

GPS-based units offer accuracy, cost savings

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The array of electronic systems available to improve the accuracy and efficiency of farming operations continues to expand; growers were told at a seminar at the Salinas Valley Farm Show.

"This equipment is becoming evermore sophisticated, with increased capabilities," said consultant John Inman, who moderated the meeting. "More and more growers are finding uses for GPS-based systems."

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Mike O'Connor discussed several GPS-based systems offered by AutoFarm, Menlo Park, Calif.

They include AutoSteer, which utilizes three GPS receivers on the tractor and a fourth that's a base station, to provide steering accuracy within one inch; AutoSpray, which allows much faster, more accurate chemical operations; AutoLevel, introduced this year as a more accurate, easier-to-use systems than lasers; and AutoHarvest, which offers auto-steering of combine harvesters.

"These systems offer the highest level of accuracy available in GPS systems," O'Connor says. They also provide repeatability, which allows exact positioning year after year.

"You can lay underground drip tape and come back and plant and harvest over that tape, knowing exactly where your equipment is in relation to the tape."

"AutoSteer allows elimination of 'guess rows'," O'Connor says. "You can do away with row marker arms and can even pick up a few extra rows because of the preciseness of the operation."

Faster speeds are possible with AutoSpray, he says; "10 to 20 mph is not uncommon." The system also can be used for variable rate applications.

AutoHarvest will provide automatic steering of cotton pickers and combine harvesters, and the same unit will also run a yield monitor.

"AutoLevel," O'Connor says, "offers improved accuracy over laser systems for controlling scrapers and other leveling equipment. Unlike lasers, the GPS system is not affected by wind, fog, temperature, or dust, and it offers an operating range of several miles, compared to 800-1,000 feet for lasers".



DAVID COOKE, Ardenwood Farm, Fremont, Calif., chats with Mike O'Connor about AutoFarm GPS-based guidance systems.

"It offers a huge time/work savings, and is also much easier to use than laser systems," he says.

Data from all the systems can be collected and, with the company's DataLogger software, can be used to generate field elevation maps "accurate to sub-inch levels," eliminating the need for survey contractors and offering savings of \$10-\$12 per acre over other methods, Conner says.

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The software for the DataLogger generates field surveys while the equipment is in operation. In addition to providing cut and fill maps for field leveling contractors, it saves time and surveyor fees and is compatible with ag data management programs.

Steering, leveling

The steering and leveling units “take out all the headaches of using the 20-year-old technology of laser systems, which are susceptible to dust and heat waves and have an effective range of only a quarter-mile or less,” Leckie explained.

“These conditions cause distortions in laser systems, and those systems have to be constantly recalibrated. Even then, the operator doesn't know for certain they are correct.”

That, he added, means the driver with AutoFarm guided equipment can concentrate on the leveling job itself, rather than the accuracy of the equipment. No special training is needed to operate the equipment, and a driver familiar with land leveling can master use of the units in a couple of hours.

The driver is still needed in the cab to make turns, but the systems take over in the field and reduce driver fatigue. As a safety feature, the systems automatically disengage when the steering wheel is touched.

AutoFarm sources say the AutoLevel is “as easy to use as an automatic teller machine,” and its sunlight-readable touch screen display shows the current status of the scraper blade, as well as tools to add and modify the current field.

AutoSteer's versatility for row crops, in addition to eliminating guess rows, includes highly accurate listing, cultivating, disking, ripping, and planting. The increased precision has allowed an extra seven to eight rows in an 80-acre field. The equipment can be fitted to either wheeled or tracked tractors.

The autosteering technology has been combined with conservation tillage methods on Roundup Ready silage corn for over-the-top Roundup treatments and sidedressing of fertilizers.

AutoSpray is designed to be used on tractors, floaters, or spray rigs for optimum application of fertilizers and pesticides. It can be coupled with variable rate applicators in floaters.



AutoHarvest, in the final stages of development, guides cotton pickers and other harvesters through fields automatically, and it can be linked with other precision farming equipment such as yield monitors.

The GPS-guided units have English and Spanish language menus, switchable without rebooting, and display rapidly identified, color-coded icons.

AutoFarm is a division of IntegriNautics, which was founded in 1994 and has a foundation of research expertise used to develop GPS technology. Early projects refined automatic aircraft landing equipment for use in zero visibility and did parallel development of tractor guidance systems. The blend of aviation and agriculture led to the first AutoSteer unit in 2001.

