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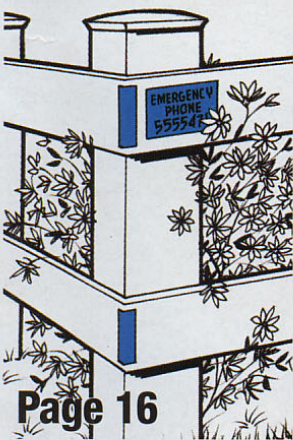
FARM JOURNAL

Utility Rigs Take On Farm Chores

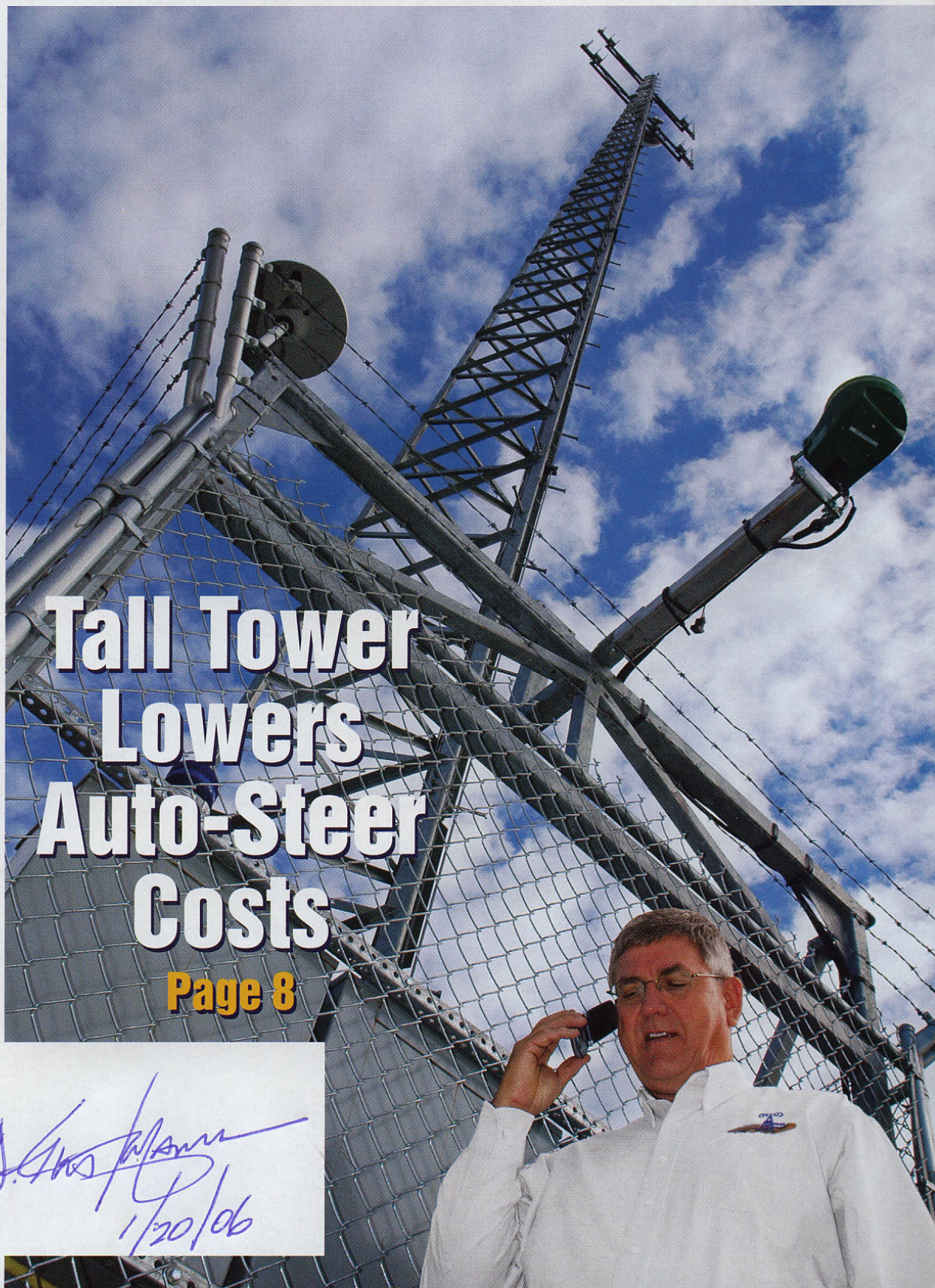


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Michael S. Gross
1/20/06

Dealers Unite to Deliver RTK Accuracy

Sharing a tower network lets farmers have top-rate accuracy with less cost **BY DARRELL SMITH**

The benefits of Real-Time Kinematics (RTK) auto-steering began to surface as soon as a few Corn Belt farmers adopted the technology. With the ability to provide sub-1" accuracy, repeatable year after year, the advantages are obvious. Add in today's high fuel and fertilizer prices and you have exponential benefits.

