THE OHIO STATE UNIVERSITY

continuum

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

Summer 2016

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HOPS

GAINING IN POPULARITY IN OHIO AMONG GROWERS, BREWERS

Hops—a high-value crop that was produced in Ohio until prohibition, disease and insect pressure shifted production to the Pacific Northwest by the 1920s—is making its way back to Ohio farm fields with help from CFAES researchers.

✍ TRACY TURNER

QUENCHING THE THIRST

Ten years ago, fewer than 30 Ohio breweries existed. Today, some 153 licensed breweries produce an estimated 1.097 million barrels of craft beer annually.

ACRES AND ACRES

In 2012, an estimated 10 commercial growers were managing hop yards. In 2015, that increased to 60 commercial growers. In 2012, Ohio had 15 acres of commercial production. In 2015, that increased to 120 acres.

RETURN ON INVESTMENT

While yield and price per acre depend on quality, variety and buyer, on average, 3,000 pounds of wet hops at $25 per pound generates $75,000 per acre. Six hundred pounds of dry hops at $30 per acre generates $18,000.

IN DEMAND

Ohio breweries require an estimated 4 million pounds of dried hops at 4 pounds per barrel, worth about $30 million. To meet current demands and use rates, an estimated 6,000 acres of hops are required by Ohio craft brewers.

LEARNING PROCESS

The OSU Hops Research Program helped form the Ohio Hops Growers Guild in 2014. Interest in hops research continues to grow, with 420 growers attending a two-day winter OSU Ohio Hops Conference last year—up from 300 growers in winter 2013.

Dave Volkman and his wife, Nina Volkman, grow some 12 acres of hops on their Southern Ohio farm. They got started growing the high value crop thanks to CFAES research.

OHIO BREWERS WANT OHIO-GROWN HOPS

One of the more popular beers brewed by Columbus-based Actual Brewing Co. is made with locally grown hops. Called "Elektron," the American amber ale is brewed using Ohio-grown Cascade hops. It is 6.2 percent alcohol by volume and has 27 International Bitterness Units, a measurement of a beer's bitterness, which comes from the hops used during the brewing process.

It is sold to some 200 bars, restaurants and markets across Ohio.

But if Fred Lee, the company's founder and president, had his way, he'd brew even more beer varieties with hops grown in Ohio. Hops are the main ingredient beer makers use to provide bitterness to balance the sweetness of malt sugars in their product.

"Freshness is key when it comes to hops, and anything grown locally would, by nature, be fresher," Lee said. "In fact, I'd love to buy more locally grown hops, but we'd need them to be more exotic hops—hops that you can't find anywhere else."

Ohio Agricultural Research and Development Center and Ohio State University Extension horticulturist Brad Bergefurd is working to make that happen.

Thanks to the College of Food, Agricultural, and Environmental Science's ongoing hops research and trials, hops have made a resurgence in Ohio after a 100-year absence. With locally grown hops in high demand from Ohio microbrewers, the economic potential for growers and the state's economy is significant. Ohio growers are now poised to capture some of the $30 million in hops sales and related jobs currently sourced out of state by Ohio's growing craft brewing industry, Bergefurd said.

To meet that increased demand for locally grown and more exotic varieties, CFAES researchers have been testing some 40 varieties of hops. The trials, which are funded by a U.S. Department of Agriculture Specialty Block Grant administered by the Ohio Department of Agriculture, are focused on how well the specialty hops can be grown in Ohio.

"We're working to help Ohio growers grow what brewers want," Bergefurd said. "We're encouraging our growers to adopt more exotic hops like Centennial and Columbus—two hops varieties that aren't really common in West Coast markets, but ones we can grow here very well."

Other hops varieties being tested for growth potential in Ohio include Brewers Gold, Chinook and Willamette, he said.

"It's what the industry wants, both in Ohio and other states," Bergefurd said. "The differences in the hops come down to the brewing characteristics."

As the demand for hops continues to increase, more growers across the state are jumping on board—such as Dave Volkman, who formerly grew produce on his 12-acre Maineville, Ohio, farm. After attending a workshop on hops production offered by Bergefurd, Volkman learned about the crop's potentially strong profit and high demand. As a result, he traded in his produce for hops.

