TIME AND CHANGE
THE OHIO STATE CAMPAIGN

IT’S VERY REFRESHING
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IT’S VERY REFRESHING

The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES) is making a long-term commitment to its future, and to Ohio’s future, by investing more than $100 million to refresh its infrastructure. Eighteen capital projects—in Columbus, Wooster, and other college locations throughout the state—have been started in the past year.

“FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES ARE HIGH-TECH AND EVOLVING AREAS,” said CFAES Dean Cathann A. Kress. “We had gotten behind in some of our facilities, so it’s imperative that we make infrastructure a priority.”

It’s a big responsibility: CFAES owns, operates, and leases nearly 11,000 acres and 800 facilities across Ohio.

In Columbus, for example, new projects include the Controlled Environment Food Production Research Complex ($35 million), the Kunz-Brundige Franklin County Extension Building ($5.5 million), and the Multispecies Animal Learning Center ($5.4 million, design work only), all at the Waterman Agricultural and Natural Resources Laboratory.

In Wooster, construction has started on the Science Building ($33.5 million) and the Farm Operations Building and Beef Facility ($4.3 million), while the Secrest Arboretum Welcome and Education Center ($2 million) opened in May.

On Lake Erie at The Ohio State University Stone Laboratory, the home of long-standing efforts to improve the lake’s water quality, a new research building and monitoring equipment ($2.65 million, total) will bolster the lab’s work even more.

CFAES’ overall investment “signals our momentum moving forward and our intent to be a thriving and dynamic college of the future,” Kress said.

“To successfully recruit and retain top talent in faculty, staff, and students, as well as engage industry partners, we need to offer high-quality, modern facilities to conduct their work,” she said.

Graham Cochran, CFAES associate dean for operations, said that for CFAES, “facilities” can mean many things—from traditional classrooms within the walls of a building to learning labs, farm shops, barns, and greenhouses located outside of those walls.

Additional, current projects, Cochran said, include heating, ventilation, and air conditioning renovations in Williams Hall in Wooster ($3.6 million); recovery work from the 2017 tornado in Wooster ($1.2 million); improvements to the auditorium and restrooms in the Agricultural Laboratory.

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**Kunz-Brundige Franklin County Extension Building**
Waterman, Columbus  
$5.5M

Designed to enhance the presence of Ohio State University Extension at Waterman, this building, which opened this fall, allows Extension staff to engage Franklin County citizens in the areas of food, health, agricultural production, and sustainability. The facility features multifunctional meeting spaces, a teaching kitchen, offices, and demonstration gardens, all made possible by a transformational gift from Pat Brundige, who’s had a lifelong commitment to OSU Extension and Ohio 4-H. For more information, visit go.osu.edu/Kunz-Brundige.

**Controlled Environment Food Production Research Complex**
Waterman, Columbus  
$35M

A state-of-the-art greenhouse will support research and teaching on controlled environment agriculture, which can produce food year-round and can do so closer to population centers, increasing freshness and cutting transportation costs. A lead gift from the Nationwide Foundation funded a feasibility study and is supporting a portion of the complex’s construction.

**Multispecies Animal Learning Center**
Waterman, Columbus  
$5.4M (design work only)

This new facility will provide space to focus on the full spectrum of animal-human interactions, from agricultural production to companion animals; to bring people and animals together for hands-on learning, public events, and Extension programming; to work with school, 4-H, and FFA groups; and to house horses, swine, poultry, cattle, sheep, and goats on a short- and long-term basis.

**Science Building**
Wooster  
$33.5M

This new stand-alone building will serve a number of functions. It will provide a gathering space with food service for the Wooster campus; will have multipurpose and classroom space; will offer chemistry labs; and will house faculty, researchers, staff, and students in CFAES’ Department of Entomology.

**Secrest Arboretum Welcome and Education Center**
Wooster  
$2M

This first-ever visitor center in the arboretum’s 110-year history was created by refurbishing the Wooster campus’s Research Operations farm shop. It features a large orientation space for visitors, an even larger multipurpose classroom, public restrooms, gallery space, and offices for arboretum staff. Interpretive exhibits, including for children, are planned. For more information, visit go.osu.edu/SecrestCenter.
Administration Building in Columbus ($1.6 million); and a Chemical Storage and Handling Facility at Waterman ($1 million).

A complete list of projects started since fall 2018 is available at go.osu.edu/FacilitiesUpdate.

Kress said such projects are essential. Cutting-edge infrastructure produces “the talented workforce that businesses and industry need,” she said, and supports innovation and discovery.

