

ACES@Illinois

Fall 2017

FOR THE LOVE OF FOOD

Three food science and human nutrition alumnae dish about food, friendship, and starting their own businesses



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FEATURES

5 For the Love of Food
Hospitality management alumnae and business owners grow strong friendship beyond college

10 Bridging the Innovation Gap
Processing at Illinois connects discovery to commercialization

12 Meet the Pumpkin King
Crop sciences researcher conquers threats to Illinois pumpkin industry

14 From the Corn Field to the Taproom
Brothers create local brewery with ties to the family farm



[IN EVERY ISSUE

Dean's Desk 4
 Innovations 9
 Collaborations 29
 Accolades 38
 Connections 40
 Alumni in Action 42
 Parting Shot 44

[ON THE COVER]

Food brought these three friends together—Lauren (Murray) Miller, Audrey Scherrer, and Annie Murray—after they met in ACES hospitality management courses in the Department of Food Science and Human Nutrition. [Photos by Brian Stauffer]





18 Diving into Diversity

ACES students begin their journey to becoming global citizens

20 My ACES Story

Celebrating 150 years of excellence at the University of Illinois

26 Across Generations

Child Development Laboratory celebrates 75 years of impactful research

30 Data-Driven Dairy

Researcher uses an innovative approach to teach students while helping dairy producers across the state

33 Not Your Typical Student

ACES grad student empowers women to pursue agroforestry careers

34 Ruffled Feathers

Tropical birds may be more vulnerable to the effects of climate change

36 On the Hill

Ag Education student selected to lobby for the University of Illinois

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From the
DEAN'S DESK

Legacy is the foundation that a great college like ACES is built upon. We stand on the shoulders of those who came before us, extending the ACES legacy by expanding the horizons of science and training the next generation of experts in our disciplines to reach new heights. We have taken risks to expand the edges of scientific discovery and have expanded the boundaries of education so we can continue to do great work that transforms lives.

Over those years, ACES has surfaced as a global leader in many important areas, much because of our commitment to addressing society's greatest challenges in agricultural, consumer, and environmental sciences. Effort building from generation to generation of faculty, staff, and students has resulted in our success, several of which are highlighted below.

Water Management and Quality: Illinois pioneered the early adoption of tile drainage for crop production. Our scientists led the development of technology such as bioreactors for water quality management and were instrumental in creating the Illinois Nutrient Loss Reduction Strategy that will reduce nutrient runoff into the Mississippi River by nearly half.

Commercial Agriculture Analysis and Outreach: ACES partnered to create one of the oldest and largest state farm records and analysis programs, with a reservoir of data second to none. Farmdoc, a powerhouse website of globally valuable economic, financial, and policy research and analysis content developed and managed by our faculty, serves a worldwide audience seeking critical decision-making information and risk management tools.

Comparative Nutrition: ACES faculty created the field of comparative animal nutrition, and we contribute more knowledge than any other university on the nutritional needs and management of food-producing and companion animals. The corn-soy diet, developed at Illinois, revolutionized swine and poultry nutrition across the world. Our work introduced research-based diets into the pet food industry.

Reproductive Management: We pioneered advances for reproductive management of farm animals, including artificial

insemination, embryo transfer, hormonal implants, and ovarian biology. This work is foundational to applications for human reproductive medicine.


Child Development and Family Resiliency: The first university-based "child study lab" was created in ACES in 1941 to better understand children's behavioral development. As ACES research explained key factors that result in healthy families, Illinois became a primary mover in the emerging field of family resiliency.

Climate Change and Plant Biology: Illinois built "SoyFACE," the first facility that exposes plants in an open-air agricultural field to controlled variation of atmospheric conditions. Simulating expected climate changes, like elevated carbon dioxide and ozone, will lead to better solutions for helping crops adapt.

Obesity: Illinois conceived a comprehensive approach to the problem of obesity, studying nutrition and behavior while training the next generation of researchers. Interventions tailored to Hispanic populations use culturally sensitive activities to promote healthy eating and living.

Bioenergy and Bioprocessing: ACES is a frontrunner in applying science to problems associated with climate change, global warming, and carbon-based fossil fuels. The 320-acre Energy Farm selects and grows crops that may produce abundant renewable energy. The soon-to-be completed Integrated Bioprocessing Research Laboratory will bridge the gap from basic discovery to commercial bioproducts.

These examples of our rich legacy demonstrate what is possible when like-minded people dedicated to a cause pass the torches of discovery, translation, and transformation from generation to generation. With a legacy like this fueling our future, the possibilities to be manifested in the College of ACES over the next 150 years are limitless.


Kim Kidwell, Dean of ACES



FOR THE LOVE OF

FOOD

By Jennifer Shike

Food. It provides nourishment to body and soul. Food helps us celebrate—weddings, new arrivals, graduations, promotions. It numbs the pain of losing loved ones and helps us relax after a stressful day. Food brings people together, and in the case of sisters Annie Murray and Lauren (Murray) Miller and their friend Audrey (Stoerzbach) Scherrer, it's the very thing that has kept them together. Food is where their relationship began.

United by their passion for food, the three became fast friends after meeting in ACES hospitality management courses in the Department of Food Science and Human Nutrition. In meal after meal at the Bevier Café, their friendship grew. They can talk for hours about those early days of their friendship, from nearly setting the Bevier Hall kitchen on fire to performing double duty at each other's weddings as bridesmaids and caterers.



“Even though we didn’t have the daily face time, our friendship still grew after college.”

They say when you have the right people in your corner, you can do just about anything. For Murray, Miller, and Scherrer, this couldn’t be more true. Motivated by the life-changing friendship that started in Bevier Hall years ago, these three young talents have gone on to start up their own businesses.

Bonding in Bevier

The College of ACES creates a strong sense of community for its students, Murray says. She admits that she used to feel like her special experience was unique in ACES.

“I loved every class I took in Bevier Hall,” Murray says. “Each class was important and opened my eyes to a world of interesting topics. I remember thinking that I was having a one-of-a-kind experience in FSHN. However, Lauren and I have returned to serve as guest chefs at Bevier, and we’ve heard students talk about their experiences. I quickly learned that my story is not the exception, it is the norm.”

Beth Reutter, retired professor of hospitality management, says it’s not unusual for hospitality management majors to become lifelong friends.

“Due to the required order of the courses in the curriculum, students first meet as freshmen in their intro course and then take the majority of their remaining courses together through their senior year,” she says. “In addition, classmates depend on each other through their work in Bevier Café and the Spice Box, forging a bond that most students on campus never experience in their major.”

The program is strongly business-based and hands-on, Reutter says. She believes the requirement that students complete both practical and professional work experiences makes the program especially valuable.

Reutter points out that “we have the distinct advantage of having both Bevier Café and the Spice Box in the curriculum. This provides students hands-on experience running two businesses. Many hospitality management programs use their residence halls for experience with

quantity foods—which results in very little management and control responsibilities for students.”

Scherrer says you can’t help but bond with your classmates during hospitality management courses. She was challenged during her senior capstone course to organize and execute a financially viable dinner for a hundred people. To carry out the task, she had to work with her classmates, assigning them to important roles to help execute her vision. “It was real-life application in managing people and running a restaurant,” she says.

Jill Craft, instructor for that capstone course, believes that resiliency is one of the greatest skills that students develop in college.

“Students learn if they put their mind to it, they can make it through chemistry,” Craft says. “If they can make it through chemistry, they can make it through anything. Hospitality management prepares them in terms of planning, understanding the fundamentals of operating a business, learning how to interact with people, and gaining confidence. But resiliency may be the best thing they gain—if you can make it through a degree and the hard classes, you can go out and overcome anything in life.”

Changing courses

After graduation, life happened for the three friends. Meals were no longer shared in Bevier Café every day. Weddings, kids, more kids, job changes, moves, even more kids, surgeries, and more happened all while the women were trying to grow businesses (and get a little sleep).

“Even though we didn’t have the daily face time, our friendship still grew after college,” Miller says. “We had to make the time we could spend together count.”

The College of ACES helped us discover what people meant when they said your college friends will be your best friends for life, Murray adds.

“We found a group of friends in FSHN that made us want to stay on campus all summer, every weekend, and even during breaks,” Murray says. “We would travel the world to see each other and move a mountain to make each other’s day better. Although we live miles apart now, we communicate with everyone in a daily group message.”

Those friendships provided the sisters with a strong support system when they opened their full-service food and beverage catering company, L.A. Gourmet, in the fall after graduation.

“It wasn’t until we left ACES that we learned how deep the ACES and FSHN roots ran,” Murray says. “We catered so often at the ACES Library that we wanted to set up shop there. Every time we catered there, we felt like we were coming home.”

When it came time to build their facility, Pear Tree Estate, Murray says, it was astonishing how many people came together to pull off the impossible in 86 days. She'll never forget the day that Craft, one of her favorite teachers, called to see how she and her husband could help.

"A few deep breaths, tears, and conversations later," Murray says, "the two designed and hand-carved the entrance signage for Pear Tree Estate in addition to a beautiful sign hanging inside that says, 'Surround yourself with the dreamers and doers, the believers and thinkers, but most of all surround yourself with those who see greatness within you, even when you don't see it yourself.'"

To say that Murray and Miller's ACES family brought this quote to life is an understatement, Murray adds.

"We were just two poor college graduates with a dishwasher and a dream, but not much more than that," Miller says. "The learning curve was incredibly steep for several years, and we are grateful for the support we received from Audrey and our hospitality management friends during that time."



"They shared lessons they had learned the hard way, and during my ups and downs of being an entrepreneur, they continued to be my No. 1 fans!"

Meanwhile, Scherrer's entrepreneurial pursuits took her down a different path. After graduation, she attended the Culinary Institute of America in Hyde Park, N.Y., where she earned a certificate in artisan chocolates and candies. She moved to St. Louis to work as an account executive for Marriott Hotels and began handcrafting chocolates for her clients as thank-you gifts.

Scherrer recalls tough times in the early days of her growing business when she was practically drowning in chocolate and trying to process hundreds of orders without any help. After receiving a call from a large company to handle their holiday gifts, she reached out to her friends in tears—tears of excitement and fear.

"The very next day, Annie drove to St. Louis and worked 12 hours helping me roll, dip, and decorate a thousand truffles. She had to work the next day, so she left that very same night," Scherrer says.

Scherrer's business grew and grew until she could turn her craft into a full-time job. In 2011, she opened Bittersweet Artisan Truffles (now Bittersweet Kitchen), which has expanded beyond truffles to include all-natural dessert sauces and a gourmet brownie line with molten lava cakes and her signature "B" Cake.

"I love bringing happiness to people through food, and Bittersweet is the culmination of my life-long passion for cooking," Scherrer says.

"Lauren and Annie were a huge inspiration to me and among the first to encourage me to start my own business," Scherrer says. "They were tremendous resources as I was creating my business plan and processes. They shared lessons they had learned the hard way, and during my ups and downs of being an entrepreneur, they continued to be my No. 1 fans!"

Friendship through the fires

The friends agree that their bonds have served as a source of strength to help them rise above the challenges—from late-night drives and chocolate dipping to back surgeries and broken hearts.

"We've certainly faced some hardships along the way," Murray says. "In college, we had the luxury of picking up a phone, driving to our friend's front door, and figuring out how we could help. But, as young business owners, we had little time for our personal lives. During a period when we were working 100+ hours a week and didn't have time or personnel to leave work, we learned that there were some moments when we just had to stop and be there for each other."

The friends' similarities in personality, values, and work ethic have helped the three weather the storms, Craft says.

"These ladies are not fearful of being honest with each other," Craft adds. "They are similar in many ways, as they are all detail-focused and driven. Although they don't have easy jobs, their energy, enthusiasm, and kindness attracts people to them—whether guest, customer, or employee."

Being an entrepreneur has provided many opportunities for personal growth, Murray says.



“During a period when we were working 100+ hours a week and didn’t have time or personnel to leave work, we learned that there were some moments when we just had to stop and be there for each other.”



“People assume that being the boss/owner is the ideal job because you choose your hours and you don't necessarily report to anyone,” Miller says. “But being an entrepreneur usually means you work all of the hours, and you are directly affected because your presence is literally most telling of the bottom line. Those pressures are enormous.”

To help others who may be interested in owning their own businesses, Scherrer encourages aspiring entrepreneurs to get as much experience as possible.

“All your work experiences—the good, the bad, and the ugly—will help shape your business model and processes,” Scherrer says. “Our culture tends to romanticize the college kid who starts a business and hits it big, but the most successful entrepreneurs are older and have work experience prior to the startup experience. The Murray girls are unique. I believe their unwavering commitment to succeed and grit have proved them to be the exception from the norm.”

Even though the work is hard, Scherrer says, she can't wait to go to work every day. “I love that I'm in charge of my day and have a high level of responsibility. That's motivating for me.”

Miller adds that while there may have been easier paths for her and her sister to take, she believes their business adventure has turned out to be an incredible one. In story after story, the heroes remain the same—each other.

Life after college is not easy, Miller says, especially for entrepreneurs trying to create their own way.

“We've been able to bounce ideas off each other and help each other grow,” she says. “We are able to be honest and helpful because we want nothing but the greatest success for each other.”