Volkman now has more than 400 plants on 12 acres, supporting two Ohio craft breweries. He is also a founding member of the Ohio Hops Growers Guild, which has more than 50 Ohio hops grower members. ■

HOPS PRODUCTION IN OHIO

- **One hundred breweries produce 1.09 million barrels of craft beer annually, requiring 4 million pounds of dried hops—worth more than $30 million—most of which are currently purchased from out-of-state farms.**
- **Ohio craft brewers need about 6,000 acres of hops to meet the current-use demand. Today, some 100 acres of hops are planted in the state, so the potential for growth is enormous.**
- **Establishing a hop yard costs $20,000 to $25,000 depending on whether a grower selects rhizomes or plants. This does not include land costs.**
- **CFAES' hops research trials are helping growers identify new hops varieties for Ohio, effective pest and disease management techniques, successful fertility and irrigation management methods, and mechanical harvesting tools.**

OH COME LET'S SING HIS COMPOST'S PRAISE

Ohio State diverted more waste into recycling and composting—and away from landfills—during the 2015 football season than any other school in the Big Ten. A key to the win: the work of a longtime friend and alumnus of CFAES. Tom Price owns family-run Price Farms Organics in Delaware, Ohio, which, as a partner in Ohio Stadium's champion Zero Waste effort, turns a portion of football Saturdays' food waste—discarded hot dogs, popcorn and so on—into compost. The product's name, naturally, is Stadium Scarlet. And you can say that it's good for both buckeyes and Buckeyes. "People are understanding that compost is the most economical way to raise the organic matter level in their soil," says Price, who's also a member of the college's advisory council. For turning out lush, green, healthy plants, he says, "There's a big 'wow' factor after using compost."
Read more: **go.osu.edu/StadiumCompost**. ✍ **KURT KNEBUSCH**

HOW IT WORKS:

During Ohio State home football games, workers collect compostables—half-eaten bratwurst, you name it—in Ohio Stadium's kitchens and suites.

On the following Monday mornings, a truck delivers the compostables to Price Farms Organics. Each haul: about 2 tons' worth.

Workers combine the compostables with manure, wood chips and coffee grounds, then bulldoze the mix into house-sized piles. Composting begins.

Fast-forward 1 to 2 years. Stadium Scarlet is ready. Spread on the soil, it provides nutrient-rich organic matter. Plants, Buckeye fans cheer.

Twenty-five new faculty positions will boost the college's expertise in areas of key importance to Ohioans and the world, including food production and security, health and the environment.

The Season of Growth

MAURICIO ESPINOZA

At a time when many colleges and academic programs are shrinking and losing relevance, the College of Food, Agricultural, and Environmental Sciences is experiencing tremendous growth both in new faculty hires and programs that address society's most challenging issues. Such growth has been fueled by the college's strategic convergence with the university's Discovery Themes initiative, which seeks to thrust the institution from excellence to eminence in key areas of expertise.

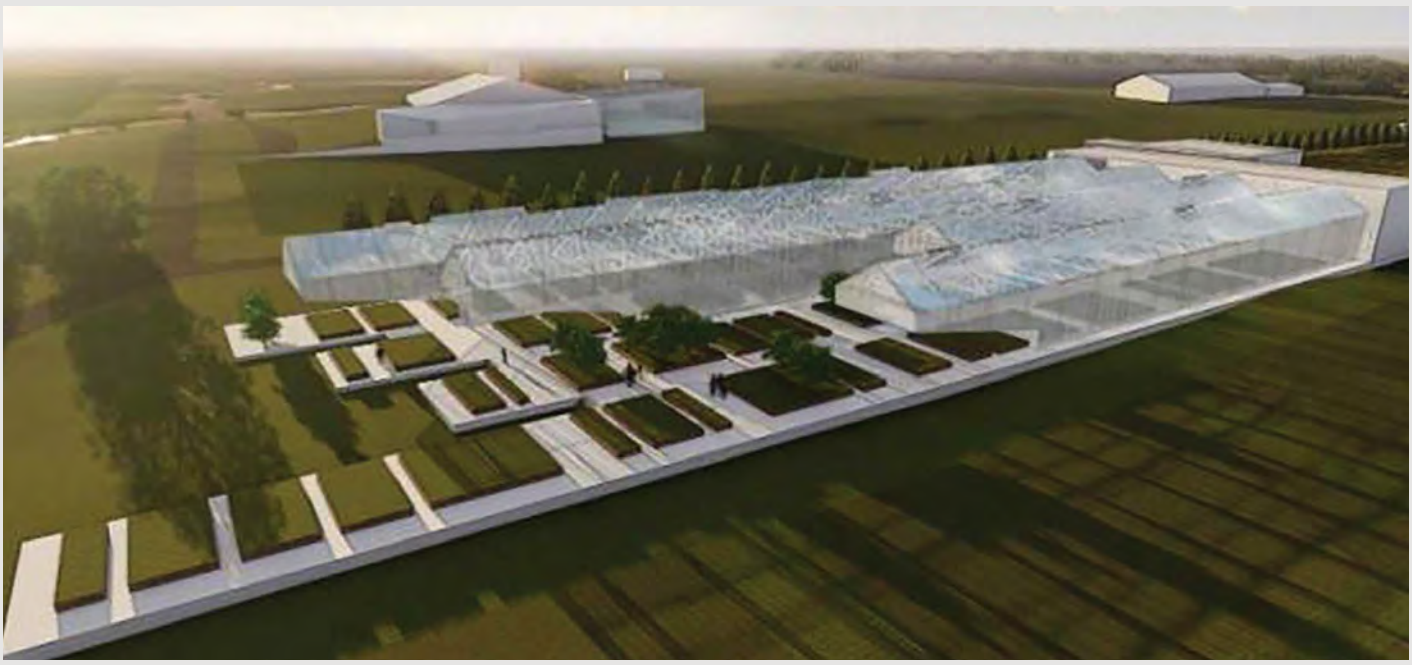
In 2012, The Ohio State University launched the Discovery Themes initiative. The main goal was to consider the world's most pressing challenges and the university's role in addressing them.