“Often, infrastructure within our college supports work critical to the future but without immediate commercial results. These efforts, especially in teaching and research, likely won’t yield short-term, high dividends, but they’re key to long-term, consistent economic growth and stability,” Kress said.

“Understanding the importance of these long-term investments, and the benefits within a state, is part of what led to the creation of the land-grant universities as public institutions rather than relying solely on private investors,” she said.

Funding for the projects has come from state sources, private donors, redistribution of college funds, and grants and contracts. The college has committed $100 million to these projects and is looking to its philanthropic partners to fill $40 million of that commitment, Kress said. She added, “We’re grateful for the support and confidence that is making it happen.”

Regardless of size or location, she said, the projects all share the same goal: “They help create conditions for our faculty, staff, and students to continue to advance science, industry, and sustainability—and that means we can come closer to our mission: We sustain life.”

EVEN MORE REFRESHING SINCE 2017

CFAES has completed more than $15 million worth of projects since 2017, said Graham Cochran, CFAES associate dean for operations. They include classroom, office, and lab renovations in Howlett Hall and the Agricultural Administration Building in Columbus ($3.4 million); replacing the roof of the Agricultural Engineering Building in Columbus ($2 million); improving the Selby Hall greenhouse in Wooster ($1.6 million); and replacing the Ohio State ATI greenhouse in Wooster ($1.45 million). A full list of these projects is posted at go.osu.edu/FacilitiesUpdate.

PLEASE SUPPORT THESE INITIATIVES by visiting go.osu.edu/faesfacilities or calling Emily Winnenberg Kruse in the CFAES Office of Advancement, 614-292-0473.
CFAES is building a greenhouse of the future, one that can grow high-value food crops such as lettuce and tomatoes as well as alternative crops such as flowers and hemp. The new Controlled Environment Food Production Research Complex, slated for Waterman in Columbus, will serve two forward-looking goals: 1) It will help CFAES faculty support a young, fast-growing, food-related industry. 2) It will train CFAES students for careers in that industry.

Controlled environment agriculture is booming in Ohio. It’s a technology-based way to grow plants sustainably indoors, such as in greenhouses. Commercial facilities can span acres and often use hydroponic methods.

The cutting-edge CFAES facility will allow the latest commercial practices to be replicated, said Dan Gillespie, a graduate student working with Chieri Kubota, CFAES professor of controlled environment agriculture. The result, Gillespie said, will be that CFAES faculty can provide growers with “directly applicable results ... to directly drive and impact the controlled environment agriculture industry.”

KURT KNEBUSCH
TRAILBLAZING BUCKEYE

Blindness has never stopped Floyd Poruban

A 2019 CFAES Distinguished Alumni Award recipient, Floyd Poruban was the first blind person to be admitted to and graduate from a science program at Ohio State. BY MATTHEW MARX

He had begun studying horticulture in 1957—decades before the Americans With Disabilities Act of 1990—during an era when few educational opportunities were available to blind people.

Poruban made scientific discoveries on the way to earning a BS in horticulture and an MS in plant pathology at Ohio State. He then opened his own nursery, which has been in business for 55 years.

He believes he has overcome numerous challenges—both socially and scientifically—with determination and tenacity, and he continues to thrive. “When you have a problem, you don’t sit around, because then the problem just gets bigger,” he said. “You have to keep moving forward.”

Or keep moving upward, as was the case during his undergraduate studies. Just like the rest of the male horticulture students at Ohio State, Poruban learned to climb trees with a rope and saddle.

Also, all horticulture students had to be able to identify 1,000 types of plants in Kenneth W. Reisch’s course. Poruban was no exception.

One day, students were having trouble distinguishing an American cranberrybush from a European cranberrybush. Though the plants were virtually identical, Poruban could tell the difference by touch, noting that one bush had sticky flowers while the other bush had dry flowers.

“The instructor just shook his head. ‘That’s not in the book,’ he said.”

After that class, Reisch studied the archives in the United States and in Europe, and he consulted with other professors. “When he did finish all his investigating, they ended up putting it in the book,” Poruban said.

He paid for grad school by working as an assistant in the university’s new plant disease clinic, where he mixed agar media and poured it into thousands of petri dishes that were used in the clinic to grow disease samples.

For his graduate research, Poruban studied crown gall, a common plant disease formed by an agrobacterium. Trying to decipher how the disease progressed was frustrating work, he said, until a chance meeting with Wernher von Braun. The former Nazi scientist who later worked for the U.S. Army and NASA suggested that Poruban use a high-powered ultracentrifuge in his research.

Poruban is now credited as the first person to isolate the “tumor-inducing-principle” that later came to be known as the Ti plasmid from an agrobacterium in a plant system, work he conducted for his master’s thesis at Ohio State.

