

**Testimony to the Ohio House of Representatives' Finance
Subcommittee on Agriculture, Development,
and Natural Resources
Presented by Cathann A. Kress, Vice President for
Agricultural Administration and Dean of the
College of Food, Agricultural, and Environmental Sciences
April 3, 2019**

Chairman Hoops, Ranking Member Hicks-Hudson, and members of the Ohio House of Representatives' Subcommittee on Agriculture, Development, and Natural Resources, I am Dr. Cathann Kress, Vice President of Agricultural Administration and Dean of the College of Food, Agricultural, and Environmental Sciences (CFAES) at The Ohio State University. I represent the 429 faculty, 1,488 staff, 3,647 students, 43,000 living alumni, 47,000 animals, and 11,000 acres that make up CFAES. We are one college with three campuses (Columbus, Wooster, and statewide, with our faculty/staff split evenly among the three) and three missions (research, teaching, and extension) all dedicated to one essential purpose: We sustain life.

For some, our field of study might seem like a throwback. After all, as the university's cornerstone college, we are poised to celebrate our sesquicentennial—150 years—next year. People have gotten used to our college and our industry's success after that many years, and they often take it for granted.

One of my jobs as your dean is to remind everyone that what we do is not only essential for our industry, not only essential for Ohio, but essential for the human species and our world.

It's not often that we stop our busy lives and consider what makes it possible to do work of any kind. It takes energy. And really, for our planet, almost all energy can be traced back to one important source: our sun. For over 12,000 years, agriculture has effectively and sustainably harnessed that energy and converted it into the food, fiber, and fuel humans use to thrive.

Next week, Dr. Rattan Lal, a soil scientist, will travel with President Michael V. Drake to receive the prestigious Japan Prize from the Japanese emperor. Lal's

pioneering research is on no-tillage agriculture—and on methods to sequester, or lock up, carbon dioxide in the soil, such as by planting cover crops and spreading compost. The Japan Prize Foundation said Lal has shown ways to manage change “while improving environmental quality and addressing the critical issue of feeding the Earth’s population.” Dr. Lal is a great example of what we do.

Our college is a driver of discovery with over \$41 million of projects underway, and we are getting increasingly better at translating our research so it can be used in ways that change practices, change the bottom line, and change the world.

For example, in Ohio, we have about 140 researchers working on some aspect of water quality.

We advance science by:

- studying how the built environment and stormwater systems impact surface and groundwater.
- using soil testing and precision agriculture to guide nutrient applications.
- refining best management practices as a result of edge-of-field studies.
- designing livestock diets to maintain animal performance while minimizing nutrient losses in manures.
- helping shape farmers’ ability and willingness to adopt best management practices.

We apply innovation by:

- developing new precision farming technologies that allow farmers to map variations in soil properties and guide nutrient applications.
- creating new methods to use manures as sources of plant nutrients.
- using a system of sampling buoys, fixed stations, and charter boat volunteers to monitor Lake Erie water.

And, through collaboration and extension, we:

- publish *eFields*, a summary of on-farm field trials to benefit farmers, scientists, and policymakers.
- use our Nutrient Stewardship Program to partner with farmers to explore and demonstrate effective nutrient management practices.
- provide independent advice and support to farmers working to develop and implement nutrient management plans.

- used our On-Field Ohio project to develop a new phosphorus risk index tool to help farmers identify effective practices to minimize phosphorus losses.
- provide training to meet state requirements for fertilizer application certification.

Our work not only advances science, it advances industry.

Through a collaboration with The Ohio State University Wexner Medical Center, our Department of Food Science and Technology was able to show that blood testing has the power to reveal fibromyalgia, which is notoriously difficult to diagnose. It's an exceptional example of interdisciplinary work that could improve health outcomes worldwide.

The [ServSafe](#) training offered by Ohio State University Extension focuses on key areas to reduce the transmission of foodborne illnesses. Last year, we offered 125 food safety trainings for the restaurant industry and trained 1,700 food service employees in restaurants, schools, nursing homes, and other locations.

