THE OHIO STATE UNIVERSITY

continuum

News from the College of Food, Agricultural, and Environmental Sciences

Fall/Winter 2014-15

KEEPING IT CLEAN

Water Quality Initiative Gains Steam

Field to Faucet, a new water quality initiative announced by Bruce McPheron in September, has launched with four initial focus areas.

McPheron, Ohio State's vice president for agricultural administration and dean for the College of Food, Agricultural, and Environmental Sciences, dedicated $1 million to address the source of water quality issues and to ensure clean drinking water across Ohio. He organized a university-wide team that will tap into other universities, agencies and organizations.

"Toledo was a wake-up call," McPheron said. "In August, the city of Toledo awoke to the news that parents could not draw water from their taps for their children." An algal bloom in Lake Erie had caused unsafe levels of the toxin microcystin in Toledo's water supply, keeping it off limits to everyone for 56 hours.

"Field to Faucet is seeking end-to-end solutions to hazardous algal blooms and water quality issues, and we will work with other universities, government agencies, organizations and business to get the job done.

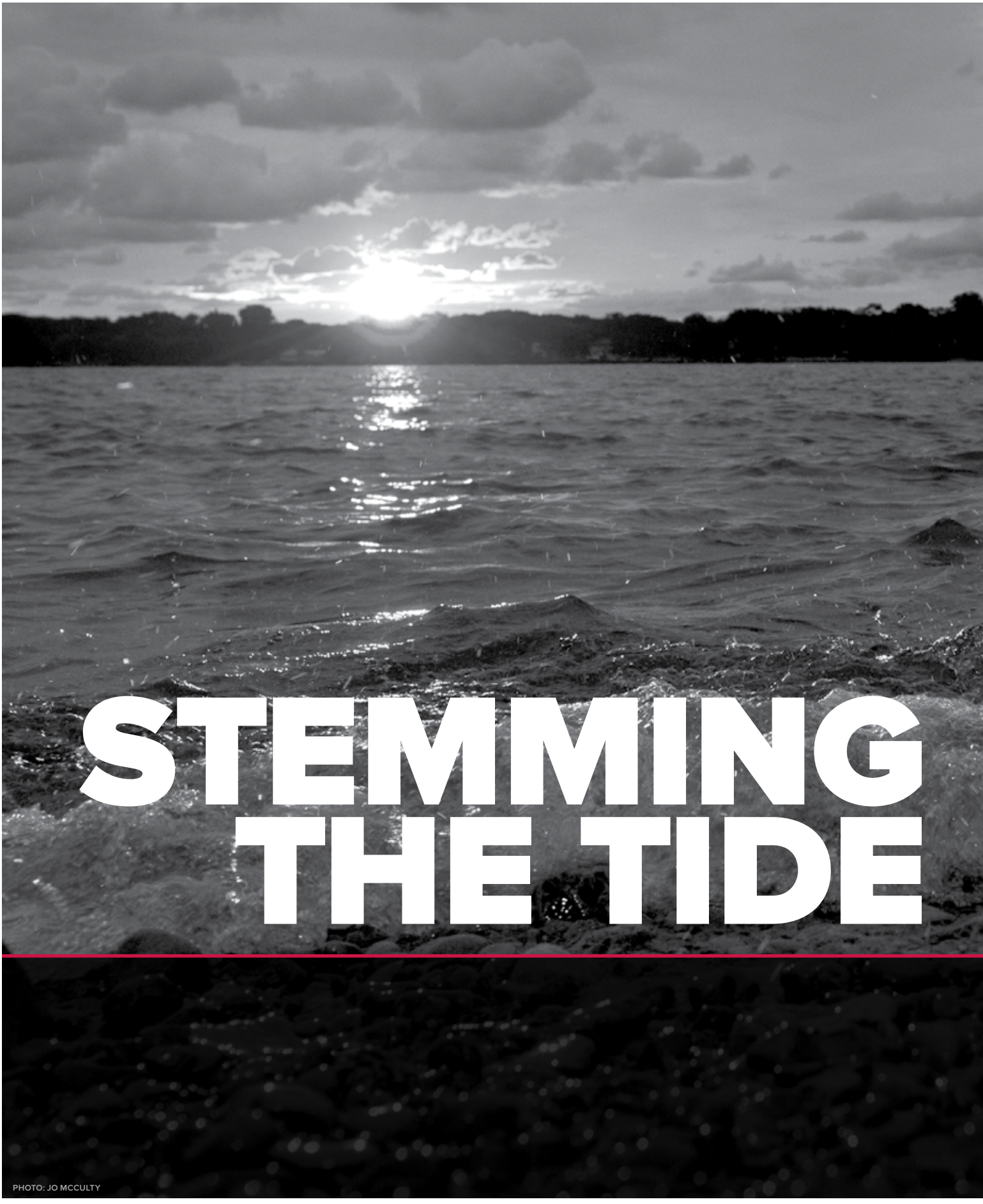
"Ohio State University, with its comprehensive capacity, is well positioned to lead the way in providing answers," he said. "But we don't feel tackling this alone is sufficient, and we've reached out across the state and region to identify partners with complementary expertise."

Four initial projects will focus on:

- Providing farmers with training for best practices in applying fertilizer.
- Developing sensors for real-time identification of algal toxins and treatment protocols for municipal water treatment facilities.
- Identifying "hot spots" in the Maumee River watershed to help target resources and frame farm-specific nutrient management plans.
- Creating a Data Cooperative along with regional partners to address and handle university and farm-specific data related to those areas.

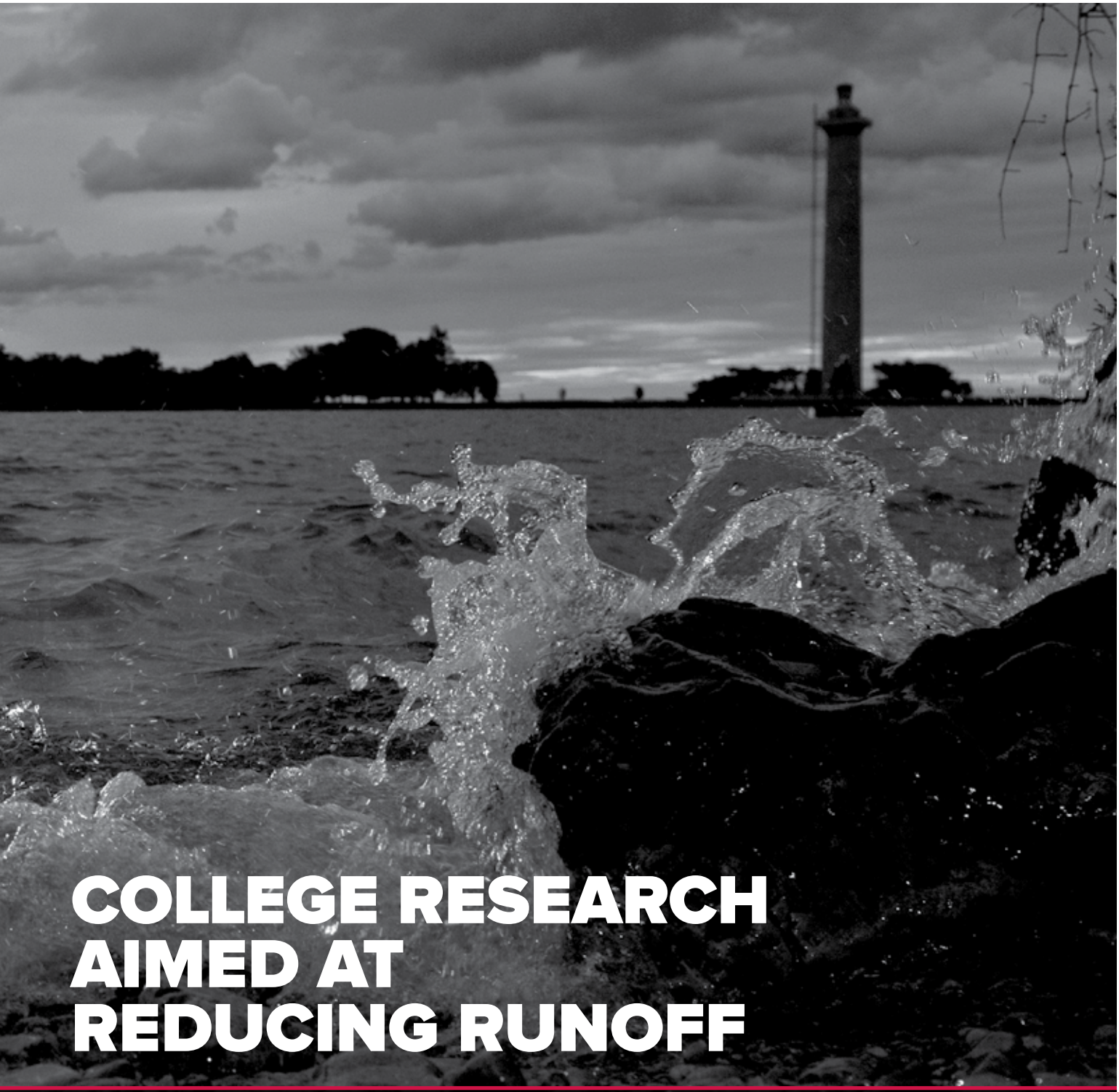
The first of these projects is underway, with more than 750 farmers already trained in the new Fertilizer Certification program offered by Ohio State University Extension in partnership with the Ohio Department of Agriculture. The remaining three priority projects will be in progress by the end of the year with the intent to have a positive impact on the 2015 growing season.

