The Ohio State University was founded in 1870 thanks to a transformational piece of legislation granting federal land to states for the purpose of providing a higher education to working class citizens. This series of statutes, the Morrill Land-Grant Acts, revolutionized higher education throughout America, creating access to a university education for people and communities for whom it was previously out of reach. Since its establishment, Ohio State has epitomized the founding mission of these land-grant institutions — that in educating our citizenry we ensure a better tomorrow for ourselves, our communities and the world.

We mark Ohio State’s 150th anniversary with a celebration as expansive and rich with dimension as the university itself. It recognizes all of today’s students and alumni, faculty and staff, patients and fans, donors and friends. It reaches back to those who came before us, and forward to those who will follow. It honors the university’s proud tradition of education, scholarship, research, innovation and engagement with global and local communities. The Ohio State University’s sesquicentennial is a celebration of all that Buckeyes are, all that we have accomplished, and all that is yet to come.

150.osu.edu #OSU150

A celebration of all that Buckeyes are, all that we have accomplished and all that is yet to come
Dear Alumni and Friends,

Welcome to the Ohio State FABE Impact Report. The 2019 calendar year was another exciting year for our department, filled with growth and achievement. I hope you enjoy reading through this collection of stories and work showcasing the amazing students, faculty, and staff that make up the Department of Food, Agricultural and Biological Engineering (FABE).

Looking back 150 years, The Ohio State University, or Ohio Agricultural and Mechanical College as it was called then, was founded. At the time, the university was rooted in the agriculture and mechanical arts, foundations of both engineering and agricultural sciences that make up the core programs of FABE today. Over the course of 2020, we as a university plan to celebrate our sesquicentennial. It is an opportunity look back at all we have achieved, and to look forward to all that we can accomplish.

Throughout 2019, FABE has seen tremendous growth. In the 2018-2019 academic year, we added five new faculty to our roster – through the university-wide Discovery Theme program. These impressive individuals significantly increase our research capacity, will support expanded course offerings, and will bring new students to FABE. We hope you will take the time to become introduced to these new faculty through their Q&A pieces on pages 6-7 of this report, and online.

Amid this period of growth, FABE researchers have remained at the forefront of many of today’s current issues. Critical to Ohio, and many parts of the world, is the issue of water quality. Faculty members Drs. Jay Martin and Margaret Kalcic are at the forefront of research into addressing Lake Erie’s harmful algal blooms. The results of one of their recent investigations are discussed on pages 10-11 of this report. Also, of note, are innovations coming from the Cornish Lab Group, where an innovative new medical glove has earned Dr. Katrina Cornish a series of accolades (page 8).

Our students, too, have enjoyed tremendous success throughout the past year. Among our peer programs in the College of Food, Agricultural, and Environmental Sciences, our graduates have some of the best job placement rates and starting salaries of any other major. Beyond these outcomes, I continue to be impressed every day by the incredible stories of where our students come from and the passions that drive them forward. I encourage you to meet a selection of these incredible students on pages 14-21.

As we look forward, I am encouraged by the students and scholars of FABE as they continue to change the world. As engineers and technologists working on living systems, we have a duty to conserve natural resources and preserve environmental quality, all while increasing our efficiency and productivity to feed, fuel, house and sustain our growing world. FABE is credited with numerous achievements over the past 100+ years as of its existence. I look forward to seeing where the FABE family will take us in the years to come.

Regards,
Scott. A. Shearer, Ph.D., P.E.
Professor Chair
Between 2018 and 2019, the Department of Food, Agricultural and Biological Engineering added five new faculty positions.

These faculty bring new expertise to both the Columbus and Wooster facilities, expanding FABE’s research and teaching capabilities.

We look forward to their future contributions to our department and their respective fields!

**Read their full Q&As**

go.osu.edu/fabeqa

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**Darren Drewry, B.S., M.c.s., Ph.D. Assistant Professor**

Drewry is an assistant professor in the departments of FABE and Horticulture and Crop Science. His academic background includes degrees in physics, computer science and engineering. This diverse academic background has led Drewry to conduct research pertaining to issues at the intersection of ecohydrology, foodsecurity and agro-ecosystem monitoring and management.

**Why FABE?**

“The FABE Department at Ohio State has an impressive breadth of expertise across many disciplines of agricultural and biological engineering. At FABE, I knew I would continue to learn a tremendous amount about how agricultural systems work, while finding excellent collaborative opportunities with colleagues in the department,” Drewry said.

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**Carin A. Helfer, B.S., Ph.D. Research Assistant Professor**

Helfer is a research assistant professor in the FABE department. Her academic background includes degrees in chemical engineering and polymer science. Helfer’s research focuses on polymers, specifically on polymer characterization to understand the relationship between molecular structure and properties.

**Why Did You Choose Your Area of Research?**

“My first position as a chemical engineer out of college was as a research tire compounder at the Goodyear Tire & Rubber Company, but I had limited knowledge of polymers. The lack of knowledge motivated me to start taking classes at a local university. After two classes, I became interested to learn more and decided to pursue a Ph.D. My interest in polymers for medical applications comes from my initial career choices in high school, which were in the medical professions,” Helfer said.

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**Judit Puskas, M.c.s., Ph.D. Professor**

Puskas is a professor in the FABE department. Her academic background includes degrees in plastics and rubber technology, as well as organic and biochemical engineering. Puskas’ present interests include the integration of breast reconstruction and cancer research, green polymer chemistry and probing the polymer-bio interface.

**What is Your Research Focus?**

“My main focus is polymers, which is an umbrella term for both plastics and rubbers. Specifically, I am interested in ‘green polymer chemistry’, which aims to make rubbers, plastics, and similar materials using environmentally friendly, or ‘green’, practices. Some of those practices include minimizing the use of hazardous substances—or not using any at all—and making sure the new materials can be composted after use. This could mean less plastic waste in the oceans and fewer old tires in landfills,” Puskas said.

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**Sami Khanal, B.S., M.c.s., Ph.D. Assistant Professor**

Khanal is an assistant professor of agricultural sensing for sustainability indicators in the FABE department. Her academic background includes degrees in computer science and information management, geosciences and environment and resources. She specializes in the application of remote sensing technologies, geographic information system (GIS), big data analytics and ecosystem modeling.

**Why FABE?**

“One of the main factors that drew me to the Department of Food, Agricultural and Biological Engineering is the interdisciplinary nature of the research and teaching activities that are taking place within the department and university as a whole. My prior and current research activities place me in a unique position to both collaborate with other FABE faculty on these different areas, and establish my own program,” Khanal said.

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**Ryan J. Winston, B.S., Ph.D. Assistant Professor**

Winston is an assistant professor in the departments of FABE and Civil, Environmental, and Geodetic Engineering. Winston focuses on the sustainable management of water in urban, suburban and rural areas. His research group specializes in site assessment, monitoring, modeling, and management services that help partners make better decisions about watershed management.

**What Are Your Goals for the Future?**

“I hope to develop novel methods for treatment of water so that we can sustainably manage water in urban areas. We hope to optimize return on investment for stormwater treatment while providing maintainable and aesthetically pleasing solutions. Ultimately, our work helps to protect the critical water resources of the state of Ohio so that we can continue to meet our needs for clean water to drink and recreate in,” Winston said.
Katrina Cornish, professor in the Departments of Horticulture and Crop Science and Food, Agricultural and Biological Engineering, received a trio of Innovator of the Year awards in 2019. Cornish is an internationally-recognized scholar on alternative natural rubber production. She is also an Ohio Research Scholar/Endowed Chair Bioemergent Materials at The Ohio State University, a fellow of the National Academy of Inventors and the American Association for the Advancement of Science, and founder and CEO of EnergyEve Inc. and several other startup companies.