“Science is in the mind, not the hands or eyes,” Poruban said.
A year of growth, support, and commitment

2019 has been a significant year for CFAES, as we have continued our work to support the land-grant vision—to be an asset for our state through our unwavering dedication to our mission—unchanging, fundamental, and of paramount importance.

For example, this year has been particularly challenging for Ohio growers and producers due to the historic, statewide rainfall this growing season. Our faculty and staff immediately responded by convening the Rural and Farm Stress Task Force to address concerns and offer the best science-based recommendations for and solutions to the issues our state’s producers are facing regarding weather impacts, tariffs, and low commodity prices.

Our college is also making a significant, long-term commitment to its future, and to Ohio’s future, by investing more than $100 million in its infrastructure. Already, 18 capital projects—in Columbus, Wooster, and other college locations throughout the state, including the work at Waterman Agricultural and Natural Resources Laboratory—have been started in the past year.

Furthermore, with over $41 million in research projects underway at CFAES, our faculty, staff, and students are getting increasingly better at translating our research so it can be used in ways that change practices, change the bottom line, and change the world. As just one example, we have about 140 researchers working on various issues related to water quality.

We’ve also successfully recruited 20 new faculty to join our work, and we have launched a new Strategic Partnerships Unit to facilitate our ability to be nimble in engaging and leveraging key partners—be they industry, other institutions, or nonprofits.

We will also soon launch the Knowledge Exchange—a network of researchers, educators, analysts, web developers, and communicators at land-grant universities nationwide—to bridge the gaps between academic research, public data, and the public. New staffing will include data scientists and a knowledge technologies team.

These efforts align with CFAES’ priorities in Time and Change: The Ohio State Campaign, a momentous fundraising initiative of Ohio State. Along with the college’s goal of raising $225 million in private support comes an emphasis on three campaign themes: capital investment at Waterman, discovery and translating research, and student success. I invite you to learn more on Page 11.

We continue to focus on work that is impactful and responsive to the needs of Ohioans, and to nurture and inspire generations of scientists and leaders. Join us. We sustain life.

Cathann A. Kress, PhD
Vice President for Agricultural Administration and Dean,
College of Food, Agricultural, and Environmental Sciences
@cathannkress
Experimental blood test accurately spots fibromyalgia

Ohio State researchers have discovered evidence that fibromyalgia can be detected in blood samples—possibly paving the way for a simple, fast diagnosis.

IN A DECEMBER 2018 STUDY in the Journal of Biological Chemistry, the researchers reported success in identifying biomarkers of fibromyalgia and differentiating it from related diseases.

The discovery could be significant in the care of patients with a disease frequently misdiagnosed, said lead researcher Kevin Hackshaw, an associate professor in Ohio State’s College of Medicine and a rheumatologist at The Ohio State University Wexner Medical Center.

To diagnose the disease, doctors use patient-reported information of symptoms and a physical evaluation of their pain.

Hackshaw and co-author Luis Rodriguez-Saona, a CFAES professor of food science and technology, said the next step is a larger-scale clinical trial to determine whether the study results can be replicated.

The current study included 50 people with fibromyalgia, 29 with rheumatoid arthritis, 19 with osteoarthritis, and 23 with lupus.

The researchers examined participants’ blood samples using vibrational spectroscopy, which measures the energy level of molecules within the samples. Scientists in Rodriguez-Saona’s lab detected clear patterns that set fibromyalgia patients’ blood sample results apart from those with similar disorders.

“If we can help speed diagnosis for these patients, they’ll have better treatment and likely have better outlooks. There’s nothing worse than not knowing what disease you have,” Rodriguez-Saona said.

His lab mostly uses the metabolic fingerprinting technology for food-related research, focusing on adulteration of milk and cooking oils, and helping agriculture companies figure out which plants are best suited to fight disease.

The research was supported in part by the Columbus Medical Research Foundation.

“‘If we can help speed diagnosis for these patients, they’ll have better treatment and likely have better outlooks.’”

—Luis Rodriguez-Saona

CFAES research findings made available to the public

Through the new CFAES Knowledge Exchange, the public will have access to information from diverse sources, including studies done by CFAES faculty.

“As a land-grant university, we want to provide information to the public so we can be more responsive to its needs,” said Tim Haab, director of the Knowledge Exchange. ALAYNA DEMARTINI

Information will be presented in an interactive website, accessible content, and innovative tools that are easy for the general public to understand and use, said Haab.

In early 2020, the Knowledge Exchange will have offerings including websites to analyze county demographics, farm data, and the findings of water quality research being done at CFAES.

The aim is to translate data and make it useful for a wide audience for functions including urban and rural development, and environmental conservation efforts.

