been growing steadily since the early 1990s thanks to an increase in domestic and international demand for pork, along with low feed prices and improvements in production efficiency. But a growing industry needs people.

“In order to scale up,” Wolter notes, “we need nutritionists, environmental experts, transportation experts, geneticists, and others with both a solid science background and experience on the business end.”

In other words, without experts to drive innovations from the top, there is a danger that growth could slow. And with a growing population to feed, slower growth just isn’t an option.

Fortunately, a unique public–private partnership has been producing industry leaders, including Wolter, for nearly 20 years: the University of Illinois Department of Animal Sciences master’s degree in swine production management.

From the start, Ellis’s approach was to meet with key industry players and listen to what they were struggling with, then look at the problem through a scientific lens. But he quickly found that the university’s research farms didn’t mimic the commercial setting.

“Our facilities are very good for doing small-scale and more basic research, but they are not large enough to do production-oriented research at scale. The environment for the pig is markedly different in commercial facilities in many respects,” Ellis says.

It was clear that in order to grow his research program, Ellis would have to move into a commercial setting. The Maschhoffs obliged, thanks in part to Bradley Wolter.

**MAKING IT HAPPEN**

Before he became president of a company whose products feed 16 million Americans a year, Wolter was one of Ellis’s first graduate students. In the mid-1990s, Wolter and Ellis met with a consortium of producers, including The Maschhoffs, who were rethinking the traditional practice of placing weaned pigs in nurseries before transitioning them to a finishing barn.

“That practice represented biosecurity risks and meant handling animals multiple times,” Wolter explains. “Ken Maschhoff was one of the early pioneers that said, ‘Why can’t we place weaned pigs immediately into the finishers, and avoid the added stress?’”

So Wolter set to work gathering data to answer that question, with full access to The Maschhoffs’ production facilities.

“In those days, I’d show up at a site and bring a scale. It was pretty rudimentary. I’d just start weighing pigs and measuring out feed. I cut my teeth at that end of it,” Wolter recalls.

By the end of his Ph.D. program, Wolter had robust, commercially relevant results that justified a shift to the wean-to-finish barn design that is now an industry standard. And he also had a job offer from Ken Maschhoff.

“In those days, Dave and I were looking for ways to grow our hog production business,” notes Ken Maschhoff, co-owner. “We realized that Dr. Wolter’s passion for innovation represented a massive opportunity in terms of accelerating our growth. We continue to fuel that innovative spirit through our partnership with the University of Illinois as well as other university swine programs.”

Wolter was initially hired to create an applied swine science program for The Maschhoffs, but at the time the business didn’t
have the means to hire a full team of scientists to get the job done. So Wolter turned to Ellis and students in the Department of Animal Sciences to answer one-off research questions. But Wolter quickly realized that the business needed to make a more lasting investment in—you guessed it—human capital.

“As the company grew, it became obvious that we needed more than just access to scientists on a short-term basis. We had to develop the next generation of leaders for the company,” Wolter says.

Wolter convinced the Maschhoffs to make an investment, and in 2007 the master’s in swine production management program was born.

REAL-WORLD IMPACTS

The program is mutually beneficial. The Maschhoffs sponsor student assistantships and provide the opportunity to work in commercial-scale barns fitted with state-of-the-art research equipment. Students also spend a semester or more embedded within the business, being mentored directly by company leaders.

“It’s an incredibly unique relationship,” says Rachel Schmidt, a second-year master’s student concentrating on pig nutrition. “The Maschhoffs invest a lot in us, not just monetarily, but in terms of trust to execute the tasks we’re given and the opportunities we have. It’s not every day that as a 25-year-old, you’re working with one of the leading companies in the industry and making a difference there. It’s really special.”

In turn, students dig deep into production issues that the company may not have the time to explore. And when students find solutions, they’re implemented, increasing productivity and profit.

“As a multigenerational family-owned business, we’ve always believed in investing in the next generation of leaders and innovators,” says Julie Maschhoff, co-owner and ACES alumna. “Talented young students often bring a fresh perspective to problems. That perspective is invaluable.”

For example, during his early days at The Maschhoffs, Wolter noticed an increase in pig loss during the transit from barns to harvest facilities. Ellis put a series of students on the case, and within a few years, the company saw a 1% decrease in transport losses—$6 million in annual savings for the company. And one of the students’ recommendations has been adopted by packing plants around the country.

“There are countless stories like that,” Wolter says. From odor mitigation to use of less expensive feeds, results from student research have shaped the way things are done at The Maschhoffs and throughout the industry.

A PARTNERSHIP THAT WORKS

Although their research topics are largely driven by industry needs, Ellis says, students are getting a well-rounded and unbiased education through the program. “One of the overarching principles I live by is that even though we’re developing scientists that will work in industry, they have to be card-carrying animal scientists when they walk out of here.”

So far, upwards of 50 students have graduated from the master’s in swine production management program, and many have gone on to become “wildly successful,” as Wolter puts it.

“With very few exceptions,” Ellis adds, “they’ve all gone on to key leadership positions in the industry. That’s the proof of the pudding, as they say in England.”
For people in other countries, watching hours of U.S. American cable TV every day—particularly food ads—may be influencing unhealthy eating habits. This is especially true for those who have already developed a liking or admiration for the United States from afar.

ACES researcher Gail Ferguson (pictured above) and colleagues have found this influence to exist for people on the Caribbean island of Jamaica. They published research last year showing a link between liking American culture, American TV viewing in Jamaica, and unhealthy eating.

The foundational idea is that of remote acculturation, or the process by which people in one country adopt practices and identities from other distant cultures, some of which promote their health and others that erode it. Ferguson and her team focused on adolescents and mothers in Jamaica who might be considered “Americanized Jamaicans,” or “Jahmericans,” she explains.

Through asking questions about TV watching, food habits, and how much the study participants identified with American culture, Ferguson says, they revealed the link. Adolescents and mothers in Jamaica who feel more American consume more processed foods, prepackaged meals, sodas, and American-style fast food.

“We established an association between remote acculturation—meaning feeling American on the island [Jamaica]—and watching more U.S. cable TV each day, which then predicted more unhealthy eating habits. So we decided we wanted to interrupt that sequence—to target the cable watching of ‘Americanized’ families. If we could help them be more critical consumers, especially of food ads on TV, then maybe we could promote healthier eating.”

Ferguson and her colleagues created and piloted a food-focused media literacy intervention called the “JUS Media? Programme” in Jamaica in spring 2017. In a two-part workshop, Jamaican adolescents and mothers in Kingston, the capital city, who liked and identified with American culture deconstructed food ads based on media literacy principles (recognizing the persuasion tactics of advertisers, such as celebrity endorsements, repetition, and omitting health information). The participants learned to improve their critical thinking skills regarding food advertising by creating spoof ads called subvertisements to expose possibly harmful messages in the original ads.

“We said, ‘Look, you are more susceptible to these ads because you feel part-American, even though you are living here in Jamaica. Advertisers are targeting you; they are not just targeting Americans. So here’s a skill we are going to teach you to help you be more critical, so you can go behind the scenes and keep them from targeting you.’”

The researchers referred to that skill as subvertising, Ferguson says.

And they saw positive results. When they measured nutrition and media literacy outcomes immediately and up to three months after the workshop, participants reported eating more fruits and having higher media literacy than did a control group of families.