Over the course of 2019, Cornish received three Innovator of the Year awards. She was named Ohio State Innovator of the Year at the Research and Innovation Showcase. Cornish then received the CFAES Innovator of the Year Award at the College of Food, Agricultural, and Environmental Sciences (CFAES) Annual Research Conference. Finally, she was named Innovator of the Year at the 2019 OSU Materials Week, hosted by the Institute for Materials Research.

Cornish and her team developed the first Radiation Attenuation (RA) medical glove from guayule. This innovation will eliminate the need for medical professionals working with radiation to double-glove. While there are already several types of RA gloves currently on the market, the glove that Cornish and her team have created uses guayule natural rubber, which does not cause allergic reactions.

In addition to developing products like gloves, condoms, and weather balloons from guayule, Cornish and her team also work with other sources of natural rubber, such as the rubber dandelion.

Learn more about Cornish and her team’s research at: cornishlab.cfaes.ohio-state.edu.

Katrina Cornish also received the BioEnvironmental Polymer Society Lifetime Achievement Award in 2019. The award recognizes those who have made outstanding contributions to the field of biopolymers, biobased materials or bioenergy.

“I am very honored to receive this award. It is a wonderful recognition of my research and development efforts. I look forward to continuing my work and research in natural rubber and sustainable materials.” - Dr. Katrina Cornish

Shah Receives NABEC Young Engineer of the Year Award

Ajay Shah, associate professor in FABE, was honored in 2019 with the Young Engineer of the Year award at the Northeast Agricultural and Biological Engineering Conference (NABEC). Each year, the award honors one member of NABEC, who has made outstanding contributions to the advancement of the agricultural and biological engineering profession.

“It’s an honor to receive this award from my colleagues. It means a lot to have my work recognized by them. I would like to thank all my team members, internal and external collaborators, and funding agencies for their support – their contributions have made this possible,” Shah says.

Shah holds a bachelor’s degree in mechanical engineering from Tribhuvan University in Nepal, a master’s degree in biological engineering from Mississippi State University and a doctoral degree in agricultural and biosystems engineering from Iowa State University.

Dr. Shah leads the BioSystems Analysis Lab (BSAL), where his program contributes to enhancing the techno-economic and environmental sustainability of advanced plant-based food, material and energy production systems throughout their life cycle, from field production through conversion to end-products. More specifically, his program focuses on biofeedstock production, harvest and supply logistics, biomass conversion, and organic waste management and value-addition. He is also developing systems to minimize post-harvest grain dry matter losses for small-holder farmers in developing countries. Additionally, Dr. Shah is the director of the Program for Bioproducts and the Environment (ProBE).

Winston Receives Excellence in Undergraduate Research Mentoring Award

Ryan Winston, assistant professor in FABE and Civil, Environmental, and Geodetic Engineering, received a 2019 Excellence in Undergraduate Research Mentoring Award. Over 60 graduate students, postdoctoral scholars, and faculty were nominated this year. Winston joins 17 other award recipients from across the university, who were all recognized by the Office of Undergraduate Research & Creative Inquiry.

The Excellence in Undergraduate Research Mentoring Award honors individuals who have demonstrated success in mentoring undergraduates in their research and/or creative inquiry endeavors. Winston was nominated by his advisee, Joseph Smith, an undergraduate and graduate student in FABE, specializing in ecological engineering.

“Since I did not have any previous experience as a researcher, Ryan has taught me how to navigate the daunting research process,” said Smith in his nomination letter. “He has made me feel welcome to ask any question I might have, and has encouraged me to showcase my research at events such as the Denman Undergraduate Research Forum.”
Several research teams, led by The Ohio State University, have concluded a three-year study evaluating the ability of agricultural management practices to reduce phosphorus causing harmful algal blooms in Lake Erie. In 2012, the United States and Canada set the goal of reducing phosphorus entering the lake by 40%. Now, researchers have a better understanding of what management practices need to be implemented, and what research still needs to be done to meet these goals by 2025.

The majority of phosphorus entering Lake Erie originates from the Maumee River watershed. More than 85% of the phosphorus entering the lake comes from agricultural sources such as fertilizer runoff. To address this, researchers are evaluating what agricultural management practices have potential to reduce this phosphorus, while supporting farmers to maintain profitability.

“There’s a lot of edge-of-field work going on that identifies successful practices in single fields. But when we scale up and ask how many of those practices need to be adopted over a wide area like the Maumee River watershed, that’s where we turn to our models,” said Jay Martin, project coleader for the recent study and professor in Ohio State’s Department of Food, Agricultural and Biological Engineering (FABE).

The study, which was funded by the Ohio Department of Higher Education’s Harmful Algal Bloom Research Initiative, used five watershed models to help researchers determine the most effective approaches to combat algal blooms. Just as your local news uses models to forecast the weather, researchers use watershed models to project how different management techniques impact phosphorus entering Lake Erie.

“It just as your local news uses models to forecast the weather, researchers use watershed models to project how different management techniques impact phosphorus entering Lake Erie.”

By layering five separate models over these practices, researchers are able to narrow in on the best solutions. Solutions are aimed at meeting reduction targets for two forms of phosphorus: Total Phosphorus and Dissolved Reactive Phosphorus. Each spring, levels of Total Phosphorus and Dissolved Reactive Phosphorus affect the magnitude of harmful algal growth. Year-round levels of Total Phosphorus, which includes Dissolved Reactive Phosphorus, lower oxygen levels in the lake, and result in the annual dead zone in the central basin of Lake Erie.

Researchers worked with a team of stakeholders to determine what management practices to analyze with the models. The stakeholder group had wide representation from agricultural groups, government agencies, non-governmental organizations, and environmental groups. Together with researchers, these stakeholders helped determine what management practices and adoption rates were most likely to be feasible solutions to model.

“In this study, we wanted to be able to show policy makers a range of expectations if we implement certain conservation strategies,” said Margaret Kalcic, project co-leader and assistant professor in FABE. “Multiple models help us address uncertainty and gain confidence in our practices.”

Results from the study showed progress in reducing phosphorus that is required to decrease harmful algal growth. However, none of the modeled scenarios met the reduction goals for Dissolved Reactive Phosphorus. These results point to the need to further increase adoption of existing practices and research alternative management practices, which is where researchers expect to focus their efforts next.

“With the types of practices available to the farming community, we can make stronger strides reducing Total Phosphorus than with Dissolved Reactive Phosphorus,” said Martin. “In the future, we need to develop management processes that are more effective at managing Dissolved Reactive Phosphorus—processes that hold back or filter water.”

The most promising scenarios called for a mix of in-field management like cover crops and subsurface fertilizer placement, and the use of buffer strips to help filter field runoff. One mix of these practices met the reduction goal for Total Phosphorus. The study also highlighted the importance of identifying sites where specific practices will have a higher potential of reducing phosphorus runoff. While this approach will result in accelerated gains in water quality and more efficient use of resources, it will require field level assessments and consultation with producers.

It is also hoped that these results convey confidence to the public and farmers that properly combined management practices can make progress towards phosphorus reduction targets. Doing so should lead to an increase in adoption rates of effective practices and improve the ongoing harmful algal bloom problem in Lake Erie.
Kent McGuire Builds Relationships to Enhance Safety

by Allyson Williams

College of Food, Agriculture and Environmental Science (CFAES) Health and Safety Coordinator Kent McGuire’s compassionate, hands-on approach promotes the safety of every CFAES student, faculty and staff member.

Throughout his ten years at the university, Kent has developed personal relationships with department heads and CFAES leaders and is committed to the safety of his coworkers.

“My passion comes from the fact that I love working for the people in CFAES, and I want to make sure they can teach and work safely and ensure they can go home at the end of the day,” Kent said.

