

# Retrofit Advanced Precision Spraying Boasts Fast Payback

Greeneye Technology introduced a 120-ft. boom with a dual line/tank system, which allows for simultaneous broadcasting of residual herbicides and spot spraying with high-power non-residuals. The boom can operate day and night at up to 15 mph.

Farmers using the new technology reported an 87 percent reduction in non-residual herbicide use and a 92 percent reduction in pre-emergence applications. They also reported average savings of 84 percent and 82 percent in corn and soybeans, respectively. Depending on farm size and herbicide program, typical cost savings of \$25 to \$35 per acre translate into a 6 to 18-month return on the \$250,000 investment.

“What mattered most was performance and efficacy,” says Nadav Bocher, CEO of Greeneye Technology. “Our customers saw the 84 percent reduction in corn acres, but they also saw clean fields. That’s how we measure our success. It’s been the clear focus of our company.”

Greeneye Technology was founded in Israel in 2017 with the goal of making an impact with artificial intelligence where it mattered. Agriculture quickly became the focus. Initially, the company founders considered developing data analytics that used data captured by drones. However, that didn’t provide a clear value to farmers.

“We decided to move to decision software,” says Bocher. “Applying chemicals is very inefficient. We saw we could offer a real-time solution with a clear profit for farmers.”

The company focused on row-crop agriculture in the U.S. to develop a software/hardware system that could be retrofitted on

any large field sprayer. The first step was to use AI to instantly identify weeds by species. The next step was to assemble the hardware to utilize the information and apply the herbicide.

By 2022, they had prototypes in the field. By 2024, they were retrofitting sprayers for customers. Every spray boom is equipped with 24 high-resolution cameras and 72 pulsing high-intensity lights, enabling the capture of 4,000 frames every second. A dozen graphic processing units use AI to identify weeds instantly and spray them in 10 by 10-in. windows, using 144 independently controlled spray nozzles.

In May 2024, Greeneye Technology signed up their first dealer/retrofitter, Boeck Farm Outfitters. Several dozen Greeneye systems will be in the field this coming year in eight states. “We’ll have systems operating in very wide and diverse field conditions, crops, tillage and topography,” says Bocher. “Most are individual machines we’ve retrofitted. The second group is custom applicators and ag retailers. They offer a different point of view.”

Both groups will likely share a perspective gained by initial users. Reducing herbicide use is important, but it’s only the beginning. One customer suggested that chemical savings represent “a very small fraction of capabilities.”

“We see that narrative from most, if not all, our customers of potential way beyond savings in herbicides,” says Bocher. “We see tremendous value in precision application of other pesticides and micronutrients. There’s also analysis of data collected in the field. We offer detailed maps of fields where we sprayed and what was sprayed and why. We

can build layers of early indicators of disease and crop stress.”

In late November, a limited number of orders were still being taken for retrofitting existing sprayers. Bocher says turnaround can be as quick as a few months, depending on the sprayer model and timing.

“We also have a few ready-to-go sprayers that are already retrofitted for farmers looking to upgrade their sprayer and need a quick delivery,” says Bocher.

The \$250,000 price includes the 120-ft. aluminum boom, dual tank and installation. Bocher notes that the price can vary between different models. Unlike many new technologies, there’s no start-up fee or subscription.

“No subscription or one-off purchase is something that sets us apart from a lot of technology companies,” says Bocher. “You buy and retrofit, and there are no additional charges. There’s a data interface where the customer logs in and gets all the data gathered at no charge. We believe farmers think this is the right way to buy technology, and we accommodate them.”

Greeneye Technology is already adding to its product line. “We’ll be announcing a 90-ft. system in 2025,” says Bocher. “We have a very robust product development pipeline. We’ll be unlocking the system to work with other inputs. When you buy the system today, it’s for herbicide application. As we add



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other capabilities, the customer can choose what they need. We have a very agronomic mindset and understand the intersection of savings and efficacy.”