Universitywide strategic planning efforts helped identify areas of excellence corresponding to a number of those challenges: ensuring a sustainable future, nourishing the world's growing population, and promoting the health of people everywhere.

This process led to consolidation of the official Discovery Themes of Energy and Environment, Food Production and Security, and Health and Wellness. University leadership identified these as long-term targets of universitywide teaching, research and engagement.

"From the very beginning of the Discovery Themes discussion, it was clear that our college's priorities and expertise were in perfect alignment with the vision Ohio State was articulating for the future," said Terry Niblack, acting senior associate dean of CFAES.

Such alignment with the Discovery



Themes has resulted in 13 new faculty members who have already joined or will be joining the college in 2015–16. Furthermore, seven other positions are currently in the search process or have been approved for hiring, while five additional positions have been proposed and are awaiting approval.

CFAES is represented in all three Discovery Themes, showing the breadth and relevance of the college's teaching, research and outreach activities, Niblack said.

"So we are talking about a total of 25 new positions being added to CFAES, which is huge," she said. "The Discovery Themes and our involvement in this initiative have been a big boost to be able to bring faculty and programs of national and international reputation to our college."

In addition to gaining new faculty members, CFAES is also widening the interdisciplinary and cross-university nature of its research due to the highly collaborative nature of Discovery Themes-sponsored positions.

For example, the position focusing on Water Security for Food Production: Protecting, Restoring and Catalyzing Water Resources, is based at the School of Environment and Natural Resources but has several partnering units within and outside the college: the Department of Food, Agricultural and Biological Engineering; Ohio State University Extension; the School of Earth Sciences; and the Department of Civil, Environmental and Geodetic Engineering. A similar arrangement is involved in the Food, Health and Human Behavior position, which is led by OSU Extension in partnership with the Division of Medical Dietetics at the College of Medicine.

The new positions also come with a variety of funding models, Niblack said. In some cases, the home department at CFAES provides half of the funds, while Ohio State's Office of Academic Affairs covers the rest. In other cases, the college pays half and OAA provides the other half. Finally, for some positions there is a three-way split between CFAES, the home department and OAA.

"These partnerships will lead to more collaboration and integration in the college and across the university," Niblack said. "Ultimately, this is going to raise the profile of CFAES within Ohio State and the profile of the university in the country."

The new faculty and their associated

// continued on the next page

URBAN FARM RENEWAL

The Waterman Agricultural and Natural Resources Laboratory, a staple of The Ohio State University's Columbus campus, is a 261-acre green oasis along Lane Avenue that harkens back to the university's agricultural roots. These days, however, Waterman Farm is looking toward the future thanks to a comprehensive master planning effort and public-private partnerships that seek to transform it into a modern, urban agricultural laboratory. "There's a lot of excitement across the college and the university to raise the profile of this parcel as a living lab," said Terry Niblack, acting senior associate dean of CFAES. If plans and funding proceed, production of local foods will be a major focus of the farm, especially in controlled-environment agriculture and "vertical" farming. The college is working with partners in the university and the community to boost production and consumption of local foods. Other plans include the development of a new multispecies facility for the Department of Animal Sciences that will include teaching, research and Extension work on cattle, poultry, swine and horses. The dairy facility will remain in its current location in the short term, but it will eventually be relocated and modernized, Niblack said. ✍ **MAURICIO ESPINOZA**

DISCOVERY CONNECTIONS

The new faculty position focusing on Water Security for Food Production: Protecting, Restoring and Catalyzing Water Resources, is based at the School of Environment and Natural Resources but has several partnering units within and outside the college.

A similar arrangement is involved in the Food, Health and Human Behavior position, which is led by OSU Extension in partnership with the Division of Medical Dietetics at the College of Medicine.

Through the Arthropod Vectored Diseases of Humans and Animals position, CFAES seeks to raise the profile of its insect-transmitted disease research to encompass new threats such as Zika virus.