Initially, Kent noticed an opportunity at Ohio State to reinvent the current safety program and used his previous expertise to create a new program suited to meet the needs of CFAES that also works in conjunction with the OSU Environmental Health and Safety programs.

Kent provides online, lab, and farm equipment training and safety inspections, as well as general oversight for the CFAES safety program for 11 departments across the Columbus, Wooster and Extension campuses.

“We’ve developed a program that is specific to our college, easy to access and has become a model for other agricultural academic campuses as they develop their own safety programs,” Kent said.

Kent is driven by the human element when he does his job. He emphasizes his role as the point person for all safety issues. Anyone who works in the college can feel confident and comfortable doing their job knowing Kent is looking out for their safety.

“I really enjoy getting to work one-on-one with employees in different departments and on different sites,” Kent said. “I would say that’s the best part of my job.”

The people in CFAES create a supportive culture that enables Kent to be innovative in the way safety is executed within the college.

“The community of this college is based on the fact that everyone has a passion for what they’re doing,” Kent said. “Because of that passion, safety aspects are usually easy to implement. They take pride in the college and in their work for the college.”

Beyond CFAES, Kent believes Ohio State fosters cohesiveness and closeness as a large university. Though Kent’s job reaches across the state, he uses the closeness he has felt at the large Columbus campus to create a system of coordination and support across multiple departments.

“I love that as big as Ohio State is, it can still be a close-knit community,” Kent said. “You can develop friendships and relationships, and everyone is taking pride in what they’re doing and doing it well.”

His passion for CFAES and Ohio State drives Kent’s dedication to extending safety beyond Columbus. His current long-term goal is to improve the connection he has with all three CFAES campuses; Columbus, Wooster and Statewide Extension.

“My ultimate goal is to continually build and expand this safety program. I want to work with people around me and develop close relationships with other groups so, together, we can create a safer college and university”

Kent McGuire, CFAES Health and Safety Coordinator, was honored with a 2019 Distinguished Staff Award.

The Distinguished Staff Award was created in 1984 and is the highest honor bestowed upon staff at The Ohio State University.

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The Distinguished Senior Award is the most prestigious undergraduate award in CFAES, recognizing the top graduating seniors from each of the academic units on the Columbus campus. There were 25 Distinguished Seniors across the CFAES College, four of which were from the Department of Food, Agricultural and Biological Engineering (FABE). One of the hallmarks of CFAES is an emphasis on student success, and it is heartwarming to see it exemplified through the accomplishments of our students.

JUSTIN HAERR
Agricultural Systems Management

During his time at Ohio State, Haerr distinguished himself as a leader in the ASM program through his leadership roles in the ASM Club, as a CFAES Ambassador and undergraduate teaching assistant.

Haerr said majoring in agricultural systems management and being involved in CFAES was his opportunity to “have a Cheers-like college experience, a place you wanted to go ‘where everybody knows your name.’”

After graduation, Haerr returned to his family’s grain operation to handle the crop production portion of the farm. He also sees an agronomic consulting business in his future thanks to some of the courses he took.

“I’ll officially become a certified crop adviser and be able to help out local corn, soybean, and wheat growers with agronomic insight,” he said. “Writing fertilizer and seeding prescriptions, analyzing and evaluating production practices, soil and tissue sampling, and aerial imagery all have intrigued me to do some crop/farm consulting sometime in the future.”

MANUEL BARNES
Construction Systems Management

Barnes is a current member of the Army National Guard and former president of the CSM club. Over the course of his time in CSM, Barnes has participated in four internships and some of Ohio State’s award-winning CSM competition teams.

An active guardsman in the Ohio Army National Guard, Barnes has also been a leader in the engagement of student veterans and serves as the Veterans Community Advocate for the college. In this role, he works to bring members of the military and veterans from across the college together to engage and support one another. Barnes hosted events to build community, such as a veteran’s woodworking workshop before winter break.

Barnes is currently working for Turner Construction Company as a virtual design and construction engineer.

JENNA LEE
Food, Agricultural and Biological Engineering

Lee has been involved in the American Society of Agricultural and Biological Engineers (ASABE), CFAES Ambassadors, the Ohio State Society of Women Engineers, the Ohio State Agribusiness Club and Ohio State Welcome Leaders.

As an undergraduate research assistant with the Ohio State Digital Agriculture program, Lee has sought to help farmers throughout Ohio better understand new technologies and determine which are most useful to their operations. She also worked on the 2017, 2018, and 2019 eFields reports, which compiles on-farm research studies throughout Ohio.

After graduation, Lee will be working as an Integrated Solutions Consultant at Ag-Pro Companies, where she will further her passion of connecting farmers with technology that can help make their operations more efficient, profitable and sustainable.

JOSEPH SMITH
Food, Agricultural and Biological Engineering

Smith graduated this spring with two bachelor’s degrees, in FABE and Mandarin Chinese, and is currently pursuing his master’s degree in FABE. Smith is an honors student, Morrill Scholar and member of the men’s varsity gymnastics team, where he specializes on the high bar and has been named a Big Ten Champion and Varsity “O” member.

Smith has also been engaged in undergraduate research during his time at Ohio State. His research poster placed third at the 2019 Denman Undergraduate Research Forum in the Evolutionary Ecology and Environmental Sciences category. His research project was titled “Seasonality of Nutrients in Stormwater Runoff from Residential Sewersheds in Columbus, Ohio,” where he worked with Drs. Ryan Winston and Jay Martin on data collection and analysis for this project.

Smith is continuing his graduate education at Ohio State to earn master’s degrees in FABE and Mandarin Chinese. He hopes to use his engineering skills to help others abroad and plans to return to China to work, with the ultimate goal of becoming a professor.
It is easy to get intimidated by the course load when you first step into an Ohio State class. After a while though, students eventually get accustomed to the operation. Lyne’a Diller, a third year agriculture systems management (ASM) major, can say she has gotten the handle on time management.

Coming into college, Lyne’a knew she was faced with a big decision: to pursue a career on the athletics field or on the farm field. Born on a farm in Columbus Grove, she realized that agriculture was what she saw herself doing in the future. She had lots of experience from helping her older sisters raise sheep on their family farm.

“It took up all our summers, but it honestly was the best part of my life. I always love going back to the farm and finding things I can get my hands on and help my dad with when I am able.”

Although Lyne’a has chosen to major in ASM, she still is very active in her sports passion. Lyne’a is currently a thrower for the Ohio State Track and Field team and has been since her freshman year. In fact, she verbally committed the night of her official visit to Ohio State! She knew since junior year of high school that Ohio State is where she is meant to be.

Choosing a favorite moment during her track and field career at Ohio State is a tough one for her, but the most impactful trip she had with her team was to Florida, where they got the chance to train in the ESPN facility. It was a humbling experience and she’s grateful to have had such an amazing opportunity.

She was also super happy when her team witnessed the men’s program win the Indoor and Outdoor Big Ten. She loved the way everyone supported and cheered the team along.

“My family is a huge part of my life. My mom and dad have helped me tremendously in so many different scenarios. I have such a strong support system with my sisters and parents. I am a homebody and the change from the country to city has been a hard one, and they have helped me every step of the way.”

Although Lyne’a has got a jam-packed day of classes and practice, she still finds time for her other interests and hobbies. When she has the opportunity, she loves to sing and play piano. Music has always been another big factor of her life growing up. Throughout her schooling career, she participated in musicals, choirs, solos, and ensembles. Her faith is another big part of her life and she is beyond grateful for all that God has blessed her with.

Lyne’a is ecstatic to see where life takes her in the future. But she will also never forget her past and everyone who has helped her along the way so far:

“I just want to send a HUGE thank you to Dr. Mann for being a great advisor. Also, to the coaching staff of the Track and Field team, especially Coach Dennis and Kovacs for allowing me to be a part of such an amazing family.”

