Beginnings and endings

As always, with great excitement and pleasure, I am greeting you via a new issue of ABE@Illinois. Our department has been well-known for its diversity in our students and faculty, as well as its high impact global outreach and engagement. For example, our 21 faculty members represent nine countries from many parts of the world. We have some form of connection in almost every continent, with intensive collaborative activities in North and South America, East and South Asia, Europe, and Africa. Global engagement is a vital piece of our strategic vision, and exciting stories of our student and faculty international activities are abundant in our department. This issue highlights a number of our recent activities.

As many of you already know, I will resign from my responsibilities as department head on January 1, 2017. The search for our next department head is in progress. I studied for my Ph.D. degree in our department. I had the rare opportunity and privilege to be able to return to Illinois, 24 years after graduation, to serve our department as head. It will be 12 years and 2 months at the end of this year since my return to ABE@Illinois. It has been quite a ride for me working for everyone in the department and beyond. We have accomplished a lot as a department, as well as endured our good share of challenges. We have put in place several major programs that are expected to grow significantly. We also anticipate that we will continue to face new challenges. However, I hope our core business of empowering human capacity with knowledge and wisdom for life will continue to advance.

I have accepted the position of Vice Dean of Academic Affairs and Strategy for Zhejiang University International Campus starting January 2017. Our university, our department, and Zhejiang University have very active collaborative programs. I will stay in touch. I hope you stay in touch as well.

Best regards,
K.C. Ting
Department Head

The International Issue

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Study abroad opportunities are both numerous and varied in the Department of Agricultural and Biological Engineering. Paying the costs can be a challenge, but the Phil and Carol Buriak International Travel award has helped multiple students meet it.

Phil Buriak was a professor in ABE from 1988 to 2007. Coming to Illinois to revitalize what was then the Ag Mech program (now called Technical Systems Management), he worked with more than 300 students during those years. When he retired, more than 50 of them came to a reception to pay tribute to their professor. “If I have a legacy,” Buriak said, “it’s those kids. They’re all special to me.”

Buriak and his wife, Carol, decided to extend that legacy by funding an international travel award for ABE students. Anna Oldani and Chris Steppig are two ABE graduates who have benefited.

Oldani received the award in 2010 and traveled to Italy on a study tour of agricultural firms and academic groups, including Case New Holland, Ecodeco, and the University of Pavia’s autonomous vehicle research facility.

“Italy presents a unique agricultural landscape, with challenges and constraints unlike those found in typical midwestern fields,” said Oldani. “We visited firms with a focus on restoring the natural landscape to barren fields and renewing fields with declining natural habitat through various restoration projects. We also spent time with students from the University of Pavia learning about advancements in autonomous vehicle research.

“From eating lunch with CNH engineers to exploring restored landscapes in the Lombardy region, we had firsthand experience of the day-to-day life of those working in the agricultural sector in Italy. By the end of the trip, I had grown accustomed to three-hour dinners without cellphone interruptions, and I came to truly appreciate la dolce vita that Italy is known for,” she concluded. “The travel award made this trip much more accessible for me, and allowed me to pursue experiences I might otherwise not have had.”

Chris Steppig received the award in 2014 and used it to supplement his travel to study at the Netherlands’ Wageningen University in the spring semester of 2015.

“Being a classic TSM-er, I prefer to learn by doing,” said Steppig, “and there were many opportunities to do so during my time in the Netherlands. During a six-week course, my instructor scheduled three excursions to ag facilities and production sites, as well as a project designed to engage students in critical thinking and data analysis.

“The award also enabled me to travel outside the Netherlands. I visited Berlin, Germany; Marrakesh, Casablanca, and Essaouira, Morocco; Dublin, Ireland; and Belfast, Northern Ireland. I saw firsthand the huge diversity that exists in our world, and I developed a real respect for the differences in other cultures. I immersed myself in novel learning opportunities, and I developed relationships that I hope will last a lifetime. It’s hard to put a value on that.”

Our lasting thanks to Phil and Carol Buriak for a gift that continues to enrich the lives of our ABE students!

“If I have a legacy, it’s those kids. They’re all special to me.”

“I saw firsthand the huge diversity that exists in our world, and I developed a real respect for the differences in other cultures.”