Q&A WITH ROGER RENNEKAMP

Roger Rennekamp is the 12th leader of Ohio State University Extension, overseeing nearly 700 employees and a $71 million budget. The former associate dean for Outreach and Engagement at Oregon State University, Rennekamp previously led Oregon's 4-H Youth Development program and served as an Extension specialist in program and staff development.

Q: Now that you've been here for several months, what is your impression of OSU Extension's strengths?

A: As a comprehensive land-grant institution, Ohio State is positioned to make a positive contribution to solving even the most complex problems facing society. Our breadth and depth of expertise is amazing. While much of that expertise lies squarely within CFAES, Extension also has ability to reach across campus when needed to engage faculty and staff from other colleges in finding solutions to addressing issues that matter to Ohioans. I believe OSU Extension is truly the "flagship" of the institution's outreach and engagement mission.

Q: What do you see is our biggest opportunity/challenge?

A: Many of the issues in which OSU Extension becomes involved are controversial in nature. We work every day to ensure the information we contribute to solution-finding is based on good science and is presented in an unbiased fashion. By doing this, we have earned a deep-seated reputation of institutional credibility. Unfortunately, the scientific process sometimes produces results that are unpopular with some individuals and groups. Consequently, it becomes critically important to maintain our objectivity as a knowledge provider so the information we share is at least seen as credible, if not always what people want to hear.

Q: What's been your best experience with Extension clientele so far?

A: I continue to be amazed by the testimony of citizens who attribute much of their success in life to the assistance they have received from Extension. When we say that Extension changes lives, it is backed by a chorus of voices, each with its own story to tell. Most amazing is the willingness of Ohio's citizens to advocate for the resources that Extension needs to continue the work it does in communities across the state. Support for Extension in Ohio is truly amazing. ✍ **TRACY TURNER**

Rennekamp has been with OSU Extension since January 2016.

GROWTH // *continued from page 7*

programs and partnerships reflect the comprehensive nature of CFAES research and outreach, and the way in which the college has positioned itself to best respond to emerging issues and to forecast future needs and opportunities.

One example, Niblack said, is the position that focuses on Arthropod Vectored Diseases of Humans and Animals, which will reside in the Department of Entomology and represents a partnership between the departments of entomology, plant pathology and the Food Animal Health Research Program in CFAES with many disciplines across the university focusing on infectious diseases of humans, animals and plants. Through this position, CFAES seeks to raise the profile of its insect-transmitted disease research to encompass new threats such as Zika virus.

In other cases, having the Discovery Themes' backing has allowed CFAES to add new expertise to its already talented portfolio. For instance, the Department of Food Science and Technology has hired Devin Peterson, a nationally recognized food flavor chemist who will relocate his entire research lab and the Flavor Research and Education Center from the University of Minnesota to Columbus.

With growth, of course, comes the need for additional space and infrastructure, Niblack said.

"Expansion brings critical space issues, and we have developed a comprehensive facilities plan to address these issues," she said. "In the short term, I must say our departments have been remarkably flexible in accommodating new faculty and providing them with the resources they need to be successful.

"We have a very collaborative mindset in our college, and we are looking for ways to bridge the gap until we have more space available."

In the meantime, hiring committees remain busy as more positions are filled and CFAES cherishes its season of growth.

"We truly feel we are embracing the university's call to move from excellence to eminence," Niblack concluded. **O**

For more information about making a gift, contact the CFAES Office of Advancement at 614-292-0473 or email Chief Advancement Officer Chris Delisio at delisio.24@osu.edu.

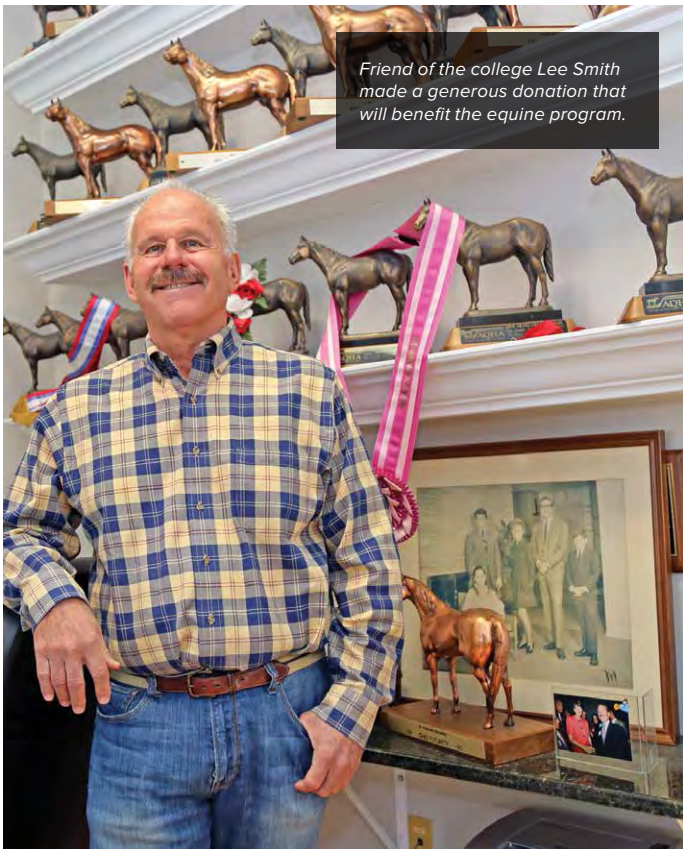
THE COLLEGE HAS BENEFITED FROM BARGAIN-SALE DONATIONS, OFTEN DESCRIBED AS GIFTS-IN-KIND:

- In 1942, Ohio State spent $100,000 to purchase 382 acres that became Don Scott Field and several agriculture facilities for teaching and research.
- Anna Waterman in 1923 donated Waterman Farm, now called the Waterman Agricultural and Natural Resources Laboratory, just northwest of Kenny Road and West Lane Avenue in Columbus. The property is used for teaching, research and outreach.
- The estates of Geraldine and Arthur Winfough Jr. donated 875 acres of Pickaway County farmland, the sale of which kick-started construction of the Student Success Center and resulted in the creation of three funds in 2014.

His Gift Made Horse Sense: 'I Feel Good About Helping the University'

✍ DELFINA DELISLE AND MATTHEW MARX

Lee Smith of Columbus, Ohio, combined his lifelong passion for horses with his generosity toward Ohio State by making a bargain sale of his farm. The bargain sale, which benefits the CFAES equine program, is one of many unique, land-related gift options available to supporters.



Friend of the college Lee Smith made a generous donation that will benefit the equine program.

"I was able to sell my property quickly and easily while also enjoying tax benefits," Smith said recently. "Best of all, I feel good about helping the university and enhancing the facilities and services at the equine center."

His gift through the bargain sale will support equine facilities in partnership with the College of Veterinary Medicine at Finley Farms and the CFAES Waterman Agricultural and Natural Resources Laboratory.

The bargain sale is an agreement in which Ohio State purchases real estate from a donor at a price that is less than the current value, subject to approval by the Ohio State treasurer's office. Ohio State sells the property at the current value, giving the donor a check for the price of the bargain sale to the university.

Proceeds from the university's sale of that land will benefit the donor's area or program of choice. In addition to receiving a check from Ohio State for the bargain sale, the donor may enjoy a federal income tax deduction with reduced estate taxes. Additional information can be found at **go.osu.edu/ways**.

Lee Smith's gift is the largest donation in the history of the equine program at CFAES.

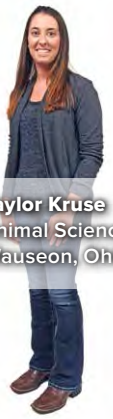
The largest gift in CFAES history was a $7 million estate gift from the late Delma Roush in 2014.

Devon Alexander
Agricultural Communication
Anna, Ohio

Jordan Bonham
Agricultural Communication
Washington Court House, Ohio

Christine Snowden
Animal Sciences
Johnstown, Ohio

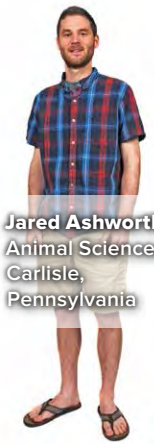
Shelby Faulkner
Agriscience Education
Urbana, Ohio



Taylor Kruse
Animal Sciences
Wauseon, Ohio

Ryan Schwyn
Agricultural Engineering
Marysville, Ohio

John Bolte V
Agribusiness and Applied Economics
Dublin, Ohio



Jared Ashworth
Animal Sciences
Carlisle, Pennsylvania

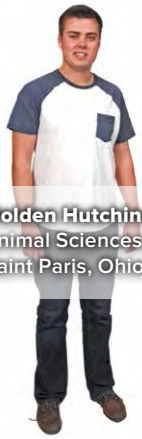
Amy Engelbrecht
Animal Sciences
Springfield, Ohio

Emily Ratliff
Agribusiness and Applied Economics
Greenfield, Ohio

Gary Klopfenstein
Sustainable Plant Systems
Haviland, Ohio

Brooke Rieke-Schanowski
Agricultural Communication
Winfield, Illinois

Shyla Kreager
Animal Sciences
Newark, Ohio



Holden Hutchinson
Animal Sciences
Saint Paris, Ohio

Demi Snider
Agricultural Communication
Kenton, Ohio

Colton Harstine
Animal Sciences
Dundee, Ohio

Rachel Townsley
Food Science and Technology
Urbana, Ohio

Antoinette Metzler
Animal Sciences
Califon, New Jersey

Michael Estock
Animal Sciences
Beloit, Ohio

Match Game

Which CFAES Outstanding Senior Said What?

