Weed-It Quadro uses blue LED sensors to identify weeds.

Sprayer Uses Blue Light To Target Weeds

Weed-It Precision Spraying has developed a sprayer for fruit and orchard farmers that greatly reduces herbicide use compared to broadcasting.

The Weed-It Quadro, manufactured by Dutch company Rometron, uses specially designed sensors to emit blue light, which is absorbed by chlorophyll in the weeds. Booms spray only the designated weeds at speeds up to 16 mph.

The boom is divided into four (Quadro) detection zones of every Weed-It sensor, each accounting for about 10 in. of the entire boom width. These small zones are extremely accurate due to the blue LED lighting, which has proven to be more sensitive and efficient in identifying weeds than red LED lighting.

The detection sensors and processor deliver the right amount of spray at the right place, day or night.

Its single integrated sensor and solenoid cable harness are easy to install and remove from almost every type and model of sprayer.

Weed-It has been working with Michigan State University assistant professor and weed scientist Sushila Chaudhari, testing and evaluating the system's settings and impact on weed control and herbicide volume in apple, blueberry, and grape stands.

Interested customers are encouraged to check out the Weed-It website for further information, availability and pricing details.

Contact: FARM SHOW Followup, Weed-It Quadro, Rometron, Hoge Wesselink 8, 7221 CJ Steenderen, The Netherlands (ph +31 (0) 575 - 45 11 11; info@rometron.nl; www.weed-it.com).

Seed Tenders Built Right, Priced Right

The EC Series SpeedTenders have state-of-the-art features and a retail price of $38,475. Those factors have stoked demand, according to Mike Vujea, J&M Manufacturing.

"The 'Bottom-less Pit' auger and the Echo Dispense System are our two most valued features on the EC 270 seed tenders, which were introduced in 2020," he says. "The auger design extends the distance between the intake area and the bottom end of the auger, minimizing seed damage. After the first seed box has been filled, the Echo Dispense System mimics the timing and easily fills the rest of the boxes consistently and evenly."

Vujea explains that the increased distance in the auger design prevents seed that's not immediately carried up the auger from grinding and cracking at the bottom of the tube.

"This virtually eliminates the chance of cracking seed and provides optimal performance for maximum germination rates when planting," says Vujea.

While the tender is equipped with many essential industry features, it's the Echo Dispense System that helps keep the price in check. Vujea notes that other more expensive seed tenders use scales to ensure each seed box is filled to the same level.

"Scales can add considerable expense," explains Vujea.

Manual door openers, auger swing, and height positioning also help hold down the cost. Other economy seed tenders use linear actuators with increase and decrease throttle buttons to start and stop the auger. This can make it difficult to get an accurate fill, especially with a row planter. The timed delivery with the Echo Dispense System utilizes a single button. Once the first seed box has been filled, pressing the Echo button automatically increases the throttle to the desired speed when filling subsequent boxes.

J&M EC Series SpeedTenders feature the Echo Dispense System to ensure each seed box is filled to the same level.

Another J&M exclusive feature is the patent-pending GlideRight roll tarp design. Grooved rollers roll along the edge of the end caps for consistent tracking and reduced misalignment. Front and rear return springs apply even tension to each end of the tarp. This reduces binding and prevents uneven rolling compared to other spring and cable assemblies.

Standard features with the EC Series SpeedTender include a 7-in. diameter unloading auger. Its poly-cup interior flighting is driven by a 4.8-hp. electric start Honda engine. The engine is located on the driver's side for easy access. A wired controller starts and stops the auger.

Contact: FARM SHOW Followup, J&M Manufacturing Company, P.O. Box 547, Fort Recovery, Ohio 45846 (ph 419-375-2376; sales@jm-inc.com; www.jm-inc.com).

Brauer says renting GreenField robots to complete mechanical post-emergence weeding is much less expensive than using herbicides.

Rented Bots Mechanically Weed Rows

While some autonomous weeding equipment uses electrical charges or spot spraying to control weeds, GreenField Inc. takes a slightly different approach.

CEO Clint Brauer says the company's mechanical method significantly reduces the need for broadleaf herbicide application in row crops. Rather than farmers purchasing and owning their spraying equipment, GreenField delivers Robots-as-a-Service (RaaS) to farm sites for a rental fee.

"We show up on-site with a convoy of 'bots' to swarm the farmer's fields and eliminate weeds," Brauer explains. "Farmers don't own or maintain the bots like a tractor or sprayer; they rent them."

The bots are deployed through an agricultural co-op in Kansas and rented on a per-acre basis. Each battery-powered unit weighs about 350 lbs. and can cover 1 acre per hour. Often, a swarm of 10 bots is deployed to speed up operations.

Batteries last from 4 to 8 hrs. before recharging is required. Guidance systems are directed by Lidar, proprietary RTK signals, and machine learning, often following maps generated by drones. Small, spinning metal blades clip weeds within 1 in. of the ground and other plants.

Brauer says renting GreenField robots to complete mechanical post-emergence weeding is much less expensive than using herbicides. After some controlled testing, the company hopes to service 5,000 to 10,000 acres this year.

Contact: FARM SHOW Followup, GreenField Inc., 36706 W 39th St. S, Cheney, Kan. 67025 (press@greenfieldrobotics.com; www.greenfieldincorporated.com).

Research is being done at the Cold Spring Harbor Laboratory on corn as a perennial crop.

Turning Corn Into A Perennial Crop

By Bruce Derksen, Contributing Editor

Scientists have tried for more than 100 years to breed perennial cereal crops that will yield as much as annual crops. We recently caught up with a researcher working to develop perennial corn.

"Perennials store some of their nutrients and carbohydrates below ground to be used in subsequent years," says Kyle Swentowsky, a postdoctoral researcher at the Cold Spring Harbor Laboratory in New York. "This allows them to develop really deep root systems that tap into nutrients and water annuals may not reach."

He says these deep roots also mean perennial crops may grow better in areas with more severe erosion.

"There are some hypothetical disadvantages as well," he says. "Since a perennial must store some of its nutrients/carbohydrates for the next season, it's possible they'll be less productive than their annual counterparts. The counter-argument is that perennials in subsequent years of growth establish their vegetation much quicker than an annual planted from seed, so it has a longer period of the year that light is intercepted to convert into carbohydrates."

To create a perennial corn, breeders in the past have attempted to use traditional breeding methods to transfer the perennial genes into maize. This has been largely unsuccessful since hundreds of major and minor-effect modifier genes are required.

Swentowsky is trying an alternative approach called "de novo domestication" which involves gene editing on the perennial ancestor to modify genes we know were involved in maize domestication. While feasible in other crops, no one has tried this with the wild relative of maize.

His research is in the early stages, but Swentowsky hopes his new approach may lay the foundation for other researchers to successfully breed perennial varieties in the future.

Contact: FARM SHOW Followup, Kyle Swentowsky, Cold Spring Harbor Laboratory, One Bungtown Road, Cold Spring Harbor, N.Y. 11724 (ph 516-367-8800; info@cshl.edu; www.cshl.edu).