“The important thing is that we designed an intervention,” Ferguson says. “Our earlier study showed that there is a problem. That next step of designing an intervention to address the problem is a huge step, one important to the Family Resiliency Center. It’s an extension of the center’s mission—as an applied food and family lab—into another country. It’s transdisciplinary and international.”

The intervention can be adapted to other developing regions as well. “We paid a lot of attention to applying concepts in a culturally relevant way, and we found that the approach resonated. People in Jamaica accepted the intervention. It was nicely adapted for their cultural needs. In Jamaica we used references such as Usain Bolt, the fastest runner in the world for years, reggae music, and Bob Marley.

“Our aim is for this to be a model program that can be applied in other contexts. It’s always been in the front of our minds to make it general enough to suit the universal phenomenon of remote acculturation. That’s a framework we could absolutely see using in other countries—first figuring out what remote culture is exerting significant influence on local health habits and how, then targeting affected families with an intervention.”

Ferguson, an assistant professor in the Department of Human Development and Family Studies and an affiliate of the Family Resiliency Center, was born and raised in Jamaica. This research was supported by the NIH Fogarty and the Christopher Family Foundation.

By Stephanie Henry

HEALTHIER EATING IN THE CARIBBEAN

‘JUS MEDIA? PROGRAMME’ PROMOTES HEALTHIER EATING IN THE CARIBBEAN

WHEN lightning strikes

Although he probably can’t leap tall buildings in a single bound or bend steel with his bare hands, talk with anyone who has worked with Doug Wolters and you may start believing otherwise.

As director of operations for the College of ACES, Wolters oversees 23 main buildings plus 104 structures on the college’s South Farms. During a typical week, he attends more than 10 meetings, either face-to-face or by conference call, to hear updates on college and multicollege construction projects.

With a degree in architecture in his back pocket, Wolters brings a wealth of knowledge and expertise to his job. “Doug investigates and evaluates facilities issues from both a technical and a functional perspective, keeping design and structure at the forefront of any project,” says Shelly Nickols-Richardson, interim associate dean and director of University of Illinois Extension. “He provides short-term solutions and long-term vision for sustainability in our buildings and workspaces.”

Wolters also draws on his architectural background as for each project he wades through a stack of architectural drawings and reports. One such stack is for the massive Turner Hall renovation, a project set to be completed soon. Nichole Isaac is the Department of Crop Sciences point person for the renovation. She observes Wolters in action. “He is a steward of our resources, including time and money, and he always makes decisions in the best interest of our college. As an architect by trade with exceptional project management skills, Doug can translate construction jargon into a vision of renovation we can all understand.”

Michael Lundeen, architect from LEGAT Architects, the firm working on Turner Hall, says Wolters is thoughtful about his input on the project. “I have especially appreciated his input to the design of the Turner Hall entrance. Doug supported the design process and brought a balance and support to the faculty and students that use the building. He’s always thinking about how the building will be perceived by visitors and future faculty.”

Prior to joining ACES, Wolters was project manager on several big-ticket projects at the campus level, including the $120-million construction of the Memorial Stadium west balcony. The total price tag for the 10 projects in his current portfolio exceeds $72 million (an amount shared by several colleges, not just ACES).

In between meetings, Wolters spends hours reading and answering complex emails. Some request a floorplan or other document; left unanswered, each could significantly slow a construction project. Others require problem solving that can’t be dashed off in a few minutes. Careful, tactful wording is vital.

Like other superheroes, Wolters is known for maintaining a calm exterior even while walls may be metaphorically and literally crumbling around him.

“Many of the issues Doug deals with involve contentious elements or factors that are stressful to the participants in the discussion,” says Neal Merchen, recently retired ACES associate dean for research. “Things like space assignments, decisions about details in capital projects, and budget shortfalls tend to be divisive and emotional. Doug is always the coolest head in the room and the person most likely to propose a creative compromise that keeps the line moving.”

His mild-mannered personality and Clark Kent humility may just be the way Doug Wolters is wired, but when lightning strikes, and it does, he is just the sort of superhero you want to show up.

By Debra Levey Larson
Fueling the win

Paralympian—and FSHN grad—explores diet and athletic performance

As a dietetics undergrad, Susannah Scaroni learned the importance of using food to fuel the body. And as a two-time Paralympian in wheelchair racing, she is personally aware of how nutrition can affect an athlete’s endurance and performance.

But that connection is a lesson Scaroni (FSHN ’14) learned the hard way as a young wheelchair athlete. Now a graduate student in the Division of Nutritional Sciences (DNS), she is eager to share what she has learned with other athletes.

At the age of 5, Scaroni was injured in a car crash. She was left paralyzed, losing both the use of and the feeling in her legs. It wasn’t until the third grade, though, she says, that she really realized she was different from her peers because of her wheelchair.
“I grew up in a tiny farming community in Washington state,” Scaroni says. “I was the only person in a wheelchair, and I think that is one of the biggest reasons I gained independence the way I have. I was treated the same as all my friends.

“By third grade I wanted to play basketball with able-bodied kids. That was probably the first time I realized I was ‘in’ a wheelchair—in sports you see the discrepancy. I just remember feeling kind of embarrassed. That was the first time I had ever felt that,” she remembers.

She soon learned of a wheelchair basketball team just an hour away, in Spokane. Her mom was willing to make the drive to practices each week, and “I loved it,” Scaroni says. “I had never seen that many kids in wheelchairs. It was one of the best experiences of my life.”

After basketball season came track. Scaroni excelled there as well, making national teams during her high school years. She credits her experiences in that junior sports program as one of the biggest reasons she is at U of I today.

Since then, Scaroni has gone on to compete in the London 2012 and Rio 2016 Paralympic Games and, in 2017, she placed third in the marathons in Tokyo, Boston, and London. She now has her sights set on the 2020 Paralympic games in Tokyo.

But it was an illness during junior high that sparked Scaroni’s love for nutrition and her understanding of how what you eat relates to how well you perform.

“I had kind of a twisted view on nutrition and racing. I really thought I needed to be as lean as possible to be faster,” she says. “In 2007, I knew Beijing trials were coming up, so I lost a lot of weight.” That weight loss led to a year of injuries, illness, and eventually bed rest. But during that year, Scaroni also saw a dietitian every week to help her body repair an overtraining injury that wouldn’t close.

“That is when I found out about nutrition’s huge role in healing a wound. As the months progressed, the dietitian was able to talk to me about how I should eat more to heal. Once I healed, I saw how my racing performance also improved,” she says. “I thought the result would be the opposite—that because I had gained weight, I would be much slower.”

From that point, Scaroni says, she wanted to study nutrition, both its relationship to healing from the types of injuries athletes experience and its role in optimizing performance.
It wasn’t just about book knowledge. It was a fantastic program focused on getting us out into the world and being effective at what we were passionate about.

Scaroni spent her first two years of college at a school in Montana studying chemistry and health science. But that college did not have a nutrition program. Because of the strong connection she had built over the years with the wheelchair racing team at U of I, she transferred to U of I and ACES in the fall of 2011.

“I felt like my undergrad work here was geared toward having us be actual career dietitians,” Scaroni says. “It wasn’t just about book knowledge. It was a fantastic program focused on getting us out into the world and being effective at what we were passionate about.”

And what Scaroni is passionate about is helping athletes.

She is currently working on a research project with DNS assistant professor Nick Burd in the Nutrition and Exercise Performance Lab looking at endurance activity—in this case, cycling—and nutrition.