MISTI CRANE
Plant pathologist Guo-Liang Wang, an international leader in rice genetics, received Ohio State’s 2019 Distinguished Scholar Award for his contributions to global food security.

**THE AWARD, WHICH INCLUDES A $20,000 RESEARCH GRANT** and a $3,000 honorarium, recognizes exceptional scholarly accomplishments by senior professors who have compiled a substantial body of research.

Wang, a CFAES professor since 1999, has produced pioneering insights into the resistance of crop plants to fungal and bacterial pathogens, specifically disease resistance in rice.

Rice is one of the most important crops on the planet, feeding half the world’s population. However, rice diseases hinder stable rice production worldwide. Various pathogenic microbes cause severe yield losses in epidemic years, leading to major financial hardships and starvation in many countries.

Several disease-resistant genes that Wang’s group mapped and cloned are now being widely used in Asia, Africa, and South America to develop rice cultivars that can resist devastating disease.

Wang mainly works with the bacterium that causes bacterial blight and the fungus that causes rice blast, two of the most serious and costly rice pathogens in many regions of the world. He began studying rice blast about 30 years ago as an undergraduate student in China.

He received his BS in plant genetics from Hunan Agricultural University in China, his MS in plant genetics and breeding from Fujian Agriculture and Forestry University, also in China, and his PhD in plant genetics and breeding from the University of the Philippines.

A prolific researcher and author, Wang is “the international go-to person for any advice or assistance with the molecular biology of host-plant resistance, especially with rice,” said Laurence Madden, professor and associate chair at CFAES’ Department of Plant Pathology. “This global recognition has clearly raised the profile of Ohio State plant pathology throughout the U.S. and the world.”

Janet Weisenberger, senior associate vice president at Ohio State’s Office of Research, noted that the Distinguished Scholar Award committee “was blown away by the quality, importance, and impact of Wang’s work. It is a well-deserved honor.”

**SEVERAL RESEARCH “HOME RUNS”** over the course of Guo-Liang Wang’s career have been directly translated to the field to help protect rice from losses due to disease.
Rural and Farm Stress Task Force

From historic rains that kept many growers out of their fields this year, to tariffs and low commodity prices, many Ohio farmers are struggling.

At the discretion of Dean Kress last spring, CFAES convened the Rural and Farm Stress Task Force (go.osu.edu/agcrisis), composed of experts who can connect farmers and their families with OSU Extension specialists or specialists within the community.

Working with Ohio State’s College of Social Work, the task force can offer resources for emotional support, including finding mental health providers, assisting farmers with management questions, and helping people find jobs off the farm.

Whether it’s navigating new tax laws or understanding the U.S. trade policy’s impact on agriculture, CFAES encourages growers and producers to #LeanOnYourLandGrant.

TRACY TURNER
For its part, CFAES has a goal of raising $225 million in private support focusing on new campaign funds created to embody the following priorities.

**STUDENT SUCCESS**
Through innovative educational opportunities and a complete portfolio of programs, CFAES will focus on students of all ages and across all areas of food, agricultural, and environmental systems. The CFAES Student Success Fund (#316752) supports staffing needs and initiatives in areas centered around K–12 education through Ohio 4-H youth development, preparing CFAES’ enrolled students to become future scientists and leaders, updating current industry personnel with recertification and advisory programs, and offering outreach services to the public through OSU Extension.

**DISCOVERY AND TRANSLATING RESEARCH**
CFAES will bridge research to advance scientific discovery, understanding, and practical application to engage its many stakeholders. The CFAES Translating Research Fund (#316753) helps provide staff and resources for undertaking research projects in agriculture, food production, and environmental sustainability, and sharing relevant findings relatable to industry and the general public.

**WATERMAN VISION**
A 261-acre core for teaching, research, and community engagement, Waterman is located on the Columbus campus. Capital investments at Waterman will include a modernized dairy farm and three new cutting-edge facilities, one of which, the Kunz-Brundige Franklin County Extension Building, has already opened. That will be followed by the Controlled Environment Food Production Research Complex and a multispecies animal learning center. The Waterman Facilities Fund (#316494) supports capital investment at Waterman, including but not limited to design, construction, maintenance, and/or renovations.

Founded in 1870, CFAES is Ohio State’s cornerstone college. That’s 150 years of delivering the land-grant mission—teaching agriculture, science, and engineering—at one of the nation’s largest and most comprehensive universities.

**TIME AND CHANGE: THE OHIO STATE CAMPAIGN**

*Time and Change: The Ohio State Campaign*, the university’s historic, comprehensive fundraising campaign that launched during homecoming week in October, coincides with the beginning of celebrations for the 150th anniversary for both the university and the college.

