

Cameras and lasers are used to monitor and measure furrow depth in real time from the cab.



FurrowVision Offers Better Emergence And Yield

By Jim Ruen, Contributing Editor

Users of FurrowVision from John Deere report better emergence and a positive impact on yield. The images captured by 3D cameras and furrow depth analysis by the integrated laser give operators real-time views of the furrow as the seed is deposited.

“We had monitored through the use of cameras before, but with FurrowVision we added the laser to measure depth in real-time,” says Anthony Styczinski, service development manager, John Deere. “Operators can set a target furrow depth

and get an alert if it’s not being met. They no longer have to stop planting, pull up the closing system, and get out of the cab to understand what the furrow looks like.”

Styczinski notes that images alone can be affected by dust and dirt. Lasers cut through the dust. The challenge was recognizing the difference between dirt and debris.

“We had to do a lot of work with the laser in varying conditions, but it can differentiate between dirt and debris really well,” says Styczinski.

While the laser measures the depth of the furrow, it’s the cameras and lights mounted one to a section that allow the operator to watch the seed drop and judge the shape and condition of the furrow and the amount of debris in the furrow.

“Like depth, debris will affect emergence,” notes Styczinski. “If there’s too much down pressure on the row-unit, it causes furrow crumbling. FurrowVision lets operators see how effective the row cleaners and down pressure are and adjust them as needed.”

Images are captured at the rate of one every millisecond and displayed in real-time on the in-cab monitor. While the images are not retained, the data on depth is.

“The data comes full circle and allows you to understand what happened when you see yield differences down the road,” says Styczinski.

Deere has described FurrowVision as one of their foundational technologies. There have been hints of other sensors being added in the future.

“As technology evolves, there may be stuff coming that we don’t yet know about,” says Styczinski. “FurrowVision is a system that opens the door to future advances.”

Pricing for FurrowVision hasn’t been released. Styczinski suggests that it’ll remain in the pilot phase this spring, although in the field with a larger number of customers. When it’s introduced, it’ll be as a precision upgrade on 2022 models and newer.

Contact: FARM SHOW Followup, John Deere (www.deere.com) or local dealers.

Cast Iron Ballasting Fits Any Size Tractors

French aftermarket ballast supplier Easymass says proper ballasting is critical when matching tractor horsepower to implement requirements. Improperly weighted MFWD and 4-WD tractors can tire hop and slip needlessly. Overweighted axles can lead to unnecessary compaction. The Easymass answer is the SO EASY patented weight system for agricultural or construction tractors.

SO EASY weights are available in 110 lb. and 275 lb. sizes. They attach to 275mm or 335mm 8 or 10 bolt pattern wheels on 34, 38, or 42-in. rims. Weights are carried on a special adapter that aligns and fastens to the center of the wheel. The weights can be attached to the adapter and mounted

individually or in groups, depending on the ballast required. Five different configurations provide ballasting from 110 lbs. to 800 lbs. on one wheel.

For easy transport and mounting, the adapter is carried by a heavy-duty shaft that fits over one arm of a forklift. Weights also have side notches so they can be safely carried and handled by both arms of a forklift. When not in use, weights are stored on a heavy-duty metal rack supplied by Easymass. Contact the manufacturer for pricing and availability.

Contact: FARM SHOW Followup, Easymass (ph +49 172 621 4321; www.easymass.fr).



Easymass wheel ballasts are lifted in place with a forklift for easy mounting.

To date, AgXeed has concentrated on marketing AgBots in Europe. This year, more attention is being paid to the North American market.



Large-Scale Autonomous Tractors Work With Traditional Implements

Commercially available autonomous tractors are here. Netherlands-based AgXeed sent more than 50 robots into European fields in 2023, with more to follow this spring. The AgBots plowed, harrowed, spot sprayed, cultivated, mowed, seeded, and more. They worked in every kind of crop and with all types of implements.

The autonomous, cabless tractors range from the 4-WD, 75 hp. 2.055W4 to the 156 hp. 5.115T2 on tracks. The company also offers a 3-wheel 75-hp. version for orchards and vineyards.

“Our AgBots have front and rear ends much like standard tractors with 3-point hitches, ptos, and hydraulic valves,” says Philipp Kamps, AgXeed. “We have the interfaces needed to work with conventional field equipment made by people who are experts.”