It came as a surprise, she says, when she heard they would be studying potatoes as a possible sports food.

“When you’re an endurance athlete you need to keep your glycogen stores topped. That’s well established. In endurance activities most athletes complain about stomachaches or some sort of GI symptoms,” Scaroni explains.

Many athletes use endurance gels, which contain multiple sources of glucose. But they can be expensive, and they don’t necessarily help with stomach upset.

Scaroni and her fellow researchers hope that potatoes, which offer just a single source of glucose, will bring about fewer GI symptoms during activity and that, by the end of a time trial, they won’t significantly harm cyclists’ performance.

“In the end if we could have something that’s going to prepare athletes’ bodies for the activity they need to do, has less impact on the GI tract, is low cost, and is a whole food, that would be the coolest,” she says.

Scaroni points out that working on the type of research she is doing through DNS is a unique opportunity, and it opens the door for more research for wheelchair athletes. “The important part about being here is that there is both the nutrition and performance lab and a Paralympian training center here at U of I.”

Balancing a busy training schedule with her research work is a challenge for Scaroni, but she has her sights set on a future helping Paralympians. Her hope is to eventually become a dietitian for the U.S. Paralympics, serving the parathletes who train at U of I.

“I have a great background, and I know exactly what their training is doing to their bodies because I do it as well. So I think my role would be to be here working with basketball players and the wheelchair racing team, tracking athletes’ body compositions and helping them learn how to shift their diets.

“I want to be an advocate for nutrition and for people with disabilities,” Scaroni says.
You’ve heard the phrase “an apple a day keeps the doctor away.” But what about an avocado, a cup of broccoli, or a handful of walnuts? These foods are all being researched in the Nutrition and the Human Microbiome Laboratory led by Hannah Holscher, assistant professor of food science and human nutrition.

Research in Holscher’s lab focuses on diet, health, and the microbiome, the collection of microbes in the gut that work together to break down food. As a nutritionist and a registered dietitian, Holscher is particularly interested in how specific foods influence the microbiome and, in turn, affect health.

Evidence suggests that particular foods containing dietary fiber, including fruits, vegetables, whole grains, legumes, and nuts, are protective against obesity, diabetes, and cardiovascular disease, and that fiber can influence the microbiome. But how that relationship happens is unknown.

To understand more about the link between diet, the microbiome, and health, Holscher and colleagues are conducting a study titled “Persea americana [the Latin name for avocado] for Total Health” (PATH). The study is looking at gut function, metabolism, and thinking ability using meals that are prepared and served with or without avocado. As Holscher collects data on the microbiome and metabolism, her co-principal investigator on the study, Naiman Khan, an assistant professor of kinesiology and community health, is investigating avocados’ impact on metabolism and cognition.

To conduct the PATH study, Holscher and her team have made over 10,000 meals, with and without avocados, in the ACES metabolic kitchen, a food lab in the Department of Food Science and Human Nutrition (FSHN).

Recipes for meals in the study were developed by Division of Nutritional Sciences graduate student Caitlyn Edwards. “Caitlyn has training in culinary arts,” Holscher says, “so she and I worked together to design meals that are tasty and appealing to a midwestern audience and match the typical American diet profile.”

In designing the meals, Holscher and Edwards may have included less cheese, butter, oil, or other ingredients in the meals with avocado to make sure all meals have the same total amount of fat.

“With a metabolic kitchen we have the capacity to control all food and all beverages with great precision—to the gram,” Holscher says. “There are very few of these facilities at universities. But our metabolic kitchen has similar functional capacity as that at the USDA research sites, for example.”

A total of 152 participants in the PATH study will eat meals prepared in ACES’ unique metabolic kitchen over a 12-week period. Participants complete questionnaires, computer tasks, bone density scans, eye tests, and blood draws during visits to the lab throughout the study.

The PATH study is the first to use the metabolic kitchen. Holscher worked with Illinois Extension interim associate dean and director Shelly Nickols-Richardson to set up the kitchen, with a vision of supporting research on diet and human health. Access to the metabolic kitchen made it possible to get the grant from the Hass Avocado Board to do the PATH study, Holscher adds.

“We’re fortunate to have not only state-of-the-art laboratory and computer resources at Illinois that make microbiome research possible, but also a metabolic kitchen that ensures high-quality clinical research can be conducted. This is important because research trials like the PATH study will help inform dietary guidance on how diet affects the microbiome and human health,” she says.

In addition to conducting research made possible by having a metabolic kitchen, Holscher gives FSHN undergrads the opportunity to participate in research. Over the past 2-1/2 years, more than 40 have worked as undergraduate research assistants in Holscher’s lab and the metabolic kitchen. Holscher explains, “I have undergrads in dietetics, human nutrition, and food science invested in the research, in creating these precision meals so that we can do interventions effectively to address our research hypotheses.” But Holscher also works hard to make sure that students aren’t just coming in and cutting onions. For example, they are making videos to train future staff, posters to present at research symposiums, and infographics to share nutrition information.

“I try to integrate research and experiential learning in my research program,” Holscher says. “Because the PATH study is a large, randomized control trial, it takes a large team to carry it out.” Undergraduate researchers have a chance to be on the team by making meals in the metabolic kitchen, handing out meals to the study participants, and helping collect and analyze data.

What’s next for the ACES metabolic kitchen? Holscher has an ongoing study looking at the impact of consuming dairy beverages with and without probiotics and prebiotics on stress and anxiety. And she and her collaborators plan to start a study this spring on eggs and the impact they can have on health.

By Stephanie Henry
From a tiny island hundreds of miles to the nearest city, David Bozman launches his patrol boat and heads out into the open ocean. He sidles up to trollers hauling salmon from the sea, subtly reminding crews to respect their quotas. Later, he might find himself cruising down wooded trails atop an ATV, checking in with moose hunters and ensuring only certain animals are taken.

The natural resources and environmental sciences alumnus (pictured above) is one of 90-odd Alaska wildlife troopers who brave the elements every day to protect the state’s iconic wildlife and natural resources. And last February, a second NRES graduate—Colin Nemec—joined the force.

THE RIGHT START

Nemec and Bozman met on their first day of classes in 2010. “All the NRES kids go through their first few classes together,” Nemec explains.

Bozman applied to U of I on the GI Bill, having served as a nuclear mechanic on submarines through three tours of duty. After living and working in such tight quarters, Bozman knew he wanted a little more space in his next job.

“I’ve always wanted to work outdoors, and when I researched different programs, NRES seemed like the program that would prepare me best for that,” Bozman says. “I only applied to one school.”

Both men took as many field courses as they could, learning ecological and biological principles as well as real-world techniques for monitoring wildlife and the environment. But they took away more than those specific skills.
“Most of my professors got me to think more critically, and many of the classes, like plant identification, taught me to be very meticulous, to look for little details. The coursework was very rigorous in general, because of the quality at U of I,” Nemec says.

The two stayed in touch after graduation, when Nemec went to work as a wildland firefighter in California and Bozman started his job in Alaska.

“Talking with Dave about life up there, I kept thinking, ‘Man, that’s awesome. I wish I could do that.’ He eventually convinced me to apply, and now here I am,” Nemec says.