The campaign’s priorities align with Ohio State’s strategic planning efforts and address CFAES’ four grand challenges. These challenges represent some of the world’s most significant issues: sustainability; one health—the integration of human, animal, and environmental health; the rural-urban interface; and preparing the next generation of scientists and leaders.

With your support, a successful campaign will enable CFAES to achieve its potential for the public good and continue the land-grant mission to disseminate knowledge and education to its communities for the next 150 years. **Matthew Marx**

**THIS MILESTONE ARRIVES AT A REMARKABLE MOMENT** of opportunity for the university’s and the college’s alumni, students, faculty, staff, partners, and entire Ohio community as we come together as one.

To learn how to donate or get involved, visit [go.osu.edu/CFAEScampaignthemes](http://go.osu.edu/CFAEScampaignthemes) or contact Emily Winnenberg Kruse at 614-247-7606 or kruse.192@osu.edu.
TRANSFORMING TRAGEDY INTO A WORLDWIDE MISSION

The photos set out on the table before Barbara Kowalcyk offer a glimpse of her family nearly two decades ago, just before their lives upended.

BY ALAYNA DEMARTINI

FOR A LONGER VERSION OF THIS STORY, visit go.osu.edu/Kowalcyk.

IN ONE OF THE PHOTOS, Kowalcyk, her husband, Mike, daughter, Megan, and son, Kevin, stand atop a cliff in Maine, part of an extended vacation. Kevin stands alone, in another photo, his hands and knees resting on a rock with the backdrop of the Atlantic Ocean.

Two weeks after that picture was taken, Kevin died at 2½ years old. He suffered complications from an E. coli infection, one that he developed, most likely, from eating contaminated hamburger meat.

An assistant professor of food science and technology at CFAES, Kowalcyk is committed to keeping others from going through what her family did nearly two decades ago.

Kevin woke up one summer morning with diarrhea and a mild fever. Within a couple of days, he was hospitalized for dehydration, and a stool sample revealed that he had an E. coli bacterial infection.

The E. coli strain that infected him, E. coli O157:H7, is the same type that was linked to a multistate recall on romaine lettuce in fall 2018, a spinach recall in 2006, and a Jack in the Box hamburger recall in 1993 that sickened 700 individuals and led to the deaths of four children.

Kevin’s E. coli infection led to hemolytic uremic syndrome (HUS), which caused his kidneys to shut down.

“He basically went from being perfectly healthy to dead in 12 days,” Kowalcyk said.

For 10 days in the hospital’s intensive care unit, Barbara, her husband, and other family members agonized as they watched Kevin struggle, become increasingly weak,
and then unresponsive. He threw up black bile and emitted a horrible aroma that Kowalcyk can’t describe but will never forget.

He begged for water. For juice. For the turtle pool he swam in at home. Giving him water would only make him worse, doctors warned, but they allowed him to have a sponge bath. As soon as the washcloth came near his mouth, he grabbed it, bit down, and sucked out the water.

On Aug. 11, 2001, the once-curious young boy with blue eyes and sandy brown hair, died.

Reeling with many unanswered questions, Kowalcyk and her husband felt compelled to begin what would become a lengthy and exasperating search to find the source of Kevin’s E. coli infection. In the week before his illness, Kevin had eaten three hamburgers.

Through public records requests, the Kowalcyks discovered that the DNA of Kevin’s E. coli bacterial infection matched that of a meat recall issued in August 2001, a little over two weeks after Kevin died. The recalled meat came from a producer in Wisconsin, where the Kowalcyks lived at the time. In the year before Kevin passed away, the company’s meat had failed a Salmonella test twice and had a positive, random E. coli test, triggering an earlier recall of ground beef.

“The system failed Kevin,” Kowalcyk said. “If it had worked the way it was supposed to, he likely would not have gotten sick and he would still be alive today.”

By investigating what happened to their son, the Kowalcyks learned how broken and ineffective the food safety system was. Kowalcyk has since dedicated her career to trying to change that system.

As a member of a National Academies of Sciences’ committee, Kowalcyk helped draw up recommendations for reforming the way the Food and Drug Administration oversees food safety.

“There’s still a lot more we can do to improve surveillance and help people realize there is a risk in food, and to help them make decisions that will reduce those risks as much as possible,” Kowalcyk said.

In 2006, she started the Center for Foodborne Illness Research and Prevention, which has since become a part of CFAES. The nonprofit organization promotes science-based approaches to preventing illnesses caused by food.

On Capitol Hill, in board rooms, in classrooms, and in interviews with the media, Kowalcyk has told her personal story many times. Sometimes she speaks without hesitation. Sometimes she tears up and can hardly breathe. She never knows when that will happen.

