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ABOVE: Researchers at the New York State Agricultural Experiment Station in Geneva, N.Y. are in the process of evaluating 30 varieties of hops to determine which are best suited for growing in the region. This work, as well as research on malting barley, recently received a $350,000 boost in state funding from N.Y. Gov. Andrew Cuomo. Photo: Robyn Wishna.

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It’s a commonly held belief among those who leave Ithaca that our Cornell campus becomes very quiet during the summer. But learning and discovery never go on holiday in CALS.

For our students, summer plans usually involve an intensive internship or volunteer opportunity, world travel, a seasonal job, or an enriching research or extension experience that will further their academic pursuits. In these pages, you’ll meet some truly enterprising CALS students and recent alumni who spent the summer of 2014 making a real impact on the world. Witney “Wi” Kowalski ’14 traveled to Mozambique to participate in an important institutional analysis of a long-term project by CARE and the World Wildlife Foundation to improve conservation efforts, sustainable agriculture, and the livelihoods of local communities. Andrew Pike ’15, Christian Owens ’14, and Katy Merckel ’14 helped design and administer a nutrition dataset for villages in India, making it possible for this information to be included in national agricultural surveys for the very first time. And Celine Jennison ’14 joined a team of aquatic conservationists in a paddleboard expedition around Bermuda to draw attention to plastics pollution in coastal waters.

Life on campus, too, takes on a different kind of “busy” after the newest class moves around in Ithaca to conduct research. For others it entails traveling to the other side of the planet to help improve lives in developing countries. Students and professionals also flock to campus from near and far for conferences, field days, undergraduate research programs, and other chances to learn from CALS’s esteemed faculty. Join us as we explore some of their experiences.

"No more pencils, no more books" may have held true for many CALS students this summer, but this doesn’t mean they took a vacation from learning. The stories in the pages ahead tell of the kind of learning that occurs outside of the classroom or lecture hall. When CALS lets out for summer, its students often take the knowledge they’ve gained and apply it to real-world situations. For some, this means sticking around in Ithaca to conduct research. For others it entails traveling to the other side of the planet to help improve lives in developing countries. Students and professionals also flocked to campus from near and far for conferences, field days, undergraduate research programs, and other chances to learn from CALS’s esteemed faculty. Join us as we explore some of their experiences.
The summer scene in and around the Cornell campus in Ithaca and the New York State Agricultural Experiment Station in Geneva offers a rich array of workshops, field days, seminars, and tours. Here are just a few of the many possibilities that dotted our calendars in June, July, and August.

1. **Winemakers, vineyard managers, grape growers and others gathered for a week of learning from CALS experts in the CUVEE Course.** During their stay, participants learned about the science behind grape-growing, winemaking, and wine perception. They also got the chance to participate in many hands-on experiences in these areas and spend significant amount of time socializing with several winery owners in the vineyard, in the winery and at dinner.

2. **The Geneva Summer Scholars, representing schools from across the nation, spent the summer conducting research with faculty members and their teams at Cornell’s New York State Agricultural Experiment Station in Geneva, New York.** The program culminated in a poster session at Hobart and William Smith Colleges Aug. 1, where the 27 students presented research on topics ranging from sodium reduction in ranch dressing to root rot resistance in pea plants.

3. **Brewery owners, farmers and home brewers hoping to hop into New York’s burgeoning hops industry gathered at the New York State Agricultural Experiment Station (NYSAES) in Geneva, N.Y. July 13 for a Hops Field Day. There, they heard advice from experts and peers alike. Researcher at NYSAES are in the process of evaluating 30 varieties of hops to determine which are best suited for growing in the region. This work, as well as research on malting and brewing, recently presented to the American Society of Plant Breeding early June.

4. **The School of Integrative Plant Science was launched at a June 6 ceremony on the Ag Quad, attended by faculty, staff, students, and alumni who were on campus for Reunion Weekend.** CALS will be teaming up with the Boyce Thompson Institute for Plant Research and the U.S. Department of Agriculture to invest $35 million in the new school over the next decade, for faculty hiring, research and student support.