“To anyone that may want to join a team or even a club, just go for it! I have seen people walk on to multiple different teams and thrive! Never doubt what you can do, if you have a gift, show people... I guess what I am saying is, get out there! Do not be so consumed in one area that you are not allowing yourself to meet other amazing and interesting people. But ultimately, make sure you love what you are doing.”

She connected more with her major and the people within it and discovered new passions that she would not have otherwise. The number one thing learned is time management.

Time and Agricultural Systems Management

It is easy to get intimidated by the course load when you first step into an Ohio State class. After a while though, students eventually get accustomed to the operation. Lyne’a Diller, a third year agriculture systems management (ASM) major, can say she has gotten the handle on time management.

Lyne’a is very appreciative of her hometown she grew up with. From a town of less than 2,000 people, she credits this community for supporting her in her passions and guiding her to where she is today.

“My family is a huge part of my life. My mom and dad have helped me tremendously in so many different scenarios. I have such a strong support system with my sisters and parents. I am a homebody and the change from the country to city has been a hard one, and they have helped me every step of the way.”

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MECAH MOCHOGE

Aspiring to Help Fellow Veterans

To many, the story of a college student who started classes in the autumn of 2009 is not one planning to graduate in the spring of 2020, they might think it’s a story of failure. But to senior construction systems management major Mecah Mochoge, it’s a story of perseverance.

Mecah was born and raised in Columbus, Ohio. Like many local kids, the desire to go to The Ohio State University was in her blood. “You bleed Scarlet and Grey,” as Mecah puts it. With the drive to go to Ohio State, but not knowing exactly what she wanted to study, Mecah turned to aptitude tests to guide her way.

They all pointed along the same path: to become an engineer.

In 2009, Mecah started her Ohio State career in engineering undecided in order to explore the fourteen different engineering disciplines the college had to offer. But engineering didn’t turn out to be all that Mecah wanted it to be.

“I didn’t want to sit behind a desk all day.” She wanted to work with her hands, to talk to other people. “That’s when my career counselor recommended CSM.”

The construction systems management (CSM) major at Ohio State offered Mecah everything she was looking for. While rooted in engineering principles, the major was hands-on, practical, and required a great deal of teamwork. And for two years, the CSM program proved to be a perfect fit for Mecah. Then, finances became tight and Mecah took two years off to work.

One day, a pair of army recruiters came into the shoe store where Mecah was working and asked what she knew about the Army Corps of Engineers. It was a path that aligned with her studies in CSM, and so Mecah signed on.

Mecah served with the Army Corps of Engineers for four years. She was stationed in Savannah, Georgia and over the course of her service her unit was deployed to Germany, Poland, Romania, and the Czech Republic.

While deployed, her unit worked on NATO missions with local European units. Their work was familiar to Mecah and aired on the heavy/civil side of engineering and construction. In one case, they expanded airways for a Romanian airport. Her unit demolished rubble and overgrowth so that their Romanian allies could come in and put down the concrete.

“For anybody who is having financial issues, the military is a great option,” says Mecah. “Four years might seem like a long time, but it’s worth it for the financial freedom you get. Now, I go to school and I don’t have any more loans. That’s a great burden taken off of you.”

Mecah returned from her service to come right back into the CSM program. She describes the process as an easy transition. She sat down with Ben Carignan, a CFAES College Academic Counselor and fellow veteran, who helped get her back on track for her degree in CSM.

“A lot of younger students see me for guidance since I am older. And I tell them that networking is key.”

Networking proved key for Mecah in finding her first internship position through CSM. During a mixer with the CSM program’s Industry Advisory Council, she found a woman who would eventually become her mentor in the field. Mecah brought her mentor several of the internship offers she had received to ask for her opinion.

“Her advice was to make sure those companies align with your morals,” said Mecah. “Then she asked what I thought about her own company. I got an offer two days later. It was an amazing experience. I have never, in the 29 years of my life, enjoyed going to work every single day.”

Like many internships, Mecah hit the ground running from day one. 30 minutes in to her first day, her supervisor asked how quickly she could pack her bags and that afternoon they were off to Orlando for a week.

During her internship, Mecah was trusted with two brand-new pilot projects. Halfway through her internship, Mecah was offered a full-time role with the company.

As Mecah recalls, “I had to learn to deal with fire and be flexible. I wanted my work to be perfect. I wanted my guys to know what to expect for the projects to come.”

It’s no secret that the construction industry is a male-dominated field. However, Mecah found that there a lot of resources at Ohio State to help women in the field. It’s not always an easy fight, but with a supportive network of peers and mentors, Mecah has found success. “It’s a tough road right now for females in engineering. You have to have the ability to let some stuff roll off and keep pushing.”

After graduation, Mecah plans to work for the company where she interned, but that’s not her ultimate goal. Someday, Mecah hopes to start her own non-profit organization for veterans. The organization would build housing for homeless veterans, while training them to learn trade skills to get them on their feet.

Throughout her winding journey to receive her diploma, Mecah has persevered through much and yet she still focuses her efforts on others.

“I have brothers and sisters in arms that are homeless. If I can use my skills, then I can help them gain the same skills.”
Jenna grew up on a farm in Marysville, Ohio. As the daughter of two third-generation Buckeyes, she always had an interest in attending The Ohio State University. She said campus always felt like home to her as an Ohioan. Listening to the campus chimes when she crossed the oval makes her feel at home.

Jenna was always good at math and science but was unsure what major to pursue in college. She wanted to stick with family tradition and continue in agriculture but was not sure what to specialize in. While attending an FFA event, Jenna found out about agricultural engineering, and she decided it was the perfect fit. She felt that this would challenge her while blending a variety of engineering styles she enjoyed.

After deciding to pursue agricultural engineering, Jenna found her home at Ohio State in the Department of Food, Agricultural, and Biological Engineering (FABE). She is also an active member of the Agribusiness Club and American Society of Agricultural and Biological Engineers, and she serves as a College of Food, Agricultural, and Environmental Sciences Ambassador. She cites her involvement in campus organizations as part of being successful at the university. Specifically, she recommends getting involved as early on as possible and surrounding yourself with likeminded individuals.

One of Jenna’s favorite academic experiences at the university was getting to visit Waterman and being able to try some of the advanced Kubota equipment.

Being involved on campus helped make her aware of research opportunities, such as the Digital Ag program, which publishes on-farm research from across Ohio to help farmers and their advisors understand how new practices and techniques can improve farm efficiency and profitability. This year, Jenna is one of the lead roles in the publication of eFields.

Jenna’s experience from Digital Ag equipped her with the technical knowledge needed to pursue one of her dream internships. She spent this past summer interning for John Deere Intelligent Solutions Group in Urbandale, Iowa. She was involved in developing how-to videos for their digital solutions, that have since been published on their YouTube. Additionally, she helped manage customer and dealer feedback from their online tools, furthering her passion for helping farmers find the right solutions.

Jenna recommends that students continue learning about what interests them. Additionally, she emphasized the importance of hard work.

“The amount of effort you put in is the return you get out.”

After graduation, Jenna is unsure what she intends to do. She hopes to either continue her education at Ohio State for graduate school or pursue a job in industry that will allow her to continue to assist farmers in implementing digital and precision ag solutions.

Meet More of Our Students

go.osu.edu/fabestories
Construction Systems Management Club
At the start of 2019, the CSM Club made major changes to their constitution, including creating four additional executive positions. Additionally, they decided to put more of a focus on networking with industry professionals, and brought in Grunley, Singleton, Kwest Group, PCI and Igel to club meetings where they discussed case studies. Additionally, the group held a Professional/Student night with Hill International, Elford, and Turner, to partake in networking. In October, the club sent two teams of five to Chicago to compete in the ASC Competition. The teams were tasked with assembling a full bid in 16 hours to present to a panel of judges.