WORKING WITH PEOPLE TO PROTECT WILDLIFE

Wildlife troopers do all the work of regular state troopers, but their focus is on enforcing laws that protect Alaska’s wildlife and habitat. With only 90 of them to cover all of the state’s 663,300 square miles, there’s rarely a moment’s rest.

Initiates like Nemec spend a year learning the ropes as state troopers: answering calls, investigating car accidents, and generally training to deal with the human side of the equation. That’s crucial, because the job is a lot more about people than it is about getting up close and personal with animals.

Bozman may respond to calls about bears on a regular basis, but he says the situation is not (usually) about chasing the animal away. Instead, his primary goal is educating people—giving them the tools they need to live with the wildlife in their midst, like “taking preventive measures to avoid attracting the bears and different techniques to scare the bear away if needed.”

Of course, there is the occasional close call, like the time Bozman was nearly taken out by an angry moose. “A moose calf had been hit by a car and was still lying in the road. I’m dragging the calf off the road when the mom decides she doesn’t like it. She comes charging at me.

“I was watching the road because I didn’t want to get hit, and I didn’t realize the moose was coming for me. A car going by sees what is happening and starts honking, flashing the lights. I got back to my truck and was able to get away safely. She was probably 15 or 20 feet away.”

ENFORCING SUSTAINABLE HARVESTS

Fishing is big business in Alaska. In 2017, the salmon catch alone exceeded more than 1 billion pounds and was worth nearly $680 million. Bozman says most of the commercial operators play by the rules, but that’s due, in part, he says, to the presence of wildlife troopers.

“They know I’m going to be out there and they never know when I’m going to appear,” he says. “We see commercial operations trying to exceed the quota for a particular fish so they can sell more and make more money. If they’re hiding fish, or taking fish that are too small, it takes some effort to figure it out.”

Wildlife troopers also enforce hunting regulations, which are generally designed to protect breeding individuals and promote population stability.

“Hunters aren’t allowed to take breeding moose—there are certain antler configurations to look for,” Bozman says. “One hunter accidentally took the wrong moose recently and turned himself in. In that case, we worked with him. The meat went to charity, and we seized the antlers and gave him a citation.”

BRINGING AN NRES EDUCATION TO ALASKA

Growing up in Illinois may not have prepared Bozman or Nemec for their now-frequent encounters with moose, salmon, and bears, but their NRES education laid the right foundation.

“That fundamental biology knowledge comes in handy when I’m explaining the reasoning behind particular wildlife regulations, like why hunters aren’t allowed to take breeding moose or why commercial fishing operations need to stay within their quotas,” Bozman says.

For current students thinking about a similar career path, Bozman has this advice: “If you’re looking for a challenge, then this is a good job for you. Ask questions, contact people in the role, do the research, and apply.”

Nemec took that challenge. Who’s next?
It’s often easier to develop a project alone, to work and play with people who are just like us, and to do only what feels comfortable. There is safety behind walls, whether they are physical or emotional. But a new program in ACES called WE CAN—Wildlife Engineers Co-managing Agriculture and Nature—is breaking down intellectual, socioeconomic, and cultural walls, and building bridges of understanding in their place.

Breaking intellectual barriers
It isn’t unusual that agricultural engineer Paul Davidson and wildlife biologist Michelle Green would compete with one another for a USDA grant, submitting separate proposals. As Davidson says, “Many engineers have had little exposure to biology and vice versa.” When he learned that only three of the 10 submissions could be funded, though, he says, “I was ready to withdraw my proposal to fund the student trip to South Africa that fellow ag engineer Al Hansen had led for many years.”

Then Green contacted him with an idea to combine their two proposals into one.

“I planned to submit a proposal to support student-led wildlife research,” Green says. “After talking,” Davidson adds, “we decided this could be a natural fit. Bridging the gap between disciplines is good, especially for engineering and biology. We piggybacked my trip onto Michelle’s vision for a wildlife-based educational experience and created a program around it.”
The South African students were more like us than you'd think. We had good communication with our group.

Thompson says when underrepresented students read about a program like WE CAN, they assume they don’t qualify, believe it will be too expensive, and doubt that it’s a good fit for them.

“It would be their first time out of the country, the first time on a plane; they had concerns,” Thompson says. “Some thought even though the program was seemingly cost-free there would still be hidden expenses.” He says they needed encouragement to believe WE CAN could be a good experience for them.

“We’re trying to attract students to ACES who will perform and achieve at honors-level status,” Thompson says. “Our Research Apprentice Program [RAP] is one pipeline. WE CAN is another. It’s the unique blend of bringing in new students and feeding them into a research pipeline that will undoubtedly produce graduate students of color for this college.”

Breaking cultural barriers
During the first summer, WE CAN students are exposed to different aspects of wildlife biology and engineering four days a week while on campus—they learn lab and field skills. But the fifth day, the students learn about the culture of South Africa and prepare for their upcoming trip.

The campus curriculum is designed to teach “soft skills” that will help students overcome some of their personal fears. They work in small groups to develop a lesson on a wildlife or engineering topic, then present it to children in programs. “They learned about the topic,” Davidson says, “but they also learned teamwork, writing, and presentation skills. They improved their resume, and even did theatre improvisation, and took personality tests. As a group we discussed how personalities can introduce challenges when collaborating.”

Green adds, “All of these experiences teach the fellows skills that they can apply to any group dynamic, especially in research.”

Judging from participants’ feedback, the preparation paid off. “Our students really hit it off with the South African students when working together on the design projects,” Davidson says.

Alondra Estrada, a freshman in the Department of Natural Resources and Environmental Sciences, was in a group with South African students assigned to design, construct, and evaluate a chicken brooder.

“There is a high chick mortality rate in South Africa due to extreme environmental conditions,” Estrada says. “We wanted to build something a farmer could use. We were able to help modify a sun collector. The South Africans planned to weld it together with copper tubing, but we found an easier way using zip ties.”

Estrada says, “The South African students were more like us than you’d think. We had good communication with our group. In fact, we’re still texting with them.”

Green and Davidson are looking forward to the return of the fellows this coming summer, when the students will work on individual research projects with help from faculty mentors.

“As researchers, Michelle and I hope that some of the students will work with us on projects,” Davidson says. “But the ultimate goal is to propel each fellow onto their chosen career path by providing new experiences, education, and support.”

INTERESTED IN APPLYING?
Students interested in applying for the second cohort of WE CAN, beginning in the summer of 2019, should contact Paul Davidson (pdavidso@illinois.edu), Michelle Green (mlgreen@illinois.edu), or Jesse Thompson (jthomps5@illinois.edu).

“We partnered with three institutions to recruit fellows,” Green says. The $281,000 USDA grant covers the costs for two cohorts—that is, two, 2-year summer programs. For each cohort, up to eight underrepresented students will be enrolled. The students are recruited from Tuskegee University (a historically black institution), Northeastern Illinois University (a Hispanic-serving institution), Champaign’s Parkland (community) College, and the University of Illinois. The first summer has students spend six weeks on campus and four weeks in South Africa. The second summer is an intensive research experience for 11 weeks on campus, administered through the U of I Graduate College.

Breaking socioeconomic barriers
International travel is too expensive for many students to consider. For minority students, it’s often out of the question.

“Complete funding was vital for the program to succeed,” Davidson says. “It covers everything for the students: housing, food, transportation to campus, a small stipend for their weeks on campus, and a laptop. They all needed access to the same technology, small and portable for international travel.”

