

# WESTERN FARM PRESS



## At field day event: AutoFarm leveling displayed

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It was a first-hand experience with hands-free, precision leveling for growers at a field day demonstration of a pair of AutoFarm's satellite-guided products at Lemoore, Calif.

The recently released AutoLevel component can be joined with the company's three other systems, AutoSteer, AutoSpray, and the soon-to-be-released AutoHarvest, to provide a full crop cycle of global positioning system (GPS) guidance for farm machinery.

Lars Leckie, director of product marketing for the company based in Menlo Park, Calif., said the systems are accurate to less than one inch and have the capability of operating in dust, fog, or nighttime conditions, all with hands-free operation by the driver. The systems have a range of three to six miles from a portable base station.

"We've been expanding for the past three to four years, and we are now gaining larger markets outside California," he said during the Lemoore demonstration. "Our technology is all solid-state, and we have 'switch kits' that allow you to move the systems from one tractor to another."

An AutoLevel system, at a cost of about \$45,000, includes a cab box and display screen, a GPS antenna for the scraper, and a portable radio base station linked to a satellite.

Easily installed, the short GPS mast and antenna fit to existing laser brackets on the scraper and the system ties into the hydraulics to elevate or depress the scraper blade, with a vertical accuracy within a half-inch.

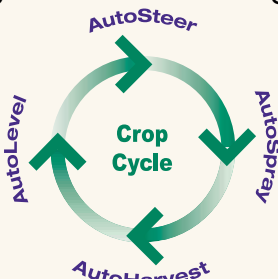
### No usage fees

Since the equipment owner also owns the base station, no usage fees are involved. A single station can support multiple tractors, and they can select alternate base stations, from the cab, while in operation. Five AutoLevel systems have been sold in California, three in the San Joaquin Valley and a pair in the Sacramento Valley.

"We have three GPS antennas to measure the rolling of the equipment, so it is not just measuring position," said Leckie. "We won the American Society of Agricultural Engineers award for 2000. And we recently won that award in 2001 for our DataLogger product."

He said the DataLogger uses a flash memory card like that of digital cameras to collect data once a second on latitude, longitude, and height (to control up and down setting the scraper). "This is what ties our AutoSteer product to our AutoLevel product."

The DataLogger, costing about \$2,000, has been in use by growers to generate maps to determine which fields need leveling. "It could be on a yearly basis, or every other year, for touch-up leveling on fields where equipment operation, irrigation, compaction, and settling cause some soil movement."



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.