5. **Have you ever jogged through the Plantations and wondered where you were or what you were looking at? Guided running tours led by Plantations experts provided opportunities for runners and joggers to see the area’s gorges, gardens and green spaces like they had never before or even exist. Making several stops along the way, these biweekly tours will be accessible for casual runners looking to explore some gorgeous (and gorges) spots they may not have seen before.

6. **During a series of botanical illustration workshops featuring acclaimed local artist Camille Doucet, participants painted Plantations scenes such as the trees of the arboretum or a feast of flowers.**

7. **The green area features important plant, the scholars saw the CALS’ dedication to agricultural innovation firsthand.**

8. **Nearly a thousand students, faculty and staff members, and campus visitors swarmed Stocking Hall on July 10 for a sweet treat in the annual appreciation event known fondly as the CALS Summer Scoop. In just two hours, volunteers scooped 60 gallons of Cornell Dairy ice cream, which included flavors such as Bavarian Raspberry Fudge, Cocomint Spring Thaw, and Dean Bog’s Honey Crunch.

9. A lecture sponsored by Cornell’s School of Continuing Education and Summer Sessions, Brian Wansink, the John Dyson Institute of Consumer Behavior at Cornell, and head of Cornell’s Food and Brand Lab offered actionable ideas on how to change habits, fight food waste, and analyze in dozens of towns and cities across the United States and abroad to help consumers make healthy eating choices.

10. **CALS was a natural choice to host the third annual Student Organic Seed Symposium, a conference that aims to bring together organic farmers, researchers, and students to share abackshaming one another. While in the area, they also visited some of the many organic farms in the Finger Lakes region and learned from plant breeding experts from the college.**

11. **Ten agriculturalists – participants of the prestigious Nuffield Scholar Global Focus Program – seeking inspiration for their businesses back home in Australia, New Zealand, Tasmania, Ireland and the United Kingdom, took part in a weeklong tour of Cornell’s extensive agricultural endeavors this July. Their visit, capped off July 8 with a public panel discussion about climate change perspectives from around the world, was hosted by the Cornell University Agricultural Experiment Station. From the New York State Agricultural Experiment Station in Geneva, N.Y., to the on-campus Ithaca dairy plant, the scholars saw the CALS’ dedication to agricultural innovation firsthand.

12. **Farmers interested in a recent food trend tracked to Ithaca, New York. July 1 for a hike and tour of Cornell’s value-added grain trials at Homer C. Thompson Vegetable Research Farm. The popularity of breads and other baked goods, buckwheat production or use of “heritage” grains has risen recently presenting an opportunity for growers, but only if these crops do well in their region. Cornell researchers have been testing several types of modern, heritage and ancient grains to help local farmers determine which varieties would be most feasible for them to grow.**
I t was a high school ecology class that planted the seeds of Sarah McIlvennie’s passion for agriculture. Lessons on the ecology of agricultural systems led her to apply the New Visions Life Sciences Program at Cornell where she studied the timeline of nitrogen release in different cover crops. She’s been rooted in agriculture ever since.

McIlvennie’s interests have grown to full bloom as an agricultural sciences major at CALS, where she has explored the psychological aspects of food and eating while working at the Food and Brand Lab, worked on apple genetics with horticulture professor Susan Brown, and served as an ambassador for her major. The ag program here became more and more of a perfect fit as she developed a better understanding of what my interests are,” McIlvennie said. This summer, McIlvennie got her hands dirty on the production side of things in the lab of plant breeding and genetics assistant professor Michael Mazourek PhD ’08.

“It’s an incredibly unique lab,” she said. “My work changes day to day—it can be pea one day and peppers the next.”

One of McIlvennie’s varied tasks was harvesting an experimental breed of extremely spicy peppers and performing tests to determine why capsaicin—the chemical that makes peppers hot—is present at such high concentrations.

“We were wearing gloves and goggles and it was still burning,” McIlvennie said. “She also got the chance to work on her own research project for her senior thesis: exploring whether straw may prove an effective and environmentally friendly alternative to black plastic when it comes to controlling weeds and keeping disease at bay.