Davidson says another barrier is finding students who would commit to two summers. “The way the program is set up, there really can’t be substitutes; the second summer builds on the first. We needed an incentive for participants to stick with it.”

The solution he and Green devised is that each student receives course credit during the summer term and $1,000 per year for college tuition.

But all of the incentives in the world would be moot without students who fit the criteria of the grant. Davidson and Green say Jesse Thompson, ACES assistant dean for academic programs, was instrumental in identifying underrepresented students who have both a high grade point average and an interest in science.
Life is like a quilt. As you arrange the fabric together piece by piece, you begin to see a whole that is definitely greater than the sum of its parts. And in the end, it tells a beautiful story.

The story of the university’s 150-year-old heritage is woven deep into the experience of many, including the Allen family who moved to Illinois in 1867, the same year the University of Illinois opened its doors. Jonathan Bowers Allen and his wife, Harriet Maria (Horton) Allen, moved with their three children from Rhode Island to a farm near Delavan in Tazewell County, the start of a generation-spanning tether to the University of Illinois.

Like many post–Civil War families in the state, the Allen family raised grain and livestock. But they also held a deep-seated appreciation for education that they passed on to the generations to follow. Although Jonathan was not formally educated, he was involved in intellectual societies and held a great interest in the sciences.

His son, Ralph Allen, was a member of the undergraduate class of 1876 at Illinois Industrial University. Ralph went on to earn his master’s degree in agriculture in 1894 after Illinois Industrial University was renamed the University of Illinois.

The Allens were not a typical farm family of this era—all 12 of Jonathan’s grandchildren attended college. And all but two of those, both of whom died while enrolled, graduated, strengthening the bond between their family and higher education.

We all have a story to tell that’s shaped by our experiences, beliefs, and decisions in life. The Allen family chose to share and celebrate their family’s 150th story by creating a quilt. As we wrap up the 150th anniversary celebration of the University of Illinois, consider sharing your story with us at 150.illinois.edu.
Today, more than 90 of his direct descendants have attended the U of I, with 41 majoring in programs in ACES. To celebrate and honor the Allen family’s 150th anniversary in Illinois, the Allen descendants created a quilt to commemorate this historical milestone.

HONORING THEIR HERITAGE

“Quilting is a heritage art,” says Margaret (Allen) Wolf, one of Jonathan’s great-grandchildren. “Many of the women in our family are home economists, artists, and seamstresses. One of my cousins still has a quilt created by Harriet.”

The Allen family gathered together for an old-fashioned quilting bee last fall, with many of the family members sharing in the work to build the quilt. Great-granddaughter Ada (Johns) Rediger designed and oversaw the quilt.

The quilt design tells the Allen family story that’s bound together by a passion for agriculture and education. Ada chose a primrose flower to serve as the center of the quilt.

“My Aunt Lucy began writing a family newsletter in 1922 called ‘The Primrose Pantagraph,’ which is still being continued on today,” Wolf says. “The petals represent Ralph Allen and his three sisters. Surrounding the primrose are portraits of Jonathan and Harriet’s 12 grandchildren.”

In conjunction with the U of I’s 150th anniversary celebration, the Allen family quilt will be making the journey to campus this spring to be on display in the ACES Library, Information and Alumni Center, where there is also a room commemorating Ralph Allen Sr. and his legacy. The room is named the “Ralph Allen Family Room” and displays a bronze portrait of the family patriarch that was created by his daughter Lucy Elizabeth (Allen) Hopkins.

ADVOCATING FOR EDUCATION

Undoubtedly, Ralph was highly respected throughout the state of Illinois for his agricultural expertise. In October 1927, the U of I alumni magazine recognized him as “one of the best known Illinois agriculture graduates.” But his insistence that all of his children—including the women—pursue higher education is perhaps even more notable.

Prior to women’s suffrage in America, encouraging females to aim for educational development was exceptional, especially in rural areas. But Ralph and his wife, Ada, who also attended the U of I, sent all 10 of their children, including their five daughters, to study in the College of Agriculture at the U of I.

Jack Zumwalt, keeper of the family archives and an agricultural communications alum, says that his great-grandfather’s emphasis on education might have been unusual for the time, but it was not unusual for their family.

“It’s just what you did,” Jack says. “It was always expected that you would graduate high school, then graduate from college. My family has always valued and invested in education.”

CONTINUING THEIR ILLINI STORY

Although the U of I’s location was an easy drive from the Allen family’s homestead, Jack says there has been more to the Allen family’s Illini tradition than proximity.

“The connection to Illinois agriculture was also important,” Jack says. “Our family has always believed in the university’s land-grant mission, and the University of Illinois is now our family tradition.”

Jack says he was proud to become a fourth-generation Illini when he studied agricultural communications in the 1980s. He now lives in Iowa with his family and says the out-of-state tuition wasn’t the only consideration when his daughter, Tara, decided to carry on the family tradition and pursue a degree at the U of I.

Like his great-grandfather, Jack holds fast to the value of attending a four-year university like the U of I. “Continuing the mission of doing great things while teaching kids to innovate and to think creatively is so important,” he says. “I also love the traditions at my university and the College of ACES. I hope these traditions are able to continue for generations to come.”

CELEBRATING 150 YEARS

In honor of the 150 years of Allen family legacy in the state of Illinois, the family created a quilt honoring Jonathan and Harriet Allen’s four children and 12 grandchildren. The quilt will be displayed in the ACES Library, Information and Alumni Center beginning in April.

JONATHAN AND HARRIET’S CHILDREN:

Ralph Allen Hopkins, 1876, B.S. Agriculture, Illinois Industrial College; 1894, M.S. Agriculture, College of Agriculture
Anne Elizabeth “Lizzie” (Allen) Hopkins
Louise Bowers Allen
Elouise Bowers Allen

JONATHAN AND HARRIET’S GRANDCHILDREN:

Edith Louise Allen, 1903, B.A. Household Science, College of Agriculture
Paschal Allen, 1905, B.S., College of Agriculture
RALPH ALLEN HOPKINS, 1907, B.S. Electrical Engineering, Leland Stanford University, California
Fred Eaton Allen, 1907, B.S., College of Agriculture
Robert Edward Hopkins, 1910, B.S., College of Agriculture
Jonathan Bowers Allen II, College of Agriculture (died while a student)
RALPH ALLEN JR., 1912, B.S., College of Agriculture
Lucy Elizabeth (Allen) Hopkins, 1917, B.S. Household Science, College of Agriculture
Harriet Horton Allen, College of Agriculture (died while a student)
Hester Ada (Allen) Carrier, 1918, B.S. Household Science, College of Agriculture
Theodore Raymond Allen, 1921, B.S. General Agriculture, College of Agriculture
Elouise Grace (Allen) Johns, 1923, B.S. Home Economics, College of Agriculture
Wyatt Capps, a senior in agricultural leadership education, has always wanted to be a teacher. Last summer he got a taste of teaching experience right at home in Franklin County through an internship with University of Illinois Extension. His internship covered Franklin, Jackson, Perry, Randolph, and Williamson counties.

Working with Sara Marten, an extension educator in 4-H youth development, Capps assisted with 4-H camps and county fairs in all five counties and led livestock shows in Franklin County. For his final project, he developed a leadership and team-building workshop for teens. Over the course of the summer, he realized there is potential for a career in extension work for those interested in teaching youth and leadership.

