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New Light System Directs Silage Trucks

Tapping into farmer input, Kooima Ag has developed the patent-pending Collab, a light-based tool installed on silage harvest cutters. The system improves operator and truck driver communication for better truck positioning in the field.

“With our light system, the cutter operator

doesn't have to use a radio to continually tell the truck driver to either pull ahead or slow down to get the spout in the right place,” says Nick Vande Waerdt, Kooima Ag manager and engineer. “This can be embarrassing for truck drivers as many other workers are listening to these conversations on the radio.”

The 12-volt light system consists of a cab-mounted control box that plugs directly into the harvester and up to three lights, usually mounted on the header, the side of the harvester, and the spout. Collab reads the spout position by tapping into the harvester's existing sensors. For system set-up, it's a simple process to move the spout into different positions above the truck and program the controls to coincide with the red, green, and off lights.

“The lights are visible to the truck driver, and as they drive alongside the harvester the operator moves the spout toward the front or the rear of the box as normal,” Vande Waerdt says. “If the operator moves the spout to the extreme front of the spout travel, the system automatically turns the red light on signaling the truck to slow down. As the spout is moved back into the ideal range, the light turns off telling the truck driver to hold the position. When the operator is trying to reach the rear of the truck, the green light comes on meaning pull ahead.”

Cutter operators put in long days, constantly craning their necks while providing direction through the radio mic. It can take weeks for new drivers to become comfortable

positioning the truck alongside the cutter with minimal interaction. With the automatic Collab system, all they do is follow the red or green lights for directions.

The lights can also be manipulated manually with a foot or hand switch.

“Even though skeptical at first, once farmers use the automatic feature for a day or two, we can't get them to stop,” Vande Waerdt laughs. “After that, they won't run without it.”

The automatic mode is currently compatible with the John Deere 8000 and 9000 series cutters, plus the Claas 494 series and newer harvesters. Other models support the manual feature.

The Collab light systems are produced and manufactured in Iowa and are available throughout North America directly from the factory.

A basic kit, including the control box, the Y harness for the signal, the power cable, and a single silage headlight with hardware, is just under \$4,000 with free shipping.

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Grant Spurs Large Version Solar Dehydrator

After completing a project with the United States Agency for International Development (USAID) and subsequently developing the Dehytray, a solar-powered drying solution for corn, Klein Ileleji set his sights on fruits and vegetables as losses of nutrient-rich produce can be upward of 50 percent. Crop dehydration is one of the best ways to preserve these nutrients and extend food's shelf life.

“One of the bottlenecks of these technologies in these parts of the world is a lack of effort in developing a product that works for the small grower,” says Ileleji, CEO and Chief Technology Officer at JUA Technologies International and Professor of Agricultural and Biological Engineering at Purdue University. “Many have attempted to grow these technologies but stop at

larger users. It's a difficult process to create and sell something for small growers in the developing world who don't have the means that our growers do.”

Ileleji and JUA Technologies International, an agricultural technology startup, recently received a \$600,000 Phase II Small Business Innovation Research Grant from the U.S. Department of Agriculture. The goal is to design and manufacture a larger multi-purpose solar dryer called the Dehymeleon.

Ileleji used his company to base the designs for the larger Dehymeleon on the Dehytray they had created earlier.

As the Dehymeleon is still under development and in the patenting process, he can't speak to specifics in size but says it's a larger multi-drawer cabinet-type dryer. The unit will use 100 percent solar energy

for drying to heat the chamber and vacuum out the air.

They're hoping to market the Dehymeleon, targeted at small fruit and vegetable growers in the U.S. and other countries, during the last quarter of 2025. It'll be marketed under JUA Technologies International, and plans are to sell it through hardware and Tractor Supply stores to establish a lower price set point.

Ileleji can't speculate on a cost per unit but desires to make it financially accessible for smaller growers.

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Knegt tractors are available in 45 and 55 hp., 4-WD models. Options include a full cab, half cab, and open body types. Both models are compatible with pto and hydraulic drive implements. They offer both 540 and 1,000-rpm pto drives.



Dutch E-Tractor Now Available

The Knegt all-electric tractor from the Netherlands is making inroads in North America. The compact tractors are ideal for tight spaces, have a tight turning radius, and have a wide variety of attachments available.

“I think they're a great fit for fruit and vegetable growers, golf courses, greenhouses, and horse owners,” says Marty Philippi, MAP Agri. “These tractors will do anything a compact diesel will do, but do it quietly and without exhaust.”

MAP Agri is the North American distributor for Knegt all-electric tractors. The company's first imports have been marketed in Canada, but the Ontario equipment dealer will soon

add distribution to the U.S.

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Front-end loaders are common attachments, according to Peter Bouman, Knegt. However, he adds, configurations vary according to the end-user's needs. “Our tractors are versatile and used in different settings from greenhouses and turf maintenance to road construction,” he says.

“One advantage of an electric tractor over

a diesel is the ability to run hydraulics at full capacity while running the tractor at idle speed,” he adds. “An example is tilling in a greenhouse, where ground speed is not critical but hydraulic speed is.”

Mounting an extra battery is an increasingly popular option, notes Bouman. Batteries can be mounted to the front or rear of the tractor. “It can extend tractor working time by an additional 4 hrs., depending on the tasks performed,” he says.

Philippi explains that mounting an extra Knegt battery makes it easy to get even a full day of tillage done with the tractors. With the company's quick charger, a battery will go from a 30 percent charge to 80 percent in 2 1/2 hrs.

“Use your extra battery for 3 1/2 hrs. of hard work and draw it down to the critical level,” suggests Philippi. “Drop it off at the charger and use your on-board battery for another 3 1/2 hrs. By the time it's down to the critical level, the first battery has recharged. When doing simple work like mowing, you can get 6 hrs. work out of just a single battery.”

One concern with electric vehicles of every type is the impact of cold temperatures

on batteries. “Knegt is working on preconditioning batteries for much better power storage and starting in cold weather,” he says. “I expect they'll have a solution yet this year.”

Lack of noise and exhaust gets most of the attention with electric vehicles. However, Philippi suggests anyone considering a compact tractor should look at costs per hr. compared to diesel tractors. “Electric tractors cost more upfront than a similar size diesel,” says Philippi. “However, an Iowa State University study says diesel tractors will cost around \$5.25 per hr. to operate, while electric tractors cost only 75¢ per hr.”

Knegt has a worldwide base price of €32,950 for its 45 hp. model and €39,950 for its 55 hp. model. That equates to \$48,000 and \$58,209 (CAD) or \$35,356 and \$42,869 (USD). These prices don't include shipping.

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