Members of the Ohio State Precision Ag Team in CFAES’s Department of Food, Agricultural and Biological Engineering are attempting to collect the most data ever from a single corn plant in a single growing season.

Their goal? To determine how much actionable data can be gleaned from a corn plant.

Using multiple agricultural technologies and data collection methods, the researchers hope to compile information that farmers can use to maximize yields and profits through lowering production costs.

“We want to start a conversation with Ohio producers about the various methods of data collection available to them, and how they can best introduce that data into their operation,” said Trey Colley, the graduate research associate in precision agriculture who is leading the project.

“We hope this project will serve as an avenue to discuss the many ways that data can be collected, analyzed and acted upon in the current state of digital agriculture,” he said. “The technology that is out there is so vast — from assessing crop health, to weather projections, to satellite imagery. There is so much out there for farmers to use.”

Colley and other project team members are gathering the data from a corn plant they’ve dubbed “Terra-byte,” which was planted on May 16 in a 100-acre field at the Molly Caren Agricultural Center two miles north of London, Ohio.

The research project includes gathering data from right before planting through harvest.

Thus far, the researchers have collected 4.3 gigabytes of data. They have used a myriad of technologies: aerial imagery; as-applied data from planters collecting information on seeds while planting; continual weather station data 500 yards from the plant; time-lapse photography started two weeks after planting that focuses on the plant until harvest; measured roots; in-field crop assessments; tissue tests to test nutrient uptake of the corn plant; soil samples on half-acre grids made into productivity zones; growth-stage assessments and planter-performance tests; and many others.

Colley said this kind of data could be invaluable to farmers.

“A lot of growers aren’t eager to try all the new technology out there, because it can be expensive and sometimes complicated,” he said. “Through this project, we can demonstrate multiple technologies and show the value of the data to individual farmers. We can show how farmers can use specific...
“WE WANT TO START A CONVERSATION WITH OHIO PRODUCERS ABOUT THE VARIOUS METHODS OF DATA COLLECTION AVAILABLE TO THEM, AND HOW THEY CAN BEST INTRODUCE THAT DATA INTO THEIR OPERATION.”

TREY COLLEY
Graduate Research Associate

SCIENCE on YOUR SIDE

Expert’s Rx to avoid swine flu

An Ohio State researcher is conducting a multistate study to test for flu among pigs at fairs, as swine infected with a flu virus were confirmed at two summer 2017 county fairs in Ohio.

Andrew Bowman, a veterinarian with Ohio State’s Department of Veterinary Preventive Medicine, has found that, on average, one out of every four fairs he attends every year has at least one pig infected with the Influenza A Virus Infecting Swine (IAV-S).

The influenza A virus can infect pigs as well as other animals and people. When one case is discovered at a fair, more often than not, several cases are found at the same fair, said Bowman.

Bowman is a little more than halfway through his seven-year study involving 100 county and state fairs in Ohio, Michigan and Indiana as well as a handful of fairs in Iowa, Kentucky and West Virginia.

Besides collecting nasal swab samples from 20 pigs at each fair, Bowman and his team are also studying which prevention measures are taken at the fairs and how often those measures are used to keep people and animals safe from flu.

Bowman’s research was especially relevant this past summer, as the Ohio Department of Agriculture had identified pigs infected with influenza A virus at agricultural fairs in Clinton and Franklin counties.

In animals and in people, the clinical signs of influenza can include fever, a runny nose, coughing and nausea. People previously infected with influenza from pigs generally report mild symptoms, much like seasonal flu. However, people most threatened by serious complications from influenza A virus infections are children under the age of 5, older adults, pregnant women and individuals with weakened immune systems.

“People don’t realize these animals might have something, or that people might have something they can give to the pigs,” Bowman said. “They think, ‘This is my chance to see a pig,’ and they go charging into the barns.”
Beep, beep: Staying safe on the roadways

This might surprise you: Most crashes between farm equipment and motor vehicles occur during daylight and in good weather.

“Today’s farm equipment is equipped with more lights and reflectors coming from the manufacturer than past generations of machinery, but we still need to educate both the public and farmers about sharing the roadway. We have to think about how we can share the roads safely,” said Dee Jepsen, state leader for agricultural safety and health at CFAES.

Almost half of Ohio’s farm fatalities involve tractors, and most of these are from the tractor rolling over as opposed to someone being run over.