Marten says students like Capps are an asset in creating memorable 4-H experiences. “It was great to have a fresh perspective in the office, and the youth really enjoyed working with him, too,” Marten says.

While Capps was assisting 4-H programs in southern Illinois, another agricultural leadership education senior, Haley Haverback, was interning with Extension in Henry, Mercer, Rock Island, and Stark counties and with the city administrator of Galva, just 20 minutes from her hometown.

Part of Haverback’s internship was creating a database of downtown Galva buildings, including photos and current uses, in a digital book for the city to use. This database helps interested companies identify vacant buildings and encourages increased business in the city. Haverback also helped plan a Farm to Park project in Henry County in response to a need identified for programming. “I really enjoyed Farm to Park, because I was able to help youth be more aware of where the food comes from that they eat every day,” Haverback says.

“Do it! There are a variety of areas you can be involved in that can help your academic and professional career.”

Students looking for hands-on experience can also work with Extension’s dozens of experts based on the University of Illinois campus. Jessica Metcalfe, a Ph.D. candidate in human development and family studies, suggests students start by investigating the current activity in Illinois Extension and where their interests fit. Extension operates dozens of programs in agriculture and natural resources, community and economic development, family and consumer sciences, and 4-H and youth development.

“For me,” says Metcalfe, “It started because I was interested in cooking.” Metcalfe is the research coordinator for Extension’s award-winning cooking school, Illinois Junior Chefs, and leads the development and testing of a survey to evaluate the program’s effectiveness. Her research is helping Extension deliver high-quality nutrition programs to children in Illinois. Each summer she visits Illinois Junior Chefs in action, and she loves hearing stories about how the program has helped children and families. “We’ve had kids ask their parents to buy them new foods, like kiwi, that they’ve tried during classes, and others make special recipes on the weekend for their whole family,” Metcalfe says.

For Cassandra Nikolaus, a Ph.D. candidate in food science and human nutrition, asking to get involved proved an excellent transition to working for Extension. After starting to volunteer with the Expanded Food and Nutrition Education Program at the Champaign County office, she landed a part-time position on campus with a grant Extension had received.

Nikolaus assisted with research and development of a new assessment tool for food pantries to help improve their pantry layouts and nutrition.
profiles of foods offered. Educators with Extension use the tool statewide, and local food pantries have appreciated the collaboration and feedback. Nikolaus has presented professionally about the tool three times and notes that “others who work in the area of hunger are excited to get their hands on the tool when it is ready to share. I have a stack of business cards from people waiting from all over the country!”

Jennifer McCaffrey, assistant dean for family and consumer sciences with Illinois Extension, who oversees both Metcalfe and Nikolaus, says, “Students provide a wealth of new energy and ideas that enhance projects beyond what we can do ourselves. It is exciting to support the careers of students while the communities and residents of Illinois benefit from the creative ideas and solutions they are bringing to the table.”

TRANSLATING EXPERIENCE INTO EMPLOYMENT

Volunteering with Extension can also lead to employment after graduation, as is true for Shelby Gruss, 2017 graduate of the Professional Science Master’s program in crop sciences. Gruss did an internship with the U of I Plant Clinic on campus and was hired as an employee after graduation.

“Working with the U of I Plant Clinic helped me develop skills in multiple areas and determine what I want to do in the future,” Gruss says. During her internship, she did a little of everything, such as diagnostic work, laboratory cultures, and helping with reports for clients. One of her most memorable experiences was her first laboratory culture of oak wilt. “It was really exciting, because it showed that I was developing my skills. However, it was not good news for our client, since oak wilt kills oak trees,” she explains.

LOOKING TO THE FUTURE

When discussing their experiences with Extension, these ACES students and graduates all agreed that working with Extension improved their skills and fostered research and leadership experiences that will carry into their future careers.

Capps has a message for other students who are considering volunteering with Extension: “Do it! There are a variety of areas you can be involved in that can help your academic and professional career.”

But it’s not only the students who benefit. “ACES students are passionate about agriculture, the university, and working with others,” Marten says. “You get so much out of working with them.”
Highlighting some of the successes of our ACES family in their pursuits to make an impact on society and find solutions to some of the world’s greatest challenges.

Students from the Agricultural Education Program competed in the national Alpha Tau Alpha Conclave in October. The students earned first place in the parliamentary procedure competition and were named the division winner for professional development for the Program of Excellence competition.

ROBERT AHERIN, professor of agricultural safety, was inducted into Illinois State University’s College of Applied Science and Technology Hall of Fame. Aherin earned both bachelor’s and master’s degrees in the Department of Health Sciences at ISU.

AMY ANDO, professor in the Department of Agricultural and Consumer Economics, was selected as a University Scholar for 2017—one of only six faculty on the Urbana-Champaign campus to be recognized. The program recognizes outstanding members of the faculty, and the award recognizes recipients’ excellence and the university’s commitment to foster outstanding people and their work. Ando is the fifth ACE faculty member to receive this recognition: previous University Scholars were Madhu Khanna (2004), Peter Barry (1993), Lowell Hill (1992), and John Braden (1989).

JANICE BAHR, professor emerita of animal sciences, is the 2017 recipient of the L.E. Casida Award, which recognizes excellence in the education of graduate and/or postdoctoral students to conduct research in the area of reproductive physiology and endocrinology. She received this award at the Triennial Reproduction Symposium, co-hosted by the American Society of Animal Science and the Society for the Study of Reproduction.

Division of Nutritional Sciences doctoral student NATASHA CHONG COLE received a 2017 Research Grant Award from the Pediatric Nutrition Practice Group of the Academy of Nutrition and Dietetics. The grant supports her project “Nature and Nurture on Picky Eating Behavior in Young Children.”

GIRISH CHOWDHARY, assistant professor in the Department of Agricultural and Biological Engineering, was elected Associate Fellow of the American Institute of Aeronautics and Astronautics in recognition of his having “accomplished or been in charge of important engineering or scientific work, . . . done original work of outstanding merit, or . . . otherwise made outstanding contributions to the arts, sciences, or technology of aeronautics or astronautics.”

SHARON M. DONOVAN, the Melissa M. Noel Endowed Chair in Nutrition and Health, was elected to the National Academy of Medicine for her dedication and service to nutrition science with implications for medicine and health.

ACE Financial Planning Club, including students SETH ELAM, MICHAEL SACCO, and ERIC SHAEPER, earned second place at the 2017 national Financial Planning Association competition in Nashville. ACE faculty coach Craig Lemoine says, “Being that this is the first time Illinois has participated, this is an incredible win. To get second is really something.”

GEORGE FAHEY and DOUG F. PARRETT, both emeritus professors from the Department of Animal Sciences, were recipients of 2017 American Society of Animal Science Fellow Awards, recognizing distinguished service to animal science and the livestock industry over an extended period.

Professor emeritus DARREL GOOD of the Department of Agricultural and

IN THE SPOTLIGHT

After spending his career in service of the College of ACES since joining the faculty in 1981, DR. NEAL MERCHEN retired at the end of 2017. A professor of animal sciences who was an award-winning teacher and researcher in ruminant nutrition, Merchen became associate dean of research/director of the Illinois Agricultural Experiment Station in 2012. A deep understanding of the ACES research, academic, and extension programs executed in the land-grant context were coupled with deft administrative skill and judgment. Merchen’s strategic and critical thinking, from which the college has greatly benefited, will be missed.