Through this important work, we strive to also be a good investment, leveraging opportunities and funds. Our basic premise is that we believe in combining our strengths with key partners and investors.

For example, some farm fields in the Maumee River watershed have more phosphorus than their crops can use. Dr. Jay Martin and others secured \$5 million from USDA for a five-year study to learn about those fields and lower that risk by creating new public-private partnerships.

In collaboration with the National Resources Conservation Service (NRCS) and counties both matching our funding, we are hiring additional OSU Extension educators to focus solely on water quality in the Western Lake Erie Basin, with the goal of increasing the number of acres under best management practices known to protect water quality.

Our faculty leveraged a National Institutes of Health (NIH) grant for over \$2 million focusing on development of low-cost strategies (such as supplemental vitamin A) to enhance immunity critical in swine and humans. Porcine epidemic diarrhea virus (PEDV) and rotavirus (RV) have killed over 8.5 million piglets since

2013, and RV is a leading global cause of mortality associated with childhood diarrhea.

USDA funded a grant involving 12 academic institutions (Ohio State included) of over \$7 million to support an approach to control poultry respiratory diseases in the United States.

OSU Extension has received one of nine Rural Health and Safety Education grants from USDA. The grants are to address the needs of rural Americans through health education programs delivered through Extension. For FY18, the awards are focusing on the prevention and reduction of opioid misuse and abuse in rural areas.

Researcher Enrico Bonello received a grant from the Bill & Melinda Gates Foundation to study plant disease surveillance drones that will be developed to monitor rice blast and maize dwarf mosaic, two devastating diseases in many countries such as Tanzania.

CFAES prepares our future workforce and our future leaders

There's no denying our college's success with students. This year, we had about 3,200 students and 500 graduate students.

Annually, we graduate over 200 with two-year associate degrees, about 700 with bachelor's, 100 with master's, and 50 with PhDs:

- Three out of four freshmen receive scholarships.
- Our first- and second-year retention rates are among the highest at Ohio State.
- We are one of Ohio State's top colleges for students finishing in four years while at the same time engaging in internships and other experiences such as study abroad.
- More than 93 percent of our students are employed or are accepted into graduate or professional school within six months of graduation.
 - And 76.9 percent of our graduates have jobs in Ohio.

In U.S. News & World Report's latest [Best Colleges rankings](#), our Department of Food, Agricultural and Biological Engineering (FABE) saw a significant jump

among top programs in the nation. FAGE's undergraduate programs ranked seventh in the nation, up from 11th last year.

Our students are exceptional.

Believing that food can connect people, student **Sara Steinbrunner** wants to make sure no one is left out because of dietary restrictions or allergies. Steinbrunner developed a garbanzo bean spread free of the eight most common allergens. She is producing, marketing, and selling the spread as a product called Beannut Butter.

Anna Apostel and **Elizabeth Berg** were chosen to be among the 40th class of National Sea Grant's prestigious John A. Knauss Marine Policy Fellowship, a yearlong program that places highly qualified graduate students in host offices in the legislative and executive branches of the U.S. government.

Cody McClain, a senior in agriscience, education was selected for one of 20 national educational scholarships from the National Association of Agricultural Educators (NAAE). McClain is student teaching at National Trail High School in New Paris, Ohio.

We also are the proud home to the premier youth program, Ohio 4-H youth development. Ohio 4-H reaches nearly 250,000 Ohio youth, most of whom participate in our high-quality educational programs for nearly a decade. We're working to create increased value in 4-H by incorporating more career exploration and recognition of the educational impact of these experiences. Essentially, 4-H is our youth's first class in our college.

Through our research, extension, and teaching, CFAES is a contributor to our state's economic development and social well-being.

Our college is helping Ohio manufacturers grow through a new partnership with Ohio State's College of Engineering. The connection allows manufacturing companies in 37 counties in central and southeastern Ohio to tap into the College of Engineering's expertise.

Through this new arrangement, companies can seek out low-cost engineering services including training for staff or assistance with an engineering problem or a new product launch.

