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New ISU Research May Help Farmers Make More Informed Decisions About Land Use

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New ISU Research May Help Farmers Make More Informed Decisions About Land Use

Abstract

A new study from a multidisciplinary team led by Iowa State University agronomists shows that significant portions of Iowa farmland consistently lose money and could influence many farmers to change how they use some of the acres they devote to corn and soybeans.

Keywords

Agronomy, Natural Resource Ecology and Management

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Natural Resource Economics | Natural Resources and Conservation | Natural Resources Management and Policy

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New ISU Research May Help Farmers Make More ^{ICM News} Informed Decisions About Land Use

January 25, 2016

A new study from a multidisciplinary team led by Iowa State University agronomists shows that significant portions of Iowa farmland consistently lose money and could influence many farmers to change how they use some of the acres they devote to corn and soybeans.

Elke Brandes, a postdoctoral research associate in **agronomy** and lead author of the new study, said spotty soil conditions and other agronomic challenges in fields across the state reduce yields enough to make some acres unprofitable. From a strict dollars and cents perspective, Brandes said the low yields produced on those acres fall short of the cost of inputs such as fertilizers and herbicides.

"One might ask, 'well, why are farmers still farming with row crops – with maize and

soybean -- if these high input costs don't really make a profit?" Brandes said.

The answer is that crop insurance and high grain prices in recent years obscure the fact that some acres are a net drain on the bottom line, she said. This new research may help farmers make more informed decisions about land use and perhaps get them to consider some alternatives, she said.

The ISU team, working with the Ames-based company AgSolver, gathered publicly available data from the U.S. Department of Agriculture and combined it with data from the annual ISU Land Values Survey. They crunched the numbers for the years 2010 through 2013 and projected results for 2015 as well. The findings were published in the peer-reviewed academic journal [Environmental Research Letters](#).

An interactive map of Iowa subfield profitability is available at <http://mesonet.agron.iastate.edu/GIS/apps/profit/>.

The data from the earlier years included in the study often show unprofitable stretches of land tucked away in small pockets of fields that largely turn a profit. But the small pockets of acres that didn't turn a profit between 2010 and 2013 expanded dramatically to encompass vast stretches of farmland in 2015, according to the team's projected findings. Results look much different for 2015 because input costs remained steady, but commodity prices fell far short of the highs of preceding years.

In 2015, around 6.2 million acres, or about 27 percent of all Iowa farmland devoted to row crops, are expected to have lost \$100 or more per acre.

Emily Heaton, an associate professor of agronomy and co-author of the study, said the researchers hope their work will encourage farmers to consider alternate uses for unprofitable land. Converting some of those acres to perennial grasses, for instance, would have environmental benefits such as curtailing erosion and providing habitat for wildlife, Heaton said.

Convincing farmers, whose livelihoods depend on producing crops, to shift some land out of corn and soybeans is a heavy lift. Showing producers that some acres don't produce high enough yields to make up for input costs, however, is a piece of the puzzle, she said.

Heaton said data from the ISU [STRIPS](#) program, which stands for Science-based Trials of Rowcrops Integrated with Prairie Strips, has consistently shown a 40-95 percent improvement in environmental metrics while using only between 5 and 20 percent of farm fields.

While Heaton's research centers on using perennial grasses for energy biomass, she said there are clear parallels between diverse prairie and dedicated energy crops. Heaton's team is working with the University of Iowa Biomass Fuel Project to use perennial biomass in the UI power plant, providing a direct market for perennial-derived biomass in

addition to environmental benefits. Lisa Schulte Moore, a STRIPS researcher and associate professor of **natural resource ecology and management** who co-authored the study, also contributed to the power plant project.

“We’re blurring the lines between conservation and production,” Schulte Moore said. “Our data indicate we can improve ecosystems while simultaneously protecting or even increasing profit. By working together, we hope to present a range of options to producers, from diverse prairie strips to whole fields of dedicated energy crops like Miscanthus.”

Land owners and managers can work with ISU personnel to identify goals for their cropland and develop integration strategies tailored to individual operations, Heaton said.

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