The career of DR. GEORGE CZAPAR, who retired on March 1, was marked by his dedicated service to University of Illinois Extension. He has 33 years of experience with Extension. As director, during the last five of those years, Czapar activated the reorganization of Extension in an extremely challenging budget climate and with unwavering persistence and resiliency. Czapar holds multiple degrees in agronomy and has conducted research and extension programs focused on interdisciplinary projects that address the environmental impacts of agriculture, especially related to water quality.
Consumer Economics received the Charles B. Shuman Distinguished Service Award from the Illinois Farm Bureau in December. The award is the highest honor given by IFB.

**Hannah D. Holscher**, an assistant professor of food science and human nutrition, was selected for a Foundation for Food and Agriculture Research Award for early-career innovation in nutrition. The grant of nearly $600,000 will fund over three years a project looking at diet, the human gastrointestinal microbiome, and metabolic health. Read more about Holscher’s research on page 21.

**Robert Hughes, Jr.**, professor of human development and family studies, received the 2017 Ernest G. Osborne Award, given to a member of the National Council on Family Relations “who has excelled in teaching family science and providing service to families through teaching.”

Three ACES students were selected for the campus 2017 Homecoming Court: **Rob Klein**, agricultural education, **Xavier Morgan**, agricultural communications, and **Katy Spangler**, agricultural education.

**Maddy Liberman**, a freshman in the Department of Natural Resources and Environmental Sciences, has been awarded a Hagan Scholarship, created to provide recipients with the opportunity to obtain a four-year college education and graduate from college debt-free and to provide a practical understanding of important life skills not typically taught as a part of the school curriculum. These skills are taught through workshops, Schwab Scholar Accounts, and study abroad experiences.

An undergraduate in crop sciences, **Camilla Macias** was recognized with the Carol A. Haynes Sophomore Achievement Award. The award encourages sophomore women enrolled in the College of ACES as Chancellor’s Scholars of the ACES James Scholar Honors Program to pursue leadership roles in the interdisciplinary world of tomorrow.

**Niyanthi Ravindran**, a doctoral student in the Department of Human Development and Family Studies, was honored with the 2017 Dolores Norton Student Research Award from the Illinois Association for Infant Mental Health. The award recognizes “a promising doctoral student or post-doctoral scholar in the field of infant and toddler social-emotional health, development, and intervention.”

The 2017 Excellence in Research Award from the Association for Communication Excellence (ACE) was given to **Lulu Rodriguez**, director of the Agricultural Communications Program. ACE is the premier international organization of communicators, educators, scholars, and information technologists in the fields of agriculture, natural resources, and life and human sciences. Rodriguez received the award at the association’s annual conference in New Orleans.

Comparative nutritionist **Kelly Swanson**, professor of animal and nutritional sciences, was named the Kraft Heinz Company Endowed Professor in Human Nutrition in the Division of Nutritional Sciences.

**Krista Temple**, recent graduate in agricultural communications, was named the 2017 Student of the Year by the National Agricultural Communicators of Tomorrow.

**Erica Thieman**, assistant professor of agricultural education, earned the Outstanding Early Career Member award from the North Central Region of the American Association of Agricultural Education (AAAE).

**German Bollerco**, professor of biometry in crop sciences, has been named associate dean of research and director of the Agricultural Experiment Station after 19 years as a faculty member in the Department of Crop Sciences and eight years as department head.

Appointed as director of the Division of Nutritional Sciences is **Elvira De Mejia**, professor in the Department of Food Science and Human Nutrition. De Mejia also brings administrative experience to her new role, having served as interim assistant dean for the college’s Office of Research, where she led the Research Academy and the ACES Summer Internship Program.

**Nicki Engeseth**, a professor in the Department of Food Science and Human Nutrition (FSHN), was appointed acting department head of FSNH on March 1. Having served in the interim head role several years ago, Engeseth brings experience and a deep understanding of the department to this role.

**Rodney Johnson** became head of the Department of Animal Sciences in January. In addition to being honored as a University Scholar as part of his 24-year career as an animal sciences professor at Illinois, Johnson has served as director of the Division of Nutritional Sciences.

**Shelly Nickols-Richardson** was named Interim Associate Dean and Director of Extension within the College of ACES effective March 1. In addition to being head of the Department of FSNH for the past five years, she served as a member of the Extension 3.0 Task Force, which familiarized her with many of the opportunities and challenges Extension is facing.

**Patrick Tranel**, Ainsworth Professor of Crop Sciences, has been named interim head of the Department of Crop Sciences. The North Central Weed Science Society has also named Tranel a Fellow, a designation recognizing members who have made substantial contributions to the organization’s endeavors.

The ADM Institute for the Prevention of Postharvest Loss (ADMI) was transferred within ACES from the Office of Research to the Office of International Programs (OIP). **Alex Winter-Nelson**, director of OIP and professor of agricultural and consumer economics, will also serve as ADMI director.
Everything we do in agriculture revolves around improving the future, whether that future is tomorrow, a year from now, or 100 years away. Archer Daniels Midland (ADM) research director Mike Cecava contributes to this future in a specific way: by investing his time in helping people.

“A lot of what I do today is getting the next generation of people ready to be in the workplace so they can make great contributions to our company,” Cecava says. “I enjoy working across different animal species and different professional disciplines to help other parts of the company become successful.”

ADM is one of the world’s largest agricultural processors and food ingredient providers. Their main focus is to transform crops into products for food, animal feed, industrial, and energy uses.

As research director, Cecava leads the research team that finds innovative ways to turn new and existing products into sustainable ingredients and products for animals. Finding the best individuals to help him has quickly become the most rewarding part of his job.

“Like many kids that grow up in agriculture, I wanted to be a vet, but I quickly learned through my undergraduate experience that being a veterinarian was not for me. Luckily, I found my niche in animal nutrition,” Cecava says. “I started working toward my master’s degree in animal sciences at the University of Illinois in 1985 and graduated with a Ph.D. in animal sciences in 1990.”

From the friendly competition he experienced among his peers at the U of I, Cecava stepped into his career with ADM working as a research scientist in ruminant nutrition, excited to collaborate with others passionate about animal nutrition.

“Working in a team quickly turns into a lot of fun,” he says. “Put four or five people in a room that are really passionate about their area of science, and it brings a lot of excitement to your work.”

Cecava also works as an adjunct assistant professor in the ACES Department of Animal Sciences, which involves giving lectures, mentoring students, and collaborating with researchers.
“Put four or five people in a room that are really passionate about their area of science, and it brings a lot of excitement to your work.”

“Most of our current work connects back to ACES in some way, whether it’s working with students directly or with the alumni involved with the project,” he says. “I’ve heard people joke about being biased toward the orange-and-blue in terms of recruiting. We’re not; we’re just biased toward hiring the best.”

Cecava’s recent collaborations include developing a new theme of pet-food ingredients. A major challenge of this project is getting a handle on how people feel about their dogs and cats and what they are looking for in terms of pets’ food.

“The complexity of the problems that we’re being asked to solve has changed so much over the years. Twenty years ago when they asked me to look at a problem, it was easy to pinpoint the problem and how we could fix it,” he says. “Now we have to consider lifestyle choices, how animals are viewed, regulatory issues, sustainability issues—then we have to solve the problem on a global scale. Our work has to translate value to different countries as well.”

