Future of farming includes precision tech, smart use of ‘big data’

In the world of agriculture, having access to rich data sources about field conditions, weather patterns, pests and more can make a huge difference in the profitability and sustainability of Ohio farms.

The Ohio Agricultural Research and Development Center is working with farmers, industry groups and state agencies to boost access to and analysis of field data gathered from new-generation farm machinery, satellite data and remote-sensing imagery captured by unmanned aerial vehicles (UAVs).

“Data can support farmers’ management decisions, for example how much nitrogen should be applied to corn and whether or when a fungicide needs to be used,” OARDC and Ohio State University Extension precision agriculture specialist John Fulton said. “But all this enormous amount of data needs to be gathered and provided quickly for farmers to make the best use of it.”

A key goal of Fulton’s work is to create a repository that will then be made available to growers in a user-friendly manner to help them make data-driven decisions.

More: fabe.osu.edu/precisionag

"The Ohio/Indiana UAS Center supports Ohio State and Dr. Fulton by flying a variety of aircraft and sensor combinations aimed at improving the efficiency and effectiveness of UAV-collected imagery. Together, we’re working to leverage emerging UAV technologies into an affordable, practical decision tool for farmers and agronomists.”

— Ryan Smith, director, Ohio/Indiana Unmanned Aircraft Systems Center

ESSENTIALS

The enhanced use of precision farming technology and “big data” analysis can benefit the agricultural industry and society in three key areas.

- **Economy**: Providing remote-sensing imagery and other types of data to growers and their crop consultants can help growers make more efficient use of fertilizers and other expensive inputs, thus lowering costs.
- **Environment**: Reducing fertilizer and agrochemical applications benefits the environment, protecting water, pollinators and other valuable natural resources.
- **Research**: Developing an extensive data repository can help university scientists save time in their research projects and develop innovative recommendations to assist both farmers and the environment.

u.osu.edu/cfaesimpact
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**OARDC: A LEADER IN AGBIOSCIENCE**

**ag•bi•o•sci•ence (äg’bi’ō-sī’ens) n.** the integration of scientific disciplines to address critical needs of food security, safety and health; environmental sustainability; and biobased energy, fuel and products

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**Food Security, Production and Human Health**

**Environmental Quality and Sustainability**

**Advanced Bioenergy and Biobased Products**

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Ohio Agricultural Research and Development Center

As the research arm of The Ohio State University College of Food, Agricultural, and Environmental Sciences, the Ohio Agricultural Research and Development Center (OARDC) employs nearly 650 scientists and staff members throughout the state.

Ohio State’s Wooster campus is the largest agbioscience research facility in the United States. OARDC scientists work closely with researchers in The Ohio State University Colleges of Education and Human Ecology, Medicine, Public Health, Veterinary Medicine, Biological Sciences, and Engineering.

At any one time, OARDC researchers are engaged in nearly 400 research projects. Primary focus is in three signature areas:

- Food Security, Production and Human Health
- Environmental Quality and Sustainability
- Advanced Bioenergy and Biobased Products

The Ohio General Assembly established OARDC as the Ohio Agricultural Experiment Station in 1882. It is supported by a line-item appropriation from the Ohio General Assembly, competitive grants, gifts, contracts, federal grants and other sources. OARDC uses these funds to provide direct research support and economic development for Ohio’s annual $100+ billion agbioscience industry. OARDC is not funded by student tuition or any other general funds of The Ohio State University.