

Crop Production

Link equipment to office easily

By JOSH FLINT and WILLIE VOGT

THE wonders of precision agriculture have been on the farm since the early 1990s, but it wasn't until auto-steering tools became available that the use of GPS mated to tractor and combine cabs really boomed. In the past five years, the rising use of autosteering systems, variable-rate application and yield mapping have boomed, but one hassle hasn't: data transfer.

No matter how new and sophisticated your tractor, sprayer or combine setup, someone was going to slog a flash drive or compact flash card from office to machine to transfer the latest A-B lines for guidance, prescription information for spreading or other data. Those days may be ending as new network farm technologies come on stream. Farm Progress got a look at one system — Trimble's Connected Farm — at work on two different farms recently and found that the farmers using the tools like what they see.

"The key advantage of these systems is seamless delivery of data," says Ian Harley, business unit manager for information management, Trimble. The company is leveraging its FarmWorks acquisition as the tech backbone for a system that links office to field machine and back again.

How it works

The Connected Farm concept will become more common in the future, but Trimble is launching the tech in 2010. Other companies will be playing in the space as well. The Trimble approach illustrates the basic principles.

The system works by using communication technology — either a cellular modem or a Wi-Fi connection (see related story) to move data between office and machine, and back. However,

At a glance

- Linking your farm office to field machine offers efficiency.
- Technology makes it easy to set up the system.
- Time savings can cover the cost for many operations.

you're not sending the information directly to either point. Instead, the information moves over the Web to a server in the "middle" and then to the end point.



OBSELETE? For Hartung Brothers, the idea of moving data from office to equipment using cards or sticks is a practice of the past. These are tools they don't need anymore.

Say you want to send an A-B line to an operator's tractor 20 miles away ready to plant. You simply select the guidance data for that field and tell the software to send it to the designated machine (each tractor, sprayer or combine is individually identified in the software). The operator will see that he or she has information available to the terminal in the cab when it's available, they simply download it and

go. The process takes only seconds.

When the operator is done planting a specific field, that data can then move back through that Web connection to the main office. The raw data is preserved in the server, but any processing or map making you do on your end resides in your office system.

"We were able to leverage the Farm Works system with this program. All we're talking about adding is an additional module to the software; the farmer already knows how to use the tool," Harley says.

Paying the bills

There is a cost to the Trimble system, and it comes in three parts.

Part one is the Connected Farm including Farm Works, which is \$500 per user per year for all data storage and transfer, software support, upgrades and service.

Part two is the FmX terminal which is \$50 per month to support — or \$600 per year. You can use a hand-held with Site Mate Scouting too, which would require \$30 per month to support.

Part three is the communication tool. For some using Wi-Fi Web hookups to transfer data there would be no charge for the service. If you use a cellular modem, that has a monthly service charge, but operators using that system see the immediate payoff in saved time and instant access to information.

"The response we've had shows that farmers see the value in this service," Harley says.

If you're looking into the networked farm concept, start with your local dealer to get the lowdown on the system that will work best for you. You can learn more about the Trimble system by visiting www.trimble.com/agriculture.

High-tech growth allows for more time in the office

DON Bennett doesn't remember the last time he spent so much time in the office during spring planting. "Perhaps it's the most time I've ever spent in the office during planting," he smiles. Bennett is general manager for Hartung Brothers Farms, managing the seed operation for the farm business near Arena, Wis. One tool that allows Bennett to spend more time in the office focused on management is the implementation of Connected Farm technology from Trimble. The Hartung operation invested in an upgrade to its precision ag equipment for 2010 to enable the new technology.

"We have the new systems on three planting tractors and a new sprayer," says Joe Hartung, who is taking the lead on the tech venture. The farm uses an RTK network tower system on a neighbor's farm. Since the business is focused on seed corn production, there is no combining done; the crop is harvested on the cob using Oxbo harvesters.