“There are a lot of benefits to using black plastic—it can heat the soil, block weeds, and retain moisture in the soil but it only has a life of one season before it needs to be replaced,” McIlvennie said. “Weed squash is susceptible to getting gummy stem blight, also known as black rot, on the fruit. I’m looking at how growing the vines on straw will have an effect on this, possibly acting to buffer the transmission of the pathogen from the soil to the squash fruit.”

McIlvennie said she has become increasingly interested in how people interact with food.

“One of my long-term goals is to figure out where the major disconnects between the food system and the production system are, and how to make them more cohesive,” she said.

Another kid in the lab, Worthington could often be found hanging off of a branch as he teaches tree climbing for Cornell Outdoor Education.

“I love being outside—that’s a big part of why I chose Cornell,” he said.
GRAD SCHOOL MOTIVATION GROWS in GENEVA

F
or the past five years, students from across the country have come
to Geneva, N.Y., for the CALS Summer Research Scholars Program held at
the New York State Agricultural Experiment Station—and leaving inspired to attend
graduate school.

Encouraging students with diverse backgrounds to pursue graduate school
has remained an important goal of the program since its inception in 2009. Each
student in the program—this year there were 27—works with a faculty member at
the Station on an independent research project.

“It’s not just having additional bodies in the lab. They’re so enthusiastic and they bring a lot of energy,” said Marc Fuchs, as-
sociate professor of plant pathology.

Fuchs, who has participated in the program since it began, hosted two sum-
mer scholars this summer. Second-time participant Kaitley Wozer, a biology and high school expulsion. Now committed
to helping other youngsters, Banderas incorporated a community service element
into his Geneva stay, joining associate professor of plant pathology Chris Smart in a
summer school science program at a local elementary school.

“But without the lab, I wouldn’t be at the Station,” she said. “This is a great experience, and I’ve made a lot of great friends.”

For Fuchs, seeing his students’ interests ignite over the course of the summer is what keeps him involved in the program year after year.

“Day after day, week after week, they make progress and suddenly when they start sharing their results in lab meetings
you see their eyes shine—that’s a reward for me,” he said.

SUMMER ADVENTURES and VENTURE CAPITAL

A
summer spent at StartFast Venture Accelerator in Syracuse proved to be the perfect way for information science major Stephanie Qian Wang to both explore her interests and enjoy the sunny weather.

“I really wanted to learn more about entrepreneurship and start-up business,
nesses,” she said. “Syracuse is a great city because you can drive for 15 minutes and be at a beautiful lake.”

The internship was part of the new CALS New York State Internship Pro-
gram, which consists of a pre-departure class, a combined internship and com-
munity engagement experience over the summer, and a post-internship study.

For Wang, who moved to the U.S. from Singapore in search of a more liberal
education, the program was a great way to broaden her interests while gaining
valuable experience in information science.

As an intern at StartFast, Wang spent much of her time meeting with repre-
sentatives from the company’s investments and working with them to design
tools such as intelligent search engines. She also worked closely with her men-
tors, which included StartFast’s managing directors, Chuck Stornom and Nasir Ali
who are renowned angel investors and venture capitalists in Central New York.

“There was always someone there to help me and supervise me, but at the same time I really learned a lot on my own,” Wang said.

For the community engagement component of the program, Wang worked
to develop two strategies for youth retention and attraction in Syracuse, and will propose her strategies in the fall. By interviewing young professionals in the area, she was able to gain an understanding of what Syracuse is already doing well and identify what needed improvement.

“Many young professionals pointed out that the local media is not positive enough about Syracuse and there’s a lack of coverage of positive events going on in Syracuse by the local media.”

When not working to jump-start new businesses at StartFast or to make Syracuse a better city for young people, Wang enjoyed exploring the area with the other interns and visiting nearby lakes and parks.

“This is a great internship opportunity and I recommend it to any information science or computer science major,” she said.

NEW PROGRAM WHETS APPETITES FOR SCIENCE

The saying “you are what you eat” means a lot more to Hilary Bright after conducting research this summer with Patrick Stover, professor and director of the Division of Nutritional Sciences. A biochemistry major at the University of Maryland Baltimore County (UMBC), Bright applied to the Department of Molecular Biology and Genet-
ics Summer Research Experience for Undergraduates (MBG-REU) program as a way to explore her interest in genetics.

