

# AGWEEK

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## Lower crop prices spur interest in precision ag

When Gregg Carlson served in the U.S. Rangers in the early 1970s, he used the first-generation GPS system. Carlson was so impressed with the technology that he's spent much of his post-military career educating farmers about the benefits of GPS and other precision ag tools.

By: Jonathan Knutson, Agweek

When Gregg Carlson served in the U.S. Rangers in the early 1970s, he used the first-generation GPS system. Carlson was so impressed with the technology that he's spent much of his post-military career educating farmers about the benefits of GPS and other precision ag tools.

In recent years, however, Carlson, precision ag agronomist with South Dakota State University, hasn't always found fertile ground for his message. High crop prices and attractive profit margins reduced farmers' incentive to invest in precision ag.

"You could make a lot of money even if you weren't doing a good job," he says.

But plunging crop prices have changed that. As Carlson puts it, "The intensity of management will need to increase" — and that means, among other things, greater use of precision ag to become more efficient.

Agriculturalists across the Upper Midwest report more interest in precision ag this winter. At meetings, trade shows and other ag events — some held already, others set later this winter — the subject is drawing more attention than ever, officials say.

"When the times are tougher, growers are more encouraged to try new things and search out for information," says Olga Walsh, soil fertility and precision nutrient management specialist with Montana State University.

More about trends and producer interest will be known in a few months, says Jeff Dickens, Dakotas territory manager for Ag Leader Technologies, a prominent Iowa-based precision ag company,

So far, though, "There seems to be more interest overall," with producers looking at the "full gamut" of precision ag tools, he says.

It's not that Upper Midwest farmers have been backward in turning to precision ag. Producers understand the importance of such tools and already have adopted many of them, says Paul Aakre, professor of agricultural systems management at the University of Minnesota-Crookston.

But there's strong consensus that high crop prices slowed even greater and faster adoption of precision ag. For instance, Paul Overby, a Wolford, N.D., farmer and the proprietor of Verdi-Plus, which works with a number of precision ag tools, notes that lower crop prices in 2010 temporarily spurred stronger interest in precision ag — interest that diminished when crop prices rallied later.

What's changed now is that crop prices aren't likely to rebound significantly anytime soon, which should generate longer-lasting interest, ag officials say.

Even so, don't expect use of precision ag to skyrocket overnight. A regional shortage of trained specialists will hamper the speed with which farmers can increase their use of precision ag.

Producers "don't always have competent help available locally," says Paul Gunderson, director of the Dakota Precision Ag Center in Devils Lake, N.D.

About 200 "precision ag technologist" positions, a general, catch-all description, are unfilled in North Dakota alone, he estimates.

Officials in Minnesota, South Dakota and Montana report shortages of trained specialists.

Another caveat: There are concerns that lower profit margins will decrease farmers' ability to buy precision ag tools. So it's too early to tell whether increased interest will actually lead to greater use.

### Just the basics

Precision ag involves a wide and growing range of tools that include GPS, yield monitors, auto steer, satellite imagery and field mapping.

The tools may seem complex to some, but their goal is simple.

Every field contains variations in soil types, elevation and drainage patterns, among other things. Treating an entire field the same shortchanges parts of the field with above-average yield potential and wastes resources on parts of the field with below-average potential.

Precision ag helps producers fine-tune the amount of inputs they apply to every square foot of a field, reducing costs on the poor parts and increasing yields on the good parts.

"It's not complicated," Carlson says of precision ag. "It's just changing the scale of what we're doing. Instead of managing a 160-acre field as one entity, we're managing a small portion of a field as one entity.

"The real question is, can you do a better job of managing a very small field or can you do the best job managing the 160-acre field as one entity?" he says.

### Look at costs, benefits

Carlson uses this example: imagine a field, parts of which can produce as much as 200 bushels per acre of corn and other parts of which can produce no more than 100 bushels per acre.

"If we underpopulate (plant too little seed on) the good stuff, it costs us money. If we overpopulate the bad stuff, it costs us money," he says.

In this example, a farmer who uses variable-rate planting tools to plant the right amount of seed can save \$30 or \$40 per acre in seed costs on the poorer land and earn \$10 to \$20 per acre in higher yields on the good parts.

Those savings and higher yields more than offset the cost of the technology, he says.

Some in production agriculture say precision ag works well with big farms, but not so well with smaller operations. The thinking is, bigger operations can spread precision ag costs over many acres, increasing its viability.

But Carlson says smaller operations can benefit, too. He urges producers to work out the annual, per-acre cost of precision ag, and then weigh that cost against the per-acre gain from using it.

Producers with relatively small operations should consider retrofitting existing equipment with precision ag tools, Gunderson says.

"I think producers traditionally have given up a tad too early on the idea of potential retrofit," he says.