“If we could get roll bars and seat belts installed on every tractor and could get them to be used each time the tractor is driven, 67 percent of our farm tractor deaths could be prevented. The combination of installing a roll bar and a seat belt — or using a seat belt within a cab-enclosed ROPS tractor — is 99.9 percent effective in saving your life,” said Jepsen.

In order for motorists to identify a vehicle as “slow moving,” visible indicators such as flashing amber (orange) hazard lights and the slow-moving vehicle (SMV) emblem need to be present, as required by law.

“We are continuing to educate what the SMV sign is so that motorists recognize it and know to slow down,” said Jepsen. To attract the attention of an oncoming motorist, SMV emblems must be clean and visible.

Here are some other precautions farmers can take to help prevent roadway crashes:

- Avoid traveling at peak times.
- Understand local laws and regulations for roadway transport.
- Use an escort vehicle, particularly if moving equipment on the road for long distances or in a busy area.
- Be alert and pay attention to obstacles such as ditches, mailboxes and road signs near the road.

Here are some precautions all drivers can take to help prevent roadway crashes:

- Be aware of overhead power lines, especially when entering and exiting fields with equipment.
- Always double-check to see what the car behind you is doing before making a turn.
- Know and use hand signals if your tractor is not equipped with signals, or to reinforce the existing signals on your tractor.
- Don’t transport extra riders in the cab, fender or bucket of your equipment.
- Use your equipment’s speed indicator symbol in conjunction with an SMV emblem when driving a high-speed tractor.
- Use extremity light bars to mark tractors with dual or triple wheels traveling on roads.

Programs and resources available to help protect farm families and workers from farm-related injuries and fatalities can be found at agsafety.osu.edu.
Early planning and budgeting: Key to keeping holiday spending in check

With all of the gifting, parties and traveling that occur during the holiday season, avoiding overspending can be hard. In fact, many struggle to stay within normal spending limits during the holidays, often spending months to pay off the resulting debt. These tips from Amanda Woods, OSU Extension program specialist in healthy finances, can help you formulate a holiday spending plan to avoid financial pitfalls:

• Start with a list of everything you’ll be spending money on during the holidays. Include on your list all gifts, foods, drinks, decorations, charitable giving and traveling.

• To determine your holiday budget, review what you spent last year. Then, use that amount as a guide for this year. Remember to include all money spent on gifts, foods, drinks, decorations, charitable giving and traveling.

• Create your budget, and then stick to it.

• After your budget is made, prioritize where and how you’ll spend.

• Keep an eye out for online and in-store deals and sales.

• Start saving now. Transfer to your savings a set amount of money from each paycheck.

• If you can’t afford something, don’t buy it on credit. Instead, review and perhaps reprioritize your budget.

Student Support

Consider a gift to the Ohio AgriBusiness Association Endowed Scholarship #645319, which supports CFAES agriculture students at both the Columbus campus and Ohio State ATI in Wooster. Contact the CFAES Office of Advancement at 614-292-0473 or faesdevcom@osu.edu for details.

Blogs to keep you up to date on food, nutrition and the environment

Two CFAES blogs will keep you in the know on important nutritional and environmental news. Check out Chow Line at u.osu.edu/chowline, where you can learn of the dangers of raisins to your dog; the difference between use-by, sell-by and best-by dates; and why raw flour can be bad for you.

Visit sustainability.cfaes.ohio-state.edu for events and information related to sustainability and the environment.

Making Halloween happy for Ohio’s pumpkin growers

Before and even long after Halloween every year, CFAES researchers grow and test pumpkin varieties to evaluate fruit size, yield, color and disease-resistance.

Researchers also evaluate insecticides, weed killers and fungicides for their impact on pumpkin production.

“Pathogens change over time, so the same fungicide that fended off a specific disease a couple of years ago might not work as well today,” said Jim Jasinski, OSU Extension educator and coordinator of CFAES’s Integrated Pest Management program.

Research findings can help farmers produce the best crop possible from the nearly 7,000 acres of pumpkins planted every year in Ohio. The state is one of the top producers of the large, carving-type pumpkins, usually ranking between fourth and seventh in the country.

“Growers pay attention to anything that helps their production,” Jasinski said. “If pumpkin growers can’t control insects, diseases or weeds, that’s going to affect their bottom line.”