Anna Oldani, pictured, far left, on an Italian agricultural tour.

Chris Steppig enjoys the beauty of Netherlands’ tulips.

“The travel award made this trip much more accessible for me, and allowed me to pursue experiences I might otherwise not have had.”

Anna Oldani, pictured, far left, on an Italian agricultural tour.
In a world where drones photograph crop damage and tractors are guided by GPS, it’s a wake-up call to encounter a culture where farmers still employ an implement used for millennia. But that’s exactly what ABE professor Alan Hansen experienced when he traveled to Africa as part of the Appropriate Scale Mechanization Consortium (ASMC).

“Farmers in Ethiopia use a plow that’s been around for 3,000 years,” he said. “We saw it in a museum, and when we went on a field visit, we saw a man with his oxen pulling this same plow. Immediately behind him was a child with a small basket of grain, depositing the seeds in—hopefully—a fairly even distribution. Then came an elderly woman with a basket of fertilizer, putting dabs of it in the furrow. Finally, someone behind her used his foot to close up the furrow. All that was done only after they’d made multiple passes just to get the field ready. It’s hugely inefficient.”

Hansen said there are cultural reasons as to why things haven’t changed, “and that’s something we have to think about as we bring in new technologies to be adopted.”

Addressing cultural traditions is only one of the realities for the ASMC to tackle as they work in Ethiopia and three other countries to help small farmers learn how to grow more food on the land they have while protecting the natural resources required for its production.

The ASMC is funded by a 4-year, $4.7-million grant representing a sub-award from the Sustainable Intensification Innovation Lab led by Kansas State University and funded by the U.S. Agency for International Development as part of Feed the Future, the U.S. government’s global hunger and food security initiative. The ASMC is working in Bangladesh, Cambodia, Burkina Faso, and Ethiopia. Innovation hubs will be established at specific institutions in each country to develop resources and provide training.

Hansen, the project lead for the consortium, is joined by K.C. Ting, Prasanta Kalita, and Alex Winter-Nelson from the University of Illinois College of ACES, the Archer Daniels Midland Institute, Michigan State University, Kansas State University, and North Carolina A&T State University. Tim Rendall, an ABE graduate with a master’s in technical systems management, is the project manager.

In the project’s first year, team members traveled to all four countries to launch the program and gather information that will be crucial to understanding how best to work with the different cultures. Rendall worked with local partners in each country to organize workshops and field visits.

“We wanted to make sure we had good representation of all the potential stakeholders that will be impacted when we establish our innovation hubs,” he said. “That includes farmers, both men and women, government and non-government representatives, entrepreneurs, local equipment manufacturers, university faculty, and students.”

Workshops were set up in each country to solicit feedback from participants about the status of mechanization as they see it. “What are the problems that they believe need to be addressed?” Rendall asked. “Next, what are the opportunities that those challenges present?”

“We had excellent responses,” Hansen said. “For example, in Burkina Faso, one challenge is managing an unpredictable water supply, but addressing that issue could provide an opportunity for crop production through every season of the year. Access to financial resources is another challenge, but addressing it could provide an opportunity to stimulate farmers to

“Overall our goal is to intensify production of food in a sustainable way. Increased productivity will have a significant impact on the lives of these smallholder farmers.”

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“Bringing mechanization to Asia and Africa”

Tim Rendall, ASMC project manager, with a hammer mill provided to a local farmer for testing by the Burkina Faso organization INERA.
Access to water is always an issue. In some cases, it took six hours for someone to walk to a river and bring water back to their village.

join unions and synchronize their means of production.”

Hansen said a goal in each country is to ease the farming burden on women, who typically perform many of the labor-intensive tasks that have not been the focus of past mechanization efforts. “Many women are involved in vegetable production,” he said. “Can we design tools specifically for women to empower them to do the work? There is a gender specialist on the ASMC team,” he continued, “and on the field visits and workshops she interacted with women to get information for their specific challenges.”

Field visits to local farms allowed team members to witness firsthand issues small producers face and to scout for locations to set up field hubs. “It would be of great benefit to the farmers to have a physical space where we could set up demonstration plots to show the impact of different tillage practices, or cover crops, or irrigation,” said Hansen. “In Burkina Faso, we visited a farm which we have now identified as an ideal site for a field hub. The owner is a leader there who is able to network with other farmers in that area, so I think that will work out well.”