In April, CFAES held its 63rd Annual College Recognition Program, which honored, among others, the college's 20 Outstanding Seniors. We honor them likewise here. Now, banquet over, "Carmen Ohio" sung, we asked them to loosen their collars. We said, "Tell us something totally random about yourself." Here's what they said. You have to guess who said it. Turn the facing page upside down for the answers. *Rachel Fladung, Animal Sciences, of Hamilton, Ohio, was not available for the photo session.* ✍ **KURT KNEBUSCH**

1. "I'm allergic to Old Spice deodorant, and I have a chinchilla named Charlie."

2. "I TOOK A CLASS THROUGH OHIO STATE ON SKYDIVING. AND I'M ALIVE AND WELL AND BREATHING."

3. "I'm a great baker. I absolutely love trying new recipes—just making crazy things that I find on Pinterest or in cookbooks."

4. "I'M A LITTLE BIT OF AN ADRENALINE JUNKIE. I WENT SKYDIVING LAST SUMMER. I'VE ALREADY RUN ONE TOUGH MUDDER, AND I'M RUNNING ANOTHER ONE IN TWO WEEKS."

5. "I raced go-karts when I was little. You can still tell with my driving. I definitely enjoy speed."

6. "I was in orchestra for seven years. I started in our middle school orchestra, learning how to play the cello, and by the time I was a senior, I was lead cello."

7. "I don't have a middle name. My mother doesn't, either. The reason is, when I get married, my last name will slide into my middle name, so I'll always be able to carry my last name with me. It's a family tradition on the female side."

8. "I'm the fifth. It's almost like royalty, but not quite the same thing!"

9. "I'm from Chicago. I'm definitely a big deep-dish pizza fan."

10. "I HAVE A HARD TIME IDENTIFYING SMELLS. THERE ARE CERTAIN UNPLEASANT SMELLS THAT I'VE NEVER ACTUALLY BEEN ABLE TO SMELL. FOR EXAMPLE, SKUNK. I'VE NEVER SMELLED SKUNK BEFORE. IT'S NOT REALLY THAT BAD OF A UNIQUE QUALITY TO HAVE, I GUESS."

11. I WENT BUNGEE JUMPING. IT WAS OUT OF MY COMFORT ZONE. I'D DO IT AGAIN IN A HEARTBEAT."

12. "During my sophomore year, I had to take a leave of absence from school to serve as Ohio FFA state president."

13. "I absolutely love the old TV westerns, like "Bonanza," "The Big Valley" and "Gunsmoke."

14. "I shaved my legs for the first time on Sunday for a triathlon race that I'll be competing in on Saturday."

15. "I'm a stickler for parliamentary procedure. In meetings, I'll cut you off, not in a mean way, if you're doing something wrong. I really value order in a meeting."

16. "I collect piggy banks. Right now I have 33, and none of them have any money in them."

17. "I broke my leg in high school during a softball game, and when my teammates asked about calling my parents, I screamed, 'No! No! They can never know!' Obviously they found out."

18. "I'm a self-proclaimed cactus farmer."

19. "WHEN I WAS A KID, WE TOOK OUR DOG TO THE VET. WHEN WE LEFT, THE VET GAVE US A DOG TREAT, BUT WHEN I GOT BACK TO THE CAR, I ATE THE TREAT MYSELF. I DIDN'T REALIZE IT WAS FOR THE DOG."

ANSWERS: 1. JARED ASHWORTH; 2. JORDAN BONHAM; 3. AMY ENGELBRECHT; 4. SHYLA KREAGER; 5. ANTOINETTE METZLER; 6. COLTON HARSTINE; 7. DEMI SNIDER; 8. JOHN BOLTE V; 9. BROOKE RIEKE-SCHANOWSKI; 10. DEVON ALEXANDER; 11. MICHAEL ESTOCK; 12. SHELBY FAULKNER; 13. RACHEL TOWNSLEY; 14. GARY KLOPFENSTEIN; 15. EMILY RATLIFF; 16. CHRISTINE SNOWDEN; 17. TAYLOR KRUSE; 18. HOLDEN HUTCHINSON; 19. RYAN SCHWYN

Did you know: The 5,000 hot dogs served to incoming freshmen at Ohio Stadium on move-in day are from Animal Sciences' Meat Science Laboratory.