“As difficult as it is to tell that story, what Kevin went through was much harder,” Kowalcyk said.

As shattering as Kevin’s death was, Kowalcyk has also come to view his passing as a catalyst for saving lives. She had never envisioned herself as being out in front of an issue, advocating in such a public way. But the path began to feel right, a path toward ensuring that Kevin’s life would have meaning not just within their family but well beyond.

“Foodborne diseases are a significant public health issue,” Kowalcyk said. “And we cannot secure good nutrition without food safety.”

FOR MORE INFORMATION on the Center for Foodborne Illness Research and Prevention, visit foodsafety.osu.edu. To donate to the center, click on “Give Now” at the top right of the site.
NO BREAK FOR RECENT ALUMNA

On May 5, Sarah Steinbrunner became a CFAES alumna. The next morning, she began her new job as an associate scientist at Abbott Nutrition in Columbus.

“I WAS REALLY FAST. I’m doing product research and development,” she said. “It’s very exciting.”

At Abbott, Steinbrunner is assigned to nutritional products.

All the while, Steinbrunner continues to work evenings on a venture with her business partner, Taylor Crooks. It is a brand of allergen-friendly chickpea butter spreads that she developed while still a student majoring in food science and technology.

“I never really saw myself as an entrepreneurial person, but Taylor always saw himself as one. I knew I wanted to create products that help people,” she said. “This all fell into place. This is exactly what I wanted to do.”

She is gaining real business experience as she continues to make spreads from the pilot plant at the Wilbur A. Gould Food Industries Center, which is part of CFAES’ Department of Food Science and Technology.

“There is so much that you really don’t learn until you are thrown into that situation,” she said.

The products, branded as “Yippea,” can be purchased at local farmers markets and Whole Foods stores in Columbus and online at yippea.com. The brand was originally called “Beannut Butter,” but was renamed to improve search engine optimization and to clarify that the products do not contain nuts.

“We wanted something short that would roll off the tongue. ‘Yippea’ is a play on the word ‘chickpea’ and it also means happy,” she said.

The rebrand was a tough decision because the products won several competitions under their old name and gained good exposure.

Partly due to her entrepreneurial nature, Steinbrunner was named a 2019 CFAES Distinguished Senior before graduation, which she described as flattering.

“It means a lot,” she said. “I feel like a lot of the opportunities and accolades were because of all of the work we put into the business, and all we have accomplished.”

CFAES’ FOOD SAFETY HOTLINE

You can call 1-800-752-2751 between 9 a.m. and 5 p.m. Monday through Friday, and a food safety expert will likely have the answers to your food safety questions.

The hotline was created by CFAES’ Wilbur A. Gould Food Industries Center in 1985 as a service to support the needs of Ohio-based food processors, said Heather Dean, who serves as the hotline’s coordinator.

The free hotline is now accessible by consumers nationwide, thanks to a 2009 partnership with the Kroger Co. Consumers can also email their food safety questions to foodsafety@osu.edu.

Trained CFAES staff and students answer the hotline, which averages 100 calls annually.

Hotline questions commonly focus on food storage and temperatures: “If a package of meat was left in the car after a grocery trip, is it safe to eat?”

If the food safety experts don’t know the answer, they’ll do some research, call back the consumer, and provide the answer. After-hours calls are answered by voicemail and receive return calls. TRACY TURNER

“The products can be purchased online at yippea.com.”

MATTHEW MARX
In 2012, Brodie Yeager and Drew Palmer met in kindergarten at Harrison East Elementary School in Hopedale, Ohio. They sat together at lunch. They played football at recess. But they were not close friends, which makes this story even more remarkable.

Before entering third grade, Drew was diagnosed with Ewing’s sarcoma, a type of bone cancer, in his spine. “He was a very outgoing, goofy boy. He loved his dirt bike. He loved to climb trees. He always had a sense of humor,” said Drew’s mom, Elisha Palmer.

After surgery, 13 rounds of chemotherapy, and 30 radiation treatments, along with time spent at UPMC (University of Pittsburgh Medical Center) Children’s Hospital of Pittsburgh, the Cleveland Clinic, and Nationwide Children’s Hospital in Columbus, Ohio, Drew passed away Aug. 29, 2016, a month shy of his ninth birthday.

“His family was down, and I wanted to bring them back up,” said Brodie, who is now 12 and a member of the Cadiz Ranchers 4-H Club in Harrison County. “I wanted to make them feel that their son was not forgotten.”