In its second year, the MBG-REU program gives 5 students a taste of life in the lab and what they might expect as gradua-
te students. The program is focused on increasing diversity in several areas of modern biology. Although anyone can apply, the program particularly seeks applicants from seven “partner” institutions that do not have extensive research op-
portunities, including UMBC.

Stover’s research focuses on why people respond to the same nutritional exposure differently—why one person might get thinner by eating more salad while a different person does not, for instance. Bright examined why some women are more susceptible to having a child with a birth defect get colon cancer at a lower frequency.

Scientists believe this phenomenon involves folate, a vitamin known to be very important for preventing neural tube defects during pregnancy and amount of folate a person ingests can actually change his or her DNA, and this summer Bright worked to gain a better understanding of how these changes are made.

“It’s been really interesting to learn about how what you eat can have profound effects on your body at the molecular level,” said Bright. “Before I came here, I didn’t realize that was possible.”
SOWING the SEEDS of SUSTAINABILITY in MOZAMBIQUE

By the time international agriculture and rural development major Kata Young sat down for her first class at CALS, she already had eight years of experience in sustainable development, agroecology, and ethnobotany under her belt. She has traveled the world working as an agroforestry nursery manager and researcher in Nicaragua, a tropical horticulturist at the Eden Project in England, and director of soil systems at Sweet Water Organics in Milwaukee.

Young strapped on her boots after one semester at Warren Wilson College in North Carolina, when she decided she would rather learn by getting out into the real world than by sitting in a classroom. At CALS, Young has found a way to do both. It was through a class called “Perspectives in International Agriculture and Rural Development” that Young got to know Wendy Wolford, Policyn Professor of Development Sociology and Faculty Director of Economic Development Programs in the Atkinson Center for a Sustainable Future, who co-taught the course. When Wolford needed another person to join her and city and regional planning graduate student Amanda Hickey MBA ’14 on a research trip to Mozambique this summer, she knew Young would be a great choice.

As part of an Atkinson Center led partnership with CARE USA, Wolfor has gotten involved in a project exploring landscape-level approaches to improving conservation, sustainable agriculture and livelihoods for local people in coastal Mozambique. CARE has been working with WWF (World Wildlife Fund) and local partner organizations to support the development of farmer associations and farmer field schools. Over the past three years, farmers have set up experimental plots to trial conservation agriculture or not, “We also wanted to conduct this work with sensitivity to the historical context in this country, working with individuals who had been slaves, went through revolutionary wars, survived their communities being torched, witnessed their family members and friends being killed. This is reality,” said Young.

Over the course of four action-packed weeks, the three-woman team conducted 80 individual interviews of both participants and non-participants in farmer field schools and held five focus group interviews.

“Our role, on the Cornell side, was to build a set of participatory, qualitative methods to understand what factors influence the farmers’ decisions to participate in these farmer field schools and associations or not, and to adopt the practices of conservation agriculture or not,” Young said.

“We heard about the internship last fall when we took Food Policy for Developing Countries, a fantastic course taught by Professor Prabhu Pingali, who is the director of TC,” said Pike, an applied economist and management major.

International development experts speak about the link between agriculture and nutritional outcomes, but very little actual evidence exists. So, for the past year, TC staff researchers, postdocs, graduate students, visiting scholars and faculty fellows have been working on a project to simplify and standardize a set of nutrition metrics that could easily be connected to current and existing agriculture surveys.

The TC interns worked to test some of the data collection methods that were developed, travelling to four villages in two states in south-central India. The dataset will ultimately contain five modules, and this summer the interns tested the module on household-level dietary diversity, mostly interview- ing women responsible for cooking. Over two weeks, the interns completed a total of 142 household surveys and nine focus group discussions with women across diverse caste and class backgrounds.

“Besides the journeys we have taken into the villages for fieldwork—some of them over 12 hours away—we have had the chance to go into Hyderabad and see some of the historic forts and tombs,” said Mercel, a graduate student in international development. “One of the most rewarding aspects of the data collection process was building strong relationships with field investigators who translated their questions into the local languages, developmental sociology major DiRado-Owens added.

