



Bonnie Coblenz

4 ASTA Tour 2002 *Stoneville / Brooksville*

By Bonnie Coblenz and Ned Browning

The Remote Sensing Technologies Center (RSTC) and Advanced Spatial Technologies in Agriculture (ASTA) at Mississippi State periodically host the Precision Agriculture Tour at MSU's Starkville campus and branch stations.

The 2002 ASTA/RSTC Tour was held Sept. 10 at the Delta Research and Extension Center in Stoneville and Sept. 11 at the Black Belt Branch Experiment Station in Brooksville.

Scientists and researchers from diverse fields present and attend. Industry representatives also are invited to take part.

"The goal is to provide a networking environment in which scientists can share their studies of geospatial technologies applied to agriculture," said Chuck Hill, RSTC associate director and tour organizer. "We are planning for a farmer group to join the tour next year."

At the Delta Branch Experiment Station, field tours focused on experiments in site-specific cotton, insect and pesticide management aided by the eye of a satellite or high-flying airplane. Also, addressed in tours were weed detection and management, and ways to monitor crop maturity and cutout. Entomologists Aubrey Harris, Don Sudbrink, and Pat English and soybean agronomist Dan Poston briefed tour participants.

Scott Samson, discussing how precision agriculture can be tested on-farm, noted that decisions must be made

as to what technologies are appropriate for given applications. For instance, he noted that satellite monitors can be severely limited during the growing season by significant cloud cover. He explained that local flyovers at lower altitudes may be the answer. This in turn may lead to commercial ventures.

Extension agricultural economist Steve Martin addressed the economics of geospatial technologies. He noted that technologies need to be implemented before true cost-value analyses can be done. Studies are in development.

Catfish-oriented remote sensing was discussed by Southern Regional Aquaculture Center Head Craig Tucker and agricultural economist Terry Hanson. Tucker reported John Hargreaves' work tracking algal bloom in order to predict off-flavor in fish. Results appear not to support the idea. However, Tucker said that the technologies might be useable as an oxygen depletion predictor, giving producers an early warning to prevent fish kills.

Hanson focused on the automation of aquacultural acreage estimates. At present the Mississippi Agricultural Statistics Service can compute these figures annually. Geospatial technologies should help produce measurements in a more frequent and precise manner. The need for more refined calculations is driven by the Mississippi legislative mandate for actual use valuation for aquatic facilities when computing taxes.

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The next day, the event moved to Brooksville and began in the fields with a presentation by Mike Cox, MAFES researcher in Plant and Soil Sciences, on soil management zones. Cox discussed the differences found in similar management of three fields at the station.

Environmental scientist Joe Massey discussed remote sensing for soil management. Weed scientist Dan Reynolds updated attendees on site-specific weed management and site-specific cotton defoliation. He called variable-rate application techniques the “business end of precision agriculture,” but said the application problem is the resolution rate of the sprayers, which is not capable of adjusting to the new situation fast enough to keep pace with changing site-specific needs.

Agricultural engineer Jim Thomas discussed Soybean Management by Application of Research and Technology (SMART) systems with site-specific management. He displayed a survey-grade Global Positioning System (GPS) unit, accurate to within 1 centimeter, available from the RSTC for research applications.

After lunch, the tour moved indoors for sessions with agricultural engineer Alex Thomasson discussing site-specific management; plant scientist Raja Reddy with a presentation on remote sensing for cotton management; Mark Shankle, sweetpotato specialist at the Pontotoc Ridge-Flatwoods Branch Experiment Station, discussing site-specific sweetpotato management; and a presentation from John Cartwright, geospatial applications specialist with the Engineering Research Center, on site-specific data analysis and software.

Wes Burger, professor of wildlife and fisheries, discussed his work using remote sensing to improve wildlife habitat management. He specifically is looking at herbaceous field borders, a subsidized buffer program that serves as wildlife habitat. He is trying to determine if there is a crop yield loss or increased cost to maintaining this habitat for wildlife.

Roy Montgomery, College of Veterinary Medicine professor of basic science, is using Geographical Information System (GIS) to monitor and control poultry diseases. He said GPS maps can create buffer zones or hot zones for a potential disease outbreak and can aid in the control of that disease.

“This information can lead to plans and tools for disease control, which can help secure the industry’s export market,” Montgomery said.

The tour ended with presentations by agricultural engineers Filip To and Alex Thomasson. To demonstrated a high-speed soil sampler and in-pond inventory system, and Thomasson gave a demonstration of site-specific robotics.



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