Quarter Scale Tractor Club
Each year, the Quarter Scale Tractor Team participates in the International 1/4 Scale Tractor Student Design Competition that is put together by ASABE. Each team and their tractor are scored on a variety of things, including design, tractor pulls, durability, maneuverability, brake tests, heat tests, sound tests, the team’s logo, written presentation, cost analysis, oral presentation, and overall technical inspection. After working on their tractor for months, the team traveled to Peoria, Illinois in late May to compete. They received fourth overall; first in serviceability, second in team presentation, written design, and design judging, and third in maneuverability.

American Society of Agricultural and Biological Engineers
In February, ASABE attended the National Farm Machinery Show. Members learned about the newest in agriculture technology and watch the NAPTA National Tractor Pulling Contest. In March, they attended the Midwest Regional ASABE Rally at Purdue University. In October, four ASABE students participate in the Animal Science Department’s second Annual Buckeye Classic Meat Judging Contest, where they took first place overall. ASABE also worked on one major service project in the Spring semester of 2019. They partnered with the ASM Club to rebuild a grain drill for Ukrainian farmers. Apostolic Christian HarvestCall approached ASABE and ASM Club to assist in rebuilding a John Deere 750 no till drill to send to one of these farmers.

Agricultural Systems Management Club
In 2019, the ASM club was elected the organization of the year by CFAES. Throughout 2019, the ASM Club conducted a lot of outreach. First, they worked with a variety of high schools to answer questions about college, admissions and Ohio State. Next, they helped host a science and technology showcase at Reynoldsburg Elementary School, where they taught students about current agriculture technology. Additionally, they worked with ASABE on rebuilding a grain drill for a Ukrainian farmer in need. The group also hosted two successful fundraisers. The first was their annual lawn mower clinic, where they serviced and cleaned over 300 mowers. Second, they ran a food booth at Farm Science Review in the fall.

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Empowerment Retention Advancement

In 2015, Gönül Kaletunç, a professor of food engineering at The Ohio State University, was faced with a mind-boggling statistic: 40% of women in engineering or STEM-related careers quit their job before the age of thirty. It was a statistic that Kaletunç knew she had to address, and one that she hoped could one day be reversed. She started with a small program of 13 Ohio State students, each paired with a mentor from their respective field, and now it has grown into a recognized brand for advancing women in science, technology, engineering and math (STEM).

AWARES stands for Aspiration for Women's Advancement and Retention in Engineering and Science. It's a name fitting for just what Kaletunç had in mind when she conceived the program's outcomes. Her goal was to create a program that could equip women studying engineering and science with the necessary skills for a smooth transition into the workplace and a successful career beyond. While many programs at Ohio State already addressed the concept of career preparedness, AWARES was the first to focus on the ideas of retention in the field, an issue that plagues women entering male-dominated fields.

"We need to address the issue of career retention, I thought, 'what could we do to prepare undergraduate women in our programs?'" says Kaletunç. "My research led me to believe that students needed a mentor and they needed to know more about the culture of the workplace, so that they could enter it with more confidence. They already had the technical skills to have successful careers, but they needed the soft skills to advance."

The approach of the program was to provide both individual mentorship and peer community building. Students involved in the program would be paired with a mentor from their respective field of interest to discuss various career-related topics throughout the year. Students would then bring these conversations with their mentors back to their peers in their cohort to share what they have learned from their mentors and to practice skills. AWARES covers topics including the job search, interview skills, conflict resolution, office culture, strategies to combat implicit bias, imposter syndrome and microaggressions.

For the past three years, AWARES has also held a special winter meeting featuring a panel discussion about sexual harassment in the workplace. The program’s fifth year marked a surge in interest from student participants; 56 students make up this year’s class. With the addition of mentors, the program accumulated a staggering total of 112 participants. The AWARES Class of 2019-2020 is larger than the previous two year’s classes combined. This year also represents the greatest diversity in majors of study for students in the program, with 16 unique academic disciplines represented. Students from 10 of the engineering majors offered by Ohio State are now represented in the AWARES program. Majors from the College of Food, Agricultural and Environmental Sciences and the College of Arts and Sciences are also represented.

Since its inception, AWARES has seen a number of awards and accolades related to its success. Since 2016, AWARES has received $80,000 in funding from Ohio State and national sources. AWARES has also been the subject of several national presentations at various conferences and two publications in The Chronicle for Mentoring and Coaching. In 2017, Kaletunç was also awarded the Ohio State College of Engineering's Faculty Diversity Excellence Award for her efforts in creating the AWARES program.

But the true accolades of the program are in the testimonials from participants.

"I feel more confident about making decisions, about recognizing advancement opportunities, and about standing up for myself if I need to," said one student.

"I wish this kind of program would have been offered when I was in school looking to enter the work force."

Mentors, too, hold the program in high regard: "This is a really great program and a real gift to these women. I wish mentors, too, hold the program in high regard: "This is a really great program and a real gift to these women. I wish this kind of program would have been offered when I was in school looking to enter the work force."

In Kaletunç’s view, one of the greatest examples of the program’s success are the former student participants who have come back to serve as mentors. This is how Kaletunç always envisioned the continued success and longevity of the program, that former student participants would find successful careers in engineering and science and would come back to mentor the next generation of students by sharing their stories.
Each year, students majoring in Agricultural Systems Management or Food, Agricultural and Biological Engineering complete a year-long senior capstone design project. These projects, sponsored by industry partners, offer students an opportunity to apply all they have learned during their time at Ohio State to a real world problem. Using teamwork, collaboration, time management, and problem solving skills, students have designed ecosystem restoration for wetlands, solutions for food processors to reclaim wastewater and developed simulations to help farmers.

Outstanding Communicators

The Outstanding Communicator awards are presented to the three student teams who have the best oral presentation and poster design. Awardees are selected by industry partners, faculty, and alumni who are members of the Industry & Professional Advisory Group.

OARDC Honey Bee Lab
Julia Namenek, Natalia Zappernick, Alex Nykaza, Benjamin Baker, and Collin Hughes
Advisors: Dr. Mike Lichtensteiger and Garrett Steinbeck

NASA-Plant Experiments
Hayley Jenkins, Roma Yengo, Viktor Lillard, Nicole Vehar, and Colton Bock
Advisors: Dr. Peter Ling and Dr. Jane Fife

Tractor Rollover Simulator
Wesley French, Christopher Shoup, and Austin Sigman
Advisors: Dr. Dee Jepsen

Farmstead Grain Storage and Cropping Plans
Grant Auletta, Ricky Coreno, and Justin Haerr
Advisors: Dr. John Fulton

Farm Drainage Plan
Lucas Damman, Lucas Gray, and Matt Simmons
Advisors: Dr. Larry Brown

Unmanned Grain Pit
Jake Blackburn, Griffin Jankowski, and Andrew McCard
Advisors: Chuck Long and Terry Ham

Outstanding Communicators

Hirzel Metal Detection
Nila Richards, Nick Thomas, Kiersten Weeloon, Christopher Waldelich, and Sean Lee
Advisors: Garrett Steinbeck

Hirzel Bostwick
Maria Geisler, Kayla Cleary, Daniel Kim, Nur Syuhada Mohd Zam, and Timothy Smerdon
Advisors: Kristen Conroy

OSU Food Science
Suzanne Yam, Hannah Maringo, Abbie Gohrbrand, Nick Nash, and Irene Onianwa
Advisors: Dr. Denny Heldman and Kristen Conroy