Brodie surprised buyers at the 2017 Harrison County Junior Fair when he announced that all proceeds from the sale of his market rabbits would go to cancer research in Drew’s name. The rabbits were bought by D&J Sales and Service, and Border Patrol Construction—Brodie’s dad’s company—for $3,400.

In 2018, Brodie donated his rabbit proceeds to the Make-A-Wish Foundation. His rabbits sold to Randall L. Gallagher Memorials for $2,000. D&J Sales and Service, and Border Patrol Construction each matched the purchase, bringing the total donation to $6,000.

“Brodie has been amazing. It blows my mind that someone his age would be willing to give up that much money,” Elisha Palmer said.

Brodie does not like the attention that has come with his donations, his mom said. “We just explained to him that people need to hear good news today,” said Nicole Yeager.

Elisha Palmer believes Brodie and Drew would be close today. “Drew always knew somebody in the hospital worse off than him. He always looked out for those kids. It reminds me of Brodie’s generosity. He and Drew would have grown to be close friends.”
Blue M&M’s healthier thanks to CFAES professor

A CFAES professor has good news for candy lovers: M&M’s are getting a nutritional upgrade.

MONICA GIUSTI, A PROFESSOR IN FOOD SCIENCE AND TECHNOLOGY, has been developing and researching natural food colorants for more than 20 years. On Nov. 6, 2018, the manufacturing company of M&M’s and many popular candy brands, Mars Inc., patented Giusti’s method of extracting anthocyanins—pigments that give red, purple, and blue plants their coloring.

Anthocyanins are difficult to work with, Giusti said, and two main problems come with the development of natural blue pigment: the scarcity of blue plants in nature, and the difficulty of preserving blue pigment during anthocyanin extraction. When extracting anthocyanins from blue plants, the pigment will often present as a different color.

“Blueberries are kind of blue, but if you were to make a blueberry juice, the juice would not be blue,” Giusti said.

The research is likely to infiltrate the food industry as a whole, Giusti said, also noting that replacing synthetic dyes with natural dyes will integrate fruits and vegetables into people’s diets in an entirely new way, and they will not even notice a difference in taste.

“We say that we are what we eat. ... And we have heard that we should consume more fruits and vegetables (but) this transition is very slow,” she said. “If we could incorporate the benefits from fruits and vegetables into our regular diet, we could move faster toward a healthier population.”

—MONICA GIUSTI

FOR MORE INFORMATION, visit waterquality.osu.edu.
A YOUTUBE VIDEO OF THE JAPAN PRIZE CEREMONY is at go.osu.edu/Cxhn.

Rattan Lal receives his award at about the 3:30 mark. He starts speaking around 5:35. CFAES’ press release on the award is at go.osu.edu/JapanPrize.

JAPAN PRIZE WINNER:

**Peace, stability start in the soil**

Even in the presence of royalty, the conversation was down to earth. And that was totally appropriate.

**IN A FORMAL CEREMONY** in April in Tokyo, CFAES’ Rattan Lal received the 2019 Japan Prize, one of the most prestigious global awards in science and technology.

Lal, who is Distinguished University Professor of Soil Science at CFAES’ School of Environment and Natural Resources, was honored for his pioneering studies of sustainable soil management and, specifically, for showing how treating the soil right can help solve two of the world’s biggest challenges: food security and the climate crisis.

“The health of soil, plants, animals, people, and the environment are interconnected,” Lal said in his comments at the ceremony.

Nearly a thousand dignitaries, including Japan’s Emperor Akihito and Empress Michiko and Ohio State President Michael V. Drake, attended the black-tie event.

Japan Prize officials said those chosen for the honor—two annually out of more than 15,000 nominees—have furthered the cause of peace and prosperity.

Lal, who earned his PhD from CFAES in 1968 and joined the faculty in 1987, has devoted his career to studying the soil, especially soil used to grow food. He said he believes that soil has a right to be protected, restored, and managed with good judgment.

In 2000, Lal founded CFAES’ soil-focused Carbon Management and Sequestration Center, which he still directs, and to which he has donated the prize’s $450,000 honorarium.

Humanity’s well-being starts in the ground, Lal told the audience.

“The ferocious and intense fire that burns in the pit of an empty stomach, which is a serious threat to human peace and political stability, can only be extinguished by a loaf of bread made from grain grown on a healthy and fertile soil.” KURT KNEBUSCH

SEARCHING FOR WHAT’S KILLING BEECH TREES

American beech trees are dying in northeast Ohio and beyond, and Ohio State researchers want to know why.

The researchers are conducting a study to look into the cause of beech leaf disease, which was first found in Lake County in 2012 and has since spread to nine other counties in Ohio, as well as in Pennsylvania, New York, and Ontario.