SUZANNE STEEL



STEMMING THE TIDE

PHOTO: JO MCCULTY



COLLEGE RESEARCH AIMED AT REDUCING RUNOFF

After toxic algae problems shut down Toledo's water supply in early August, Ohio agriculture's use of fertilizer has been in the spotlight.

While the College of Food, Agricultural, and Environmental Sciences announced a $1 million initiative to delve into the problem in September (see cover story), its focus on water issues isn't new. We take a look at the projects that prime the path toward cleaner waterways. KURT KNEBUSCH, TRACY TURNER AND MARTHA FILIPIC

GYPSUM: A POTENTIALLY POWERFUL TOOL

The Greeks and Romans used gypsum to enrich the soil. Benjamin Franklin was an early U.S. proponent. Now, it's being studied for other on-farm benefits, including reducing phosphorus runoff.

Warren Dick is two years into a three-year study on gypsum. So far, he said, farm fields treated with gypsum are seeing an average 55 percent reduction in soluble phosphorus runoff, based on tests of water samples collected from the fields' drainage tiles.

"There's no one technology that's going to solve the issue of phosphorus runoff," said Dick, a soil and environmental chemistry professor in the college's School of Environment and Natural Resources. "But I think gypsum is going to become one of the tools in the toolbox, something farmers will use with other approaches as part of their total management package."

More at **go.osu.edu/gypsumsoil**

Soluble phosphorus is the form of phosphorus most readily taken up by crops and other plants. It's also the form of concern in Lake Erie—algal blooms thrive on it, too.

Dick's research is taking place on farms in the Maumee River watershed as well as around Grand Lake St. Marys, which also has suffered from the blooms. The Maumee watershed in northwest Ohio is home to Toledo and is Lake Erie's largest tributary.

Gypsum, or calcium sulfate, is a powdery white material. Farmers can use regular spreaders to apply it. When spread on a field, gypsum binds with soluble phosphorus in the soil, preventing the phosphorus from running off and keeping it available to crops.

Dick said the effect lasts for at least 20 months after treatment, based on his findings so far. Gypsum also provides two yield- and soil-friendly nutrients, sulfur and calcium. His previous research has found gypsum can increase yields of both corn and alfalfa, sometimes by up to 50 percent or more.

The gypsum used in Dick's study doesn't come from mining, gypsum's traditional source, but is a byproduct of scrubbing sulfur dioxide from the gas emissions from coal-burning power plants. The process creates millions of tons of gypsum annually. Some of it goes to make drywall. But much of it, for now, lacks a use and ends up in landfills.

The Ohio Coal Development Office and the Electric Power Research Institute, a nonprofit organization funded by the electric power industry, are helping fund the study. »

PHOSPHORUS-RELATED BEST MANAGEMENT PRACTICES

A group of agronomists and agricultural engineers have developed recommendations designed to offer farmers insight into practices that can boost farm profits while also benefiting the water quality.

Greg LaBarge, an Ohio State University Extension field specialist and one of the leaders of Ohio State's Agronomic Crops Team, said the guidance focuses on phosphorus rate, application and timing that can vary depending on farm and field features. Among the recommendations:

- **Avoid overloading soils.** Farmers should follow Tri-State Fertilizer recommendations using soil tests performed within the past three years. An updated spreadsheet to determine lime, phosphorus and potassium recommendations is online at **go.osu.edu/tristatespreadsheet**. When levels are above a certain point, no phosphorus should be applied in a corn-soybean rotation, LaBarge said.

More at **go.osu.edu/phospracs**

- **Avoid winter application.** Neither manure nor fertilizer should be applied to ground that is frozen so hard that tillage is not possible.

- **Avoid surface application.** When either manure or fertilizer is applied to the soil surface, phosphorus runoff can occur if it rains soon after application. Tilling after phosphorus application can reduce the risk of runoff, but full width tillage has the potential to increase soil erosion and total phosphorus losses.

"New placement tools or strategies need to be implemented that place phosphorus below the surface with minimal soil and burial of residue," LaBarge said. "Until these tools become available,

MEET THE RESEARCHERS

Warren Dick's focus is the soil and what goes on in and on it, especially when it comes to farming and water quality. His research centers on soil biochemistry, soil microbiology and environmental soil chemistry, including such topics as soil enzymes and nutrient cycling. Beneficially reusing solid waste, like using power-plant gypsum on farm fields, also is an interest, as is no-till farming. The Iowa State University doctoral graduate, who joined Ohio State in 1980, is caretaker of the world's longest continuously maintained no-till plots, located at CFAES's research arm in Wooster, the Ohio Agricultural Research and Development Center.

Robyn Wilson has studied the individual decision-making process under risk and uncertainty since she began her career at Ohio State in 2002 as a graduate research assistant. Now an associate professor of risk analysis and decision science, her research includes a focus on individuals who manage resources, including those managing nutrient loss and water quality in the agroecosystem. She also studies how individuals make decisions that impact the natural environment and individual health, safety and economic well-being, with recent work focusing on water quality and climate change in urban environments. She earned her doctorate in natural resource management from Ohio State and currently works in the School of Environment and Natural Resources.

farmers should use banded application or the minimal amount of tillage to mix nutrient in the soil."

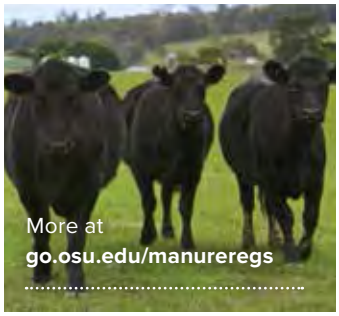
- **Minimize erosion and build soil quality.** Maintaining a 30 percent cover as crop residue or a cover crop is helpful, as are filter strips, grassed waterways, water retention, wetlands and water diversion structures. Reducing compaction and improving soil structure will increase water retention, nutrient cycling, crop rooting capacity and crop yield. »

EXAMINING REGULATIONS ON ANIMAL MANURE

Lake Erie algal problems raised questions about animal manure application on farmland in Ohio and how it may have contributed to the problem.

In response, OSU Extension's agricultural and resource law field specialist has written a summary of Ohio laws relating to livestock and manure handling. The September 2014 Ag Law Bulletin "Animal Manure Regulation in Ohio" is online at **go.osu.edu/manureregpdf**.

"I hope the bulletin will help people understand the existing regulatory scheme regarding manure production, handling



and use in Ohio," said Peggy Hall, who is also an assistant professor for OSU Extension.

Hall said she realizes that the three-page bulletin likely will not answer all questions about manure handling and application in Ohio, and is planning a Frequently Asked Questions document as a follow-up. Anyone with questions may email her at hall.672@osu.edu, or others involved in the project: LaBarge at labarge.1@osu.edu or Glen Arnold, OSU Extension field specialist in manure management, at arnold.2@osu.edu. »

RESEARCH: FARMERS WILLING TO TAKE STEPS

Most farmers are willing to adopt a new conservation practice if they believe that nutrient loss from their fields will have a negative financial impact on their crop production and if they believe that if they put best management practices in place on their farms, the techniques will work.