The team plans to establish something similar in Ethiopia. “The president of the university we’re working with in Ethiopia attended our workshop,” said Hansen. “We learned that he has already identified a farm cluster where he hopes to establish a modern village with a school, as well as agri-processing on a small scale. When he heard we wanted to set up field hubs for mechanization, he thought we should integrate our work into that cluster.”

Hansen said the next step for ASMC is to revisit all the information they’ve acquired and create a survey to help establish a baseline of the current situation. “It’s quite a challenge, because in each country we have to look at the whole system, from land preparation through harvesting, storing, and transporting. It’s important to understand upfront what constitutes the system. We would repeat the survey at the end of the four years to see if there have been any changes and developments.”

In conjunction with the Archer Daniels Midland Institute, the consortium held a symposium on the Illinois campus in July. Many of the ASMC U.S. team attended, and representatives from the four countries participated, giving presentations on postharvest loss and updates on mechanization.

“Overall,” Hansen concluded, “our goal is to intensify production of food in a sustainable way. Increased productivity will have a significant impact on the lives of these smallholder farmers.”
Richard Gates has established extensive connections in education, research, and agro-industries in Brazil and China, connections that continue to expand after nearly two decades.

Gates, a professor in ABE, first began work with the Universidade Federal de Viçosa (UFV) in Brazil in the late ’90s and became an adjunct faculty member there in 2001. To provide students in both countries an opportunity to study abroad, he worked with federal agencies in the United States and Brazil to develop and fund an undergraduate engineering student exchange program.

“We partnered with Purdue University as well as UFV and the Universidade de São Paulo at Pirassununga. Students were traveling back and forth, and it was wildly successful,” said Gates. “Those federal funding sources are gone now, but we’ve been able to maintain strong relations with these key universities, and we continue to send and accept students. I work closely with Meredith Blumthal [director of education in the ACES Office of Education Abroad] to solicit funding. Basically, if a student is qualified and wants to go, we find a way.”

Gates said a new study abroad program in the works will provide more students with an opportunity to study food security. “Classes will be held on the Illinois campus for a week, including lectures and field trips to food distribution centers. Then students will travel to Brazil for six weeks to learn how that country handles food security. The program will wrap up with a final week here on campus for students to debrief and analyze what they’ve learned.”

Unique features of the new program will focus on inclusion of both STEM (science, technology, engineering, and math) and non-STEM students, as well as under-represented students from U of I and partner institutions including Tuskegee, North Carolina A&T, Fort Valley State University, and UFV. Gates is working with Blumthal and Jesse Thompson (assistant dean of academic programs in ACES) to open channels for these students to be involved.

In 2013, Gates was named a special visiting researcher (“pesquisador visitante especial,” or PVE) by two Brazilian federal government agencies through the country’s “Science Without Borders” program. The initiative aimed to attract senior foreign researchers who were recognized internationally as leaders in priority areas including engineering, technology, and health sciences. As a PVE, Gates received funding for three years to conduct research with multidisciplinary teams from multiple institutions. One such project studied animal environments in hot climates—specifically, laying-hen facilities.

That appointment ended in September, but as a member of the UFV graduate faculty, Gates continues to supervise graduate students, whose work centers on animal environment interaction. Their projects have wide diversity—two students recently completed evaluating the effect of temperature, humidity, and high air velocity on the behavior and egg production performance of Japanese quail, while another developed a computer algorithm to automatically assess the behavior of broiler chickens at the feeder.

Gates has also been involved in a multi-year research project in Brazil that falls under the auspices of the ADM Institute for Postharvest Loss. Working with Mary-Grace Danao (former ABE faculty) and Chris Wilhelm (ABE master’s degree graduate), a study was undertaken with colleagues at the Universidade Federal de Mato Grosso, Sinop, to better understand the factors that lead to quality losses during grain transportation. The team designed, fabricated, and tested a set of probes that contained sensors to monitor temperature, relative humidity, and carbon dioxide levels in grain transported from the farm to storage facilities.