Young trees seem to be particularly susceptible to the disease, which initially causes dark stripes to appear on leaves, then deforms the leaves. Eventually, the disease can kill the trees.

“There’s no similar forest tree disease that we are aware of anywhere,” said Enrico Bonello, a CFAES professor of plant pathology who is overseeing the study.

“It’s really a black box.”

Ohio has 17 million American beech trees, and many of them in northeast Ohio, particularly along or near Lake Erie, are afflicted with the disease, Bonello said.

ALAYNA DEMARTINI
CFAES faculty and staff engage Ohioans statewide, putting knowledge to work and to practical use for communities across the Buckeye State.

Continuum soon to be a digital publication

Continuum is your source for CFAES news and information.

Undergraduate students from six CFAES departments made a strong showing at Ohio State’s Richard J. and Martha D. Denman Undergraduate Research Forum in February. They won four first places, two seconds, and two thirds in five of the event’s 18 categories.

Conservation and Development—first place, Harrison Fried, School of Environment and Natural Resources (Suzanne Gray, mentor); second place, Heather Pechtl, Department of Animal Sciences (Chanhee Lee, mentor); third place, Alyson Linton, Department of Animal Sciences (Daniel Clark, mentor).

Education Across the Human Lifespan—first place, Kayla Walls, Department of Agricultural Communication, Education, and Leadership (Dee Jepsen, mentor).

Emerging Technologies: Smartphones, Social Media Platforms, and Beyond—first place, Kuanrong Zhu, Department of Food Science and Technology (Luis Rodriguez-Saona, mentor).

Evolution, Genetics, and Biochemistry of Insects—first place, Vivian Chang, Department of Entomology (Megan Meuti, mentor); second place, Hilary Kordecki, Department of Animal Sciences (Chia Lin, mentor).

Evolutionary Ecology and Environmental Science—third place, Joey Smith, Department of Food, Agricultural and Biological Engineering (Ryan Winston, mentor).

Your online connection to Ohio State information

More than 900 fact sheets are available on Ohioline, OSU Extension’s free, online information resource, found at ohioline.osu.edu. Ohioline fact sheets cover everything from gardening to energy, from farming to forestry, and from community development to youth development.

The cutting-edge, scientifically-based information is generated from research conducted by Extension educators, CFAES faculty and staff, and often, collaboration with other land-grant universities.
Undergraduates shine in global event

Two undergraduate CFAES students presented their research on the world stage at the second annual World Congress on Undergraduate Research (WCUR) in Germany.

Hannah Cochran, an animal sciences major, and Harrison Fried, an environmental policy and decision making major, were among nine other outstanding undergraduate students who represented Ohio State throughout several days in May at the University of Oldenburg.

Cochran, a third-year student at CFAES’ Department of Animal Sciences, presented a poster titled “Evaluation of field-based assays for rapid pathogen detection on swine trailers.” Andrew Bowman, assistant professor of epidemiology and veterinary preventive medicine, served as her mentor.

Fried, a fourth-year student at CFAES’ School of Environment and Natural Resources, presented a poster titled “How do algal and sedimentary turbidity affect the swimming performance of emerald shiner and golden shiner in Lake Erie?” Suzanne Gray, assistant professor of aquatic physiological ecology, served as his mentor.

Fried noted that a highlight of the congress was a thematic workshop session that allowed him to work with fellow aquatic student researchers from four continents: Malawi/Africa, Maldives/Asia, Guyana/South America, and Ohio/North America.

The WCUR brings together the world’s best undergraduate research and provides an opportunity for global dialogue across many different fields of inquiry. Students share their research, discuss global issues, and create international research partnerships.

SHERRIE WHALEY

Linked for life and livelihood

CFAES conferred nearly 900 degrees upon new alumni or those advancing their education during the 2018–2019 academic year. Several of those degrees—including agricultural economics, miscellaneous agriculture, and animal sciences—are among the nation’s lowest in unemployment, a recent study shows. Congratulations! MATTHEW MARX
A new, charitable tradition

The inaugural Dean’s Charity Steer Show, benefiting Ronald McDonald House Charities (RMHC) of Central Ohio, brought together the community on July 30 to celebrate agriculture and support children and their families during difficult times. CFAES Dean Cathann A. Kress hosted the event in partnership with Ohio Cattlemen’s Association and Telhio Credit Union during the Ohio State Fair. Local celebrities were paired with Ohio 4-H families in an exhibition and livestock sale competition. More than 900 spectators attended the show, and nearly 8,000 watched it live on Facebook. Proceeds of $152,000 were donated to RMHC of Central Ohio. Save the date for next year: Aug. 4, 2020. MATTHEW MARX