That's according to new research from Robyn Wilson, associate professor of risk analysis and decision science.

"Despite some stereotypes of farmers that they just care about profits and don't care about water quality, farmers are generally concerned about nutrient loss and the impacts of that on water quality locally and regionally," Wilson said.

Her findings are from recent Ohio State surveys of Maumee watershed farmers as well as from a study that looked at whether farmers had adopted state-recommended 4R Nutrient Management strategies, which offer guidelines on using the right fertilizer, at the right rate, at the right time, with the right placement.

Through her research, Wilson is interested in learning the values, attitudes and beliefs of people who contribute to and are most impacted by environmental issues.

Most farmers agree that agriculture contributes to nutrient-related water quality issues, and most are willing to help solve the problem by reducing dissolved reactive phosphorus loading into Lake Erie tributaries, Wilson said. Some of these practices include soil testing and avoiding nutrient application on frozen ground.

"The majority of farmers have very positive attitudes toward taking action, agreeing that taking at least one additional action to reduce nutrient loss on their farm would be fair, beneficial and valuable," Wilson said. "But farmers also want to feel like their actions will make a difference in the bigger picture regarding water quality."

Wilson did find a small minority of farmers, primarily those who operate farms farther away from Lake Erie, who may need economic incentives to propel them to take additional actions.

"With these farmers, the focus needs to be on how nutrient loss negatively impacts profits, how it negatively impacts water quality locally and regionally, and how nutrient losses can negatively impact soil health, increase production costs and result in yield loss," Wilson said.

Greg LaBarge has researched and worked in agronomic systems since he began his career as an Ohio State University Extension educator in Agriculture and Natural Resources at Ohio State in 1987. Now a field specialist in agronomic systems and one of the leaders of Ohio State's Agronomic Crops Team, LaBarge's interests include crop production, economics and increasing farm profitability. His specialties include integrated pest management, soil fertility, nitrogen management, precision agriculture, on-farm research and design and crop enterprise business analysis. LaBarge earned a bachelor of science in agriculture and a master's of science degree in agronomy from the University of Missouri-Columbia, where he studied weed science and soil biology.

Peggy Kirk Hall is an assistant professor and director of OSU Extension's Agricultural and Resource Law Program. Under her leadership, the program became a founding partner to the new Agricultural and Food Law Consortium, nationalaglawcenter.org/consortium/, designed to deliver agricultural and food law research and information nationwide. Hall earned her law degree at the University of Wyoming, serves on the Ohio Bar Association's Agricultural Law Committee, and, in 2013, served as president of the American Agricultural Law Association. Hall is the primary author of the Ohio Agricultural Law Blog, aglaw.osu.edu/blog, which focuses on legal issues affecting Ohio's farms, food, animals, land and resources.

KALE! KALE! THE GANG'S ALL HERE

CFAES GREENHOUSE GROWS PRODUCE FOR STUDENTS

Courtney George, pictured, right, a food science student in the College of Food, Agricultural, and Environmental Sciences, has a passion for good, local, health-building food and for making sure people can get it.

"I'm a huge fan of farm-to-table concepts," said the sophomore from near Detroit. "I think they're brilliant and the only real self-sustaining way for humans to feed themselves."

Lesa Holford, pictured, left, corporate executive chef for Ohio State University's Student Life Dining Services department, loves cooking with fresh ingredients—especially ones she has helped grow herself.

"It really connects you," she said. "Plus you get a greater understanding of the process and yields. And it's so fresh. It's like a tomato you buy at the store versus one you grew in your yard. Inevitably, the one you grew just tastes better."

Zia Ahmed, senior director of Student Life Dining Services, likes knowing the story behind a food, knowing the food's benefits, and sharing the food and awareness with students.

"Food also tastes better when there's a good story behind it," he said.

Together, all three are part of a new food-focused project at Ohio State: Dining Services and CFAES are teaming up to grow, right on campus, a portion of the produce served to students.

In a greenhouse run by the college's Department of Horticulture and Crop Science, staff plant experts and student volunteers such as George oversee hundreds of robust kale, basil and romaine lettuce plants, which grow in large pots on metal tables in a single room in the greenhouse. So-called "farm-to-table" systems like this one aim to shorten the distance as much as possible between where a food is produced and where it's consumed.

In this case, for example, Holford uses the basil in pesto for caprese sandwiches

sold in several campus cafes, the romaine in Caesar salads served in student dining halls, and the kale in such dishes as kale-bacon tarts.

Ahmed said the seed of the idea came from ongoing collaborations and discussions between Student Life Dining Services and several teams within CFAES.

Dining Services already buys some of its meat from the college's Department of Animal Sciences. And it buys some of its produce, when available and in season, from the Waterman Agricultural and Natural Resources Laboratory, which also is part of the college.

"But we wanted more predictable quantities, and we started to think that maybe we could find a space to grow our own produce," Holford said. "So we met with (Animal Sciences Chair) Henry Zerby and (CFAES Senior Associate Dean) Ron Hendrick and started chatting about spaces that might work."

The conversation turned up an option—an available room in Horticulture and Crop Science's Howlett Hall greenhouses—and the project sprouted from there. Greenhouse growing experts Jim Vent and Elaine Grassbaugh, both of Horticulture and Crop Science, joined the team. Student volunteers were recruited to learn about and help with the work.

"We recommended the container size, the soil-less media, and the crops and varieties that would be successful," Grassbaugh said. "I instruct the student volunteers on the correct watering methods. I also check on the plants several times a week and contact Lesa when harvest is needed or when the basil needs to be pinched back to avoid flowering, which causes the basil to turn bitter."

"They've taught us so much," said Holford, who said she's more than pleased with the fruits of the labor: a total harvest of more than 230 pounds of fresh greens and herbs in the three months since the first seeding.

"I put the basil in my car to deliver it to our kitchens," she said, "and the aroma is unlike anything—just wonderful."

George saw an email asking for student volunteers for the project and said she knew she had to help. "Any time I see an urban gardening-type operation, I want to be a part of it."

Ahmed said food is personal for people, and it's no different for students.

"We should all be aware of what we put in our body, as it's our most important asset," he said. "Thus, it's critical that production, preparation and operations related to food be done as locally as possible and by the people whose primary motivation is the well-being of our students."

He said students at Ohio State, a land-grant university, should be proud to have such a project on campus.

"Everyone should be excited to know that we're growing food to serve to our students while we teach students and conduct research for future generations," he said. "One day it may lead to a significant amount of production coming out of our own backyard to feed our students.

"It's a great privilege to have the opportunity to grow our own food." KURT KNEBUSCH

GOOD FOOD HERE

Courtney George said her goal in CFAES is to learn all she can about food production and the industry around it, then maybe spend a year working for a program like AgriCorps, AmeriCorps or World Wide Opportunities on Organic Farms before she starts graduate school.

Her major, food science, is in the Department of Food Science and Technology.

"I'm most passionate about food access and food sustainability," she said. "I believe many problems in the U.S. and in the world could be solved if everyone had proper education about and access to affordable, healthy, sustainable food."

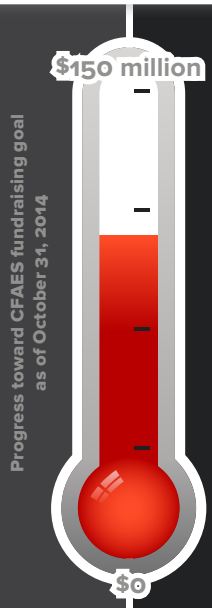
"I think this project and many others like it are accomplishing a good step toward that goal."

CFAES CAMPAIGN PROGRESS

Reasons for CFAES to say "thank you!"

$98,830,000

The College of Food, Agricultural, and Environmental Sciences' goal is to raise $150 million during the university's *But for Ohio State* campaign, which is a $2.5 billion fundraising endeavor that invites those who believe in Ohio State to invest in our students, our faculty, and our potential. Overall, the university has raised $2.06 billion so far.