“These probes proved very useful to help us better understand conditions during soybean harvest and transport,” Gates said. “That should lead to better management of grain handling and transport operations to minimize quality loss of soybeans after harvest.”
Gates’ international work extends to China as well. “China is the largest pork producer and pork consumer in the world,” he said. “They produce over 50 percent of all the pork worldwide, and consume about 60 percent. Now they’re following the pattern we had 20 years ago in terms of consolidation. There are fewer and fewer farms, but greater and greater numbers of animals on those farms. Many of their environmental officials believe manure is somehow a toxic waste. We’re working with the United States Grain Council (USGC) and the Chinese Ministries of Environment and Agriculture to help them come up with better policies on how to recognize and support the use of manure as fertilizer.”

For the last four years, Gates has worked with teams of livestock producers, managers, and employees who come to Illinois from China for training in nutrient management planning. That program is sponsored by the USGC. Gates has made three trips related to this effort in 2016 alone. He traveled to Beijing in May to speak at a USGC symposium for China’s growing livestock industry on the scientific principles behind manure recycling.

“Two of the most significant problems they have,” he said, “are the lack of testing manure for nutrient content before using it as a fertilizer and a lack of understanding their crops’ nutrient demands. Without testing for that information, how can you know what you’re putting on your crops? How can you know if it’s enough—or too much?”

Because such testing is not readily available to livestock producers, discussions at the symposium recommended that China develop an industry of environmental consultants. “They could provide an important interface between the farmer and the regulators,” Gates said. “It would be a great entrepreneurial opportunity to certify manure applicators and develop testing facilities to assist the livestock producer and the crop farmer on how to maximize the value of their manure.”

Another obstacle is a generation of Chinese farmers who have enjoyed strong subsidies for chemical fertilizers, said Gates. “Back in the ’70’s, farmers realized their crop production was poor because they weren’t fertilizing, so China now makes chemical fertilizer available at very subsidized rates. There’s very little quality control—they don’t even put NPK [nitrogen, phosphorous, potassium] levels on the bags—so they’re probably over fertilizing. But when you have a whole sector that’s used to getting ‘free’ fertilizer, that’s a big hurdle. It’s like trying to turn a steam boat. It took us [the U.S.] 50 years to develop the system we have, and they’re trying to do it in 10. Big growing pains.”

Gates noted that these efforts have begun to pay off, and an international testing laboratory has agreed to provide manure testing starting this fall. Yijie Xiong, a doctoral student, is working to assemble and translate manure testing standards for their use; a colleague at China Agricultural University has agreed to spearhead the formal standards-making process to provide a “package” that is authorized for use by their Ministry of Agriculture. “We are excited to see that our efforts are having some practical impact,” Gates said.

Gates’ international impact continues to grow, and it’s clear his work will influence students, colleagues, producers, and governments—here and abroad—for years to come.
Before even arriving on campus last fall, twelve first-semester freshmen took advantage of a unique opportunity in the Department of ABE. They enrolled in ABE 199: Sustainable Biosystems International to travel to Puerto Rico over winter break on a team-based study tour to the University of Puerto Rico at Mayagüez.

That’s a major commitment for an 18-year-old who has possibly never been out of the state, much less out of the country. “As soon as we have admission information, we contact students to recruit them for ABE 199,” said Luis Rodriguez, an ABE professor and instructor for the class. “Freshman registration is our best time to recruit, and we know if our class flyer turns their head, they are probably students who will put extra effort into their education.”

Early recruitment is necessary because Sustainable Biosystems International is a first-year Discovery Course program, so registration is restricted to first-semester students. Classwork begins in the second half of the fall semester. When students return from the tour, they complete their final project, which includes a booth and video presentation at Explore ACES, the college’s major recruitment weekend in March.

This is Rodriguez’s third year teaching the class. “The sustainability of future biosystems is a major concern for our industries,” said Rodriguez, “so it’s a concern for our students as well. My first objective for the class is to make sure students understand that the solutions to real-world problems they’ll come up with as professionals will influence sustainability. They need the technical skills that they will learn as engineers, but they also need a solid understanding of the context of those problems around the world and the global applicability of their skills.”

A second objective, Rodriguez said, is to have students compare the challenges and opportunities for agriculture in Illinois with what they see in Puerto Rico. “While we’re in-country, we tour a number of operations, and they can see where engineering has played a beneficial—or maybe not so beneficial—role in problem-solving.”