“The success of our interviews depend- ed on the strength of these relationships and how well we could communicate with each another,” he said. “As a result, we shared many laughs, took family pho- tos, and drank endless amounts of chai tea for CALS for the past three years, farmers have set up experimental plots to trial conservation agriculture or not, “It’s important for students to remember as they’re going through the academic year that what they’re learning in class has a real applied purpose, with outcomes that affect real people. Soak up all the knowledge you can and put it to good use!” she said.

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It was a big summer for Monpomperousse, who spent much of it in Haiti, visiting suppliers and trying to get money to grow the business. She and her team were able to raise $10,000 in just three days with the help of Nobel laureate Muhammad Yunus and Kiva, an organization that lends to small businesses in developing countries. Victory in the Compete Caribbean Enterprise Innovation Challenge brought an additional $500,000 to the company.

"I need to think about the business aspect of the company as we work to create jobs for rural communities that essentially make up the workforce. The company also aims to cut soil erosion, deforestation, and greenhouse gas emissions through the cultivation of castor beans.

Plant sciences major Justin Kondrat transferred to Cornell when he was already halfway through his undergraduate career. After graduating, he remained rooted at Cornell Plantations even when he talked to other horticulturalists about his studies at the National Tropical Botanical Garden. "I want to become firmly rooted here on the Hill. By his final semester, Kondrat's feelings were manifested in flowery, ten-foot-long letters on Lillooet Slope that spelled out "ROOTED." The purpose? To get students with diverse backgrounds to reflect upon what keeps them rooted at Cornell. For Kondrat, the answer was clearly Cornell Plantations, where he has worked since he first arrived at Cornell.

"It helped me ease into the whole transition," he said. Kondrat remained rooted at Cornell Plantations even after graduation. As a community organizer and marketing intern this summer, he managed the Plantations social media accounts, wrote blog posts, and helped to create a chocolate, pomegranate and vanilla exhibit in the Nevin Welcome Center. During this summer he attended the American Public Garden Association Conference in Denver as a travel award recipient and also was a Hortscholar at Cultivated '14 conference in Columbus, Ohio, where he talked to other horticulturalists about his work.

"This feedback has inspired me to think about making ROTI a national movement," said Kondrat. After returning, Kondrat is working with a beautiful Cornell Plantations, Kondrat headed to Hawaii for an internship in tropical horticulture at the National Tropical Botanical Garden.

"Going from Ithaca in the summer to Hawaii is like going from paradise to paradise," he said.
My summer may not have involved conducting scientific research, improving international agriculture, or teaching youngsters to think scientifically, but in a way I feel like I got to experience all of this and more.

Putting together this special, student-centered issue of periodiCALS gave me the opportunity to meet incredible people whom I may not have otherwise met and share in their inspiring experiences, even if only through words and photos. While physically much of my summer was spent back on the Ag Quad, the stories of the students I interviewed transported me to places as far away as India and Mozambique.

I joined the CALS Communications team in the fall of my senior year with the goal of sharpening my communication skills, but over this past year with the team, I’ve gained so much more than that. A biological sciences major, I realized over the course of my undergraduate studies that my true passion lies in science communication. Finding and sharing the stories in science fills me with the kind of gratification that I’ve always imagined great careers are made of, and my work with CALS Communications has only reinforced these feelings.

From writing Cornell Chronicle stories and blog posts on scientific research to crafting profiles of outstanding students, my work with CALS Communications this summer has exposed me to facets of the college and of scientific research as a whole that I never knew existed.

At a field day for hops research in Geneva, N.Y., I got to peer into the world of craft brewing. Roundtable discussions about dairy, climate change and nutrition research held during a visit by U.S. Secretary of Agriculture Tom Vilsack opened my eyes to many important issues and some of the cutting-edge research being conducted at CALS to address them. Whether it was from expert researchers, exceptional students, or even government officials, I was constantly learning.

Having graduated this past May, I am so grateful to have had this unique opportunity to soak up as much of this place that I love so dearly as I could this summer. It allowed me to stay in beautiful Ithaca for a few extra months of bike rides, mushroom walks and great local music while also gaining invaluable experience in writing and creating a publication. As I make the transition to New York City and the next phase of my life, I can say with confidence that visiting CALS will always feel like coming home.