### **More than corn, beans**

Precision ag often is associated with corn and soybeans, but wheat and other crops can benefit, too, say experts who talked with Agweek.

In Montana, where small grains are common and corn and soybeans are not, "We've seen growers saving thousands annually by adopting precision ag tools, such as site-specific nutrient management and precision sensing technologies," Walsh says.

Livestock producers, many of whom already utilize precision ag, can make even greater use of it, Gunderson says.

For instance, UAVs can be used for so-called "biosurveillance" of animals' health and proximity to predators, he says.

Precision ag also can help ag producers reduce their "environmental footprint," Gunderson says.

Society increasingly demands that ag producers become more environmentally sensitive, and precision ag can help producers place nutrients and other crop products more efficiently in individual fields and pastures, he says.

### **One farmer's experience**

Paul Zook, who farms in Beach, N.D., in the southwest part of the state, began using variable rate fertilizer in 2006.

Early results weren't promising, he says.

"I was disappointed the first few years," in part because there wasn't much good data involving precision ag and no-till farming, says Zook, a no-till farmer. "But as we started learning more, it started making more sense. It took us that long to figure out what we were doing right and what we were doing wrong."

He advises farmers new to precision ag to be patient and realistic.

"If you think you'll walk out and save a lot of money or make a humongous crop the first year, that's probably not going to happen. That can happen, but it's Mother Nature more than anything else," he says.

Though precision agriculture may not provide simple or immediate solutions, it unquestionably will take on greater importance, particularly in holding down input costs, in 2014, Zook says.

"We'll absolutely see more interest. Input costs don't go down as fast as crop prices, and we'll have to look hard at controlling them," he says.

### **Suggestions on where to start**

People already involved with precision agriculture offer these suggestions to farmers and ranchers who want to get started:

- "Spend the time and money on training and software. Surround yourself with as many people as you can, especially agronomists with a good soils background."

— Paul Zook, a Beach, N.D., farmer who's used precision ag tools since 2006.

- "Do your research. Newcomers (to precision ag) can try to save money upfront with entry-level systems that end up being inadequate for what they're trying to do."

— Jeff Dickens, Dakotas territory manager for Ag Leader Technologies, a prominent Iowa-based precision ag company.

- "If you're computer literate, check out online chat rooms (at [www.precisionag.com](http://www.precisionag.com) and elsewhere.) ... Check out equipment dealers and meetings. ... If you have a neighbor who uses it, make an appointment and discuss it with him over a cup of coffee."

— Paul Gunderson, director of the Dakota Precision Ag Center in Devils Lake, N.D.

- "A good starting point would be to analyze their current strategies and identify the areas in which they would like to improve efficiency. Communicating with a local precision ag specialist, a precision ag dealer, attending a seminar and trying to go online, if possible, are all good. If there is no local precision ag specialist available, they can try to attend a more large-scale seminar or workshop."

— Olga Walsh, soil fertility and precision nutrient management specialist with Montana State University.

- "Encourage young people to study it and learn it. You might be too old to get too deeply in computers, but your grandkids who are totally immersed in it — get them to help you. Embrace our next generation of kids."

— Gregg Carson, precision ag agronomist with South Dakota State University.

### **Learn more online and at meetings**

There are literally millions of online sources of information for precision ag. Google "precision ag" and you get 49.5 million hits. Google "precision ag variable rate" and you get 2.2 million hits.

With that in mind, here are a few online sources that can be useful:

- [www.precisionag.com](http://www.precisionag.com).
- The U.S. Department of Agriculture's National Ag Library, [www.nal.usda.gov](http://www.nal.usda.gov).
- USDA's Economic Research Service, [www.ers.usda.gov/publications/eib-economic-information-bulletin](http://www.ers.usda.gov/publications/eib-economic-information-bulletin).
- Dakota Precision Ag Center, [www.dakotaprecisionagcenter.com](http://www.dakotaprecisionagcenter.com).
- University of Minnesota Precision Ag Center, [www.precision.agri.umn.edu](http://www.precision.agri.umn.edu).
- A blog on precision ag in Montana, [precision-ag-montana.blogspot.com](http://precision-ag-montana.blogspot.com).

A number of meetings and trade shows are scheduled, at which producers can learn more about precision ag. The list includes:

- The 2014 Precision Agriculture Action Summit Jan. 20 to 21 in Jamestown, N.D. Information: [www.theresearchcorridor.com/precision-ag-summit](http://www.theresearchcorridor.com/precision-ag-summit).
- The Manitoba-North Dakota Zero Tillage Farmer Association's annual Workshop and Trade Show Jan. 6 to 8, in Minot, N.D. Information: [www.mandakzerotill.org](http://www.mandakzerotill.org).

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