

**On-Farm Testing, Robotics, and Guidance Featured
at the 2006 Top Farmer Crop Workshop**
by Bruce Erickson

The Top Farmer Crop Workshop has a history of showcasing new agricultural technologies. At the 2003 workshop was the first public demonstration of on-the-go soil testing, the prototype of the Veris MSP pH sensor. At the 2004 workshop autoguidance was a featured topic. “At Top Farmer, you hear about things a year or two before you might otherwise,” says Jules Willott of Mexico, MO, who has been attending the workshop since the mid-1970’s. This year’s workshop followed the format that has kept attendees returning year after year—a slate of many short, to-the-point presentations, with speaker and participant interaction programmed in.

Sunday afternoon’s activities included special sessions for first-time attendees, to orient them to the linear programming decision-assisting capabilities that have also been a staple at Top Farmer. Kicking off the Monday morning session was Illinois farmer Kelly Robertson, who has a graduate degree in plant and soil science but claims many a lesson earned the hard way as well. Kelly was one of the first in his area to purchase a yield monitor, then in 1995 added GPS and made his first field maps. “I was a genius that first year and of course had all of the answers—but then came 1996’s maps which proved me an idiot, and in ’97 I was even more so.” In the last ten years Kelly has worked with grid sampling and VRT fertilization, EM38, Veris, RTK networks, variable rate corn populations, N stabilizers, field drainage. He is now Agronomy Manager with Rubenacker Farms, a large southern Illinois operation, in addition to managing his own farming operation.



Illinois crop producer Kelly Robertson shares his experiences in collecting, analyzing, and interpreting on-farm data.



One of the AgAnt robots demonstrated at the workshop.

With all of this information and analysis there isn’t much that slips past Kelly’s reach—and therein he thinks is one of the keys to success—to use that information to model the crop’s environment, and then to find the payback by acting upon it.

Following Monday evening’s barbeque was a presentation by Clay Mitchell, an Iowa farmer who took the Top Farmer audience into the science of global positioning systems, and quantified the implications to a producer. Mitchell’s lessons surrounded coordinate systems, ways that positions on the earth’s surface are described—not always straightforward on a spherical surface. Following was a demonstration of agricultural robots by University of Illinois Agricultural Engineer Tony Grift, who is working on platforms that could be assigned a number of tasks, such as detecting insects or



diseases, applying pesticides, or even pulling weeds. Robots are common in factories, where there is a controlled environment, tasks are repeatable, and people are nearby if something needs fixing. Crop fields can be remote and are anything but predictable. But systems are being developed to allow navigation down crop rows, the ability to deal with obstructions, and the knowledge for turning around at the end of a field. With robots there can be power in numbers, where a team of robots can relay information among themselves to better interpret field situations. A current limitation is power to run for extended periods of time, but petro-powered units are being used in



This Tri-State RTK base station, consisting of a control box, RTK base, and radio antenna is located on top of an Ohio grain elevator.

other parts of the world. Ten years ago, who would have thought we would now be so heavily into guidance systems—will the robots be coming soon to a field near you?

Dusty Sonnenberg is the operating manager of Tri-State RTK Network, LLC, a GPS, Real-Time Kinematic (RTK) signal transmission network serving the agricultural market in Northwest Ohio, Northeast Indiana, and Southeast Michigan. They own and manage a network of RTK Base Stations and repeaters that provide 1-2” accuracy repeatable RTK GPS signal correction. In Tuesday’s Top Farmer Program Sonnenberg told attendees that Tri-State RTK was created by a group of producers in Ohio that were interested in pooling their resources to create an RTK network which would allow them to take their operations to the next level of precision agriculture. At the same time they created a service for other producers in the area to enter into RTK level precision agriculture at a considerable less cost than if they were to do it independently. Subscribers can have RTK accuracy without the investment of a base station, which might cost approximately \$15,000.

Moe Russell, president of Russell Consulting Group, sees an increasing gap among producers in their attitude, skills, knowledge, and profitability. In his Top Farmer presentation

he identified production, financial management, and marketing management as three critical tasks, and says it is difficult to be good at all three—thus advises to keep working and getting better at those things you like to do, but recognize when you aren’t good at something and hire that done. That advice seems to apply well with some of the precision technologies, where farmers will likely seek assistance so they can keep increasing their profitability, reducing risk, and easing some of the strain that comes with the occupation.

For more information:

Top Farmer Crop Workshop program: <http://www.agecon.purdue.edu/topfarmer/conference2.asp>

Agricultural Robotics at the University of Illinois:

<http://age-web.age.uiuc.edu/faculty/teg/Research/BiosystemsAutomation/AgRobots/AgRobots.asp>

Tri-State RTK Network, LLC: www.tri-statertk.com