Hartung Brothers has long used management zones for its farms, di-

viding acres into one-hundredth-acre blocks for soil recommendations and yield mapping. That precision allows them to manage every acre for the right hybrids and crosses. Precision steering is more important now, because it speeds up seed planting where a single field may get up to three planter passes each spring.

Working the numbers

To move to the new system, Hartung notes they upgraded their receivers to the Trimble FmX integrated display, and while they could use flash drives to move guidance data from office to machine, that's no longer necessary. Instead they port that information through the Trimble server to the tractor or sprayer using Farm Works software and cellular modems.

"We're spending \$54 per month for the modems in each machine," Hartung says. Sounds like a lot, but Bennett pipes up on the economics discussion. "If you have a tractor at a field waiting for data to be driven out to it, you have two people tied up for

as much as an hour or more," Bennett notes. "That's easily more expensive in that one instance than the \$54-per-month cell charge." On a diversified operation, with several full-time employees, knowing the costs helps with the math for this new-tech investment.

Hartung says the system works well. Since the farm already used Farm Works, the upgrade was easy. "It was just another menu choice for us to use," he says. "We've had a couple of small glitches, but those were pretty simple to work through." Data flows from field to office easily; he can make maps quickly and knows what planting work is finished almost as soon as it is done. This is not a "real-time" system. Instead the data goes back and forth in specific batches. But it's faster and easier than moving cards or memory sticks back and forth.

How big an operation does Hartung think it takes to see payoff? "I think if you have two tractors and operators, this system pays for itself in time savings. For us, memory sticks and compact flash cards are already obsolete."

— Willie Vogt

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Crop Production

Crop farmer extends his wireless reach

DOUG Chaffer first got into the tech game 10 years ago when he installed a yield monitor on his combine.

Like most farmers, he's been adding more tech gadgets to his operation over the years. Chaffer took things to the next level this year with Trimble's Connected Farm system.

Rather than worrying about transferring and maintaining fieldwork data, all of his planting, tilling and harvest specs are uploaded via his wireless network to Trimble's secure server.

This year, whenever Chaffer finished planting a field, his FmX receiver packaged up the data and sent it into a queue, to be uploaded to his home office.

Chaffer's farm's fueling station is located about an eighth of a mile from his home, well within the reach of his home office's wireless network. Once his tractor pulls within range, the FmX automatically uploads the data to Trimble's secure server, where it is accessible via his office computer.

For Chaffer, a wireless hot spot made more sense than purchasing a 3G wireless Internet card and the monthly plan that goes with it. The furthest field is only four miles from the farmstead. Plus, drivers make at least one pit stop per day at the fuel station.

Therefore, the connection for systematically uploading data was already in place.

Sharing data

This system has multiple advantages. First and foremost, Trimble can troubleshoot technological hiccups a lot faster. Doug's son, Clint, works for Trimble.

With the data uploaded daily, he can keep tabs on planting season, even if he's halfway across the U.S. on business.

Doug says this convenience came in handy during planting season, when he had multiple "What about this ..." questions. Even if Clint didn't work for Trimble, there's probably a lot of farms where a dad wouldn't mind having a son's technological help.

Even though the data is maintained by Trimble, Doug has the ability to share it with whoever he pleases (and download it to his own hard drive whenever he pleases).

He's already looking forward to sharing it with his seed salesman, prior to his annual sales call. With this sort of knowledge available, Doug expects it will only make his suppliers' jobs easier when it comes to prescribing products.

Of course, the most basic convenience is, no more manually inserting a



UPLOAD QUEUE: Once Doug Chaffer finishes a field, his FmX unit queues the data for the next time he's within range of his wireless network.

USB flash drive for data retrieval. Doug says it's a small thing that makes life a whole lot easier.

"During planting season, I'd review the day after supper," he explains. "In the

past, I wouldn't always do that because I didn't always remember to download the data, and I didn't want to go to the machine shed to get it."

— Josh Flint

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