Chef Joel Linik created the Brutus Buckeye Big Brutus Sandwich to commemorate the 50th birthday of the university's iconic mascot. The triple-decker Monte Cristo sandwich is layered with Nutella, strawberries, bananas, strawberry jam and a pork sausage patty from the Department of Animal Sciences' Meat Shoppe. The sausage is made from Certified Berkshire pork from the college's Western Agricultural Research Station in South Charleston. There, purebred Berkshire hogs (among others) are raised as models for understanding genetic variations as they relate to economically important traits such as fast and efficient growth, reproductive efficiency, and leanness and meat quality. Berkshire pork has long been lauded for its tenderness and flavor. Other products produced by the Meat Shoppe and sold to Student Life Dining Services, primarily for limited-time offerings and special events, include bacon, ham, bratwurst, smoked sausage, hot dogs, beef roasts and ribeyes.

Meating of Minds

✍ MARTHA FILIPIC

As Ohio Union chef for Student Life Dining Services, Joel Linik prefers to buy local, and he always looks for the highest quality meats. He finds both from the Department of Animal Sciences' Meat Science Laboratory, also known as the "Meat Shoppe."

"The quality is superb, and it is completely local," Linik said.

Ron Cramer, meat lab manager, started selling products to Student Life Dining Services three years ago. The meat comes from cattle, swine and lamb raised for teaching and research at the college's animal facilities.

"And we do some poultry, too," Cramer said. He and assistant manager James Maynard (ATI, 2011; Meat Science, 2013) oversee 16 student workers who learn how to prepare everything from tenderloin to trail bologna.

Although it's just a small fraction of what Dining Services requires for its operations, the sales account for approximately 60 percent of the 3,000–3,500 pounds the Meat Shoppe produces annually, Cramer said.

Lesa Holford, corporate executive chef for Dining Services, said she continually eyes opportunities to buy more from Animal Sciences.

"We incorporate their product into the menu mix whenever possible," she said, "especially when we have the opportunity to really share the story of where it came from, such as during special events and student organization functions."

Maynard said he's pleased "our students are producing products for other students to consume. It's a neat thing, and it gives our students hands-on experience." O

Job opportunities are plentiful for Meat Science Laboratory student workers in quality assurance, grading services and inspection.

Anyone can buy quality meats from the Meat Shoppe. See **go.osu.edu/meatsales**. Order by noon Thursday; pick up Friday afternoon.

Nominations for the 2017 CFAES Alumni Awards are due Sept. 1, 2016. Download a nomination form at ***go.osu.edu/nomination****.*

Recognition Tradition

✍ MATTHEW MARX

When John R. Foltz received an alumni award from CFAES this year, he joined his father and grandfather, both of whom are past recipients. All three are named John Foltz. Each recognizes the role that the College of Food, Agricultural, and Environmental Sciences played in their collective lives.

2016 award recipients. Back Row (left to right): Richard K. Gast, Karl Kisner, Jack Elliot, Ryan Saxe, John Douglass. Middle Row: Carolina Azcarate Espinoza, Milton Gorocica-Buenfil, Ken Cochran, Linda Vance, Chad Endsley. Front Row: Wesley Budke, Larry Lokai, Ian Y. Blount, Steve Buckalew, Andrea Garmyn. Not Pictured: Godfrey Asea, John R. Foltz, James B. Beard.

While The Ohio State University's size daunted him at first, John R. Foltz found his niche on the Columbus campus and through fraternity involvement, he said. His experience at Stone Lab influenced his career path.

"That program was a game changer," said John R., of Richland, Washington, lead entity and regional technical team coordinator for the Snake River Salmon Recovery Board.

The influence of agriculture and Ohio State on his family over several generations transcends career, said his father, John Clark Foltz, of Moscow, Idaho.

"One of the things I feel my parents instilled in me and one of the things we hope to instill in our sons is giving and working hard and doing the right thing," said John Clark, who works at the University of Idaho as special assistant to the president for agricultural initiatives.

John Charles Foltz of Dublin, Ohio, father to John Clark and grandfather to John R., spent his entire career in agriculture, including as administrator of the U.S. Department of Agriculture under former President George H.W. Bush.

In addition, John Charles's daughter, Mary Beth Arensberg of Columbus, received Ohio State's William Oxley Thompson Award in 1994. She is director of health policy at Abbott Nutrition.

"It is heart-warming and comforting to know that the children have done well and support the university and that they are proud of their college," John Charles said. O

The college recognized John R. Foltz (BS 2006, forestry, fisheries and wildlife), of Richland, WA, with the 2016 Young Professional Award.

Distinguished Alumni awards went to John Clark Foltz (MS 1981, BS 1979, agricultural economics) in 2012 and John Charles Foltz (MS 1971, BS 1955, agricultural education) in 1990.