What AgXeed brings to the field is motive power. The Deutz diesel engines generate the electricity needed for the electric drive train, pto and optional high voltage connectors, and a pto-powered hydraulic system.

The 2.055W4 has a rear linkage CAT 3 hitch with a 4-ton lift at the hooks and a 1 1/2-ton lift on the front linkage CAT 2 hitch.

The larger 5.115T2 has an 8-ton maximum lift at the hooks of the rear CAT 3 hitch and a 3-ton maximum lift on the front mount CAT 2 hitch.

A key feature of both tractors is variable track width adjustment. Depending on which of six track types is selected, the 5.115T2 can have an inside track width of just over 6 ft. to more than 10 1/2 ft. Track types can vary in width from 1 to 3 ft.

The track width on the 2.055W4 can adjust from 5 ft. to 7 ft. 4 in. It has wheel configurations of 10 1/2 in., 13 in., and 28 in.

Safety is a concern with any farming equipment, but AgXeed has addressed it with interactive and overlapping technologies. Multiple emergency stop buttons, visual indicator lights, and an audible warning alarm are all part of the safety system. Onboard cameras (front and rear) can be accessed for a live stream through the AgXeed Portal, which

can be accessed through personal devices or desktop computers.

Field maps are used to create geofences with two different RTK corrections and two satellite positioning receivers for precise positioning and machine heading. Lidar provides 360-degree coverage of objects within 100 ft. of the tractors. This is augmented by radar sensors on the tractor bumper that detect objects within 50 ft. and ultrasonic sensors that detect obstacles close to the AgBot.

The on-board control system identifies stationary and moving objects and adopts a strategy to avoid them. With moving objects, it analyzes position, direction, and speed of movement of the object and the tractor. Tractor speed is slowed as needed to ensure avoidance. If necessary, the tractor will stop.

“If a stop occurs, a message would be sent to the designated operator, who can check on-board cameras to verify the field is clear and re-engage the AgBot,” explains Kamps.

If an object strikes the contact-sensitive bumper, the control system signals an emergency stop and shuts down the engine.

“If you consider that these safety systems operate 24 hours a day in all types of weather and light conditions, the AgBot is safer than having a human operate a machine,” says Kamps.

AgBots are currently operating in Ontario and California in high-value crops. Sean Bartlett, Provide Agro Corporation, brought AgBots to Ontario 2 years ago. Three of them are working with Hol Spray Systems in area orchards with plans to introduce more this year.

“There are still some hurdles to be worked out in orchard work, but the labor issue is a major advantage,” says Bartlett. “Spraying is usually done at night, and with the AgBots, we have a machine doing it without exposure of a person to the spray.”

The AgXeed Portal monitors all AgBot activity and records operational data. It also helps plan jobs, tracks tasks, and makes it possible to change, pause or stop tasks remotely at any time.

Kamps reports crop farmers viewing AgBots at the recent World Ag Expo at Tulare, Calif., had a common reaction.

“They acknowledged that robots are the future but were surprised we had them commercially available,” says Kamps. “They’ve seen little robots with a few hours of operating time. Then they see ours with real tires, diesel engines, and power trains they’re familiar with in sizes from 80 to 160 hp.”

To date, AgXeed has concentrated on marketing AgBots in Europe. This year, more attention is being paid to the North American market.

“We’re analyzing the market and talking to potential customers and dealers,” says Kamps. “Crop farming is different in Europe compared to North America. However, we think there’s a place for a robot that can work with simpler implements and work 24/7 instead of bigger and bigger tractors compacting the soil.”

Prices for the 2.055W in Europe are reported at around \$200,000, while the 5.115T2 is slightly over \$337,000. That doesn’t include shipping and associated costs with exporting to the U.S. or Canada.

Contact: FARM SHOW Followup AgXeed, Horsterweg 66A, 5971 NG Grubbenvorst, The Netherlands (info@agxeed.com; www.agxeed.com) or Peter Robinson, International Sales AgXeed (ph 447887797500; peter.robinson@agxeed.com) or Provide Agro Corporation, 4825 Union Rd., Beamsville, Ontario, Canada L3J 0V6 (ph 905-563-8261; sbartlett@bartlett.ca; www.provideag.ca).