Although the dinners the former classmates once shared almost nightly may be fewer and farther in between, the friendship that started around the table in Bevier Café is stronger than ever. Murray says, “I knew our friendships would change after college, but I never imagined that they would change—and continue to change—for the better.”



{ For more information, visit bittersweet-kitchen.com and lagourmetcatering.com. }

What does the FOX SAY?

[about human behavior]

You know the look: your furry canine companion cocks his head to the side, wide-eyed but intent. It's adorable. But it's also remarkable, if you think about it. This nonhuman creature is actually listening to you, responding. Add to this the wagging, the "smiling," the (sometimes) obedience, and it's easy to see how dogs got the reputation as man's best friends. But how did they get that way?

Dogs evolved from wolves too long ago for scientists to pinpoint exactly how they picked up their friendly behaviors. But in an effort to replicate the process in real time, in 1959 Russian geneticist Dmitriy Belyaev began a long-term experiment to domesticate silver foxes (*Vulpes vulpes*). He mated the foxes that seemed most tame, and later mated foxes that showed more aggressive behaviors.

After only six generations, some month-old pups were eager for human attention, licking and whimpering when experimenters approached their cages. Today, 58 years after the experiment began, more than 80 percent of the tame group are "elite," showing extremely friendly behaviors toward humans.

Anna Kukekova, an assistant professor in the Department of Animal Sciences, has been studying the foxes at the Russian Institute of Cytology and Genetics since 2002. For her, the foxes do not simply retell the tale of canine domestication. Rather, they provide a model system to understand the genetic underpinnings of complex social behaviors in mammals, including humans.

"There are not many models that exist to study complex behaviors, particularly behaviors such as sociability or aggression," Kukekova says. "Most work is done on fruit flies or mice and looks only at very specific types of aggression. But fox social behavior is more complex than that of rodents, and the behavioral differences in tame and aggressive foxes have significant parallels to social behaviors in humans."

Those parallels have recently earned Kukekova, along with several collaborators, \$1.22 million from the National Institutes of Health to study the foxes. The NIH is interested, Kukekova says, because this research could shed light on human disorders, such as autism, that are characterized by unusual social behaviors.

"Researchers have done genome-wide scans comparing patients with and without autism, but it's hard to make sense of the results. The work we'll be doing is aimed to understand the genetic architecture of tame and aggressive behaviors in foxes," Kukekova says. "The genes that influence these behaviors in foxes may play a role in social behavior of humans as well."

The foxes could also help us understand our own responses to stress. "The tame foxes are very stress-resistant," Kukekova says. "Compared with conventional or aggressive foxes in stress-inducing situations, the tame foxes aren't stressed at all."

Jessica Hekman, who recently earned her Ph.D. in Kukekova's lab, is studying hormonal differences in tame and aggressive foxes. Normally, messages from the brain are translated into hormones that elicit further responses in the body. Hekman's research shows that this process may function differently in tame foxes and aggressive ones.

Ultimately, the team hopes that understanding the genetic and hormonal basis of behavior in foxes will help in development of medications to modify behavioral disorders in humans.

"Right now, it's complicated to pair the right medication with the right animal or person. If we could really understand what was going on in the brain, that would help us better figure out how these meds work," Hekman explains. "I would love it if someday we could do a quick genetic test and say, 'Prozac is the right medication for this dog or this person,' or even use what we've learned about brain biochemistry to develop new meds."

By Lauren Quinn



BRIDGING the Innovation **G A P**

Picture a sketch of a cavernous canyon; scientific discovery sits on one side, product commercialization on the other. This image could often represent the innovation in academia and the business development in industry. Two College of ACES facilities will now create the bridge across the cavern, connecting breakthrough science with commercial applications.

The Department of Food Science and Human Nutrition recently completed a \$3-million renovation of the Food Science and Human Nutrition (FSHN) Pilot Processing Plant, located in the Agricultural Engineering Sciences Building (AESB). The new Integrated Bioprocessing Research Lab, or IBRL, will open 42,000 square feet of space for pilot-scale processing. IBRL, part of the Department of Agricultural and Biological Engineering, is located east of AESB off of Pennsylvania Avenue.

An economic truss

With these facilities, the U of I becomes integral to the collaborative innovation ecosystem, says Manish Shah, vice president for global research and technology at Ingredion. Companies, including Ingredion, will turn to Illinois to do basic and some applied research. Then, he says, they will explore commercialization.

You have to do scale-up in any type of development work, explains Vijay Singh, director of IBRL. Pilot facilities allow for creating a limited amount of product, which controls production

cost while ensuring the product can be created beyond the bench (laboratory) scale.

Both facilities offer extensive flexibility, with plug-and-play utilities and movable equipment on casters. “You can roll in different types of equipment, connect them, and develop a process,” Singh explains. Companies can also bring in specialized equipment unique to their projects, he says.

“Having a pilot plant that is agile in design is impressive,” says Dena Strehlow, ADM’s director of customer innovation and strategy. “That flexible innovation is right in line with what the industry needs to bring product to life sooner and more affordably.”

IBRL also provides separated areas that allow numerous partners to use the facilities at the same time while maintaining privacy of intellectual property, Singh says.

The university offers commercial companies a whole industrial spectrum, he adds. “We have IBRL, the FSHN Pilot Processing Plant, the Institute for Genomic Biology, farms, greenhouses, and more,” he says. “We can grow feedstocks and process them, make food and industrial products and analyze them, and even do an economic analysis. We can do this all within ACES.”

According to Shah, Ingredion has “not found the capabilities of IBRL elsewhere in the U.S. yet.”



Processing at Illinois connects discovery to commercialization

By Marla Todd

Partners also benefit from the university’s robust intellectual capacity, in both faculty and students. “Doing work with the university—putting you in contact with professors who have a wide variety of experiences—multiplies what you get out of a project,” says Russ Moroz, vice president of global R&D and quality with Flavors Holdings. “There are more intangible benefits for doing projects in conjunction with a research university.”

“We have the state’s flagship university where science is being done,” Singh says. “You take that science and integrate it with practical applications and you create jobs and economic activity and development right here in Illinois.”

Linking learning

The pilot plant and IBRL are also bridging student experiences from lectures and small laboratories to facilities similar to those they will encounter in their careers.

“A topnotch pilot plant is instrumental in helping students understand the general capabilities of the food industry and preparing them to work in it,” Strehlow says.



Students are required to follow good manufacturing processes—GMPs—when they attend class in the pilot plant, says Luis Vargas, Ph.D. student and teaching assistant for FSHN 462 Food Processing. They understand that the pilot plant is a facility for food production, and they are careful to follow proper procedures for food handling, equipment cleaning, and personal sanitation.

More flexible space and a new adjacent conference room allow instruction time to be more active and productive. Previously, instructors presented introductory information in a separate classroom, and the class then moved to the pilot plant. Now instructors explain information in the Swagger Foods-Tai and You Shin Conference Room, then seamlessly move to the practice portion of the lab session. And during processing wait time, students can return to the conference room to do more activities and exercises, all while remaining in the controlled facility, Vargas explains.

Faculty continue to explore instruction strategies to enhance learning and increase the amount of hands-on time, says Youngsoo Lee, assistant professor in food science.

In addition to making space updates, the renovation required updated processing equipment, much of it gifted by industry partners. The newer equipment meets FDA requirements, and data acquisition is simplified and more accurate, Lee says.

The food-grade spaces, modular concept, and updated equipment in the pilot plant also extend learning and research options for faculty and graduate students, Vargas says.

The flexibility allows companies to provide equipment and specifications, creating additional project parameters. With computer-regulated controls, data is more reliable, Lee says. Projects can extend to human consumption for sensory research and clinical trials, opening a door for longer-term projects.

In the business of making food, you can run an experiment and all types of tests to hit a target, but in the end the food has to taste good, Moroz says. Creating products in a food-grade space allows for this extension of work to consumer acceptance.

Employers will be looking for students who have experience with the

For project inquiries or requests to visit the FSHN Pilot Processing Plant and IBRL facilities, contact Brian Jacobson, assistant director of food and bioprocessing pilot plant operations, at bjacobs3@illinois.edu or 217-300-5404. Learn how you can support these facilities by contacting the ACES Office of Advancement at acesadvancement@illinois.edu or 217-333-9355.

equipment and a processing facility, says Mike Shaw, sales account manager with Buhler, a manufacturer of extruders. In addition to class experiences, student internships in both facilities will provide invaluable learning opportunities.

Some of these internships are filled by students in the Professional Science Master's (PSM) degree program, which has concentrations in bioprocessing and bioenergy and in food science and human nutrition. The PSM program is designed to bridge science and technology with business, adding further value to industries in both facilities, Singh says.

"Illinois and FSHN have always graduated top-notch students," Moroz says. "This just makes them even more prepared."



Meet the Pumpkin King

Crop sciences researcher conquers threats to Illinois pumpkin industry

By Lauren Quinn

It was a scene of utter devastation.

When Mohammad Babadoost first visited Tazewell County's pumpkin farms, he saw nothing but field after field of melted pumpkins and vines.

"Why did you ask me to come here? You should have called the FBI," he recalls thinking.

Babadoost can make light of the situation now, but in 1999 and 2000, the disease that was wiping out the pumpkin industry in Illinois was no laughing matter.

"Two processing pumpkin companies wrote me letters in 2000 saying there was no way they could survive any longer. In some fields, they were seeing 100 percent losses. Other fields, it was 50, 60, 80 percent. Some had never harvested anything from their fields," says the Department of Crop Sciences plant pathologist.

The culprit was an oomycete by the name of *Phytophthora capsici*, a fungus-like pathogen that specializes in vandalizing pumpkins, cucumbers, melons, squash, and other cucurbit fruits. But it would soon meet its match in Mohammad Babadoost.

Origins

Babadoost hasn't always been the Pumpkin King of Illinois. In fact, he grew up rather far

away from Illinois, in a farming village in the Azerbaijani region of northwest Iran.

Young Mohammad witnessed the hunger and malnutrition that can result from crop losses and poor production. The experience inspired his career.

"When I was a kid, I didn't know what plant pathology was," Babadoost says. "I just saw that a disease could come and wipe out everything."

When it came time for college, he enrolled in the Department of Plant Protection at the University of Tabriz in Iran. From there, he bounced around earning advanced degrees and battling plant pathogens in hot spots around the world. During those years, he worked on sugarbeet nematode, an important pest in Europe; a bacterial disease affecting Brassica crops in Washington; wheat diseases and corn mycotoxins in North Carolina; and seed potato diseases in Montana. He also spent some time back in Tabriz, teaching and establishing research facilities and a graduate program in his old department.

After all the moves, Babadoost and his family decided to finally put down roots in the United States. He interviewed for a position in the crop sciences department at Illinois, and got an offer a week later. It was 1999.

kin

“Everybody who grows commercial pumpkins in Illinois knows Mohammad on a first-name basis. He’s that important to the industry.”

The scoop on squash

You might not recognize the pumpkins Babadoost works with most often. Known as processing pumpkins, they go into the cans that fly off the shelves at Thanksgiving. They don’t look much like your run-of-the-mill Jack o’ Lanterns, although he works with those, too.

“Botanically speaking, what we call processing pumpkins are really winter squash,” Babadoost explains. “They are egg-shaped, and the color is more yellowish orange than completely orange.”

In 1999, there were approximately 6,000 acres of processing pumpkins in Illinois. By 2012, that number swelled to 16,100, making Illinois the country’s top pumpkin-producing state by a wide margin—about 90 percent of all processing pumpkins are grown and processed here. Many growers credit Babadoost with the fact that the industry not only didn’t collapse in 1999, but actually grew more than 2.5 times. Today, Babadoost estimates, the Illinois pumpkin industry is worth \$200 million.

“If Mohammad couldn’t have solved the problem, the processing pumpkin industry might have moved out of Illinois,” says retired U of I Extension educator and Jack o’ Lantern farmer Mike Roegge. “But he discovered the problem, and he found a solution for it. We’ve gotta put him on a pedestal for what he’s done.”

A pumpkin predicament

Back in 1999, the problem—and the solution—started with the seeds, Babadoost explains.

“People told me sometimes they would plant and nothing would come up, just a few plants. They would go back and seed again.

Sometimes they would try seeding three times with no success.”

It turns out the pathogen was everywhere in the soil. With each planting, seedlings would push out tiny roots and leaves, but the delicate tissues were quickly consumed by the fungus-like oomycete.

“My first thought was ‘We have to get the seeds germinating and seedlings up.’ I quickly developed a seed treatment at almost no cost—maybe less than 50 cents per acre. It worked very well. After that, almost no one had to plant a second time,” he recalls.

That seed treatment was a simple coating of fungicide powder. Producers simply had to soak seeds in water, add the powder, shake, and plant. It was enough to protect seedlings for up to five weeks—a good start, but it wasn’t always enough.

“We needed to get to about 12 weeks for the best protection,” Babadoost says. “I quickly started screening fungicides. The only one that was registered for pumpkin at the time actually made the problem worse! But I found one for oomycetes, tested it, and realized it was just great.”

The problem was almost solved, but Babadoost knew there was more he could do to keep *Phytophthora capsici* at bay. He realized that the pathogen was happiest in low-lying wet areas in the field.