"Our influence on issues of global importance has never been more vital, and now more than ever, people everywhere are looking in one direction—to CFAES—to confront the fundamental challenges of our planet. Food security, production, and human health; biobased energy resources; and environmental quality and sustainability all represent areas of strength for CFAES and opportunities to find solutions for a world in need of answers." —DEAN BRUCE MCPHERON

BUT FOR OHIO STATE

Student Capstone projects provide solutions for dairy operation

CREAM OF THE CROP

Snowville Creamery, a sustainable dairy in Pomeroy, had a problem. Due to rapidly expanding operations, the plant's wastewater system was quickly approaching the maximum limit of its permit for spray irrigation to nearby cattle-grazing pastures.

Today, thanks to four Buckeye students, the creamery is implementing a plan that will save up to 23,500 gallons of water per week.

Snowville CEO and Founder Warren Taylor found the solution thanks to Emmy Schroder (2014, food, agricultural and biological engineering). The two met when she was in high school and he was selling milk at Whole Foods.

"I talked to him about milk processing, the nutrient depletion in regular processed milk and all sorts of things," Schroder said. "He inspired me go into food, agricultural and biological engineering and figure out how we can fix the sustainable food system."

The two reconnected after Schroder emailed Taylor in fall 2013 to thank him for inspiring her career choice. She mentioned the College of Engineering's Multi-disciplinary Capstone Design Program (**go.osu.edu/mcdp**), and Taylor—an Ohio State alum (1974, dairy technology)—told her the creamery needed to cut its wastewater by half while also reducing the water's concentration of organic waste and suspended solids. Schroder and teammates Amanda Peterson (biological engineering), Anna Ameser (mechanical engineering) and Emily Mendell (agribusiness) eagerly agreed to tackle the project.

Taylor thought the students could adapt a water conservation system he devised 20 years prior for a large industrial plant. But first the team had to submeter every water source to determine how much water was being used in each area.

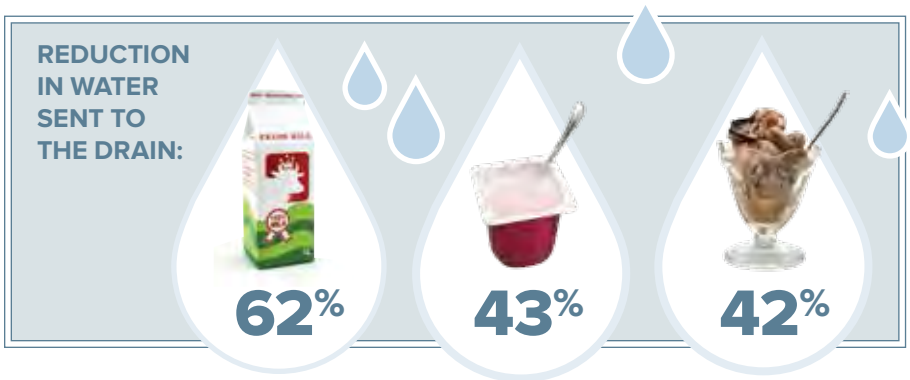
The students discovered a surprising opportunity for significant water savings. The raw milk separator, which divides skim milk from straight cream, used 1,300 gallons of water each time it was turned on. Using just 30 feet of sanitary piping, a pump and recirculation valving, a recirculation loop was installed to eliminate most of that water from being wasted during startup and shutdown. That change alone saved more than 4,000 gallons of water a week.

The team also redesigned the facility's clean-in-place automated chemical flushing system to incorporate tanks and enable rinse water reuse. They also figured out where to segregate water with high levels of organic waste and suspended solids so the nutrient-rich water could be fed to cows instead of causing potential soil problems.

The team projected the plan would save 23,500 gallons of water per week and more than $8,000 per year.

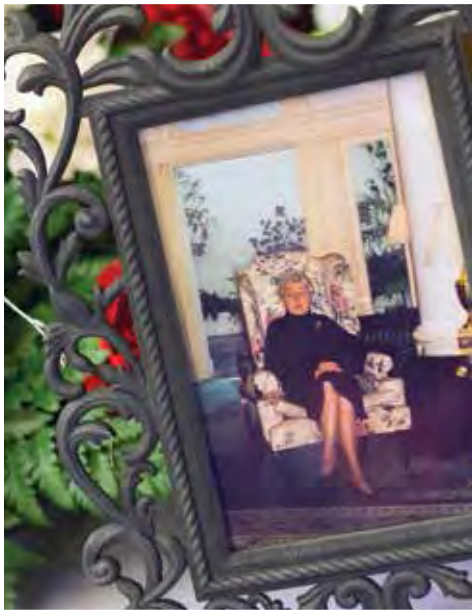
"We've set the foundation for the long-term future of this facility by reducing our water usage, amount of wastewater and wastewater strength to the same levels we were at years ago when we were putting much less milk through the plant," Taylor said.

The project worked so well that in fall 2014, Taylor teamed up with food science and technology students advised by Dennis Heldman, the Dale A. Seiberling Endowed Professor of Food Engineering, to improve the dairy's antiquated cooling systems and reduce electricity use. CANDI CLEVENGER



Alumnus Warren Taylor on students' research at Snowville Creamery: "We've set the foundation for the long-term future of this facility."

Dean Bruce McPheron and Delma Roush's friend Faye Coughenou hold a proclamation from Ohio Governor John Kasich in honor of Roush's generosity during a celebration at Bob Evans Farm in Rio Grande, Ohio, in October. Also pictured are scholarship recipient Kaci Bryant and Roush's nephew John Roush. PHOTOS BY MARIAH BLACK.



RECORD $7M GIFT IS ALREADY TRANSFORMING LIVES

A "huge burden" relieved. A prayer answered.

A $7 million estate gift from the late Delma Roush of Gallipolis, Ohio, is already helping students in The Ohio State University College of Food, Agricultural, and Environmental Sciences.

The gift—the largest in the college's history—has established the Delma L. Roush Scholarship Fund. The endowment fund provides annual, renewable support to graduate or undergraduate students from three southeastern Ohio counties.

Among the first scholarship recipients is Paul Miller, a junior from Crown City, Ohio, in Gallia County.

"It really blew my mind. I really worked hard all through high school and in my college years, said Miller, majoring in food science and technology. "I was a resident advisor at Ohio State Agricultural Technical Institute in Wooster to pay for my college education.

"When I found out I was eligible for this scholarship, it really was a huge burden off of me and an answer to a prayer," said Miller, who is planning a career in operations management. "College students often come out with large debt. And it really took the stress off me with having to pay school."

Two other scholarship recipients are Kaci Bryant, a freshman animal sciences major from Vinton, Ohio, and Bailee Jo Corbin, a freshman from Mercerville, Ohio, who is studying livestock science at Ohio State's Agricultural Technical Institute in Wooster, Ohio.

Within five years, more than a dozen scholarships are projected to be awarded annually to students from Gallia, Meigs or Jackson counties. Financial barriers to higher education often face students from this mostly rural, economically distressed region of the state. Eligible students from those counties must have finished in the top third of their high school class and must maintain a 3.0 grade point average while enrolled in the college, which includes ATI.

"This significant gift from one of Ohio's own will greatly enhance the ability of the College of Food, Agricultural, and Environmental Sciences to advance Ohio State's land-grant mission," said President Michael V. Drake. "We are thankful for the confidence Ms. Roush placed in our university as a global leader and for her considerable investment in our students."

Though Roush did not attend the university, she wanted to encourage people to come to Ohio State, study agriculture and be able to begin their careers with as little debt as possible.

"This milestone gift will help generations of students from southeastern Ohio continue their education at our university," said Bruce McPheron, vice president for agricultural administration and dean of the college. "We are grateful that Ms. Roush saw the value in our mission to lead innovation in food, agriculture and the environment. We are proud to play a part in her legacy."