The students toured La Hacienda Buena Vista, a coffee plantation that operates using historical production methods. A second, modern-day coffee plantation, Café Gran Batey, focuses on small production of high-quality beans. They also visited Martex Farms, a commercial-scale fruit production company that has to provide a high-quality product to stay competitive with larger companies.

In addition to visiting these agricultural operations, students worked with faculty and students from the University of Puerto Rico to better understand their concerns about sustainability related to tropical agricultural and biological engineering problems.

“A key colleague in Puerto Rico is studying agricultural nitrogen runoff from fruit and vegetable production systems,” said Rodriguez. “We were able to visit his laboratory, see his experiments and work with some of his graduate students.”

The team of Illinois students also developed a booth that they considered a draft of the one they would use for their final project. They set it up in the student union on the Mayagüez campus the first day of classes there, and the team engaged passing students in a game they called “Puerto Rico, Illinois—los dos o ninguno?” (“Puerto Rico, Illinois—both or neither?”). “It was a trivia game about the differences and similarities of the two campuses,” said Rodriguez, “and they gave out Illini apparel as awards. They also engaged a number of the students who played the game in interviews that they’ll use in their final project.”

Of course, studying abroad has to include some sightseeing, and Puerto Rico offers a bounty of beautiful vistas. A highlight for almost every student was the hike through El Yunque National Forest, the only tropical rainforest in the United States National Forest System.
“El Yunque has 25 major waterfalls,” said ABE student Austin Green, “and we were able to visit two of them. We climbed up and down the rocks and swam in the natural pools.”

Liyuan Yang, another Illinois participant, said, “I was amazed by the biodiversity the island embraces. There are beaches, waterfalls, mountains and deserts. Each type of scenery had its own beauty. I sat down by the beach and watched the full process of sunset, and it was great to watch the gradient of the earth change as the sun went down.”

Time at the beach, snorkeling, and horseback riding were activities almost everyone enjoyed. When asked about Puerto Rican cuisine, students recalled plantains “cooked in more ways than you can imagine!” and great coffee.

“These students were a great group,” Rodriguez said. “It was an absolute pleasure to work with them.”

“They need the technical skills that they will learn as engineers, but they also need a solid understanding of the context of those problems around the world and the global applicability of their skills.”
ABE sophomore Jingxin Duan was part of “ACES in France” in the summer of 2016. Duan spent two months in Toulouse, France, and studied a variety of topics, including animal production, sustainability, and welfare and the common agricultural policy in Europe. He was also part of a viticulture group studying the cultivation of grapes, especially for use in making wine, which took tours around the country’s wine regions.

Although Duan said some cultural practices can only be experienced, not reproduced, he did have some favorites that he hoped to bring back with him. “Dinners lasted for one or two hours, and that impacted me a lot. It created stronger bonds between people and allowed relationships to prosper.” He also enjoyed the practice of faire la bise (kissing both cheeks on greeting). “It was friendlier and more intimate. I’ll definitely be bringing that one home.”

“The world is becoming an increasingly globalized place,” he continued, “and this trip allowed me to develop important new perspectives and better communicate with people. Everybody has wisdom to offer, and it was nice to learn new things from other cultures.”

“Every day I wake up, look in the mirror, and think, ‘How was I so lucky to get the opportunity to travel the world?’”

Lucia Dunderman, a junior in ABE, participated in the ACES/Engineering China Summer Research and Cultural Immersion program in Hangzhou, China. “I was part of a research team that tried to determine the causes of the nonpoint source pollution in Lake Taihu and the drinking water in Hangzhou,” Dunderman said. “Traveling to an area that is struggling with water quality gave me a more global perspective. I realized that when you’re solving an environmental problem, you need to take into account the environment and the local culture to find a solution that will balance the two.”

The graduate students she worked with came from all over China. “They took me to restaurants that highlighted food from their home provinces,” she said. Dunderman enjoyed dinners sitting at a round table able to rotate, where food was shared by all. “I ate a larger variety of food, and we talked a lot. They taught me Chinese tongue-twisters, and we all struggled to defeat the language barrier between us. Being immersed in the culture gave me a local perspective, and I gained some lifelong friendships thanks to this program.”