“I came to the conclusion that if we simply go and scout the field, we might be able to stop the entire field from being infected. If we find the low-lying spots in the field, we can remove and destroy any infected plants and prevent building up the population of the pathogen. This simple solution was actually very helpful.

“I also started screening cultivars for resistance to the pathogen, tested more fungicides, and found some very effective ones,” Babadoost says. “Then, gradually, not only did the processing pumpkin industry not die, it actually increased.”

Industry influence

Known around the world for his pumpkin expertise, Babadoost receives regular calls to consult and present his findings overseas and across the United States. But he hasn’t forsaken the connections he’s made in Illinois. Every year, he tests fungicides and makes new recommendations that are specific to Illinois producers. “I’m in constant contact with the growers,” he says.

Roegge adds, “Everybody who grows commercial pumpkins in Illinois knows Mohammad on a first-name basis. He’s that important to the industry.”

Babadoost has clearly played a major role in resurrecting this economically important crop in the state, but pumpkins are more than a cash crop to him. “Pumpkins are really educational,” he says. “Hundreds, thousands of people come out each fall to farms to pick out pumpkins. Someone from Chicago with no farm experience picks a pumpkin, takes a picture, enjoys it.”

So, if pumpkin pie is something you’re thankful for at this time of year, be sure to give a nod and lift a fork to the Pumpkin King.

FROM THE CORN FIELD





TO THE TAPROOM

Brothers create local brewery with ties to the family farm

By Stephanie Henry

The Riggs logo tells the story. And, according to ACES alum Matt Riggs (ABE, TSM '06), the story is a simple one.

“Ours is an authentic story of making a natural product in a very traditional way, using ingredients that, in part, we grow ourselves. I think people can connect with it because it’s not complicated.

“When we make a batch of beer with our corn, my brother, who still lives on the farm, goes to the grain bin, fills up a bunch of buckets with corn, and drives them here to our brewery,” Matt says.

In a nod to the logo’s blue skies and green fields, the brewery and taproom of Riggs Beer Company are nestled among acres of wheat and barley fields on the east edge of Urbana. It’s just a bike ride away from campus or either neighboring city’s downtown.

The Riggs brothers’ story and their uncomplicated approach to brewing great-tasting beer has made their beverages a new favorite of local aficionados and of those attracted to locally grown and locally made products. And Riggs Beer has multiple ties to the U of I and the College of ACES, right down to the wheat growing in the fields surrounding the brewery.

But the brewery was many years in the making, starting back on a Midwest farm.

Matt and his brother, Darin Riggs, grew up on a fifth-generation farm in the southeast corner of Champaign County. They learned the ins and outs of growing corn and soybeans on those 300 acres. But because the farm is relatively small, Matt says, he and his brother started thinking early about ways they could add value to the corn they were growing.

“We knew the farm wouldn’t always be able to support two or three families, and growing bigger than the 300 acres didn’t make sense,” Matt says. “We knew we needed to start thinking outside the box a bit.”

Both Matt and his brother attended the U of I on ROTC scholarships. Darin studied computer science, while, in 2002, Matt began the ACES Technical Systems Management program in the Department of Agricultural and Biological Engineering. Matt says he was searching for something practical, something that would give him skills to make a living.

“We’re approaching using 15 percent of our own grain, but if we could bump that up to 30 to 40 percent, it would be a legitimate supplemental income. That would be, like, mission accomplished.”



Matt says he found that something in one of his favorite TSM classes—engine and tractor power. “I’d felt engine power driving the tractor. As you get into a harder piece of ground, you can hear the engine doing something a little bit different.

“To be able to quantify that and look at a torque curve and say, ‘Okay, this is what actually happens to make that different feeling in the tractor’—I had not been exposed to that on the farm. It was cool to be able to say I understand why and what exactly is going on at a very fundamental level to make that rumble feel different as I’m going through different parts of the field.”

But what applies to his work in the brewery, Matt says, was learning about ways to manage the variables of a technical system, such as an engine, as it is put through different loads.

“We track data points on multiple things throughout the whole brewing process. Every day, from all these beers in these tanks, we take samples and chart them on a graph. Some of the variables look similar to the variables on an engine. Every data point is telling you something. And if it’s going in the wrong direction, you can influence it and get it back to where you want it to be in order to improve performance.”

It was also during their U of I years that the two brothers began to learn a bit about beer—the difference between good beer and not-so-good beer, specifically.

“The whole time I was at school here, there was no locally made beer,” Matt says. “Our college years are when we started drinking beers, and it hit us: Wait, this stuff is made mostly out of water and grain. Water we have

access to, and grain as well. Imagine how cool it would be if we made our own beers out of grain that we grow.”

Being in the ROTC also gave Matt opportunity to travel. In towns including Boulder, Colorado, and Madison, Wisconsin, he saw a vibrant local brewery scene.

“I was walking around, thinking, ‘Wow, they are making beer here and selling it in the front half of their brewery.’ I knew it had to be possible for us if other places were already doing it. But in Champaign-Urbana there was nothing like that. Those trips with the ROTC were probably one of the biggest reasons our idea actually became reality.”

After college, Matt began active duty in the Marine Corps. For a brief time Matt and Darin, also in the military, were both stationed in the San Diego area. Matt got another look at a booming brewery scene, visiting more than 30 breweries in San Diego County alone. This helped solidify the brothers’ belief that there was growing interest in locally brewed beer.

“Darin and I both have the personality that if we’re going to do something, we want to do it full bore,” Matt says. “We don’t want to go halfway. Part of that, in brewing, at least in the way we wanted to approach the challenge, was to get some formal education and some industry experience. We were messing around with some small-scale brewing, and I had volunteered at a small brewery in San Diego County. But we wanted to get good ideas, get good at what we do, and then start.”

They decided that meant attending formal brewing school. Darin went to the University of California, Davis. Matt went all the way to Germany for his brewmaster



certification. There, he says, he learned the most from German classmates who had brewed thousands of gallons of beer before even coming to the program.

In May 2016, the Riggs brothers started brewing their German- and American-style beers at the current Urbana location, surrounded by farmland. They opened the taproom doors to the public on June 30, 2016. Today they brew over 4,000 gallons of beer a month, both for taproom visitors and for area restaurants whose menus feature Riggs beers.

So what makes the brews so good? You might say there's a little bit of Illinois in every glass.

The Riggs American Lager and India Pale Lager contain, respectively, 20 and 24 percent of corn grown on the family farm. Their popular Hefeweizen uses 15 percent "estate" barley that is grown just behind the brewery.

"Our intent is to increase that," Matt says, "but we don't want to go too quickly. We're taking a very systematic, stepped approach to increasing the amount of our grain we use in our beers. Our number one priority is to make the best beer we can, and number two is to maximize our own grain usage.

"We're careful not to confuse the two. It's a cool story, but it's not worth making a beer that's not the best it can be."

Just to the south of the brewery are 3 acres of winter wheat used in other Riggs beers. The variety—Erisman

Wheat—was developed at the U of I and is named after Illinois farmer Jack Erisman, an organic farming pioneer. "Getting the wheat genetics from the U of I helps with suitability, obviously. The variety is used to growing here," Matt says.

Matt estimates over 7,000 pounds of Riggs-grown grain has been used since he and Darin started the brewery.

Riggs Beer Company is 100 percent family-owned and family-operated. Matt's wife, Caroline, handles the accounting and manages the taproom. Darin's wife, Gail, covers compliance with regulations, human resources, and press and media relations. Matt and Darin, meanwhile, focus on the brewing. They also employ several part-time bartenders in the taproom.

Their locale has for many become a favorite place to relax over a beer. The indoor taproom offers a view of the brewery, and from the outdoor beer garden one can look out over the wheat and barley fields. Though they often have live music or food trucks on hand, Matt stresses that it's not a "bar" atmosphere.

Matt points to the family brewery as an example of one way—though not the easiest one—to innovate and bring relevance to a small farm operation. "It's a hard way to keep the farm relevant; 7,000 pounds of grain is a small portion of what we grow. Hundreds of thousands of pounds still go to Cargill. We're approaching using 15 percent of our own grain, but if we could bump that up to 30 to 40 percent, it would be a legitimate supplemental income. That would be, like, mission accomplished."

But for Matt, the real mission accomplished is loving what he does every day.

"I love brewing; I like the production of it. And I'll keep doing it as long as my body holds up—I can already tell kegs feel heavier than they used to. But it doesn't get better than turning a raw ingredient into a value-added product."

You can read more about the Riggs brothers' story and about Riggs Beer Company, including a list of the beers brewed there, at riggsbeer.com.



Matt (left) and Darin Riggs stand on the "brew deck" of their family-run brewery, Riggs Beer Company, in Urbana. The Riggs use corn grown on their Champaign County family farm in their beers. Matt says skills he learned in his Technical Systems Management program in ACES help him manage the brewing equipment at Riggs Beer.

Dividing into Diversity

ACES students begin their journey to becoming global citizens

By Ariel Majewski

Interactive education. Customized volunteer work. Networking opportunities. Multicultural experiences. And, yes, even a little shark-cage diving! For 10 years, the ACES South Africa study abroad program has been changing lives, teaching students about being global citizens, and opening their eyes to opportunities abroad.

Jan Brooks, instructor in human development and family studies, remembers when she established the 3-week program, officially titled HDFS 379 Children and Families Service Learning in Cape Town, in 2007.

"I visited my daughter when she was doing an exchange semester as an Illinois undergrad at University of Cape Town. She took me off the tourist track into the local communities in Cape Town and to the impoverished townships to visit health clinics and organizations providing child care," Brooks says. "I came home inspired, and the ACES Study Abroad office helped me set up a faculty-led program."

The first program took 11 people to South Africa during winter break. Still a winter study tour, the program now allows up to 27 students, leaving overflow applicants the option to enroll in a 3-week summer trip.

For participants to understand the historical and cultural contexts of South Africa, they must take a 3-credit-hour course before embarking on the trip.

South Africa is a pluralistic and multiethnic country, with 11 official languages. Its rich history is characterized by multiple periods—most recently Dutch and British colonialism, the apartheid era (43 years of institutionalized racial segregation and discrimination during the 20th century), and formation as a republic.

"The first week, two pumps were broken, so people couldn't get water up from the well. By our last day, we had fixed them, and we saw people getting their own water where they didn't have to pay for it—that was very memorable."

These historical developments are hard to fully appreciate in just 3 weeks in the country, Brooks says, especially while also trying to understand South Africa's current postapartheid society, educational policy, family dynamics, poverty, and crime. So 8 weeks of discussions and literature readings while still on campus help students prepare to fully engage themselves inside the country.

The predeparture course also underscores for students the main purpose of their travel—to learn. Students in HDFS 379 are taught how to be global citizens. "A global citizen offers leadership in creating strategies to benefit humanity worldwide," Brooks says. "He or she cares enough to learn about global environmental and social issues and collaborates with others with diverse perspectives to use existing or limited resources in new and productive ways."

Sarai Coba Rodriguez, a graduate assistant who has supervised the trip eight times along with Brooks, says it never gets boring. "The students make this course feel new all the time," Rodriguez says. "It's really rewarding to see students grow from the time when they have very little knowledge about South Africa or its history."

Although learning is the priority of the trip, community service is another major component. For 10 days, students complete service work that is customized to their majors. Once they choose a type of work, the local Volunteer Adventure Corps makes arrangements for them to volunteer at public health clinics, the Red Cross War Memorial Children's Hospital, community gardens, residential homes, shelters for abused women, schools for children with disabilities, and even a small animal clinic.

Andrew Rice, a sophomore in agribusiness with a focus on marketing and management, volunteered at the



Sakhulwaze community garden site with five other students.

“The first week, two pumps were broken, so people couldn’t get water up from the well,” Rice says. “By our last day, we had fixed them, and we saw people getting their own water where they didn’t have to pay for it—that was very memorable.”

Madison Arbuthnot and Anne Marie Geitner worked at shelters for abused women, each drawing unique insights.

As a major in human development and family studies, Arbuthnot says her service work will help her communicate with all ages as she pursues social work and counseling.

“In the past, I worked a lot with kids, which is fun and easy for me,” Arbuthnot says. “When I was at the Care Haven facility, we did a lot of activities with the women there. I learned how to talk to people openly. Putting myself out there and working with people a little bit older was for me a major learning experience.”

Geitner says working at a domestic violence shelter let her apply her food science and human nutrition major in a global context.

“I was able to observe the women and children’s eating habits—they ate very well, which I wasn’t expecting. They

had three meals a day, plus teatime. I did notice that they ate a lot of rye and soft food and things of that nature. In my major, I had to think about designing something to supplement all the nutrients that they were missing in their diet.”

When the students weren’t volunteering, they were exploring some of the amazing sights of South Africa, including Cape of Good Hope and Cape Point. The 260-million-year-old Table Mountain, a flat-topped landmark that overlooks the city of Cape Town and the Atlantic Ocean, is another popular destination.

Geitner watched hundreds of Antarctic penguins waddling at Boulder’s Beach, near Table Mountain.

“I wasn’t expecting a sight like that at all—I figured mountains and oceans don’t belong next to each other,” Geitner says. “But they certainly did!”