> You don't have to be seen to accomplish what you want to accomplish.
>
> —DELMA ROUSH

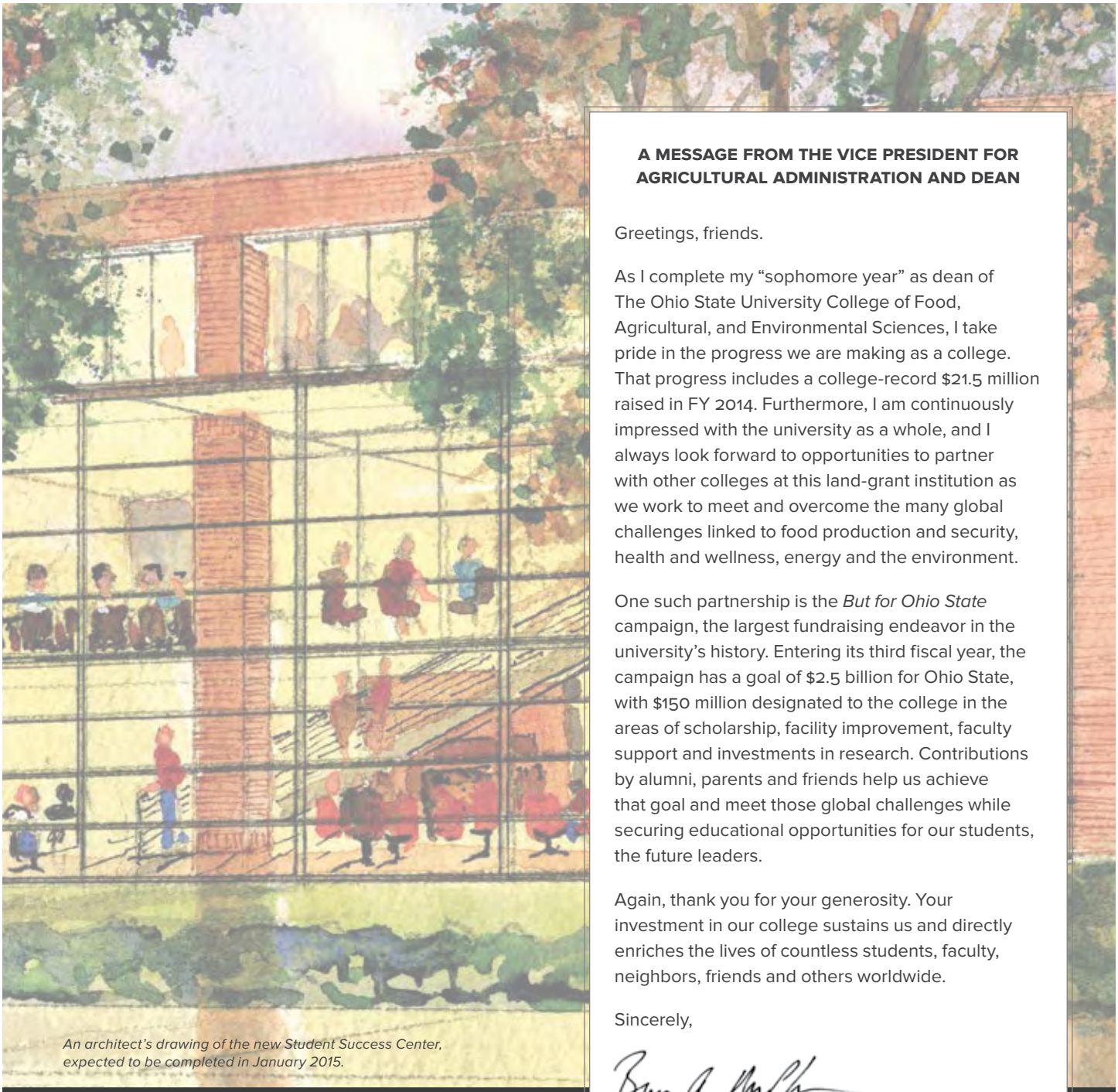
Born in Addison Township, Ohio, Roush is described by friends as having been a shrewd businesswoman and mentor who avoided the spotlight to quietly make a difference in people's lives. Longtime friend Faye Coughenou recalled, "She once told my daughter, 'You don't have to be seen to accomplish what you want to accomplish.'"

Roush owned and operated the Holiday Inn of Gallipolis for 18 years before selling the hotel in 1991. Prior to that, she worked as a secretary and treasurer for two Gallipolis furniture upholstery shops and manufacturers, Raymond Hoy & Company and French Colony Industries.

More information about this gift and others to the College of Food, Agricultural, and Environmental Sciences can be found at **cfaes.osu.edu/development**.

MATTHEW MARX

OFFICE OF DEVELOPMENT
ANNUAL REPORT FY2014



An architect's drawing of the new Student Success Center, expected to be completed in January 2015.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

A MESSAGE FROM THE VICE PRESIDENT FOR AGRICULTURAL ADMINISTRATION AND DEAN

Greetings, friends.

As I complete my "sophomore year" as dean of The Ohio State University College of Food, Agricultural, and Environmental Sciences, I take pride in the progress we are making as a college. That progress includes a college-record $21.5 million raised in FY 2014. Furthermore, I am continuously impressed with the university as a whole, and I always look forward to opportunities to partner with other colleges at this land-grant institution as we work to meet and overcome the many global challenges linked to food production and security, health and wellness, energy and the environment.

One such partnership is the *But for Ohio State* campaign, the largest fundraising endeavor in the university's history. Entering its third fiscal year, the campaign has a goal of $2.5 billion for Ohio State, with $150 million designated to the college in the areas of scholarship, facility improvement, faculty support and investments in research. Contributions by alumni, parents and friends help us achieve that goal and meet those global challenges while securing educational opportunities for our students, the future leaders.

Again, thank you for your generosity. Your investment in our college sustains us and directly enriches the lives of countless students, faculty, neighbors, friends and others worldwide.

Sincerely,

Bruce A. McPheron
Vice President for Agricultural Administration and Dean

A Lasting Gift

Through their estate gift, Arthur and Geraldine Winfough made a lasting contribution to students at the College of Food, Agricultural, and Environmental Sciences by kick-starting construction of the new Student Success Center, a state-of-the-art facility to be completed in January 2015. This gift helps the college to **Create Modern Learning Environments** by providing new space for students to gather and collaborate on our Columbus campus.

Furthermore, the Winfoughs' generous gift established three endowment funds, two of which are related to Ohio State University Extension, the college's outreach arm that delivers much-needed educational programs to every county in the state. The third fund supports undergraduate students as part of the Pat and Bobby Moser Scholars Program.

Even though the Winfoughs never attended The Ohio State University, the couple recognized the valuable role that CFAES plays and will continue to play in Ohio agriculture. The estate sale of the couple's Pickaway County farmland made possible a gift that will ensure student success for many years to come.

Geraldine Winfough, left, and Arthur Winfough Jr.

OUR WOOSTER CAMPUS

The Ohio State University Wooster campus is home to the Agricultural Technical Institute (ATI), the nation's top two-year agricultural program, and the Ohio Agricultural Research and Development Center (OARDC), the state's premier institution for unbiased research on food, agriculture, family and the environment.

Ohio State ATI's state-of-the-art beef cattle handling facility, designed by Temple Grandin.

Each year, ATI awards the most associate degrees in agricultural and related sciences in the nation. Half of the students begin their academic career at ATI and then transfer to Ohio State's Columbus campus to obtain their four-year degrees, and half graduate and join the workforce.

Donations help ATI students learn through hands-on experience with state-of-the-art facilities like the beef cattle handling facility. Designed by Temple Grandin, the facility is the only one of its kind in Ohio.

Also, a gift from Dale Leppo of Stow, Ohio, went toward the Leppo Ohio State ATI Power & Equipment & Hydraulic Power & Motion Control Technology Fund, which awards undergraduate scholarships to ATI students enrolled at the Wooster campus and eventually will provide program support to the power equipment and hydraulic power and motion control degree programs.

An international leader in the fields of advanced bioenergy and bio-based products, environmental quality and sustainability, and food security and production, OARDC also partners with Ohio State University Extension to reach stakeholders not only in Wooster, but also throughout the state, nation and world.

At the many OARDC sites around Ohio, donors make a difference. A gift from Dr. Richard (Mac) Riedel established the WARS Specialty Crop IPM Fund, which supports developing new techniques in integrated pest management and specialty crops demonstrations at the Western Agricultural Research Station in South Charleston, Ohio.

By emphasizing excellent research in areas of strategic importance, OARDC helps the college to **Drive High-Impact Innovation** by directing its resources to the advancement of knowledge and the generation of economic development opportunities for all.