Somerset Maugham, a 20th-century writer, could have been speaking for every study abroad student: “I do not bring back from the journey quite the same self that I took.” Four students in the Department of Agricultural and Biological Engineering (ABE@illinois) recently spent time abroad and came home changed.

Back from the Journey
A PhD student in ABE, Keilin Jahnke has traveled abroad as both an instructor and a student. In the winter of 2016, she led a group of students to Cerro Verde, Honduras, to help the community design a holistic, sustainable water distribution system. In the summer of 2016, she traveled as a student to Lumbisi, Ecuador, to research local agricultural practices and needs.

Of her international experiences, Jahnke concluded that “even though I’ve been given the opportunity to be a graduate student at Illinois, that doesn’t mean I’m more intelligent than the people that I met while abroad who live in rural, developing communities. The ingenuity and resourcefulness that I’ve witnessed proves that. These people, no matter who they are or where they are from, have families, backgrounds, and dreams, just like me. This realization has helped me define my role in international engineering projects as a consultant, not as a rescuer. I’m there to learn and understand so that final designs are as culturally appropriate as possible to ensure durability and sustainability.”

The National University of Ireland (NUIG) in Galway, Ireland, was an academic home for one semester for Nolan McNicholas, a senior in Technical Systems Management. While in Ireland, McNicholas took two political science classes that he hopes will help him earn a political science minor from Illinois. “I studied the politics of Ireland and the European Union, and I quickly learned that Irish elections and politics are very different than they are in the U.S.,” he said. “Rather than two major parties fighting over a single position or seat, they had multiple parties all attempting to gain support so as to receive a proportional amount of representation in their government.”

McNicholas said college students are different as well. “At Illinois, students use their weekends to relax or blow off some steam around campus. However, at NUIG a large number of students would go home each weekend. When I asked my Irish friend about it, she told me that it’s normal because the Irish students miss their ‘mammies,’ or moms, and many of them keep their weekend jobs at home while going away to school.

“Experiencing a different culture has a strange way of impacting the way you see the world,” he concluded.
Francisco Pinto, Ph.D. ’00 AgE

“It was 1996, and I had a job as an associate professor at the Universidade Federal de Viçosa (UFV), Brazil,” said Francisco Pinto. “I was about to start my Ph.D. My department asked me to pursue a degree in the field of image processing applied to agricultural problems. I searched the web for the best U.S. universities working in this subject, and I found ABE and Dr. John Reid.”

Pinto said Reid taught him “not only with words, but also with his dedication to teaching and research. He respected all who came to him. I appreciated the seriousness and the competence with which American people treat education at all levels.”

Now a full professor in the agricultural engineering department at UFV, Pinto is the coordinator of the agricultural and environmental engineering undergraduate program, and part of the off-road equipment group, teaching power machinery, image processing and precision farming. He has worked with several professors from ABE on a variety of projects, including research to document postharvest losses of soybeans and corn in Brazil. “There has been much speculation about the amount of grain lost during harvesting,” he said. “Some farmers are doing a very good job, but others still have room to improve their harvesting process.”

Besides the technical advantage of living and studying in a more advanced country than his own, Pinto said, “Living in another culture made me more tolerant and understanding of our differences. Being a professor was my dream. To share my knowledge, to influence young people to look for new discoveries, to influence people to be better to others—those are the best parts of my job.”

Shaochun Ma, M.S. ’12 ABE

“To earn a degree in a foreign country, you have to overcome the language and cultural barriers,” said Shaochun Ma. “I knew it would take extra effort to study and do research in another language. I wanted to do that at Illinois because it has the nation’s best ag and bio engineering program, and the university is one of the best in engineering.”

In addition to his Illinois degree, Shaochu Ma has earned a bachelor’s in agricultural mechanization from Hebei Agricultural University (China), a master’s in agricultural engineering from China Agricultural University (CAU), and a Ph.D. in mechanical engineering from Southern Illinois University.

Ma joined CAU in January of 2016 as an associate professor in agricultural engineering. He teaches hydraulic systems, and conducts research in sugarcane harvesting and apple harvesting.