Our focus on foods for health is growing. We think it's just as likely that the cure for cancer will be found by a food scientist as by a medical researcher. From metabolomics, to studying diseases, to the microbiome, Dr. Richard Bruno's study provides evidence that green tea encourages the growth of good gut bacteria, and that leads to a series of benefits that significantly lower the risk of obesity.

What I hope you hear in the examples I am sharing is that CFAES serves Ohioans.

We advance knowledge.

For 57 years, Farm Science Review has been gathering the agricultural industry, drawing an annual attendance of more than 100,000. The vast exhibit area provides a marketplace for agricultural operations to find ways to improve efficiency and profitability, as well as environmental sustainability.

Ohio has four major metropolitan areas ranked on this year's list of top 50 cities with bed bug infestations, according to Orkin, a nationwide pest control company. Dr. Susan Jones created an app so you can check if the dark speck that crawled across your desk was a bed bug. The Bed Bug Field Guide app comes complete with enough information to know how to get rid of them and, most importantly, how to ward off an infestation in the first place.

We advance industry.

Inside cool, water-filled fish tanks in southern Ohio, Dr. Hanping Wang, who manages our Center for Aquaculture Research and Development, succeeded in raising faster-growing fish. On average, the resulting offspring reach market size six months faster, resulting in significant savings in fish food and in time waiting to sell the fish.

Our Soybean Center, where we integrate interdisciplinary soybean research toward developing laboratory and field-based solutions to improve Ohio soybean production, has led to Ohio State being a recognized leader in soybean research and education in the United States.

Along with 13 other founding members, we created the Agricultural Data Coalition to facilitate the sharing of research data between academic institutions and to address farmers' data privacy and security concerns.

We advance sustainability.

It's not often that a grower finds a piece of equipment that can give a full return on investment in one year and reduce their farm's impact on the environment. But our "intelligent sprayer" is the first automatic spraying system of its kind in the world. Results from field experiments have been no less than astounding. In testing, when compared to conventional sprayers, the intelligent sprayer reduces airborne spray and spray loss on the ground, almost completely reducing pesticide use by nearly half.

The Field Application Resource Monitor (FARM) app helps farmers save both money and the environment by the use of advanced weather forecasting to advise farmers on when to apply fertilizers and pesticides so that the chemicals aren't washed away by rain. The app can give specific forecasts for an area as small as 1.5 miles wide, allowing for incredibly accurate and detailed forecasts.

Led by Dr. Brian Roe, the Ohio State Food Waste Collaborative piloted a small-scale residence hall composting initiative, yielding 392 pounds of food waste and compostable food. If implemented in all residence halls, the effort could yield 13 tons of food waste reductions annually.

We advance people.

Our agricultural safety professionals are using virtual reality to educate and prepare farmers to be safe on the farm and learn best practices to ensure their health. Dedicated to preventing foodborne illnesses such as the one that claimed her 2-year-old son, Dr. Barbara Kowalcyk established the Center for Foodborne Illness Research & Prevention and received a \$3.4 million grant from the Bill & Melinda Gates Foundation to improve the safety of food.

And sometimes, we just have fun helping others. I hope you'll join us this summer at the Ohio State Fair, July 30, for the first annual Dean's Charity Steer Show to promote our cattle industry, our 4-H program, our generous agricultural

community- but mostly to raise funds for the Ronald McDonald House of Central Ohio.

This is an incredible body of work. It's impressive and it's impactful, but I hope you recognize that it is also responsive to the needs of Ohioans.

It takes investment to do this work. It takes facilities, it takes talent, it takes partners.

This year, we have undertaken \$100 million worth of capital projects—\$80 million of which is already paid for—through your support reallocating funds within our college, grants, and gifts from our dedicated donors.

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

On behalf of all of us in the college, we thank you for being part of this great work- for making it possible for us to nurture and inspire generations of scientists and leaders. For joining us in the deeply held belief that the future will be better, most directly, as a result of our investment in the next generations.

It is because of you – our steadfast partners – that we rise to the original land grant vision – to be an asset for our state through our unwavering dedication to our mission – unchanging, fundamental, and of paramount importance...

We sustain life. Thank you for supporting us.

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