Head, Heart, Hands, Health

Ohio 4-H Youth Development is a vital component of Ohio State University Extension, and the College of Food, Agricultural, and Environmental Sciences takes great pride in its role in 4-H's youth development and educational programming. The Nationwide & Ohio Farm Bureau 4-H Center hosts the annual Ohio 4-H Celebration of Youth to help raise funds for programs across the state. With donations and ticket sales, 4-H raised $93,000 during the 2013 event, whose key sponsors included Nationwide Insurance and Bob Evans Farms. • Among 4-H's programs is Operation: Military Kids, part of a nationwide initiative to support youths coping with having a family member deployed overseas in the National Guard or Reserve. Typically, these families are scattered statewide and have less access to support systems than active duty relatives who live near military bases. Contributions from private individuals, companies, and other not-for-profits go to year-round programs to help families cope with stress. This includes an annual trip to Kelleys Island 4-H Camp, where campers enjoy many unique outdoor activities.

Graduate student Rhiannon Schneider studies soybean breeding in a greenhouse in Wooster.

FOSTERING RESEARCH OPPORTUNITIES

The Ohio Soybean Council, which oversees soybean research and promotion in the state, sponsors an abundance of fieldwork and experiments through the Office of Sponsored Programs at The Ohio State University. Because of the council's contributions, soybean-related work is conducted across the state by Ohio State faculty, research staff, and graduate and undergraduate students, some of whom are working through Ohio State University Extension. Among the questions being investigated are the effects of fertilizers on soybean varieties, responses of genetically modified soybeans to pathogens, and methods to improve breeding lines.

This support builds on the council's earlier gifts to create the Ohio Soybean Moser Scholars Research Award, which assists both undergraduate and graduate students presenting soybean-related projects at conferences and university research forums.

Lastly, many private donors make gifts-in-kind of soybean seeds to the college for research and learning lab purposes. This illustrates what's possible when corporations and organizations partner with higher education to **Embolden the Research Agenda**.

Cooperative Effort, Shared Partnership

A joint donation by several organizations has founded The Center for Cooperative, Business and Community Education and Development, which is considered a national model for agribusiness partnerships involving universities.

The new center will open doors for our students by offering opportunities for networking and experience. Furthermore, the center will bring expertise and technical skills to cooperatives as well as other farm-owned enterprises. Named as its director and Farm Income Enhancement Chair beginning in January 2015 is Dr. Ani L. Katchova, an alumna of the college.

Dean Bruce McPheron, Chuck Conner, president and CEO of the National Council of Farmer Cooperatives, Dr. Tim Haab and Dr. Ani Katchova at a reception for the new cooperative center held at Farm Science Review in September.

With its founding partners—CHS Inc., CHS Foundation, CoBank, Farm Credit Mid-America, United Producers, Inc., Luckey Farmers Inc., and Ag Credit Country Mortgages—the center demonstrates the power of partnership between higher education and agribusiness. Thus, the college continues to **Elevate Faculty and Academic Enterprise** by attracting and retaining premier talent in the field.

Julie and Nathan Louiso discuss the impact of scholarships on their lives.

Staying Connected to CFAES

Not only did alumni Julie and Nathan Louiso find their careers while attending the College of Food, Agricultural, and Environmental Sciences, they also met and fell in love, eventually marrying and starting a family together.

The couple has continued to maintain ties to the college and "pay forward" by generously donating their time and resources to help current and future students.

Their gift established the Alpha Gamma Rho Scholarship Fund, which awards scholarships to undergraduate students. Eligible students must be members of Alpha Gamma Rho who maintain a grade point average of 3.0 or higher and belong to at least one other club or organization under the guidelines of the fund, which was established in August 2013.

Alumni donations are key to helping the college **Place Students First** with scholarships and endowments that break down barriers to education and let our students focus on success.

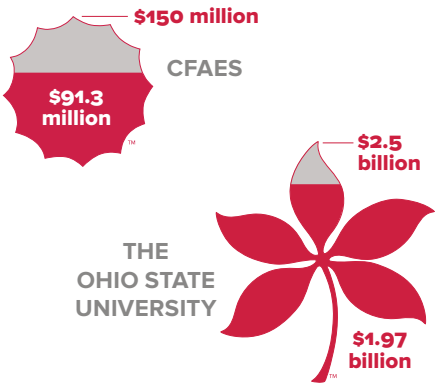
PRIVATE SUPPORT IN FISCAL YEAR 2014

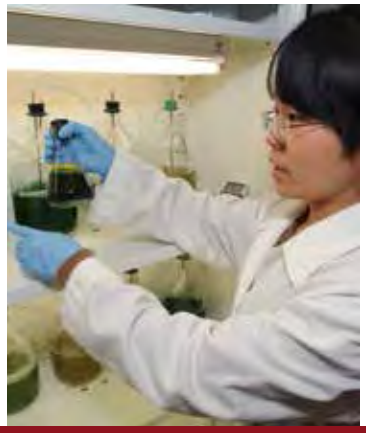
(July 1, 2013 through June 30, 2014)

FISCAL YEAR	2014	2013
Cash and Securities	$4,109,643	$4,715,362
Gifts-In-Kind	$1,198,576	$594,926
Pledges	$1,021,372	$2,575,277
Revocable Planned Gifts	$6,335,617	$1,276,142
Irrevocable Planned Gifts	$100,206	$547,000
Total Fundraising Activity	**$12,765,414**	**$9,708,707**
Privately Sponsored Research	$8,806,635	$7,068,424
Total Private Support	**$21,572,049**	**$16,777,131**

BUT FOR OHIO STATE

(Campaign progress through June 30, 2014)





WAYS TO GIVE

- **Annual Gifts** – Create a named current use fund. Or, contribute to an existing fund, which will provide immediate funding for scholarships, academic and research programs.
- **Special Gifts** – Demonstrate commitment to supporting our mission by establishing permanent endowed funds for scholarships, research, equipment, fellowships, faculty positions or a variety of other areas.
- **Planned Gifts** – Contribute to the future of the college through a planned gift such as a bequest or charitable trust.
- **Corporate Matching Gifts** – Your contribution to CFAES might qualify for a matching gift from your employer, your spouse's employer, or your previous employer if you are retired.
- **Gifts-In-Kind** – Help the college create the best possible educational environment for our students, support faculty teaching/research or help maintain facilities with a gift-in-kind of assets or materials.

See **cfaes.osu.edu/development/areas-support/ways-give** for more information about each of these Ways to Give.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

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FOURTEEN TO BE RECOGNIZED AT MARCH 7 AWARDS LUNCHEON

The College of Food, Agricultural, and Environmental Sciences Alumni Society announces the selection of 14 recipients for recognition at its annual Alumni Awards Luncheon, to be held on Saturday, March 7, 2015, at the Ohio Union.

Honorees will be recognized in Meritorious Service, Distinguished, International and Young Professional categories beginning with a reception at 11 a.m., followed by the luncheon at noon and the recognition program beginning at approximately 1:15 pm.

Alumni, family friends and mentors are encouraged to attend and support the recipients of these prestigious awards. Find more information as the date approaches on the alumni website at **cfaes.osu.edu/alumni**.