3Bar Biologics
Richard Chen, Nora Fialkowski, Yezon Al-Hamwy, Rachel Chodikov, and Cheyanne Dobozy
Advisors: Garrett Steinbeck

Honda R&D Algae
Matthew Maisel, Matthew Reed, Kendra Harder, K.C. Stower, and Crystal Godon
Advisors: Dr. Jane Fife

Seed Tender
Muhammad Asyraf Abu Kasim, Lucas Fernald, David Keck, Xiaoyu Zhu, and Zachary Folino
Advisors: Dr. Scott Shearer and Dr. Jane Fife

AgrAbility Skid Loader
Sydney Sandidge, Morgan Everly, madison Lubman, Anthony Tomusko, Emily Russell, and Matthew Carlisle
Advisors: Dr. Dee Jepsen and Dr. Jane Fife

NASA-End Effectors
Chris Crunkleton, Jamal Garcia, Trevor Moulton, Nate Parsons, and Nate Steele
Advisors: Dr. Peter Ling and Dr. Jane Fife

SRC Humanitarian Eng.
Cherieanna Shu, Katie Kaffenbarger, Syarifah Nuzul Khozamiah, Sydni Jordan, Morgan Dent, and Angelina Fernandes
Advisors: Dr. Mike Hagenberger and Patrick Sours

Outstanding Communicators

Food Waste Utilization
Logan Douglas, Jamie Gothard, Eric Klever, and Gaoshoutong Si
Advisors: Tony Gillund

Economic Feasibility of Automation in Agriculture
Broderick Ball, Alex Felty, Doug Simpson, and Tianqi Zhao
Advisors: Bob Recker
Alumni Spotlight

LINDSAY JONES AND HER PASSION
PROJECT, BLIND EYE RESTORATION

Have you ever driven past an old building and seen the beauty of an earlier era behind its broken windows, a layer of dust and chipped paint? Have you ever observed a black-and-white photo of a grandparent, noting how the years have worn and aged them, and marveled at the vitality they once possessed? In today’s materialistic world, objects are mass-produced and no longer hold a singularly unique quality. These are just a few of the reasons that led Lindsay Jones to form her own company, entitled Blind Eye Restoration. Blind Eye Restoration is a historic restoration contracting company that provides art and architectural restoration services to the Midwest region of the United States. However, Jones wouldn’t have been able to launch her dream career if not for her time at The Ohio State University.

Jones graduated from Ohio State with a bachelor’s degree in art history and construction systems management (CSM). As an undergraduate student, Jones worked as a construction assistant with Habitat for Humanity. The job was very hands-on in nature.

Despite deciding to forego joining the construction industry, Jones didn’t want to leave the field entirely. Her continued interest in the construction industry was reflected in her master’s thesis, which was based on introducing general contractors to preservation or ways to integrate it into a business. Jones wanted to apply her background in modern construction and use to bring historical buildings into the present era.

After Jones earned her master’s, she worked a few jobs that enabled her to travel from New York to California, but ultimately, Jones decided to settle down in Ohio. Jones began working for Woda Development as a project manager. After a year of working for them, the company procured a large contract that included refurbishing windows. Woda Development couldn’t find anyone else with the required skill set and experience to refurbish the windows, and so, Jones was given an opportunity that would lead her to form her own company, Blind Eye Restoration, in October 2016.

Jones chose the name, Blind Eye Restoration, for a few different reasons. The first reason had a personal background element to it: Jones is legally blind in one eye. She also wanted a company title that would be a play on words. “People cast a blind eye, not paying attention to old buildings that are falling down around them,” as Jones puts it. Blind Eye Restoration does a lot of restorations, but her company’s specialty is windows and doors. Jones also thought the name was appropriate because she thinks “windows are the eyes to a building.”

Since its founding, Blind Eye Restoration has completed several amazing projects, including the restoration of a forty-foot mosaic at Saint Sebastian Church in Akron, Ohio.

Jones’ passion is fueled by many things, but she noted that her primary goal is not to sustain collection of house museums. Jones sees preservation as a means to a more community-minded and environmentally sustainable end.

As she describes it, “preservation encourages commercial revitalization of small town main streets, creates visually appealing walkable neighborhoods, supports new businesses with existing building stock, and decreases the massive waste accumulation caused by demolition and new construction.”

Jones also lectures and leads workshops around the midwest on the maintenance of historic building materials and how to achieve energy efficiency to increase awareness of the economic viability and repairability of historic buildings.

The historical charm of these places is not lost on her. She says one of her favorite things is seeing the tool marks of the original craftsmen, or finding evidence of previous occupants on the pieces she restores. "Somebody lived there, somebody loved there, somebody died there, someone created history there… it’s not just about the building anymore."

To learn more about Blind Eye Restoration or for more information, check out blindeyerestoration.com.
One central figure of the construction systems management (CSM) program, W. Mac Ware retired this year.

Ware grew up in Sidney, Ohio. He began working labor jobs when he was a teenager, and often found himself gravitating to jobs in construction. Ware graduated from Fairlawn High School in 1968 and went on to attend Clark State Community College, where he received an associate degree in civil engineering technology.

After a few years in the workforce, Ware decided to pursue a Bachelor of Science in mechanical engineering technology from Franklin University.

After completing his bachelor’s degree, he went on to pursue a Master of Science Administration at Central Michigan University’s Federal Government Installation in Ohio. After completing his master’s degree, Ware continued working in the industry. Ware spent over 40 years working, he worked for various general contractors, specifically as an estimator.

In 1994, he and a business partner started his own general contracting company, Renovators Inc. Ware served as the president of the company for 12 years. Renovators Inc. was a mid-sized company that focused on office renovations. In 1998, Renovators Inc. placed fourth in the Local Business First “Fast Fifty” Awards for the 50 fastest growing small and medium sized businesses in Central Ohio.

Eventually, he decided to share the knowledge he gained by teaching. In 1994, Ware began his teaching career at Columbus State Community College as an adjunct instructor. He enjoyed his time working at Columbus State, but knew from his experience in the construction industry that there were also, high quality students at Ohio State. He wanted to take part in educating these students, and as a result, applied to work at the university.

Ware began teaching at Ohio State in the fall of 2009. He taught a variety of courses throughout his time at the university, including HVAC/Plumbing, Mechanical Systems, Intro to CSM, Materials & Methods and Surveying & Site Development.

Ware was approached about the creation of a Capstone course for CSM. At the time CSM was just a specialization and not a degree option. Creating the Capstone class allowed for CSM to become a B.S.

Capstone ended up being Ware’s favorite course, which he taught from spring 2010 through spring 2019. He enjoyed spending time with students, who were completing their final academic tasks before graduating and entering the industry. Ware also enjoyed learning about his students’ various experiences from previous internships and jobs.

During his time at Ohio State, Ware went above and beyond, receiving the “Staff Teacher of the Year” award in 2012 and 2014. Several times Ware also joined students on service-learning trips to Honduras. Ware also served as an advisor to the Construction Systems Management student club, ABC National Construction Management student competition, where they won the national championship in 2013, and the University of Cincinnati Construction Management Competition for freshman and sophomore students.

Outside of his careers, Ware has seen large successes in his personal life as well. He has been married to his wife, Helen, for over 35 years. Together they raised two children, Ami and Matthew (deceased) and four grandchildren, along with a dog.

Ware has a few things he will be doing in his retirement. First, he wants to continue teaching one course per year at Ohio State. Ware returned for the 2020 spring semester to teach Intro to CSM once again. Additionally, Ware plans to spend time with family and friends, playing golf, and traveling.

“I heard about the exceptional quality of Ohio State’s CSM program and wanted to be part of it.”