For over a century, ADM has been placing a definitive mark on the future of the agriculture industry, creating solutions to problems that some of us didn’t even know existed. However, they don’t solve these problems simply by being the smartest people in the room.

“Anybody can become as expert as you in five or ten minutes. That’s the fast-paced world we live in,” Cecava says. “The best thing you can give to a company is your soft skills—your ability to be a lifelong learner but also a lifelong teacher. We have to be able to help other people understand what they can’t understand from reading it themselves on the Internet.”

Through 20 years of working with new talent and differing skill sets, Cecava’s motivation for solving problems in the changing agriculture industry has also changed quite a bit.

“I was very motivated and encouraged by delivering results in the beginning,” Cecava says. “Now my motivation is making sure we can get people where they want to be in their careers. I have a wide range of older and younger employees, and I love seeing people of different ages and experiences working together to accomplish their goals. I’m helping to create something that’s valuable for other people, and that’s my real motivation behind all my work.”

Noteworthy headlines during Cecava’s years at Illinois

1986

04 19
Basketball star Michael Jordan sets an NBA playoff record by scoring 63 points in a game.

The Space Shuttle Challenger disintegrates 73 seconds after its launch, killing all seven crew members.

09 19
The Oprah Winfrey Show debuts nationally.

01 19
President Ronald Reagan challenges Soviet leader Mikhail Gorbachev to tear down the Berlin Wall.

06 19
President Ronald Reagan challenges Soviet leader Mikhail Gorbachev to tear down the Berlin Wall.

07 19
The film Die Hard, starring actor Bruce Willis, is released in the United States.

10 19
Drought and wildfires destroy nearly 800,000 acres of Yellowstone National Park.

11 19
Supertanker Exxon Valdez runs aground in Prince William, Alaska, causing the worst oil spill in U.S. history. Exxon spends $1 billion trying to fix the damage.

1987

09 19
The U.S. stock market crashes with a 508-point drop.

01 19
George H.W. Bush is inaugurated as the 41st president of the United States.

09 19
The television sitcom Full House debuts on ABC.

07 19
The film Die Hard, starring actor Bruce Willis, is released in the United States.

11 19
The “Morris worm” is the first virus to infect computers connected to the Internet.

1988

09 19
George H.W. Bush is inaugurated as the 41st president of the United States.

01 19
The first liver transplant using a live donor is conducted at Chicago Medical Center.

1989

01 19
The first liver transplant using a live donor is conducted at Chicago Medical Center.
For so many working in agriculture, forestry, or the environment, a new year represents an opportunity to move forward from a season of accomplishment and lessons learned and build upon that foundation to start a whole new cycle. That moment is reflected on a greater scale with the extraordinary position of the university today: While we’re still commemorating our full and rich 150-year history, the celebrating has turned to the future with the launch of the $2.25-billion “With Illinois” capital campaign.

For some of us, $2.25 billion in donations is a bit beyond comprehension. And yet I learned in my early days on campus that “beyond comprehension” is not “beyond possibility,” and all of us can help bridge the gap between the two. So I challenge you not to simply smile and politely back away from the conversation—because, yes, you too can play on this team.

Let’s be clear: Our alumni association works hard to build connections—not solicit contributions—and we will always cherish those connections. Still, if you share a desire to continue the ACES legacy for future students, allow this passionate fellow alumna to share some ideas for making a difference. You may not be able to endow a scholarship or commit to offering a 4-year JBT scholarship, but consider supporting one of those in the name of a favorite campus leader (such as John Campbell and his spouse, Eunice), or join with classmates to start a scholarship of your own. Maximize your contributions if your company provides matching gifts. Farmers may find that gifts of grain or land offer a giving strategy that better fits their enterprise.

I encourage you to give this topic some thought, or talk to ACES Office of Advancement staff (217-333-9355) for ideas. Because when we look back at some point in the future, I’d like to think we could see two profound impacts—the one that ACES and the University of Illinois had on us, and the one that we, as alumni, made on the brilliant children of the future.

ACES Alumni Association

THE PRESIDENT’S MESSAGE

By Sue Gray

For so many working in agriculture, forestry, or the environment, a new year represents an opportunity to move forward from a season of accomplishment and lessons learned and build upon that foundation to start a whole new cycle. That moment is reflected on a greater scale with the extraordinary position of the university today: While we’re still commemorating our full and rich 150-year history, the celebrating has turned to the future with the launch of the $2.25-billion “With Illinois” capital campaign.

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ON THE HORIZON

April 9 :: Award of Merit Luncheon and ACES Awards Banquet

April 20 :: Home Ec 45th Reunion and Child Development Lab 75th Anniversary Celebration

May 12 :: U of I Commencement

May 13 :: ACES Commencement/Tassel Turn

May 14 :: ACES Alumni Board of Directors Meeting

May 15 :: ACES Young Alumni, Family Spirit, and Career Achievement Award Nominations Due

July 12–13 :: ACES Family Academies

For more event announcements, including regional alumni events, visit acesalumni.illinois.edu. All events are on campus unless specified.

An Illinois Legacy Continues—
Home Economics: Family, Consumer and Health Sciences

Don’t miss the Child Development Lab 75th Anniversary Celebration and Home Economics Alumni Association 45th Anniversary event! Please join us on Friday, April 20, for tours, lunch, and high tea. As part of the program, you will hear from current students and from college, departmental, and Child Development Lab leaders. To make reservations for dinner in the Spice Box, visit spicebox.illinois.edu. For more information, contact the College of ACES Office of Advancement at acesadvancement@illinois.edu or 217-333-9355.

Award of Merit Winners

The College of ACES Alumni Association will honor four alumni with the 2018 ACES Award of Merit, its most prestigious award, during a luncheon on April 9. These are our newest award winners:

• **Sam R. Earthington**, BS ’91, MS ’92, PhD ’95 Agronomy; Chesterfield, Missouri; chief scientist, The Climate Corporation

• **Eric H. Jackson**, BS ’83 Ag Economics; Minneapolis, Minnesota; chief executive, Pipeline Foods

• **David W. Mies**, BS ’70 Ag Sciences, MS ’71 Plant Breeding; Mahomet, Illinois; consultant in global plant breeding

• **Donald L. Moffitt**, BS ’69 Ag Education; Gilson, Illinois; assistant director, Illinois Department of Agriculture

• **John G. Reifsteck**, BS ’77 Ag Economics; Champaign, Illinois; chairman of the board and president, GROWMARK, Inc.

ACES E-Alum Report

Be sure your email is up to date with us to have the latest College of ACES news delivered to your inbox every other month. Email us at acesalumni@illinois.edu, or complete the Class Notes survey on the ACES Alumni Association website at acesalumni.illinois.edu.

ACES Alumni Class Notes

Check out Class Notes online at acesalumni.illinois.edu/news. Keep your fellow alumni updated by sharing any special times in your life with the ACES Alumni Association. Newly married or a new parent? A different job or a promotion? Publication of a book? We hope to hear from you!

STAY CONNECTED ON SOCIAL MEDIA

ACESAlum and UofICollegeofACES

ACESAlumni

ACESAlumniLinkedIn
Spring: the perfect time to explore fresh opportunities, on campus and beyond. As the season explodes across our vibrant campus, we in the College of ACES are excited—excited to send a new group of remarkable graduates into the work force, excited to watch talented students prepare for studying abroad this summer, and excited to meet potential future students as they visit our great community.

Photo by Trent Shumway