Meritorious Service to the College

Glenn Himes
(PhD, Agricultural Economics, 1964), Columbus

Dale Leppo
Tallmadge

International Alumni Award

Ruperto Sangalang
(PhD, Rural Sociology, 1982), Quezon City, Philippines

Distinguished Alumni Award

C. Dale Baughman
(BS, Agricultural Education, 1961), Brookville

Bryan Black
(ASC, Livestock Production and Management, 1980), Canal Winchester

Bob Gibbs
(ASC, Dairy Cattle Production and Management, 1974), Lakeville

Wayne Impullitti
(ASC, Nursery Management, 1984), Burton

Dick Isler
(BS, Animal Science, 1969), Delaware

Rob Rettig
(BS, Agricultural Economics, 1984), Napoleon

Kevin Wendt
(BS, Animal Science, 1990), Plain City

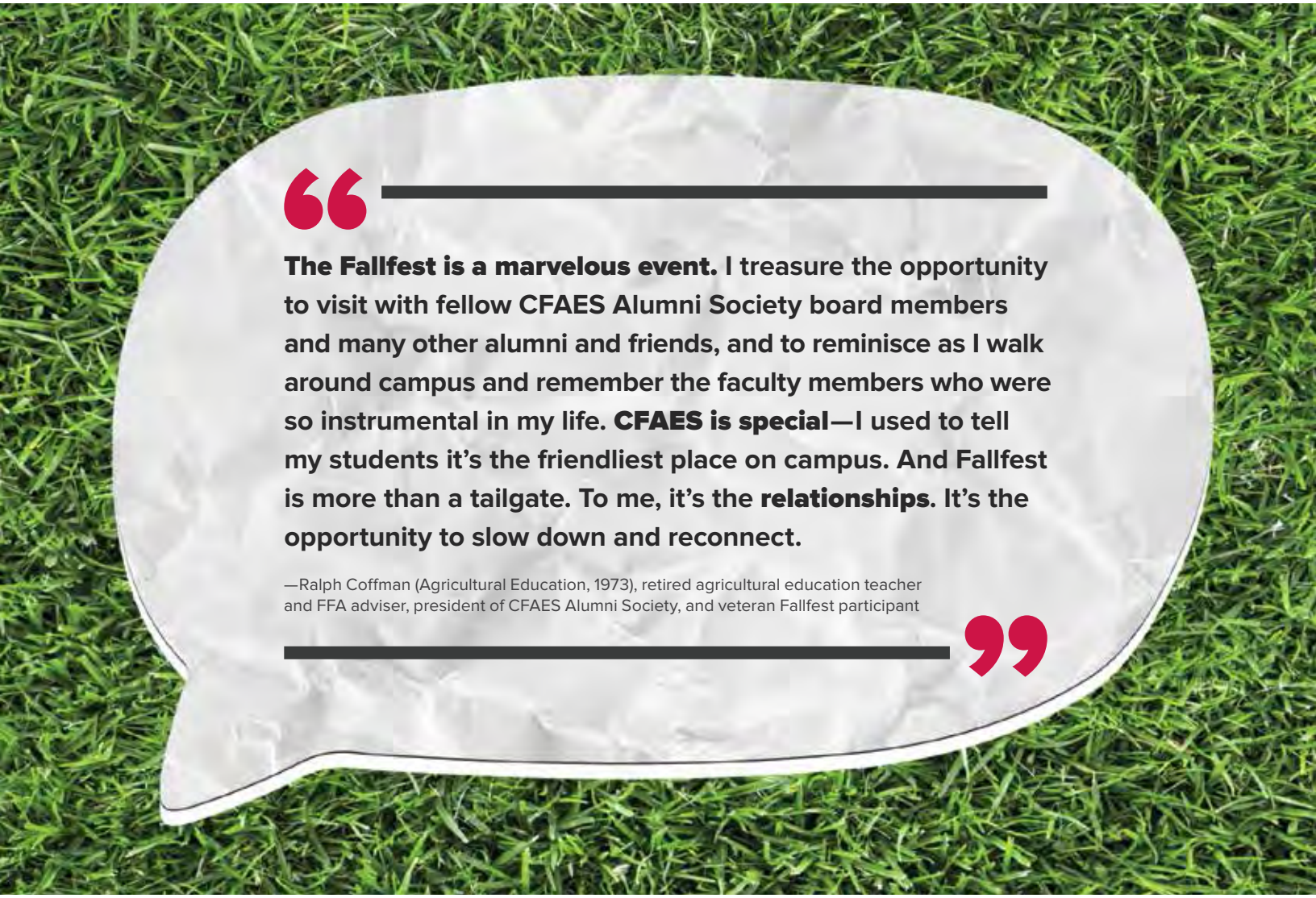
Young Professional Award

Marie Antoniewski Colmerauer
(MS, Food Science and Nutrition, 2007), Columbus

Renee Geyer
(ASC, Turfgrass Management, Commercial Turf Equipment Certificate, 2009), Cuyahoga Falls

Josh Jennings
(ASC, Livestock Production and Management; BS, Animal Science, 2000), Marysville

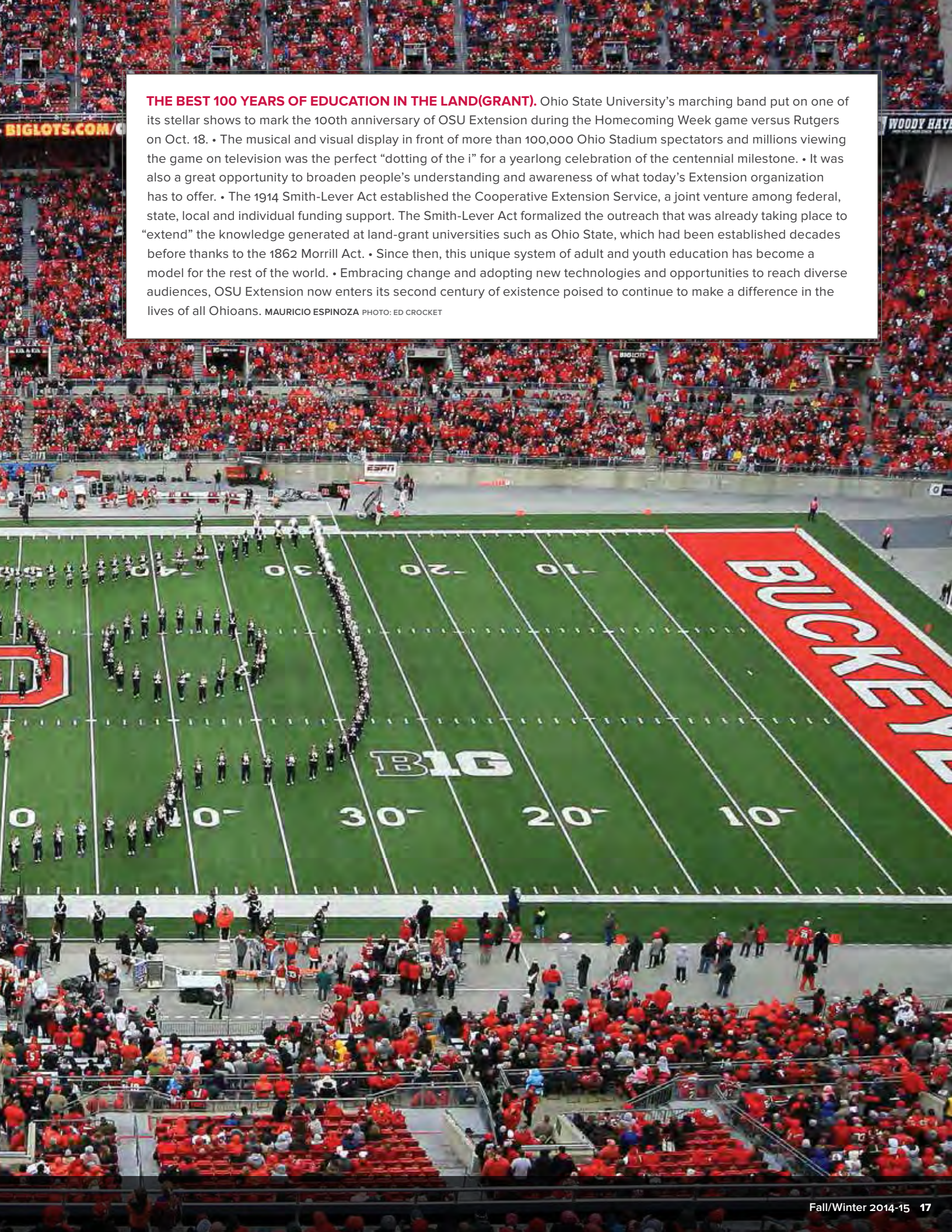
Maria Yost
(BS, MS, Food Science and Nutrition, 2003, 2005), Louisville, KY



The Fallfest is a marvelous event. I treasure the opportunity to visit with fellow CFAES Alumni Society board members and many other alumni and friends, and to reminisce as I walk around campus and remember the faculty members who were so instrumental in my life. **CFAES is special**—I used to tell my students it's the friendliest place on campus. And Fallfest is more than a tailgate. To me, it's the **relationships**. It's the opportunity to slow down and reconnect.