College of Food, Agricultural, and Environmental Sciences
Summer 2016 at 12:00 pm •

Climate Change Help May Be Under Our Feet

Organic matter matters, says Rattan Lal. And not just to soils and plants—to the planet. In the past year, media including *Civil Eats*, *The Huffington Post* and WBUR, Boston's NPR station, have quoted the CFAES scientist on how adding organic matter—decayed plant fragments and the like—to soils can help fight climate change. Called carbon sequestration, the process takes carbon out of the atmosphere, where rising levels are causing the climate to warm, and socks it away in the soil. Farmers, for example, can store carbon through practices such as growing cover crops. A world expert on carbon sequestration, Lal is a Distinguished University Professor of soil science in the School of Environment and Natural Resources. Read more: **go.osu.edu/LalNPR**, **go.osu.edu/EcoWatch**, **go.osu.edu/ThinkProgress**. Watch: **go.osu.edu/OrganicStream**. ✍ **KURT KNEBUSCH**

Like Comment Share

A New Way to Fight Zika, Other Mosquito Diseases

Peter Piermarini believes there's a new, biological way to combat the mosquitoes that transmit Zika, dengue, malaria and other dreaded diseases: Make them unable to pee.

It's no potty joke. Piermarini, an entomologist based on Ohio State's Wooster campus, and other collaborators are looking for ways to disrupt the mosquitoes' Malpighian tubules, which are the equivalent of human kidneys.

"Female mosquitoes rely on their 'kidneys' when consuming a human blood meal," Piermarini said. "They may ingest the equivalent of their own body mass in blood, so they need to immediately get rid of the excess fluid they consume. They achieve this by urinating on their host while they are still feeding."

As a result, Piermarini explained, mosquitoes with impaired "kidney" function would be less likely to escape the human host and survive the ingestion of blood.

Among other developments, Piermarini's team has identified a chemical that compromises a mosquito's ability to excrete urine. In a 2016 paper, the scientists also reported the discovery of 4,000 genes in the "kidneys" of the Asian tiger mosquito (*Aedes albopictus*). The genes are affected when the insect feeds on blood. This information reveals new molecular targets for the development of novel insecticides that disrupt the Malpighian tubules.

Aedes mosquitoes are responsible for the transmission of Zika virus, which can cause birth defects and poor pregnancy outcomes. They also help spread dengue fever, which infects hundreds of millions of people annually and can be fatal.

Piermarini said new methods for mosquito control are urgently needed, as these insects are becoming resistant to insecticides currently used to combat them.

"If we can accomplish our goal, then we may uncover a new generation of insecticides for controlling resistant mosquitoes and the spread of mosquito-borne diseases," he said. ✍ **MAURICIO ESPINOZA**

FARM SCIENCE REVIEW IS SEPT. 20–22

This year's Farm Science Review is themed #MyFSR. The annual farm show attracts 110,000 to 130,000 farmers and enthusiasts to the Molly Caren Agricultural Center in London, Ohio, to learn the latest agricultural innovations and techniques from CFAES experts.

Look for opportunities to submit your FSR experiences to the college's social media outlets.

"With its educational workshops, field demonstrations and exhibitors, FSR has become a regional event that people want to be a part of. We offer ideas on farming, conservation and everything in between," said Matt Sullivan, assistant manager of Farm Science Review.

Advance tickets are $7 at OSU Extension county offices and online starting in July at **fsr.osu.edu/visitors/tickets**. Tickets are $10 at the gate. Children 5 and younger are free.

COMING UP THIS FALL

Fill your fall calendar with these great events from The Ohio State University and the College of Food, Agricultural, and Environmental Sciences:

- A **public celebration** of the closing of the *But for Ohio State* Campaign is scheduled for 6:30 to 8:30 p.m. Sept. 30 on the Ohio State Oval.
- **Homecoming 2016 weekend**, including the **CFAES Fallfest tailgate**, is Sept. 30 through Oct. 2. Enjoy a Friday full of programming for alumni and friends. On Saturday, Fallfest offers live entertainment and a tasty meal before the Buckeyes host Rutgers University. The university-wide Class of 1966 reunion luncheon is Sunday. Details can be found at **go.osu.edu/fallfest2016**.

Hope to see you there!

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The Ohio State University Alumni Association, Inc.

College of Food, Agricultural, and Environmental Sciences Alumni Society
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Columbus, OH 43210-1010

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CFAES students on a Study Abroad trip to Nicaragua during spring break 2015.

The College of Food, Agricultural, and Environmental Sciences has a $150 million fundraising goal during the university's $2.5 billion *But for Ohio State* Campaign.

Progress toward CFAES fundraising goal as of March 31, 2016

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