"By eliminating overlap, it reduces chemical and fuel use," says Ohio State University Extension agricultural engineer Randall Reeder. "RTK auto-guidance also makes possible controlled traffic, which manages soil compaction and makes no-till or strip-till more feasible and economical."

Despite the advantages of the technology, the cost of RTK auto-steering systems, which run around \$35,000 to \$40,000, is significant. The base station is a considerable part of that expense—and moving the RTK base station from field to field can be a time-consuming headache.

A pilot program launched by three machinery dealers in Fargo, N.D., is simplifying the RTK component—and making the overall setup less expensive. Butler Machinery, (Challenger), RDO Equipment (John Deere) and Titan Machinery (Case IH) are offering customers an RTK signal without the cost of a base station. Each dealer contributed approximately \$200,000 to set up a company called Rural Tower Network (RTN). The network builds and maintains communications towers and rents space to the dealers to mount their individual AutoFarm, StarFire, Trimble and Global Solutions/Beeline Technologies base station receivers.

"Working together was the best, and probably only, way of delivering what our customers needed—a low-cost, repeatable signal," says Harold Slinden, vice president of the ag division for Butler Machinery, a Caterpillar dealership.

"This is the only tower system we know of in the world with more than one GPS [global positioning system] system on it," explains Mike Gustafson, RTN's project coordinator.

Heavy payload. The ruggedly built 100' towers are essential because the multiple GPS receivers would be too heavy to mount on existing farmer-owned two-way radio towers. And grain bins and elevator legs are not recommended for multiple-antenna systems, Gustafson says.

Farmers can sign up for their preferred brand of RTK signal by paying a one-time fee of \$3,000 to the network and an annual subscription fee to their machinery dealer (\$1,000 for one tractor or \$1,500 for multiple tractors). In the first year, 37 units (sometimes including more than one farm) are operating off the 13-tower network.

One of those farmers is Mark Ottis of Kindred, N.D. "Every farmer has different accuracy needs," he says. "I wanted RTK accuracy in order to make topographical maps for drainage. The network makes RTK pretty affordable. And it's nice not to be locked into one brand."

"Some farmers with land on the outer edge of the signal are waiting to sign up until additional towers are built, so all the land they farm can be covered," Gustafson says.



The Rural Tower Network's communications towers hold AutoFarm, Global Solutions/Beeline, Trimble and StarFire base station receivers. "This is the only tower system we know of in the world with more than one system on it," says Mike Gustafson, Rural Tower Network's project coordinator.

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PHOTOS BY THE AUTHOR



The rugged 100' towers in the network are designed to withstand 90-mph wind and ½" of ice. They are set on 8' of concrete to get below the frost line in the North Dakota ground.



The progressive network will build an additional tower when five farmers in an area commit to purchasing a signal. (In a few instances, the network also leases existing towers.) In flat terrain, the signal from each tower covers about 50,000 acres.

Demand driven. RTN will consider building towers outside of North Dakota, South Dakota and Minnesota if the demand exists, Gustafson says. He has received phone inquiries from farmers in six other states.

The most significant aspect of the project is that it demonstrates how a third party can make RTK

signals widely and economically available. "Any business, commodity group or group of farmers could set up a tower network," Gustafson says.

"The network concept also will push GPS vendor companies to develop equipment that can handle more than one type of signal," he adds.

Along with the RTK application, RTN has set up a wireless Internet system on two towers. "We're still evaluating whether to offer wireless Internet service," Gustafson says. "But we have proven that it is compatible with RTK receivers and multiple antennas on the same tower." **F**

For More Information

To learn more about the Rural Tower Network, visit www.ruraltownetwork.com.

Tower Networks Spring Up Across The Country

It only takes one time of moving a Real-Time Kinematics (RTK) base station from field to field in the heat of the season to realize that it would be wonderful never to move it again. Setting up the system isn't hard—but it takes time and attention to detail. And, if you don't get it in exactly the same spot from one time to the next, you lose repeatable accuracy. That's why tower networks are quickly taking root in farm country.

With the towers in place, an area is blanketed with an RTK signal, much like cell towers provide a signal network for mobile phone service. RTK users can move from field to field without sacrificing accuracy and have seamless sub-inch accuracy with repeatability. Ag follows other industries, such as surveying and transportation, in realizing the efficiencies, convenience and cost-sharing advantages of tower networks.

"Base station networks are really exploding across the country," explains Levi Kettle with Trimble Navigation. "They're stretching from Georgia to Washington state. West Texas, the Delta, North Dakota—and lately the Midwest—seem to be the hot spots."

The trend is strong enough that Trimble recently put John Bressler in charge of helping RTK system owners design base station networks. "We want to be there to help on the front end as farmers and dealers set up networks, so they're successful from day one," Kettle adds.

Precision Ag Equipment in Tuscola, Ill., understands the pitfalls associated with moving RTK base stations from field to field. The AutoFarm dealer is helping establish base station networks throughout the Midwest.

Written by Charlene Finck