—Ralph Coffman (Agricultural Education, 1973), retired agricultural education teacher and FFA adviser, president of CFAES Alumni Society, and veteran Fallfest participant


BIG LOTS! & OHIO STATE 4 TICKET GIVEAWAY
OHIO STATE
B1G



THE BEST 100 YEARS OF EDUCATION IN THE LAND(GRANT). Ohio State University's marching band put on one of its stellar shows to mark the 100th anniversary of OSU Extension during the Homecoming Week game versus Rutgers on Oct. 18. • The musical and visual display in front of more than 100,000 Ohio Stadium spectators and millions viewing the game on television was the perfect "dotting of the i" for a yearlong celebration of the centennial milestone. • It was also a great opportunity to broaden people's understanding and awareness of what today's Extension organization has to offer. • The 1914 Smith-Lever Act established the Cooperative Extension Service, a joint venture among federal, state, local and individual funding support. The Smith-Lever Act formalized the outreach that was already taking place to "extend" the knowledge generated at land-grant universities such as Ohio State, which had been established decades before thanks to the 1862 Morrill Act. • Since then, this unique system of adult and youth education has become a model for the rest of the world. • Embracing change and adopting new technologies and opportunities to reach diverse audiences, OSU Extension now enters its second century of existence poised to continue to make a difference in the lives of all Ohioans. **MAURICIO ESPINOZA** PHOTO: ED CROCKET

TRAINING TO WORK WITH ANIMALS—AND PLAY IN THE OLYMPICS

Before the autumn semester of 2013, animal sciences major Katiann Scherer hadn't played a minute of team handball in her life. But thanks to an intramural sports experience at The Ohio State University, she is now working to earn a spot on the U.S. Olympic women's handball team and a chance to compete at Rio 2016.

A native of North Canton, Scherer graduated in May from the College of Food, Agricultural, and Environmental Sciences. Upon graduation, she moved to Auburn, Ala., where the U.S. handball program is based. She had attended tryouts in March and was invited to join the team's residency program beginning in July.

"I wanted to be involved in a team sport. I like working with people to reach a common goal," Scherer said. "In the involvement fair, there was a random club called handball, so my sister and I decided to try it out and we loved it immediately."

Scherer's coach at Ohio State, who has played on the men's U.S. Olympic squad, recommended she try out for the national team. At tryouts, national coach Christian Latulippe "said that he liked my potential," said Scherer, who plays goalkeeper.

Now, Scherer is training year-round, playing in domestic and international events and hoping she can help her team qualify for the Olympics at the 2015 Pan American Games in Toronto.

"The last time that the U.S. women's team qualified for the Olympics was in 1996 in Atlanta, so we are hoping that 2016 will be our year to go," Scherer said.

Scherer's newfound love of handball is only matched by her interest in animals. She attended Ohio State's Agricultural Technical Institute in Wooster, where she obtained an associate's degree in equine science. She later moved to the Columbus campus, where she completed a bachelor's degree in animal sciences.

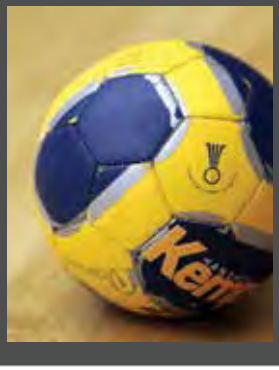
"I want to continue working with animals, whether horses or zoo animals," she said about her off-court future plans. "I want to be a spokesperson for the animal industry."

Whether it is getting an education in the field she loves or chasing a sporting dream, Scherer credits Ohio State and CFAES for helping place her on the path to success.

"Ohio State offered me the opportunity to prepare for my career goals and the opportunity to play a new sport and join an Olympic team," she said. "It's very important that students try out new things and take advantage of the many opportunities that a university like Ohio State provides."

MAURICIO ESPINOZA

More at **go.osu.edu/n2n**



WHAT'S TEAM HANDBALL ANYWAY?

Team handball is not to be confused with American handball, in which players use their hands to hit a small rubber ball against a wall so it bounces in a way their opponent cannot return it. • Instead, team handball is a high-scoring game similar to soccer—but instead of using their feet, players dribble and pass a small ball and shoot at the goal using their hands. The game is played indoors on a 40-by-20 meter court. Each team has seven players: six outfield players and a goalkeeper. • The team handball game as it is known today was devised at the end of the 19th century in northern Europe. It became an Olympic sport at the 1936 Summer Olympics in Berlin. • International competitions are dominated by European teams, but Brazil has emerged as an alternate world power after winning the 2013 Women's World Championship.

PHOTO: ARMIN KÜBELBECK, CC-BY-SA, WIKIMEDIA COMMONS

Some of the factors that make CFAES an outstanding place for its students' college experience and career prospects:

$1.96 MILLION

Financial assistance: In-state tuition costs $10,037, and CFAES awards $1.96 million in scholarships every year.

Knowledgeable teachers: The college's faculty is comprised of national and international experts in their fields. And they know how to teach: 37 of them have received the university's Alumni Award for Distinguished Teaching.

92%

Job readiness: 92% of CFAES undergrads get a job after college, and their average starting salary is $41,356.

Global citizenship: More than 40% of CFAES students study abroad each year, and all eligible students receive grants to help pay for their programs. During the 2014-15 academic year, the college will offer 19 study abroad programs in 17 countries on six continents—with a first-ever trip to Antarctica slated for December 2015 as well.

10:1

Small classes: The college's student-to-faculty ratio is 10:1, which allows for small classes and more interaction with professors.

Research and internship experience: CFAES undergraduate students take part in internships that better prepare them for real-world careers and have many opportunities to become involved in research projects.

22 MAJORS

31 MINORS

Diversity of career choices: CFAES offers 22 majors and 31 minors in fields ranging from animal sciences to construction management and from turfgrass science to business.

A sense of community: CFAES has 40 student organizations, 15 academic teams, four fraternities and two sororities.

STUDENT NUMBERS, OPPORTUNITIES UP AT CFAES FOR 2014-15 SCHOOL YEAR

The College of Food, Agricultural, and Environmental Sciences continues to grow and educate students who become global citizens and are job-ready when they graduate.

When the 2014-15 academic year kicked off this past August, CFAES welcomed a total of 2,497 undergraduate students to its Columbus campus—6.2% more than in 2013. Undergraduate enrollment also increased on the Wooster campus of Ohio State's Agricultural Technical Institute, going from 643 in 2013 to 702 in 2014 for a 9.2% boost.

There was also an uptick in the number of students pursuing graduate degrees at CFAES—509 are enrolled this year, 3.2% more than in 2013. Minority student enrollment on the Columbus campus also went up this year by 8.6%.

At CFAES, students enjoy the advantages of a small-college experience despite Ohio State University's impressive size: small classes, many opportunities for interaction with faculty, substantial student support, meaningful undergraduate research, and diverse options for study abroad and service projects.

More information about CFAES academics and careers is available at **cfaes.osu.edu/students**. MAURICIO ESPINOZA

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Continuum

Volume 7 » Issue 1

The Ohio State University Alumni Association, Inc.

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ADDRESS SERVICE REQUESTED

VP's Corner

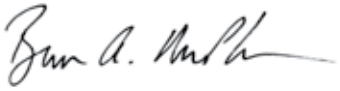
Bruce A. McPheron
Vice President for Agricultural Administration and Dean, College of Food, Agricultural, and Environmental Sciences

As 2014 draws to a close, so, too, ends the first century of Cooperative Extension in the United States. A year of celebration has been balanced by a year of conversation about the future of Extension. Here in Ohio, our Vice President's Conversations on the Future of Extension have focused on identifying the most significant needs of our residents in the next 20 years. We now are concentrating on adapting our thinking to connect our programs with those high priority needs of Ohioans. One thing is certain—we will continue to provide leadership on these most critical topics through our educational programs.

Our work in water, highlighted in this edition, is a perfect example of how we intend to focus our efforts. We are building on past investments—we have been investing in water for many years. What we are doing now is working with renewed purpose to solve long-standing problems, connecting faculty, staff and students in the college, across the university, and with public and private partners outside Ohio State. These new research findings will go to the field via our excellent educators working with farmers, municipalities, agencies and businesses.

We continue to provide educators to serve all 88 counties. We have invested in specialists with regional and statewide responsibility recognizing the deep knowledge that is required to answer the questions posed to us. And our faculty and educators continue to conduct world-class research to fill the gaps that appear as new technologies, problems and opportunities emerge.

I look forward to the second century of Extension. Through our classroom education, our research excellence, and our extension commitment to taking our education to every community in Ohio, we will provide access to knowledge for every citizen. Our rededication to transforming society is a reaffirmation of our land-grant mission.



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