Students also traveled to Robben Island, where Nelson Mandela was held for 18 of his 27 years as a political prisoner, before being released in 1990. In 1994 Mandela was chosen as president in South Africa’s first democratic election.

In Cape Town, the group met with former residents of District Six, who during the 1960s were segregated

from their own city. After their houses were flattened by bulldozers, they were forcibly removed to barren, impoverished surrounding areas known as Cape Flats.

On top of all these memorable experiences, the trip is packed with even more—safari trips, a bike tour of Soweto, traditional barbecues, shark-cage diving.

“Shark-cage diving was out of this world,” Rice says. “Your adrenaline is going, you’re sitting there in a cage that’s in 55-degree water, and all of a sudden, a guy just yells ‘Get down!’ You take a big breath and you go down and you’re looking left, up, down, right, everywhere—and then all of a sudden, a shark just swims by and hits the cage.”

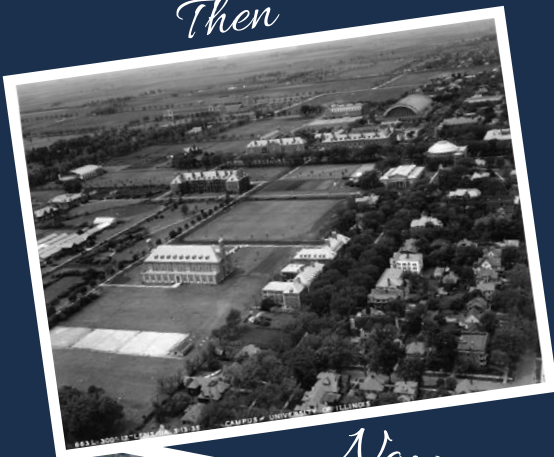
Diving into another cultural world can be intimidating. But the connections, experiences, and insights also prove to be exhilarating as these students transform into global citizens, living up to South Africa’s motto of diverse people uniting for a greater cause.

Study abroad experiences are made possible by private gifts. To learn more about supporting international opportunities for students, contact ACES Office of Advancement at 217-333-9355 or acesadvancement@illinois.edu.

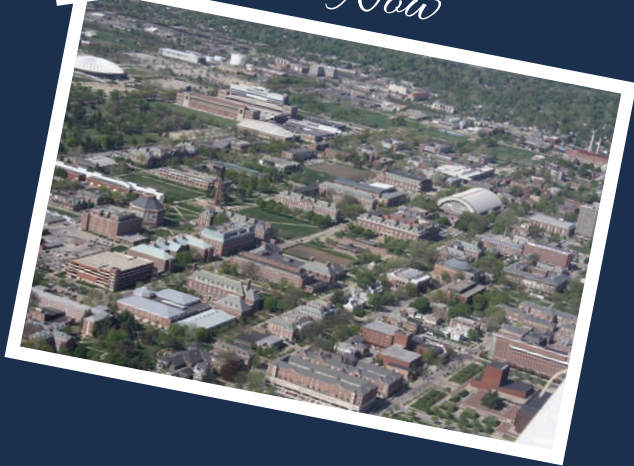
My ACES Story

By Jennifer Shike and Courtney Walker

Then



Now



Celebrating 150 years of excellence at the University of Illinois

Over the past 150 years, the University of Illinois and the College of Agricultural, Consumer and Environmental Sciences have been at the forefront of education, discovery, and translation. From improving people's lives to stretching the frontiers of knowledge, ACES graduates are changing our world for the better.

In this special section of *ACES@Illinois*, we are celebrating and embracing our past. Our ACES story is unique, and its characters are doing remarkable work—work that truly matters. We invite you to enjoy these ACES stories and to tell us yours as we celebrate the 150th anniversary of the University of Illinois and the College of ACES. Share your story on social media using #ACESstory, or visit 150.illinois.edu.

University of Illinois campus in 1935 compared to how the campus looks today. [Photos courtesy University of Illinois Archives]



Where *my* ACES story begins

By Paige Jones

The steps of his work boots echo through the kitchen as he walks up the front stairs. His shirt has a mud stain on the sleeve, and there's a pen in his front pocket. He washes his hands since he's been moving cattle all morning, then sits down at the head of the table ready for lunch. He reaches out his hand and grips mine as we bow our heads to pray. Between bites he tells me about one of his old livestock judging teammates, and where he used to take my grandmother on dates in Champaign. He even reminisces about the classes he sat through in Mumford Hall. This is where my ACES story begins, and I've been writing it ever since.

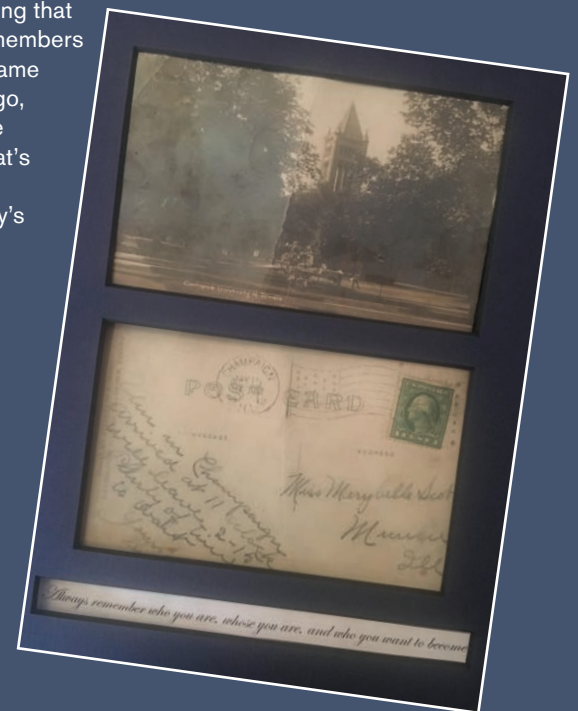
My ACES story unfolded at my grandparents' kitchen table, listening to the amazing things my great grandparents accomplished while they were at the University of Illinois and the incredible teachers that they had. They shared stories of their favorite memories and the lifelong friendships they made. I fell in love with Illinois while sitting at their kitchen table. Today, I'm proud to be the fifth generation in my family to attend this school.

As the university celebrates its 150th birthday, I think of all of my family members who have been a part of those 150 years. From engineers to livestock judges, and from Illini football players to crop scientists, I see my family etched into this university, intertwined in its roots. We have all gained so many different things from the University of Illinois, but the one thing we have in common is memories. My grandfather has fond memories of livestock judging trips and of meeting my grandmother for the first time. My aunt remembers pacing the hallway of the Animal Sciences Lab studying her meat-judging notes. My grandmother looks back to her time here and reflects on the friendships she gained. My cousin recalls her transition from undergrad student to animal sciences recruiter and the professors and friends she met along the way.

Listening to their memories reminds me that what we remember most is not the scholarships we won or the big exams we aced. We remember the people and the little moments along the way that change our lives more than we realize at the time. We remember the rich tradition that accompanies the University of Illinois as this school

becomes a part of yet another generation. Old memories make me wonder about the new memories I am making as an undergrad student in the College of ACES. What stories will I tell my children and grandchildren about my time here? Have they happened yet? Am I still waiting for them?

I'm back at my grandparents' house again, and I hear wise words from *Charlotte's Web* coming from the television: "Life is always a rich and steady time when you are waiting for something to happen or hatch." Our memories and our lives are what take place while we're waiting around for the next big thing to happen. When I tell my grandchildren about my memories from the College of ACES at the University of Illinois, I don't think I'll list any scholarships or awards that I received. Instead, I'll tell them about the time I sat in Mumford Hall writing about my family, all the while remembering that so many family members sat in this very same building years ago, and years before that. Perhaps that's when the ACES story of my family's new generation will begin.



A postcard dated May 15, 1942, from Paige's great-great-grandfather to her great-great-grandmother.

1867

Under the Morrill Act of 1862, Illinois Industrial University opens its doors in Urbana-Champaign to answer visionary Jonathan Baldwin Turner's call for a "state university for the industrial class" providing education in agricultural and mechanical arts.

1876

Professor Manly Miles, considered the nation's foremost professor of agriculture, plants three half-acre experimental plots, later to be incorporated into the famous Morrow Plots.

1879

Dean George E. Morrow establishes 10 half-acre plots, incorporating Manly Miles' original plots planted in 1876. The Morrow Plots become the first continuous experiment in crop rotation in the United States.



Gionté's Story

I love sports. Growing up, I pictured myself moving far away from my home in Bourbonnais to play college football. But things didn't exactly work that way. I'll be honest that I didn't consider the University of Illinois because it was so close to home. However, my dad, an Army war veteran, insisted that I apply for the Children of War Veterans tuition waiver at U of I. I didn't expect anything to come of it because the award goes to only one student per county each year, and there are a lot of veterans in Kankakee County. When I found out the good news that my U of I tuition would be completely covered by this waiver, I called my dad, knowing that it would be a huge weight off of his shoulders to hear that I would be going to college without any financial burdens. I went to the U of I that fall majoring in biology, with my heart set on medical school. If I wasn't going to play sports as a career, I wanted to stay connected to athletics through sports medicine.

I loved the Illinois campus—it felt like home. But my love for my studies wasn't as strong. I struggled to connect with the material in my biology classes. It's not that the material was too tough, and I wasn't afraid of working hard. But it just wasn't clicking. I couldn't relate to the content or apply it to my own life. A friend in my honors fraternity encouraged me to try a nutrition class in the Department of Food Science and Human Nutrition. My first class, FSHN 101, was like a breath of fresh air. I could apply the class to my life. I began incorporating the things I was learning and uncovered a passion for dietetics. Now I'm working in a dietetics research lab. Things look a lot different than I thought they would my senior year of high school, but I've found my groove. Finding my passion has allowed me to grab opportunities and to move forward, full speed ahead. And there's no other school in the world where I'd choose to live out this process.

—GIONTÉ MASON, FSHN '19

1914

Through the Smith-Lever Act, the federal–state partnership for the Cooperative Extension Service is inaugurated at the University of Illinois to advise Illinois communities about farming and home economics based on evidence from university research.

1900

Construction begins on a new College of Agriculture Building, contributing to the growth and expansion of the college. The building is later renamed Davenport Hall after Eugene Davenport, college dean for more than 25 years (1895–1922). College trustees vote to establish the Department of Domestic Sciences and hire Isabel Bevier as its head.

1941

The first University Child Study Lab is created to understand behavioral development in children.



1885

Illinois Industrial University is renamed the University of Illinois.



1956

The College of Agriculture Alumni Association is chartered as a nonprofit corporation to tackle issues including agricultural scholarships, lagging enrollments, and the public image of the college.

Tami's Story

From the time I was a little girl, the Illinois logo came into my house each month on 4-H and Extension letters. Then, on a beautiful spring day, I set foot on campus for the state 4-H livestock judging contest, and my life was never the same. I later met ACES leaders Dean Chuck Olson and Dr. Jim Evans during State FFA Convention at Assembly Hall, where they introduced me to my future major: agricultural communications. Later that year, the most important U of I envelope arrived at my house confirming my college acceptance, and it literally changed my life's trajectory in ways I never imagined. I just celebrated my 27th year at Monsanto, and I can directly link my ACES Illini experience with providing me an opportunity I never knew existed.

My U of I and ACES experiences have enabled a future I could've only dreamed of as a child. From 4-H demonstrations to farmer meetings and field days, from Student Advancement Committee to sales team leadership, from Extension's agronomy short course to leading Knowledge Transfer Agronomy, from Ag Communications campaign class to leading corporate communications, my Illini roots have kept me connected to my alma mater. I was recently back in Mumford Hall for my final Agricultural and Consumer Economics Advisory Board meeting. Before I left, I passed along my appreciation for the important work they do and for the opportunity to serve the university and college. No matter how many hours or dollars I give to this fine institution, I will never be able to repay what it has given me. As a 4-Her, an undergrad, a JBT scholar, a student worker, an alumnus, and a contributor, I am part of a 150-year legacy of heritage, excellence, and opportunity. As a small-town farm girl with an Illini dream, I will be forever grateful for the Block I logo and all it represents.

—TAMI CRAIG SCHILLING, B.S. '90 Agricultural Communications

Larry's Story

Once ACES is in your blood, it's hard to let it go. I guess that's why I found myself serving on the College of Agriculture Alumni Association Board and subsequent ACES Alumni Association Board, the Illinois 4-H Foundation Board, and the Chancellor's Commission on Extension. One of my favorite "board" stories surrounded the construction of the ACES library. Lynette Marshall spoke at one of our alumni meetings about how the college needed a new library. She explained that John Campbell, the previous dean, was instrumental in kicking off the fundraising campaign, successfully soliciting \$1 million from the Funk family. The campaign was nearing the 10-year mark; almost \$10 million had been raised privately, but it was still not enough to construct the library. After hearing these reports over and over, I was getting tired of them. As board president I finally said, "Why don't we follow the old model of the PTA organization and ask the state legislature to provide 50 percent of the money for the project if we can raise the other half? It's time we get this project done!" I offered to write each Illinois senator and representative in the General Assembly to request an appropriation for the half of the funds we did not have, since we knew it would be a \$20-million project. Thankfully, Warren Wessels said, "By gosh, let's do it! I'll even write the letter for you to sign, Larry." I sent the letter on behalf of the ACES Alumni Association. The rest is history, and the library construction was completed in 2001.

