



---

## **Straight and narrow: GPS guiding tractors through field**

*By Gene Lucht, For Lee Agri-Media*

BADGER, Iowa - Mark Thompson knows how difficult it is to drive a straight line across a field by headlight, especially after working an eight-hour day off the farm.

He also knows the importance of precise application of chemicals. Those are two of the reasons he is experimenting with a global-positioning (GPS) auto guidance system on his farm.

"It's slick," he said. "We're looking to utilize it as much as possible."

However, the system isn't for everyone, said Thompson, who works full-time as a farm manager and also farms about 1,200 acres of corn and soybeans with his father, Dale.

He said it should be useful on his farm because it could cut labor costs and enable him to work more hours. Also, he and his father are experimenting with a deep-zone tillage system that requires precise field passes.

In some ways, he said, his situation is perfect for those marketing such hands-off precision driving systems where the tractor driver never touches the steering wheel other than to turn at the end of the field.

This spring, Thompson used the AutoFarm system by IntegriNautics. It is a real-time kinematic (RTK) GPS with about one-inch accuracy.

Some other systems use a differential corrected GPS (DGPS) with about a four-inch accuracy. Some companies also sell systems that are not hands-off guidance systems but which are guidance systems, often using light bars to guide the driver.

"It's the next revolution in farm equipment," said Barry Nelson, head of public relations for Deere & Co., which markets its Starfire system made specifically for Deere tractors.

"The grower really understands the value," Nelson said.

Of course, that value will vary depending on the type of farm.

A study by Purdue University economists Matt Watson and Jess Lowenberg-DeBoer in 2003 said the biggest immediate effect would be on farmers who are now operating as many acres as they can with a given set of equipment. The initial benefit would be the capability to cover more acres.

But, the Purdue economists also say in the long run farmers may find a number of spatially sensitive practices that could benefit from greater driving accuracy and repeatability.

That's what Thompson is looking at on his Webster County farm. In his deep-zone tillage system, a very narrow but deep cut is made in the field. Getting proper seed placement so roots can get into that zone is important. Placement of nutrients into that zone is also important.

The idea is to have a field that is largely undisturbed except for in the zone.

"The key for me is accuracy," Thompson said.

So, he experimented with the AutoFarm system on his Cat Challenger tractor this spring and said he liked the

ease of operation of that system as well as the ability to install it on older equipment.

He said labor is also a factor. Since he works off the farm, labor is a premium. With a guidance system, he can work more hours before getting tired or he can more easily find someone he can trust to hire to do fieldwork.

A third factor is the ability to reduce other costs, such as fertilizer and chemical costs that are incurred by overlapping application passes.

By eliminating a few feet of overlap every pass, the amount of chemicals used on a given field could be cut by 10 or 20 percent, Thompson said.

"We're trying it."

Cost is no small factor with prices running from \$15,000 to \$50,000, depending on brand and type of system. In an era when tractors and combines cost hundreds of thousands of dollars, Thompson said the cost is not outrageous.

The system used on Thompson's farm has a number of key features, noted Tom Wagner, Midwest Product Marketing Manager for AutoFarm.

It does not use a gyroscope or light bar, but uses GPS technology and a patented roof-array system. It can work at extremely slow speeds, ideal when turning and starting a row.

For ease of use it has a large color-touch screen display. It can also be used, not only on tractors, but on combines or sprayers or other machines of various brands.

Wagner said minimal overlap on field passes can mean reduced chemical use, consistent application of pesticides and better traffic control, thus also reducing compaction and potentially increasing yields.

He adds one other feature. By using his company's guidance system on all field passes, a producer could potentially plant with a six-row planter, cultivate with an eight-row cultivator and combine with a 12-row machine, straddling the "guess" row with confidence.

It also means he can expand the operation as desired and not incur the huge capital outlay needed to convert all pieces of machinery at once. That could be important to smaller producers who are looking to expand, he said.

The Purdue study also mentions "spatially sensitive" practices, such as strip-tillage, sidedressed nitrogen applications and mechanical weed control as possible areas where guidance systems could be helpful.

It said the use of such a system could allow faster tractor speeds in the field. Still, even that study did not say guidance systems would be profitable for all farmers, even for all relatively large farmers.

### **Copyright Farm and Ranch Guide**

[Ag News](#) | [Auctions](#) | [Classifieds](#) | [Livestock News](#) | [About Us](#) | [Markets](#)  
[Weather](#) | [Country Living](#) | [Your Money](#) | [Archives](#) | [Livestock Auctions](#)  
[Event Calendar](#) | [Discussion Board](#) | [Country Store](#) | [Town Hall](#) | [Entertainment](#)  
[Guestbook](#) | [Subscribe](#) | [Submit Classified](#) | [Home](#)

[Visit other Lee Agri-Media sites in surrounding states](#)