Although Ma’s academic career is just getting started, he said it has been a great beginning. “I advised one undergraduate student in senior design, and it was my first time as an advisor,” Ma said. “I really enjoyed the entire experience. My student spent a great deal of time in my lab, and the project was selected as ‘outstanding’ in the College of Engineering in CAU.”

Aikaterini (Katerini) Kasimati, M.S. ’15 ABE

“I came to the department of ag and bio engineering at Illinois as an exchange student during my senior year of study,” said Katerini Kasimati, “and I was sure the department would be one of the best options for my graduate studies.”

Richard Gates was Kasimati’s advisor for her undergraduate work as an exchange student, and he was instrumental in her return as a graduate student. “Professor Gates knew how to pass his knowledge on to his students. His expertise and encouragement helped us further enhance our skills. He was always available to give his international students advice and support. But don’t get me wrong—he wasn’t easy!”

Kasimati is based in Manila, Philippines, working as a biomass specialist on a project for energy production. She is responsible for the design of a biomass supply chain and its storage facilities that will minimize the risk of fire and mitigate the environmental impact.

“People on the small islands of the Philippines often don’t have access to cheap, clean, renewable energy. This project aims to provide that access. It will enhance their well-being and at the same time protect the environment by promoting low-emission alternatives to fossil fuels. I’m thrilled to be working on a project like this.”

Siddhartha (Sid) Verma, Ph.D. ’13 ABE

“In my senior year at GB Pant University of Agriculture & Technology, India, I had the opportunity to work with a group of professors and students from ABE while they were in India for two weeks,” said Sid Verma. “I had a great experience working alongside ABE faculty members, so Illinois was an easy choice for me.”

While at Illinois, Verma said ABE professors Richard Cooke, Paul Davidson, and Prasanta Kalita were “great mentors and good friends who constantly motivated and challenged me to become a better researcher and person” Verma was one of the founding members of the Graduate Student Association in ABE.

He said earning a degree at Illinois gave him access to world class research facilities and the chance to work on real world problems. “Networking and brainstorming with people from varied backgrounds and areas of expertise was a real advantage. When you graduate, you have instant credibility and recognition of your degree anywhere in the world.”

Today Verma lives in Dubai with his wife and travels frequently between India and the U.S. He is working with a fellow ABE alum to develop a large commercial-scale greenhouse in central Illinois. “It’s a chance to work on an idea that involves commercial agriculture, advanced engineering technology, outreach and extension, and is environmentally sustainable.”
The College of ACES, in conjunction with the Archer Daniels Midland Institute for Postharvest Loss Prevention, has studied the topic of postharvest loss for several years. In January, Prasanta Kalita, director of the institute and professor in ABE, took a group of ACES students to observe the institute’s work in India. Shared here are excerpts from the students’ blog of their trip. Their insights are sometimes humorous, often practical, and surprisingly profound. They will leave you convinced that this generation will indeed help build a peaceful world.

**Travelogue 1**

**Natalie Ferris, senior in horticulture**

After a long journey from Chicago O’Hare, we finally reached Delhi! We arrived at the hotel around two in the morning, and we all went to our rooms to crash. In the morning, the group met for a delightful, colorful breakfast. . . . We went to some markets around our hotel and an underground market as well. . . . There is a lot of smog and trash everywhere we go. Almost every person is trying to sell you something. . . . Today was filled with good food, dodging cars, and lots of sightseeing. I am looking forward to seeing the Taj Mahal tomorrow!

**Travelogue 2**

**Megan James, senior in crop sciences**

In our visit to Agra . . . the opportunity to learn about the history of the culture we will be immersed in was a privilege. . . . New Delhi was more developed, though traveling through the city still held some surprises for us—the relaxed nature of traffic laws and the air quality, just to name a few. . . . The trip into and out of Agra gave us a new perspective on our surroundings . . . . Cows walking in the streets was a common occurrence, and things were not nearly as modern or updated.

**Travelogue 3**

**Timothy Jang, junior in horticulture**

I could only take so much of touring and checking out the wonders of India. I was ready to see what we were here to do and meet all the students that were waiting for us. . . . Never have I felt so full of privilege until I stepped into this place. I own so much, and I live without a daily struggle for survival. Every complaint I ever had fell quiet in the loudness of their need and—something unexpected—happiness. Even in their want, these were not broken and miserable people. Their circumstances did not define their capacity for joy. . . . We are not here to save these people from some kind of “doom.” . . . We are here to serve them in teaching about postharvest loss and pray that we make a difference.