—LARRY FISCHER, M.S. '74 Agricultural Education

1968

The University of Illinois organizes the Division of Nutritional Sciences to offer interdisciplinary opportunities for graduate education and research.

1973

The School of Human Resources and Family Studies/Home Economics Alumni Association is established to support the School of Human Resources and Family Studies, recognizing the importance of the profession, encouraging enrollment, providing financial assistance, and encouraging a high standard of research, teaching, and public service.

1978

The Jonathan Baldwin Turner (JBT) Agricultural Merit Scholarship Program is launched to encourage outstanding high school graduates interested in agriculture-related careers.

1995

The College of Agriculture and the School of Human Resources and Family Studies consolidate to form the College of Agricultural, Consumer and Environmental Sciences.

The College of Agriculture Alumni Association and SHRFS/Home Economics Alumni Association merge to form the College of ACES Alumni Association.

1991

The Plant and Animal Biotechnology Laboratory is erected to provide exceptional research facilities to university and USDA scientists focused on catalyzing the future of agriculture through new molecular technologies. The building is later rededicated in honor of Edward R. Madigan, the U.S. Secretary of Agriculture from 1991 to 1993.



Starr's Story

When I was accepted into the U of I Research Apprentice Program as an East St. Louis high school student, I had no idea what to expect when I arrived to campus that summer. I assumed I'd learn a little about ACES, agriculture, and scientific experiments. Looking back, I learned so much more. I discovered how science and agriculture affect my world. RAP ignited a passion in my life to play a part in shaping and changing the world. I'm currently majoring in food science and human nutrition with plans to become a dietitian so I can help others identify and appreciate the value of a proper diet.

—**STARR RETIECE GIBSON**, FSHN '18

2012

Former College of ACES dean Dr. Robert Easter is appointed the 19th president of the University of Illinois.

2016

Dr. Kim Kidwell becomes the first woman to serve as dean of the College of ACES.

Maria's Story

In 2004, I left my home in Brazil to journey to the Department of Animal Sciences at Illinois, where I could be at the hub of companion animal nutrition research. My adventure abroad started with a few challenges. Living away from my family in a new country with a very different climate and culture was not easy. However, the professional and personal experiences I had far surpassed any challenges I faced. A year later, I began my master's degree program under the guidance of Dr. George Fahey and was exposed to a variety of research projects, took several courses from world-renowned researchers, and had access to unique cutting-edge technologies. I then completed my Ph.D. at the University of Kentucky before returning to join the Department of Animal Sciences at Illinois in 2015 as an assistant professor. My experience has taught me to love what I do and work hard to be good at it. The odds may not always be in your favor, but don't let them discourage you in following your dreams.

—**MARIA CATTAL DE GODOY**, M.S. '07 Animal Sciences

2017

The University of Illinois celebrates its 150th anniversary.



Ed's Story

In 1960, I attended a state 4-H livestock judging contest and rubbed shoulders with the judges—U of I Extension livestock specialists. Later, as a college freshman, I served on the Illinois 4-H Livestock Judging Team. I can't begin to describe what a great learning experience this was for me. I learned about making choices in various species classes and defending my decisions with reasons—a powerful life skill. My U of I education opened so many doors in my life—to positions in marketing, strategic planning, business development, product research and business segment management, and eventually to becoming president of Purina Mills, Inc. Those career opportunities have allowed me to give back by serving on several boards, including the Board of Trustees for U of I. At Illinois, I learned from world-class faculty, experienced horizon-expanding activities, and met agribusiness leaders who mentored me throughout my career—a career that I could never have imagined at that first livestock judging contest.

—**ED McMILLAN**, B.S. '69 Agricultural Science



across Generations

Child Development Laboratory celebrates
75 years of impactful research

By Stephanie Henry

Families don't easily forget the time their children spend at the ACES Child Development Laboratory at the University of Illinois. In fact, when asked if he ever hears from "CDL families," even years after they have spent time at the center, director Brent McBride smiles: "All the time."

For one Champaign family, the CDL was a special part of their lives not just over a few years, but across generations.

Carol Ann Hurt first took classes and did observations at the CDL as a U of I student. She went on to send her own children to the CDL in the 1960s, and her grandchildren attended there as well. One of her best memories of the time her children spent at the center is "sneaking up" to the observation space to watch the kids in their classrooms.

"We went to school in carpools, and if it was my day to drive, I would always stay and go up to the observation booth," she remembers. "Sometimes I would stay all day. I just wanted to see how my children reacted with the others."

And her curiosity continued years later when her grandchildren attended the CDL: "Oh, I loved it! I went to observe them almost as much as I did my own children."

For 75 years, the Child Development Laboratory has prepared young children for successful futures. The teachers and staff continue to provide a welcoming, nurturing environment for families and children in their early years of life. The CDL focus has always been to provide high-quality early childhood care and education to the community. And research conducted there has had a notable impact on the fields of child development and family studies.



A CDL Family

Hurt came to the U of I in the fall of 1950, as a home economics major. Ultimately, she changed her major to child development, with a foods and nutrition minor. She had several classes in the “old” CDL.

After graduating, she taught at the Champaign-Urbana Co-Op Nursery School, using the lessons and experience she gained at the CDL. In a second career, she developed, along with her sister, The Art Mart, a well-loved retail shop. Hurt still makes jewelry for the store, now owned by Hurt’s niece and her niece’s husband.

But even after leaving preschool teaching, Hurt kept up with what was happening at the CDL, and she always knew where she wanted her own children to attend preschool when they were old enough.

“It never occurred to me to do anything different,” she says.

Hurt says her daughter, Kendy Stewart, and son, Davis, loved going to the CDL. “They would get their coats on even before it was time to go.”

Stewart’s best childhood memory from the CDL was the fireman’s pole, which she says was no longer in use when her now grown children—Preston, Taylor, Parker, and Connor—attended.

“I knew I wanted my kids to attend the CDL from the beginning. I was concerned they wouldn’t get in, but we were so excited when Preston was given a spot! We have always thought that the CDL was the best preschool in CU, with a staff that was tied to the university, their ongoing research studies, and students involved in the child development degree program working as teachers.

“Our family was very fortunate to have the CDL in our lives, and we are very grateful to each teacher that crossed our paths,” Stewart says.

Stewart graduated from the U of I in 1980 with a bachelor’s degree in foods and nutrition in the College of Liberal Arts and Sciences, also taking classes in the CDL during her studies.

Then and Now

The Child Development Laboratory began in 1941 as a “child study lab” in what was known as the Women’s Building (the English Building today) on the main U of I Quad. Ms. Nellie Louise Perkins was the first director, and students learned about child development there firsthand.

The CDL’s current building at 1105 West Nevada, built in 1955, includes an observation deck allowing students and researchers to observe the children unseen. In 2003 an Early Child Development Laboratory Building (ECDL), also on Nevada, was built to provide care to children ages 6 weeks to 3 years. Last year, the CDL supported teaching, research, and outreach/engagement activities of faculty, staff, and students from five different colleges and the School of Social Work on campus. Students from over 20 programs and departments learn about child development and gain their first experience working with young children in the CDL and ECDL.

Part of the Department of Human Development and Family Studies, the CDL is one of only three early care and education programs in east-central Illinois accredited by the National Association for Education of Young Children. It is the only accredited program in a six-county area that serves infants, toddlers, and 2-year-olds, and the only one that provides them full-day care. “Criteria for accreditation are very difficult to meet, well beyond what licensing from DCFS dictates we should do as an early care and education program. That’s very attractive to families because they know children thrive in our program,” McBride says.

The center’s method, for all the ages it serves, is different from most.

“Our alums do great things, and then those still in town send their kids to us. That is how we get second and third generations.”



“I hope families see we take a very developmental approach to educating children,” McBride says. “We know that with 3- and 4-year-olds, in any given year they will be all over the board developmentally in what they are ready to do. We follow a very individualized, developmental approach to teaching. Children thrive under that.”

“When we have a 4-year-old who is reading the newspaper but struggles socially—we do things to help that child. In the same group you might have a child who can’t distinguish between letters and doesn’t recognize her own name in print. We do things in the classroom to meet that child’s needs as well.”

Historically the CDL was an important part of the home economics program. Home economics alums from the 1940s through the 1960s might remember that child development courses were required in the home economics program. McBride explains: “All home economics students, no matter their emphasis—interior design, foods and nutrition, etc.—had to take a child development course that involved working in the CDL. Every home economics alum from the ‘40s, ‘50s, and ‘60s, many who are married to ag alums, knows the CDL as the last vestige of the home economics program from their day that’s still in existence.”

In its 75 years, the CDL has grown from being not only a place of high-quality care, play, and learning, but one where world-class research is conducted.

Families choose the CDL for its high-quality care and education, McBride says, but he adds that they are very supportive of the research efforts. Families know their children will not be treated like “lab rats” as research subjects, he says.

“We have policies, procedures, and protocols that protect the interests of the children and the staff so that their experiences are disrupted minimally, if at all, by what’s going on related to research,” McBride adds.

Research conducted at the CDL has even contributed to better practices in child care and development at the center, he says.

For example, a study in the center looked at what kinds of things teachers talk about with kids during mealtimes. Having teachers adjust their questions from “Are you done yet?” to others like “What is your body telling you?” or “Is your tummy full?” teaches children to follow their bodies’ cues about hunger and satiety.

Close Connections

But it’s the important connection families have had with the center over the years that McBride comes back to as he talks about the CDL.

“Children leave us and go to all kinds of schools in a variety of communities, but a common thread is the CDL; they still come back together with their CDL friends. We have had children go off to college who still meet up over the summer with their CDL friends and come to talk to the teachers.

“Our children grow up to do phenomenal things. They become great parents and contributing members of society; we even have some prominent people in our list of alums. Our alums do great things, and then those still in town send their kids to us. That is how we get second and third generations,” McBride says.

The toughest part of the job for McBride is having to let a family know there isn’t a spot open for their child. “It’s difficult to get in—there are wait lists,” he says, even with 160 spots each year. “We deliberately stratify our classes—approximately 25 percent of our children are faculty children; 25 percent are children of support staff; 25 percent are children of students, both grad and undergrads; and 25 percent are children of community members with no formal connection with U of I.

“And in that mix, approximately a third of the 160 children come from low-income families. Because of that stratification it’s a very diverse set of children and a much more attractive site to do observation, research, and teacher training,” McBride adds. “I hope in their child’s classroom and from their child’s experience, families are seeing the result of being exposed to high-quality early care and education.”

Are you an “alum” or family of the Child Development Laboratory? Whether you or your child attended in the 1940s or the 1990s, we would love to hear your stories and memories! Contact the CDL at ui-cdl75th@illinois.edu to share your memories, to wish them well in another successful 75-plus years, or to support the work of the CDL at the University of Illinois. Visit cdl.illinois.edu for more info on anniversary-related events coming up this fall.

Big Data *comes* HOME

Looking for a 3-bedroom, 2-bath home, under \$200,000, on a quiet cul-de-sac? Chances are *Zillow.com* is part of your search. Peter Christensen, ACES environmental economist in the Department of Agricultural and Consumer Economics, is collaborating with Zillow for an entirely different reason. He's tapping into the site's vast database to study consumer responses to changes in environmental quality throughout the United States.

Christensen and Iowa State University colleagues David Keiser and Gabriel Lade want to understand how people respond to environmental changes and stressors. They analyzed available consumer data to track the sales of products in a particular city, but they wanted to overlay that data onto home sales. That's where Zillow came in.

"Every time a house is sold or a loan is processed, that information is made publicly available by the local recording office. But it's very expensive to collect data outside of a particular locale and difficult to obtain data that is current," Christensen says. "For example, in a small city, there may be 50,000 homes that are affected by an environmental occurrence. Zillow aggregates data from county assessors' and recorders' offices nationwide. I got in touch with Zillow, and they were very responsive to working with us."

Zillow's chief analytics officer, Stan Humphries, says Zillow is offering the data in its raw form for free to academics and institutional researchers who assent to an agreement about its use. "Peter Christensen's research project is the first to use a huge trove of previously inaccessible or prohibitively expensive housing data. Zillow began releasing data in 2016 through its ZTRAX program."

ZTRAX—Zillow Transaction and Assessment Dataset—is the largest national real estate database of its kind, with more than 374 million detailed public records across more than 2,750 U.S. counties. It includes more than two decades of deed transfers, mortgages, foreclosures, auctions, and property tax delinquencies, plus property characteristics and geographic information, on some 200 million parcels.

Data for the project are stored at the National Center for Supercomputing Applications at the University of Illinois and processed using a variety of algorithms developed by Christensen's team. Computer scientists and economists

on the team are focused on ensuring the research quality of the dataset and on developing the next generation of models that can estimate the impacts of environmental crises or the benefits from policies that arise in response to environmental pollution reduction programs.

Christensen says although Zillow develops estimates and forecasts, he is not using them in the study. "I'm not using forecasts that Zillow produces. That would require understanding the company's proprietary algorithms. I'm using the actual transactions themselves—the same underlying data initially captured by local recording offices and gathered by several companies operating in this space.