Ware is also a long-time member of the Builder’s Exchange (BX). Throughout his time at the Builder’s Exchange, he served on a variety of the group’s committees, along with teaching courses to members looking to increase their knowledge. In 1999, Ware joined the Board of Directors at the Builder’s Exchange and in 2009, he served as the president of the Board of Directors.

In 2018, Ware was awarded the Builder’s Exchange Cornerstone Award. The Cornerstone Award is awarded to a member of the Builder’s Exchange, nominated by their peers, for their outstanding commitment to the Builder’s Exchange, the construction industry and the community. This is the highest recognition awarded to BX members.

Ware has seen large successes in his personal life as well. He has been married to his wife, Helen, for over 35 years. Together they raised two children, Ami and Matthew (deceased) and four grandchildren, along with a dog.
2019 Graduates

Spring Semester

PH.D.
FOOD, AGRICULTURAL AND BIOLOGICAL ENGINEERING

Haley Kujawa
Ashish Manandhar
Jin Hong Mok

BACHELOR OF SCIENCE
AGRICULTURAL SYSTEMS MANAGEMENT

Grant Auletta
Lucas Darman
Logan Douglas
Marshall Downing
Alex Felty
Holden Fosnaugh
Wesley French
Cole Giffilin
Lucas Gray
Justin Hoer
Dylan Holzschuh
Christopher Shoup
Gaschohtung Si
Austin Sigmam
Mathew Simmons
Douglas Winkel
Charles Wippel

BACHELOR OF SCIENCE
FOOD, AGRICULTURAL AND BIOLOGICAL ENGINEERING

Joshua Adams
Nickolas Aho
Cole Bachtel
Levi Baker
Emmanuel Barnes IV
Sean Brooks
Mackenzie Davison
Collin Eberhardt
Daniel R Garmes
Gabriel Gemberling
Steven Gilbert
John Hagan Jr.
Logan Harvey
Collin Hayes
Vinton Holtz
Chase Huntsman
Jerry Jackson

Summer Semester

PH.D.
FOOD, AGRICULTURAL AND BIOLOGICAL ENGINEERING

Brittany Schroeder
Jessica Slutzky

BACHELOR OF SCIENCE
AGRICULTURAL SYSTEMS MANAGEMENT

Chelseas Dexter

BACHELOR OF SCIENCE
CONSTRUCTION SYSTEMS MANAGEMENT

Javon Carter
Andrew Gataieder
Gavin Heath
William Shepard

Autumn Semester

PH.D.
FOOD, AGRICULTURAL AND BIOLOGICAL ENGINEERING

Xanje Ren
Lu Zhang

BACHELOR OF SCIENCE
AGRICULTURAL SYSTEMS MANAGEMENT

Ben Richetti

BACHELOR OF SCIENCE
CONSTRUCTION SYSTEMS MANAGEMENT

Nicholas Jesse
Sean Keams
Nicholas Klein
Matthew Mackey
Jessi Martinez Guerra
Dustin McClusky
Robert Melburn
Thomas Nelson II
Nick Ondrcek
Austin Overby
John-Michael Pauze
James Ragland III
Geno Rollo
Eric Valentine
Seth Williams

BACHELOR OF SCIENCE
CONSTRUCTION SYSTEMS MANAGEMENT

Nicholas Jesse
Sean Keams
Nicholas Klein
Matthew Mackey
Jessi Martinez Guerra
Dustin McClusky
Robert Melburn
Thomas Nelson II
Nick Ondrcek
Austin Overby
John-Michael Pauze
James Ragland III
Geno Rollo
Eric Valentine
Seth Williams
### Recent Grants

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<td>STTR Natural rubber production: 4-D hydroponically produced rubber optimized to deliver cost efficiency (4D Hy PRODUCE)</td>
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<td>Drewry, Darren</td>
<td>Airborne solar induced chlorophyll fluorescence to characterize arctic boreal zone phenology and productivity, NASA Headquarters</td>
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<td>Fulton, John</td>
<td>Ag data considerations for today’s US soybean production, SmithBucklin</td>
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<td>Kalcic, Margaret</td>
<td>Assessing edge-of-field water quantity and quality response from different agricultural management practices, USDA Agricultural Res Service</td>
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<td>Kalcic, Margaret; Winslow, Christopher</td>
<td>2019 Knauss OH Apostle, Nat Oceanic &amp; Atmospheric Admin</td>
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<td>Kaletunc, Gonul</td>
<td>SBIR: 3D food printing control system, BeeHex</td>
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<td>Ling, Peter</td>
<td>Volume optimization for food production during deep space exploration</td>
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<td>Martin, Jay Franklin; Kalcic, Margaret; Murumkar, Asmita</td>
<td>The Cooperative Institute for Great Lakes Research (CIGLR): A proposal to the Office of Oceanic and Atmospheric Research, NOAA, for a new Regional Research Institute, Univ of Michigan</td>
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<tr>
<td>Puskas, Judit E; Cornish, Katrina</td>
<td>Planning Grant: Engineering Research Center for Sustainable Rubber Products: Innovation, Science and Engineering = SuRPrISE</td>
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<tr>
<td>Puskas, Judit</td>
<td>Collaborative research: Polymer macrocycles: A novel topology to control dynamics of rubbery materials</td>
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<td>Saxty, Sudhir; Kaletunc, Gonul</td>
<td>Combination mechanical shear and moderate electric field treatment for production of safe, nutritionally enhanced liquid foods and beverages, National Institute of Food &amp; Agriculture</td>
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<td>Shah, Ajay; Cornish, Katrina; Culman, Steven; Khanal, Sami; Shearer, Scott; Witter, Jonathan</td>
<td>Whole-plant based feedstock supply system for biobased industries, National Institute of Food &amp; Agriculture</td>
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<td>Shearer, Scott</td>
<td>CNHi planter residue manager study, CNH Industrial</td>
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<td>Shearer, Scott; Puskas, Judit</td>
<td>Autonomous layered intelligent sensing technology (A-LIST), 3D Aerial Solutions, LLC</td>
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<td>Winston, Ryan; Dorsey, Jay</td>
<td>Advancing stormwater management at marinas in the Great Lakes, Univ of Michigan</td>
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<td>Winston, Ryan; Witter, Jonathan</td>
<td>Inlet protection comparison for sediment control on roadway construction, ms consultants</td>
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<tr>
<td>Zhao, Lingying</td>
<td>Development of a computer program to predict spray droplet displacement discharged from intelligent sprayers, USDA Agricultural Res Service</td>
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### Active Grants