**Travelogue 4**

**Kathryn Johnson, junior in food science and human nutrition**

Today was a busy and important day; we had the chance to meet our student counterparts from Rajendra Agricultural University (RAU), listen to lectures, and go on field visits. . . . Professor Kathy Baylis discussed the economic importance of postharvest loss prevention and gave some possible solutions. . . . I am excited that this project is being addressed from various angles, ensuring its success in the future.
Travelogue 5
Whitney Kwok, senior in horticulture

We embarked on a trip to the potential site of the ADMI Village. When we arrived, it quickly began to resemble a parade as the villagers started to trail behind us. We saw grain storage and traditional grain milling and grinding methods. . . . One of our students got a cow named after her by the villagers—“Ashley Cow.” . . .

A villager who taught us the traditional method of grinding grains showed extreme gratitude to one of our students and was almost on the verge of crying from happiness and pride to know that she had imparted knowledge to our group.

Travelogue 6
Shean Lin, junior in agricultural and biological engineering

Our first stop was a field trip to a sizeable grain storage facility. . . . The tour was conducted mostly in Hindi and translated back to us. . . . A figure for storage losses was thrown out: 3 percent. Everyone was a little jarred and questioning, so the speaker increased the figure to 5 percent. . . . It seemed very hard to get a clear answer. . . .

Travelogue 7
Matthew Niewiara, sophomore in agricultural and biological engineering

One thing that has been noticeable throughout this trip is the hospitality of our hosts. . . . We listened to a lecture on postharvest loss by Dr. Prasanta Kalita. I found it interesting to hear the reactions of some of the Indian students and university faculty. One question that was asked: “Why do developed countries want to help developing countries when there are still problems occurring in their home countries?” Problems being faced around the world are issues for all of humanity, not just individual countries. To effectively solve problems like postharvest loss, it will be necessary to work together and learn from each other so we can develop the most efficient solutions.

Travelogue 8
Adriana Noboa, senior in crop sciences

As the days spent with our collaborators at RAU came to an end, the friendships we made quickly bloomed into lifelong partnerships. . . . During the last day we spent together, the subdued, slightly somber atmosphere was almost instantly rejuvenated by our visit to the Mahabodhi Temple. . . . We learned the pursuit of enlightenment could not be aided by riches or material goods, but rather by the appreciation of the intangible wealth that surrounds us. . . . It is necessary to see the parting not as an ending, but as the start of a multifaceted effort and a promise of continuation.

Travelogue 9
Marcus Phillips, senior in technical systems management

After almost two weeks of Indian food for breakfast, it was a nice change to see French toast and maple syrup on the menu. . . . We visited the Borlaug Institute of South Asia (BISA). Their staff gave an awesome tour. . . . In the world of agriculture, their work in sub-surface irrigation is game-changing. . . . It was incredible to see rice, a heavily water-dependent crop, thrive using sub-surface irrigation. . . . After BISA we headed to the family home of one of our trip leaders. . . . It was a one-of-a-kind experience to be able to talk with his family and learn firsthand about Indian culture and family origins.

Travelogue 10
Thomas Poole, sophomore in crop sciences

We traveled back from Ludhiana to New Delhi. . . . We had the wonderful opportunity to talk to some major players in international development. . . . We learned more about the mission of BISA . . . . Dr. Easter [Illinois president emeritus] shared his intriguing leadership experiences. . . . John Slette [senior U.S. Attaché for Agricultural Affairs] brought up some valuable points about the economic and political issues in postharvest loss. . . . Thank you to all who have made this program a success. The knowledge gained, relationships made, and scenes witnessed push us forward. These efforts will reduce postharvest losses—and the grip of food insecurity.

“You can’t build a peaceful world on empty stomachs and human misery.”

–Norman Borlaug
This hut in Burkina Faso, made of naturally available lumber and a thatched roof, is used to store livestock feed. We want your feedback about ABE@Illinois. Please send your comments to Leanne Lucas at llucas@illinois.edu.