"We're excited that Zillow created a research-focused database and wants to engage researchers and universities," he says. "It has been fantastic that Zillow has supported our research. It is a key challenge, and we expect to have results from this first study using ZTRAX soon."

By Debra Levey Larson



Data-Driven Dairy

By Lauren Quinn

“Can we make dairy extension more scientifically sound?”

That’s the question that led Phil Cardoso in 2012 to develop the Dairy Focus Team at U of I. Cardoso, then a new faculty hire in the Department of Animal Sciences with an appointment in research and extension, wanted to maximize his impact on the state’s 600-odd dairy farms. Cardoso’s Dairy Focus Team is revolutionizing the definition of dairy extension, not to mention turning out the next generation of leaders in the industry.

A holistic view

Cardoso says that under the former extension model for dairy, specialists would tell farmers about new university research and might make recommendations in their areas of expertise, but most weren’t collecting and analyzing data from the farms to allow for tailored recommendations. Cardoso wanted to change that.

The focus was also too narrow, in his view. “If you like nutrition, you’re going to talk about nutrition,” Cardoso says. “You will catch everything a farmer is doing related to nutrition that is wrong. But that might not be the right first step for the farmer to improve. Say a cow has a mastitis infection—you need to resolve that first.”

To broaden the approach, he created the Dairy Focus Team, a group of graduate and undergraduate students, faculty members in animal sciences, and industry leaders. The team is structured like a business, with Cardoso acting as CEO and graduate students serving as president and chairpersons for four focus areas: nutrition, reproduction, young stock, and management. The chairpersons train and mentor undergraduate “employees” in their focus areas. Industry leaders and faculty members act as consultants.

One of the team’s first tasks was a massive data-collection effort to provide a baseline of the dairy industry in Illinois.

Road trip!

The team spent much of the summer of 2014 in a Suburban, visiting 20 farms across the state. Upon arrival, the group would fan out, evaluating and sampling every aspect of the dairy, while Cardoso sat down with the farmer to complete a lengthy questionnaire and get copies of the farmer’s data.

“They were everywhere,” recalls Don Mackinson of Mackinson Dairy Farm near Pontiac, “walking through the barns, taking readings on the fans and air movement, looking at cow behavior, asking questions.”

Ines Rivelli Bixquert, the first president of the Dairy Focus Team, says the group would go in without preconceived notions of what a farmer might need. Often the farmers themselves weren’t aware of problems before the team showed up. “Sometimes they thought they needed help with nutrition, but they really needed to focus on some aspect of reproduction. The process helped them to understand their farms,” Rivelli Bixquert says.

The visits were illuminating for more than the farmers. “We had learned the textbook examples of what should be done in a given situation, but that doesn’t always work for a real farm,” says Ph.D. student Sarah Morrison. “Going out there and being able to troubleshoot was eye-opening. We learned to work together and try things. That’s a very important skill.”

Crunching the numbers

After returning to campus, the team would come back together to discuss each farm visit.

“We would go over the pictures we took, discuss all the opinions, and build up a document summarizing the strengths, weaknesses, opportunities, and threats. We identified the one to three topics that this farmer needed to know,” Cardoso says.

“

We had learned the textbook examples of what should be done in a given situation, but that doesn't always work for a real farm.



Students processed and analyzed samples and observations, comparing the 20 farms statistically and compiling the information into reports they sent to all the farmers. The farms were categorized by region of the state and coded to provide anonymity.

The team did see a few differences between north and south, but Cardoso says the most powerful result of the analysis was the opportunity for farmers to compare farms with their neighbors. “That’s what provokes change,” he says. And it did. Surveys showed that more than 90 percent of the farmers planned to make changes to their practices as a result of the Dairy Focus Team’s report.

“The team was very thorough,” says Mark Beer of Beer’s Robo Holsteins in Mascoutah. “For example, they suggested we clean the water fountains more often—instead of once a week, maybe every two or three days in summer. And they suggested we improve our dry cow facilities as far as the bedding and free stalls. It’s something we kinda knew, but it was good to hear it from someone else. Their suggestion prompted us to actually do it.”

Lasting impact

The analysis of those 20 dairy farms has not just been filed away and forgotten. Instead, the results have been used to transform both the research community and the dairy industry.

The 2014 project formed the basis of Rivelli Bixquert’s master’s thesis, which was recently published in an academic journal. Now a Ph.D. student, Rivelli Bixquert hopes the work will inspire other dairy scientists to use data gathered in the real world, not only the carefully controlled environments that are typical for research studies.

In addition, Cardoso and the team, after mining the data to identify the most common issues facing Illinois dairy farmers, created a dynamic educational platform available to all 600-odd dairy farms in the state, and beyond.

The team writes about four newsletters a year, each one brimming with research-backed information on common problems as well as detailed explanations of ways farmers can fix them. The newsletters are available on the Dairy Focus website, dairyfocus.illinois.edu, and are sent to subscribers in 17 countries. They provide relevant information to farmers, veterinarians, and nutritionists.

In addition to the newsletters, the team creates YouTube videos and dairy-focused tools that farmers can use to maximize profits. “I don’t want farmers having to go all over the place to find answers,” Cardoso says. “Everything that they need, they can find here.”



George Czapar, Extension director and associate dean in the College of ACES, says, “Phil’s work really embodies the Extension motto: ‘Extending knowledge, changing lives.’”

Student legacy

For the students, the Dairy Focus Team is all about teamwork, leadership, and problem-solving, skills that will serve them well as the next generation of leaders in the dairy industry.

Sarah Morrison, who wants to be a technical specialist or a research scientist in the industry, says, “I think the experience has set me up with a good set of skills different from what other applicants might have.”

Rivelli Bixquert also sees herself working in industry, but she admits to falling a little bit in love with extension work as a result of her experience with the team. “If there’s a way to do industry and extension at the same time, I would. For now, I’m in between. I want to go into industry as a researcher, but I really like extension.”

All about the numbers

“Cardoso has developed a great model,” Czapar says. “Extension has always provided research-based information, but this approach also incorporates student education and the opportunity to identify future research needs.”

He continues to bring students to farms for that real-world experience and to help farmers improve their operations. And he will never give up on his mission to infuse more research into extension. Cardoso says, “We give names to cows, but what about the numbers? The approach that will return more to the farmer is the one that is data-driven.”

Not your *typical* student

ACES grad student empowers women to pursue agroforestry careers

By Stephanie Henry and Caroline Helton

Women are typically under-represented in most STEM—science, technology, engineering, math—fields. This is especially true in Nepal, the country where Richa Niraula, an ACES master's degree student, grew up and received her undergraduate degree.

Niraula was not a typical student, though. She studied forestry, an industry in which Nepali women are strong players but rarely receive recognition for their labor and dedication. She began her studies determined to empower women in her country to join the important conversations surrounding agroforestry; she even set a specific goal of changing the lives of 1,000 women in the field.

Through her personal and academic experiences, Niraula saw women being viewed as “ornamental.” In reality, she explains, women are responsible for maintaining the family and home as well as addressing such critical issues as access to water and food insecurity. This is most true for unmarried women, she adds, who are often told that they should not pursue training or education.

Niraula rejected this narrative. During her second year of undergraduate study, she boldly joined a 2-week volunteer project in rural Nepal, the only woman in a cohort of 15 students. As the team prepared to hold a village meeting to discuss local forestry needs and concerns, the person overseeing the volunteers advised Niraula that women were unnecessary to the conversation and suggested she direct her efforts elsewhere.

“His answer felt like a punch in the gut, as if what I was doing did not matter at all. Never did someone question my existence in such an abrupt way. It was humiliating, but it bolstered my conviction to do more,” she says.

So she enlisted the help of a local eighth-grade student, and they proceeded to stop at every home in the village. She invited other women to the meeting and urged them to take pride in the work they do for their community.

When Niraula arrived at the meeting, she was delighted to find most village women there, ready to voice their expertise and concerns. “I took it as both an opportunity and a challenge: to prove that women are very much necessary for conservation, and to see what the women felt about being

sidelined. Unsurprisingly, they wanted to participate,” she says.

Niraula still receives regular updates regarding these women, encouraged that they continue to engage and even lead in their community because of her efforts during a short volunteer program.

Nearing the end of her undergraduate studies, Niraula began investigating grad school options, only to be met again with discouragement and lack of support. Despite others' belief that she would never be selected, Niraula was accepted into the Fulbright Scholars Program. This award allowed her to come to the College of ACES Department of Agricultural and Consumer Economics to study environmental economics under professor Amy Ando, now her mentor and advisor.

While at Illinois, Niraula has relentlessly pursued her goal. The Women in Forestry Group she started holds weekly Skype sessions to develop the leadership and technical skills of Nepali women who are typically marginalized in their communities.

Beginning as a blog, the Women in Forestry Group has evolved over time, providing opportunities for Niraula to deliver presentations and discuss her work. On International Women's Day, she received recognition from the U of I Women's Resource Center as a distinguished honoree.

“To get an award in a land that is not mine was amazing,” Niraula says. “To see so many women from different sectors bringing changes in society through their tireless work, it was such a rewarding experience. More than anything, the recognition gave me the confidence to keep on trying.”

Niraula received a master's degree in August, with the hope of going on to pursue a Ph.D. in forest economics and policy.

When asked how the U of I has impacted her personal, academic, and professional trajectory, she cites the influence of her mentor/advisor. “Women in Nepal lack leadership and technical skills, hesitate to speak out, and are often the victims of discrimination,” Niraula says. “Now that I am in the United States, I've found freedom and have had the privilege to be around people who are empowered, setting an example for me to empower others.”





Ruffled FEATHERS

Photo by John Whitelaw

Tropical birds may be more vulnerable to the effects of climate change

By Debra Levey Larson

The joke about Illinois weather is, if you don't like it, wait 20 minutes. Case in point—one week on campus last spring, students were seen wearing shorts to class one day and parkas the next. Across the Midwest—and much of the United States—wild fluctuations in weather are becoming the norm.

But we adapt. We keep summer clothes handy for an unseasonably warm day in February, and we aren't surprised to hear “winter thunder.” We reschedule (if begrudgingly) baseball games and picnics. We keep calm and carry on—and so do our bird neighbors. They can't haul parkas out of the closet, but they can alter their migration and reproduction a few days earlier or later.

Not so for birds in tropical climates like that in Panama. Seasonality there is rain or no rain, says Jeff Brawn, ornithologist and head of the ACES Department of Natural Resources and Environmental Sciences.

“Because the tropics are relatively stable weather-wise, tropical birds aren't able to handle environmental disturbances as easily, physiologically or behaviorally, as temperate-zone birds. Birds in the Midwest face below-zero winters and

“The study shows that even in a protected park, the large, global effects of climate change could make a lot of habitat unsuitable for a lot of species.”

100-degree summers—environmental stress that tropical birds never experience. Consequently, tropical ecosystems and animal populations may be more vulnerable to the effects of climate change.”

Brawn should know. He's been studying birds for over 30 years in Panama's Soberania National Park, approximately 100 square miles of protected rainforest in central Panama and home to well over 500 bird species. But changes in climate, rainfall in particular, were not on Brawn's mind when he began. He was studying the birds' populations.

“Some years ago, tropical forest ecologists began reporting that some tree species are sensitive to more intense seasonal drought,” Brawn says. “Atmospheric modelers predicted that the length of the dry season may dramatically change in the tropics—shorter in some places, longer in others.”

Brawn connected the dots, relating changes in rainfall to bird populations.

The key finding of Brawn's study is that longer dry seasons and more intense seasonal drought have an overall negative effect on bird populations. Climate change may create even longer dry seasons. Just within the span of Brawn's study, distinct El Niño events in 1993 and 1998 brought longer dry seasons with less rain to central Panama.

This is not good news for their birds.

“Climatologists expect these events to become more common with climate change,” Brawn says. “Under these conditions, reduced populations of tropical birds may result in fewer birds to provide vital ecological services. Birds eat insects and prevent damage to the trees. They disperse seeds. They pollinate. The ecological effect from bird species loss is potentially far-reaching.

“And keep in mind that this study looked at just a small slice of the bird community in this forest. Hundreds of bird species live in the upper canopy, high above the reach of our mist nets. They're harder to capture, so we don't have data on those species or others that are rarer.”

The fact that this kind of negative effect on a large population of birds can happen in a national park draws even more concern, Brawn says. “We worked in a good forest—that is, relatively intact. The study shows that even in a protected park, the large, global effects of climate change could make a lot of habitat unsuitable for a lot of species.

“Modeling results into the future, the logical outcome is that there will be winners and losers,” Brawn says. “Some species will do very poorly, and some will do well, but the bottom line is, the tropics will be very different than what we experience now. We're not saying it will be a silent forest, but it will sound dramatically different 100 years from now, with songs from only those species who persist.”

A closer look at the study of 30+ years

What makes Brawn's study unique is the duration. “You can't determine the effect of changing environmental conditions and their relationships to bird populations without a long-term study and long-term data,” Brawn says. His is also one of the longest studies, as well as the first, to examine tropical bird populations and climate change.

Data from 1977 to 2011 create the basis of the simulation for the study. Brawn's team looked at the relationship between population growth rates and the length of the dry season during those 33 years, then simulated another 50 years using an average of 10 percent change in the rainfall pattern in Panama's dry season.