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<tr>
<th>Name</th>
<th>Project Title</th>
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<tbody>
<tr>
<td>Cornish, Katrina; Cardina, John; Fresnoedo Ramirez, Jonathan; Keener, Harold; Michel, Frederick</td>
<td>The Program of Excellence in Natural Rubber Alternatives (PENRA)</td>
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<tr>
<td>Irwin, Elena; Bakshi, Bhavik; Bielicki, Jeffrey; Cai, Yongyang; Fiksel, Joseph; Jackson-Smith, Douglas; Martin, Jay; Randall, Alan; Sheldon, Ian; Wilson, Robyn</td>
<td>INFEWS/T1: Impacts of deglobalization on the sustainability of regional food, energy, water systems</td>
</tr>
<tr>
<td>Kalcic, Margaret</td>
<td>The Program of Excellence in Natural Rubber Alternatives (PENRA)</td>
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<tr>
<td>Kalcic, Margaret</td>
<td>Agricultural nutrient reduction in the Huron River Watershed</td>
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<tr>
<td>Kalcic, Margaret</td>
<td>Coastal SEES: Enhancing sustainability in coastal communities threatened by harmful algal blooms by advancing and integrating environmental and socioeconomic modeling</td>
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<tr>
<td>Martin, Jay; Brooks, Jeremy; Lee, Jiyong; Roe, Brian</td>
<td>NPDES stormwater and Clintonville blueprint monitoring project</td>
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<td>Martin, Jay; Julian, David; Kalcic, Margaret; Labarge, Gregory; Roe, Brian; Wilson, Robyn; Winston, Ryan</td>
<td>Developing public-private partnerships (PPPs) to target legacy phosphorus fields to increase water quality and availability</td>
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<tr>
<td>Martin, Jay; Kalcic, Margaret</td>
<td>Evaluating water quality impacts of runoff risk advisory forecast (kRAF)</td>
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<td>Martin, Jay Franklin; Lee, Jiyong; Winston, Ryan</td>
<td>Impacts of green infrastructure on the urban microbiome of the Great Lakes: Reducing threats to public health</td>
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<tr>
<td>Michel, Frederick; Cardina, John; Cornish, Katrina; Irwin, Elena; Shah, Ajay</td>
<td>BARRAL- Bioenergy, advanced biofuel, and rubber research agricultural linkages</td>
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<tr>
<td>Michel, Frederick</td>
<td>Understanding the container media microbiome and its effects on plant health</td>
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<tr>
<td>Sastry, Sudhir</td>
<td>Nonthermal inactivation of enzymes using oscillating electric fields</td>
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<tr>
<td>Shah, Ajay</td>
<td>Development of resources and tools to improve oil content and quality in pennycress</td>
</tr>
<tr>
<td>Shah, Ajay; Ezeji, Thaddeus; Keener, Harold; Shearer, Scott</td>
<td>Improving biofuels production: A novel whole-plant corn based feedstock supply system</td>
</tr>
<tr>
<td>Winston, Ryan</td>
<td>Bioretention and permeable pavement: Quantifying nutrient reduction and evaluating material specifications and sources</td>
</tr>
<tr>
<td>Ozkan, Erdal</td>
<td>Deposition quality of intelligent sprayers used in orchards and nurseries</td>
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<tr>
<td>Winston, Ryan; Dorsey, Jay</td>
<td>Wet weather storm water sampling in urban and suburban landscapes</td>
</tr>
<tr>
<td>Winston, Ryan; Dorsey, Jay</td>
<td>Monitoring and modeling nutrient and sediment loads from urban watersheds in the Dayton metro area</td>
</tr>
<tr>
<td>Zhao, Lingying; Bohrer, Gil</td>
<td>Modeling fluxes, fate and transport of ammonia emission from egg production and manure management facilities</td>
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RECENT PUBLICATIONS


Industry & Professional Advisory Group

Agricultural Systems Management

Food, Agricultural and Biological Engineering

The IAC meets six times a year. The IAC Committee serves as a link between FABE, CSM alumni and the construction industry, as well as with other engineers and technologists who associate with the CSM program at OSU. As an advisory council, they will participate regularly in strategic planning with department administrators and regularly review academic and outreach programs of the faculty and staff in the area of construction management. They also review FABE’s ACCE administrative processes, and program educational objectives and outcomes.

2019 activities included Women Inspire Construction event, where over 200 industry professionals and students joined together for a focus on diversity and empowerment. We had a mixer at Grandview Yard focusing on connection between student and industry and to encourage interaction. We held a mentorship program that connected students to individuals in the industry for a year long mentorship commitment. The IAC also sponsored student teams to attend the ABC, NHAB, Newbie Competition and ASC student competitions.

Industry Advisory Council

Construction Systems Management

The IAC Leadership

Chair: Adrienne Sraver
Hill International

Vice-Chair: Ty Parshall
Pepper Construction

Secretary: Andrea Purvine
Marker Construction

Treasurer: Marc Ribe
Fabcon
Larry Walden ’85 and Patricia Walden ’75, married for 51 years, have been active participants in President’s Club since 2010. They met as undergrads at Western Kentucky University, and both went on to receive their master’s degrees at Ohio State.

Those degrees didn’t come easily. The couple lived in Coshocton, Ohio, which meant a 70-mile commute to school. Larry also balanced a full-time job that required him to travel constantly across state lines and attend school on the weekends. He’d travel with two briefcases: one for business and one for school.

Both are grateful for the opportunities they received at Ohio State — and after they retired, they wanted to make sure other students had the same opportunities they did. In 2019, the inaugural Blikk-Walden Endowed Scholarships were awarded to three undergraduate students studying construction systems management.

**What is your connection to Ohio State?**

Our true connection to Ohio State has to be with the President’s Club staff. They are always there for us whenever we need it and can easily smooth out or clarify any issues that may arise. While we can’t be major gift donors, the President’s Club makes us feel that any sized gift is a valuable gift. They make sure we can clearly see the impact we have done. Our current endowed scholarship for undergraduate students enrolled in the College of Food, Agricultural, and Environmental Sciences and majoring in construction systems management is a passion of ours, and we hope with this opportunity, more women will become involved in construction management.

**Why do you give to Ohio State and what has been the most rewarding part of giving?**

We are extremely grateful for the degrees we received at Ohio State, and we want to make sure every student has the opportunity we had. We want to continue opening doors for students.

**Larry:** I enjoyed being a mentor in the MBA program and participated much more as an alumnus. This is our way of giving back.

**Patricia:** One of the reasons why we created our scholarship (the Blikk-Walden Endowed Scholarship) was to empower women to join and make a successful career in a male-dominated field. I would love to see more females in this field.

**Why would you encourage others to give?**

When good research gets put into action, we all win. We love it when we see a veterinarian or a doctor who got their education from Ohio State, because it makes us feel that we contributed to supporting their education, which in turn supports society. If people are ever curious about donating, put in the research. Find out what you’re passionate about, research what programs Ohio State has in relation to your passion, and donate! Giving is easy, and no matter how big it is, Ohio State shares results. They make every donation feel valuable.

— Patricia and Larry Walden with their three scholarship recipients at the 2019 FABE Student Scholarship and Awards Banquet

**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.

- Support endowed or current use scholarships for students in FABE. We have a particular need for additional scholarships for our Construction System Management program, but would also welcome scholarships for students in any discipline.
- Support endowed graduate fellowships for FABE Students. Fellowships and scholarships enable us to recruit the best students, removing any financial burdens, and make a profound impact on the life of each student by making higher education accessible.
- Support online education in Digital Agriculture for high school students, as well as professionals in the field.

**Discovery and Translating Research:** CFAES will bridge research to advance scientific discovery, understanding, and practical application to engage its many stakeholders.

- Support Endowed FABE professorships to recruit and retain faculty who are experts in their fields, and will make new discoveries in groundbreaking areas of agricultural and engineering research. Those who invest in professorships truly make an investment in the long-term success of the department, and have the satisfaction of knowing they have supported someone who could transform agriculture.
- Support Humanitarian Development and Innovation program for FABE majors interested in service learning and education abroad programs. Enable students to gain life-changing experiences by building infrastructure, such as water treatment systems, in developing countries.

**Time and Change**

Founded in 1870, CFAES is Ohio State’s cornerstone college. For 150 years we have been delivering on our land-grant mission – teaching agriculture, science, and engineering – at one of the nation’s largest and most comprehensive universities. Our sesquicentennial milestone arrives at a remarkable moment of opportunity for the college’s and the department’s alumni, students, faculty, staff, partners, and entire Ohio community as we come together as one.

**Larry:** 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. With your support, a successful campaign will enable CFAES, and the department of Food, Agricultural, and Biological Engineering (FABE) to achieve its potential for public good and continue our land-grant mission to disseminate knowledge and education to our communities for the next 150 years.

Join FABE in furthering our land-grant mission by supporting one of several important initiatives:

**Waterman Vision:** A 261-acre core for teaching, research, and community engagement, Waterman Laboratory 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...
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