The results show that for 19 of the 20 species studied, drier conditions may mean significantly fewer birds.

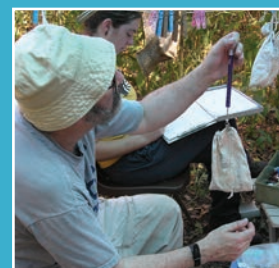
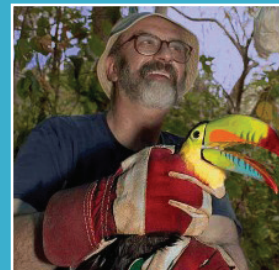
“At the full 10 percent change, the dry season is only about 12 days longer, which isn't a big difference,” Brawn says. “But the simulation suggests that, in time, the bird community will be very different under drier conditions.

Brawn and his team caught over 250 different species in mist nets, but they only had enough data to model 20 of the most common. “Capture-mark-recapture is the key. We let the birds go, then capture them again. We estimate survival rate and changes in the size of the population by the numbers that we recapture.”

Only one of the 20 species in the study, the scaly-throated leaftosser, tended to increase with drier conditions. “That one seemed to have a favorable reaction to changes in seasonal drought. We don't know why—it just consistently seemed to do better,” Brawn says.

Interestingly, this research didn't begin as a study in climate change. James Karr began charting the demography of tropical birds as a U of I graduate student. Later, he became deputy director of the Smithsonian Tropical Research Institute (STRI). Brawn had a postdoctoral position with Karr at STRI. In 1991 Karr handed over the reins, and Brawn continued the work in Panama.

Funding was provided by the National Science Foundation, U.S. Department of Defense Legacy Resource Program, U.S.D.A. National Institute of Food and Agriculture, University of Illinois, and the Environmental Science Program from the Smithsonian Tropical Research Institute.



On the Hill

Ag Education student selected to lobby for the University of Illinois

By Kaity Spangler



April 23: It's 6:00 a.m. Along with five other University of Illinois students, I am en route to Washington, D.C. for Big Ten on the Hill, the conference held by the Association of Big Ten Schools. I am not going to lie, I am beyond excited for this opportunity! Not only do I get to spend the next three days in my favorite city in the whole world, but I also get to sport my orange and blue while lobbying on behalf of my favorite university. I have always loved policy and the D.C. world, and getting to experience both at this prestigious level is a dream come true. I could never have imagined that through my involvement in the College of ACES and the University of Illinois, I would find myself in Washington.

After landing in D.C. and unloading our luggage at the hotel, we head out to explore the National Mall until our evening conference meeting. It is a blast visiting all of the monuments and getting to know the other members of the group. One of them, Spencer, happens to be a vegan. Ironically, it turns out, that is how we bond on the trip! Being able to have conversations with Spencer about agriculture and why he chose to be a vegan is eye-opening. He even has a few misconceptions about the agriculture industry that I am able to clear up. I walk away from our conversations with an entirely different perspective on veganism, and I hope he walks away with some new views on agriculture.

After touring the monuments, we head back to the hotel for a welcome from the Association of Big Ten Schools executive board. After the meeting, we have dinner with conference participants from Penn State. It is a beautiful evening in Washington, D.C.—what a great way to start this experience!

April 24: Our first full day in D.C. begins with a presentation from Young Invincibles, a national nonprofit organization that empowers young Americans with information regarding healthcare, jobs, and other important issues in society. We then head to the Department of Education for a meeting with James Manning, the acting undersecretary of education, and Lynn Mahaffie, the first assistant in the Office of Postsecondary Education. The purpose is to address topics related to the DOE's partnerships with university administration and the department's stance on education policies and their intended goals for students in higher education. Manning and Mahaffie tell

us that Secretary of Education Betsy DeVoss is looking for innovative ways to make higher education an option for everyone. They also explain the department's approach to evaluating graduation rates from colleges and universities across the United States to find ways to increase the number of graduates. Proposed solutions include pushing dual credit and AP classes in high school, making the credit crossover process for transfer students smoother and easier, and year-round schooling. That topic really catches my attention. I've watched friends struggle with transferring from junior college to a four-year university; sometimes credits and classes don't line up. That leaves students frustrated and forced to pay more money.

After leaving the Department of Education, we head to Capitol Hill to meet with legislative assistants from the offices of Congressmen Adam Kinzinger and Brad Schneider as well as with Congresswoman Tammy Duckworth and one of her staff members. We have great discussions on issues important to college students, such as federal student aid and the Respond, Innovate, Support, and Empower (RISE) Act. I am specifically interested in the RISE Act and love learning about this piece of legislation and how it will help students. Legislation like the RISE Act is very important to me, a future educator; I want my future students to be successful after graduation, and this bill makes that possible. Currently, students with special needs who have an individualized education program (IEP) or a 504 plan in high school may not carry their plan's accommodations over into college. They have to go through rigorous and expensive testing to keep the help they need to succeed in school. With the RISE Act, students will be able to continue using their accommodation plan in college without having to pay money to be tested. This is monumental legislation that can make an impact in the lives of students across the United States.

As we finish up our day on the Hill, I meet with ACES graduate Matt Lloyd, the principal deputy assistant secretary

for public affairs in the Department of Health and Human Services. I have talked to Matt by phone on several occasions about opportunities in D.C., but I am excited to meet him in person. It is great to talk about the exciting things that await college grads in the Capitol City. I leave our meeting with a new optimism for students interested in public policy and excited for where my path after graduation might take me. It is crazy to see how far a degree from the College of ACES can take you!

April 25: Our final day in D.C. begins with meetings with legislative advisors from the offices of Illinois Congressman Rodney Davis and Senator Dick Durbin. We further discuss key issues about higher education, wrapping up around lunchtime and grabbing something to eat before our flight. It's a great way to end our time in D.C. and as a group. After narrowly making our flight home, we arrive back in Champaign just in time for dinner.

This trip is one that I will never forget. I have experienced Washington, D.C. many times, but this trip is the first one I have made outside of an agriculture-advocacy capacity. Typically, when working with the government, I do it all in the name of agriculture. My internship experiences and ACE 231 class [Food and Agribusiness Management] with Jon Scholl are prime examples. But this time I'm not here to talk about pesticides, the Farm Bill, or Waters of the United States (WOTUS). Instead I am here on behalf of my university as a whole. For three short days, I have the privilege to speak to policy makers about my passion for the orange and blue and why our mission—"to enhance the lives of citizens in Illinois, across the nation and around the world through our leadership in learning, discovery, engagement, and economic development"—is one they should take



"It is crazy to see how far a degree from the College of ACES can take you!"

seriously. The University of Illinois, through opportunities like Big Ten on the Hill, gives ordinary students like me the privilege of gaining contacts, skills, and resources to change the world. That is what makes us so special, and that is what will continue to be the force behind our significant and continued success.

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.

Two ACES Ph.D. students—**SHASHANK GAUR** of the Department of Food Science and Human Nutrition and **THOMAS POOLE** of the Department of Crop Sciences—were named Next Generation delegates to the Global Food Security Symposium 2017 held in March.

The Sun Buckets project from the Department of Agricultural and Biological Engineering, competing in the 7th-annual Clean Energy Trust Challenge in May, won four awards totaling \$100,000. Those on the project team include **SAM LINDGREN** and **JOE BRADLEY**. Sun Buckets are portable, stored solar energy cookstoves that allow users to cook without fire, fuel, or emissions.

Ph.D. student **FESTUS AMADU** of the Department of Agricultural and Consumer Economics was a scholarship winner in the 2017 class of Outstanding Future Leaders in the Association for International Agriculture and Rural Development.

The American Society of Animal Science named **BEN BOHRER** one of its 2017 Animal Science Young Scholars. Bohrer recently completed his Ph.D. in the Department of Animal Sciences.

The American Society of Agronomy (ASA), Crop Science Society of America (CSSA) and Soil Science Society of America (SSSA) selected **JESSICA BUBERT** as one of 18 graduate student members to receive the 2017 ASA, CSSA, and SSSA Future Leaders in Science Award. Bubert is a Ph.D. student in the Department of Crop Sciences.

LISA BURGOON, director of the campuswide Minor in Leadership Studies program in the College of ACES, was a recipient of the 2017 University of Illinois Chancellor's Academic Professional Excellence Award. Since the minor's inception in 2011, Burgoon has been primarily responsible for developing it into one of the largest and most popular academic minors on campus.

GAIL FERGUSON, assistant professor in the Department of Human Development and Family Studies, received the Early Career Psychologist Award from the American Psychological Association, Division 52, for her significant contributions to the field of international psychology.

PHIL GARCIA, Hieronymus Distinguished Chair in Futures Markets in the

Department of Agricultural and Consumer Economics, was named a 2017 Fellow of the Agricultural and Applied Economics Association for his continuous contribution to the advancement of agricultural or applied economics.

The Institute of Food Technologists has elected **SOO-YEUN LEE**, professor in the Department of Food Science and Human Nutrition, to its board of directors. Lee also received the IFT's 2017 William V. Cruess Award for Excellence in Teaching.

KELSEY LITCHFIELD, a recent graduate in Agricultural Communications, was selected as a 2017 Farm Foundation Cultivator and participated in the Farm Foundation Round Table in Charlottesville, Virginia, an invitational discussion forum comprising leaders from across the food chain and across North America.

The Department of Animal Sciences' **SHANNON MAXEY** received the 2017 Chancellor's Distinguished Staff Award for her excellence in work performance, attitude, initiative, and creativity.

DON ORT, professor in the Department of Crop Sciences, has been elected to

IN THE SPOTLIGHT



DR. SEAN FOX became the head of the Department of Agricultural and Consumer Economics in January. Fox comes to the College of ACES from the Department of Agricultural Economics at Kansas State University after completing a 22-year career as an outstanding researcher and educator. He also served as interim head at Kansas State from 2005 to 2006. Fox leads a competitively funded research program in applied consumer economics, agricultural marketing, and experimental economics. He has also taught several high-quality courses, including International Trade, Agricultural Policy, Applied Econometrics, Futures Markets, and Managerial Economics. He brings outstanding experience in online course development and delivery, which will be highly beneficial to the expansion of program delivery efforts in the department. A native of Ireland, he is a strong advocate for cross-cultural opportunities and has led student tours to the United Kingdom and Ireland.

the National Academy of Science, one of the highest professional honors a scientist can receive.

The Award of Excellence in Research from the Association for Communication Excellence was presented to **LULU RODRIGUEZ**, director of Agricultural Communications, during the association's 2017 annual conference in New Orleans in June. She was recognized among the most active and productive communications researchers in the subject areas of food, natural resources, renewable energy, rural development, and others related to agriculture.

JACLYN SALTZMAN, graduate student in the Department of Human Development and Family Studies, received the Dolores Norton Research Award from the Illinois Association for Infant Mental Health. The annual award recognizes a promising doctoral student or postdoctoral scholar in the field of infant and toddler social-emotional health, development, and intervention.

The inaugural recipient of the Werner Baer Doctoral Fellowship awarded by the Lemann Institute for Brazilian Studies at the University of Illinois at Urbana-Champaign is **RENATO SCHWAMBACH-VIEIRA**, Ph.D. student in the Department of Agricultural and Consumer Economics. The fellowship supports one doctoral student engaged in innovative social science research on Brazil.

DAN SHIKE, an associate professor in the Department of Animal Sciences, received the 2017 Campus Distinguished Promotion Award recognizing scholars whose contributions have been extraordinary in terms of quality of work and overall achievement.

In April **KAITY SPANGLER**, a senior in Agricultural Leadership and Science Education, participated in Big Ten on the Hill, a conference put on by the Association of Big Ten Schools. Spangler and five other University of Illinois students traveled to Washington to lobby on behalf of

college students, addressing issues including FAFSA and the RISE Act (Respond, Innovate, Support, and Empower). *See more on page 36.*

KRTI TALLAM, a junior in the Department of Natural Resources and Environmental Sciences with a concentration in fish and wildlife, received the 2017 Udall Undergraduate Scholarship. This scholarship honors top students who have demonstrated commitment to careers related to the environment.

North American Colleges and Teachers of Agriculture



Eight ACES professors were recognized as among the nation's best in agricultural education by the North American Colleges and Teachers of Agriculture (NACTA) during its annual conference at the end of June.

ALAN HANSEN (right) of the Department of Agricultural and Biological Engineering won the NACTA Teaching Scholar Award, which recognizes special commitment to the society and to agricultural education.

The 2017 NACTA Educator Award was given to these faculty (from left): **ANTHONY YANNARELL**, Department of Natural Resources and Environmental Sciences; **BRIAN OGOLSKY**, Department of Human Development and Family Studies; **DAN SHIKE**, Department of Animal Sciences; **PHIL CARDOSO**, Department of Animal Sciences; and **KARI KEATING**, Agricultural Leadership and Science Education. Not pictured are **YUJI ARAI**, Department of Natural Resources and Environmental Sciences; and **TONY GRIFT**, Department of Agricultural and Biological Engineering.

We welcome a number of new faculty who joined the College of ACES in recent months:

LAURA CHRISTIANSON, Assistant Professor, Crop Sciences

JASMINE COLLINS, Assistant Professor, Agricultural Education

SEAN FOX, Professor, Agricultural and Consumer Economics

BENJAMIN GRAMIG, Associate Professor, Agricultural and Consumer Economics

SARAH REFI HIND, Assistant Professor, Crop Sciences

ANDREW MARGENOT, Assistant Professor, Crop Sciences

NICOLAS MARTIN, Assistant Professor, Crop Sciences

MICHEL ROBE, Professor, Agricultural and Consumer Economics

Sustainable Farming

...in the palm of your hand

by Leanne Lucas

Building something new can be difficult. Building something that others haven't even attempted can be both frustrating and exhilarating, filled with challenges and possibilities. To keep his team on track, Chris Harbourt, CEO and founder of Agrible, uses one of his hobbies as inspiration.

"I used to think that restoring a car to a perfect state was the goal," Harbourt says. "But then I'd notice the fleck of paint that was a little off, or I could see a little dent. I had to force myself to step back and think about how awesome that car was.

"I try to make that connection with the team at Agrible as well," he says. "We can all get into a cycle and think about the problems in the application that we're building. But those challenges are bound to happen when you're building something new. We tend to gloss over how awesome that program actually is overall. So I tell the team to step back and stop focusing on the little flaws. I'd much rather think about the fun you can have with an old vehicle—or a piece of software. Same thing."

Agrible builds software that helps consumers get more sustainable products. Growers use it to track their sustainability efforts, and companies use it to see how their food is grown and produced.

Making the world more sustainable is a big goal to tackle, but it's one Harbourt has been thinking about for decades. He just had to wait for the technology to catch up to be able to pursue it.

After turning down his grandfather's offer to buy him a house and bring him into the family farming business in New Jersey after high school, he decided to pursue a college degree at Virginia Tech. "I could have had a comfortable farming life, but I wanted to go to grad school and try something different on my own."

Harbourt came to the University of Illinois in 1998 as a graduate student in agricultural engineering.



"I had general interests in computers, in mapping, and in weather," he says. "I took some classes in atmospheric science. That was the discipline that was developing the first real approach to 'big data.'

"Digesting all the information from early satellites and weather mapping to forecast a tornado warning or when a snow event was going to hit New York City—those were the first solutions to the big-data challenge. So I was exposed to that before big data was big data. What I wanted to understand was how I could apply that to agriculture."

Harbourt says he used everything he was learning to analyze one day of storm information. "That was my master's program, and it took me a year and a half. So the compute limitations were a big problem. I couldn't do what I wanted to do with the technology of the time."

Instead, he decided to put those interests on the shelf, and he began his Ph.D. doing field research. "I put measuring and monitoring equipment in the fields and started to make new observations about the environment. I made the equipment myself because I couldn't afford to buy professionally constructed equipment. I made it for such a low cost that where everyone else had one or two

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St. Louis Cardinal Mark McGwire hits record-breaking 70th season home run.

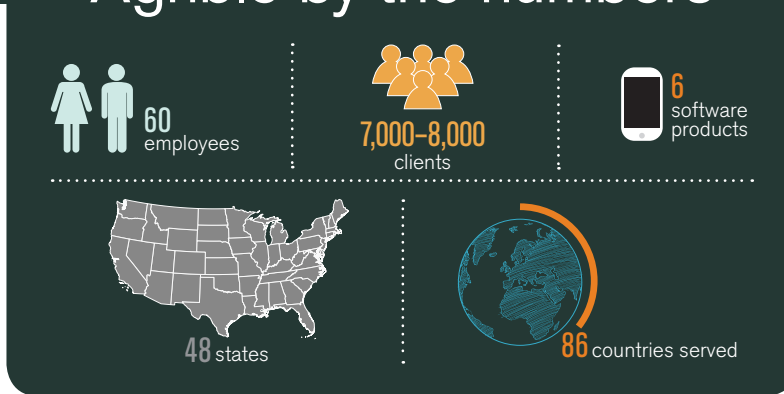
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Harry Potter and the Sorcerer's Stone is released in the U.S.

Exxon announces billion deal creating Exxon world's largest

Agrible by the numbers



groundwater well measurements, I had three rows of 60 measurements, and I was collecting data every 5 minutes. I was maxing out the compute infrastructure at the time and creating my own big-data problems. But I was having a lot of fun.”

After earning his degree, Harbourt went to work as a consultant for companies to re-register herbicides and chemicals. During that period, Harbourt says, technology started to catch up.

“That was also around the time the iPad came out. Now I’m not the kind of guy who camps out overnight at Best Buy, but Paul Miller and I were there the first day to buy an iPad. [Miller, another ACES graduate, is a co-founder and chief science officer at Agrible.] We knew this thing was amazing. It was going to change agriculture; it was going to change the world.”

Agrible is a testament to the astounding changes in technology and their effects on the agriculture industry. Agrible opened its doors in 2012 with two employees; today more than 60 employees serve more than 7,000 clients in 86 countries and 48 states, with a large

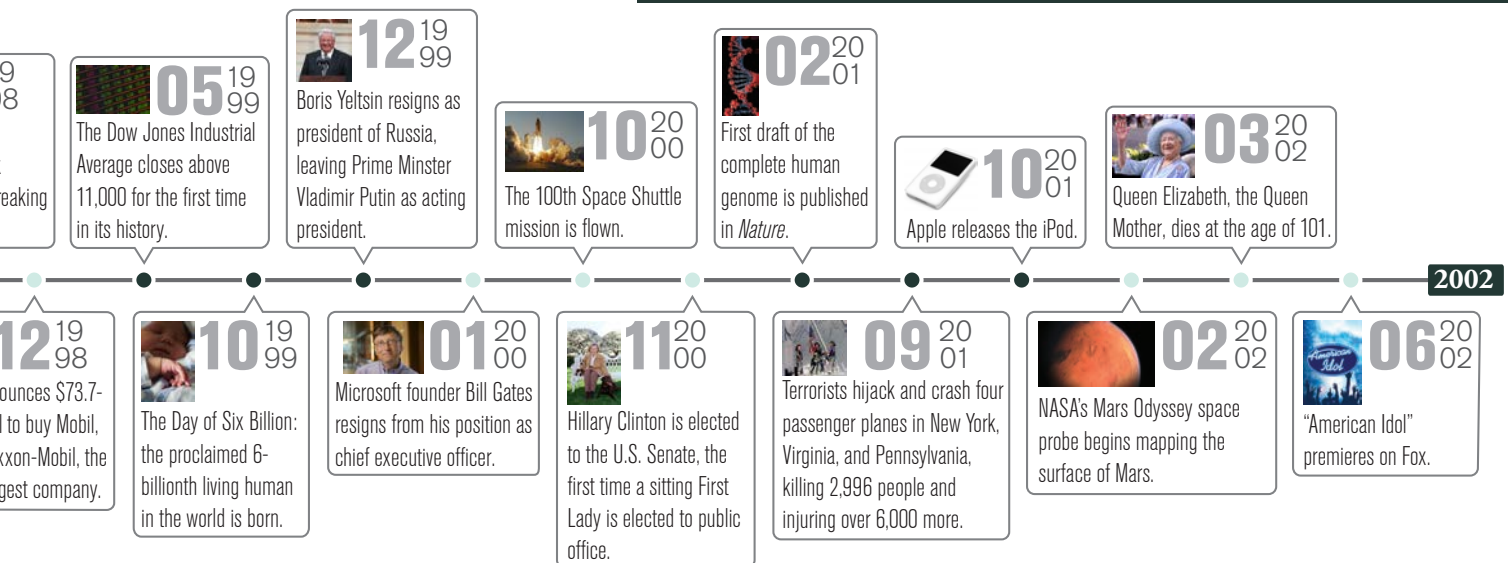
presence in both the U.S. and Brazil. They offer six software products, including Pocket Rain Gauge. “That app gets 30,000 to 40,000 uses a day,” Harbourt says. “At each of those locations, it’s doing more calculations than I did in my master’s program. And it’s free. The democratization of technology has been quite amazing.”

Recently Agrible has implemented a program that Harbourt hopes will allow the company to engage more closely with the university.

“We’re working with a number of faculty to impact the research process,” he says. “Professors are always looking for collaborators for the studies they conduct, and we can connect researchers with thousands of growers around the country. We know there’s a grower somewhere who uses Morning Farm Report [another Agrible product] who would be willing to say, ‘I’ve got 500 acres, and I can give you the records of what I’ve done if it would help your study.’

“Growers can interact more directly with the university, and researchers can get their results out to more people,” Harbourt continues. “We want to be the matchmaking service that makes that happen.”

Noteworthy headlines during Harbourt's years at Illinois



ACES Alumni Association THE PRESIDENT'S MESSAGE

By Sue Gray

A few months ago we formally welcomed 817 new College of ACES grads as members of our association at a festive ACES Tassel Turn reception in Memorial Stadium. Congratulations to each new graduate! At the university commencement exercises, Nick Offerman (FAA '93) shared wisdom he'd acquired from his U of I professor Shozo Sato: "Maintain the attitude of a student." It was fitting advice for new graduates, but it's an appropriate admonition for all Illinois students—future, current, and former—because as another fall semester begins, our hearts and internal clocks tug us back toward campus.

Even for those of us not physically present on campus, this is a good time to resurrect the sentiments that the waning summer days perennially provoke. Where else can you simultaneously reconnect and start anew? Feed your curiosity of learning? Combine a fearless innocence of not having to know it all with the license to continually inquire and discover freely? Sporting the attitude of a student approaching the new school year cultivates an understanding, if not an expectation, that something just around the corner could shape your life going forward.

Dawn Jackson-Blatner (FSHN '97), the ACES commencement speaker in May, advised, "Don't wait to be

invited." Wherever you are, continually reach out for opportunities to grow, to maintain friendships, to build experiences.

More than 50 of our alumni attended ACES Family Academies in July. They were reminded firsthand of the curiosity inherent in a student as they saw their young family members discover the possibilities together with their own potential in the learning opportunities available in ACES. It's a remarkable and transformational revelation, and even more special when revealed by a young person you love. Your ACES Alumni Association strives to keep offering you opportunities, and we hope you'll join us to "maintain the attitude of an [ACES] student." Consider this your invitation!



2017 Award of Merit Winners

College of ACES alums bring honor to themselves and their alma mater in many ways. The ACES Alumni Association celebrates those who have significantly improved the lives of others through outstanding leadership and service or have demonstrated outstanding professional achievement.



The 2017 College of ACES Alumni Association Award of Merit winners (from left): Keith Parr, Robert Easter, Robert Wyffels, Leon Corzine, John McNamara.

ON THE HORIZON

September 9 :: ACES College Connection – Hilton Garden Inn, Champaign

September 9 :: Salute to Ag Day

September 22 :: ACES Alumni Board of Directors Meeting

October 15 :: ACES Award of Merit Nominations Due

October 27–29 :: U of I Homecoming Weekend

December 1 :: ACES Alumni Board of Directors Meeting

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

ACES College Connection Recognizes Outstanding Alumni and Friends

Join us on September 9 for the ACES College Connection event. We will recognize the following award winners at a luncheon.

ACES Career Achievement Award

TEMPLE GRANDIN, Ph.D. '89, Animal Sciences
Animal sciences professor, Colorado State University, and owner/consultant of Grandin Livestock Handling, Fort Collins, CO

STUART L. LEVENICK, B.S. '76, Forestry
Retired group president, Caterpillar, Peoria, IL

ALAN C. YORK, Ph.D. '79, Agronomy
William Neal Reynolds Professor of Crop Science Emeritus, North Carolina State University, Raleigh, NC

ACES Outstanding Young Alumni Award

MICHAEL A. GUNDERSON, B.S. '01
Agricultural and Consumer Economics

MELISSA M. JONES, B.S. '06, M.S. '11
Food Science and Human Nutrition

JACOB D. KUEBLER, B.S. '08
Agricultural and Consumer Economics

ACES Family Spirit Award

THE JOHN AND KATHRYN SOLON FAMILY, *Streator, IL*

ACES Family Academies

The College of ACES Alumni Association hosted the third-annual ACES Family Academies on July 13 and 14. From making ice cream to feeding bees and from flying drones to examining brains, ACES alumni had a great time back on campus learning alongside their younger family members and catching up on the latest happenings in the college. For more information, visit acesalumni.illinois.edu/events/aces-family-academies. Mark your calendars for ACES Family Academies on July 12–13, 2018.



ACES E-Alum Report

Stay connected to the College of ACES! Be sure your email is up to date with us to have the latest 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 go.illinois.edu/acesclassnotes! Be sure to share any special times in your life with the ACES Alumni Association to keep your fellow alumni updated. 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

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[FARTING SHOT]

In celebration of 150 years of the University of Illinois, Jo Ellyn Downey has provided a gift to establish a 22,000-square-foot Sesquicentennial Garden. The garden, located in the University of Illinois Arboretum, sits between the Miles Hartley Idea Garden and the President's House. It features small flowering trees, lawns, hundreds of understory perennials, and an array of spring flowers encompassed within an elegantly designed ellipse. Alumni Ryan Kettelkamp and Terry Harkness designed the garden.

We want your feedback about ACES@Illinois. Please send your comments to editor Jennifer Shike at jshike@illinois.edu.