Contact: FARM SHOW Followup, Greeneye Technology, 801 R St., Suite 1, Lincoln, Neb. 68508 (info@greeneye.ag; www.greeneye.ag) or Boeck Farm Outfitters, 2313 Road 22, Exeter, Neb. 68351 (ph 402-418-0803; fieldview@boeckfo.com; www.boeckfo.com).

## Wind Generator Designed For Small Farms

Carl Fausett, a Wisconsin-based engineer and inventor, has patented a technology that allows small farms to increase their wind-aided power generation.

The Airfoil Generator, or augmented wind generator, works on the principle of an airplane wing, accelerating the air’s velocity and increasing its speed as it travels over the wing.

“The amount of rotor or blade exposed to the wind has everything to do with how much energy we’re able to capture,” Fausett says. “While some funnel a wider area into the rotor, we accelerate the wind before it meets the rotor. Air is a fluid, and if we correlate a wind-powered generator to a hydroelectric generator, this makes sense.”

The unique design of the Airfoil doubles the incoming wind speed by the time it reaches the turbine.

“Physics shows us when we double the wind speed, it’s actually cubed,” he says. “Accelerating the wind equals more energy generated.”

Fausett doesn’t have or intend to have a working model, so his calculations are mathematically derived.

“Reality and math may not match,” he says. “Because of variables, the output won’t be quite as good in reality as the computer says. But we have a wide margin. Even if we sandbag our test results by 25 to 50 percent, it’ll still produce much more than others.”

Fausett’s innovation targets smaller farms in regions where the most common wind speeds are lower, between 8 and 18 mph. These small farms often can’t take advantage of local wind energy to be off-grid, more independent, and energy-efficient.

Rather than manufacturing the Airfoil Generator, he’s selling non-exclusive licenses



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to anyone, small or large-scale. “I want people to have the wherewithal to build it,” he says. “Farmers, aircraft builders, or other wind generator creators are eminently qualified to build these. I want people to start changing things.”

Fausett hopes to sell multiple licenses to several manufacturers, as each will identify unique problems and solutions that help them function differently.

“I want that,” he says. “It’s the greatest way for us to find the best. Competition promotes development, and the consumer wins. I don’t want my design bought and thrown in the drawer.”

Contact: FARM SHOW Followup, Carl Fausett, Airfoil Generators, 604 E. Maple St., Horicon, Wis. 53032 (ph 920-389-5552; info@airfoilgenerators.com; www.airfoilgen.com).



**Tractor Tools Farming Kit mini round baler.**

## Compact Implement Packages For New Homesteaders

Tractor Tools Direct (TTD) has compact implement packages for start-up farmers. All you need is a compact tractor.

“We started offering complete hay baling packages discounted from buying one implement at a time,” says Matt Nichols, Tractor Tools Direct. “A lot of our customers are hobbyists or new to baling hay. They may have purchased bales in the past or hired custom operators to bale their hay for them.”

Nichols finds that many of his customers are unaware that compact hay-making equipment is available. “A lot of them don’t have any equipment, so a package deal works out well,” he says. “Some of our customers are established farmers with a smaller field they could bale but need smaller equipment. They may want to bale edges of row-crop fields or road ditches.”

The pine straw market is another growing market for TTD’s compact hay tools. The compact rake and hay balers are ideal for getting in and under pine tree stands.

“In Florida, in particular, the pine straw market for landscape mulch is big,” says Nichols. “Our small baler can run down the middle of pine tree rows.”

TTD hay-making packages start at \$12,057 with the Subcompact Economy Hay package. This package is designed for tractors as small

as 20 hp. and weighing as little as 2,000 lbs. It includes a mini round baler, drum mower and two-wheel rake sized for the baler.

The Ultimate Utility Homesteader Package is priced at \$43,645. It includes a compact square baler, drum mower and belt rake/tedder sized to match the baler’s intake. It also includes a 3-pt. chipper, rear-mount dump bucket and flail mower. While the baler requires a tractor with only 25 hp., the chipper requires a 40-hp. tractor.

TTD offers other packages and an array of individual components. Purchased separately, the Subcompact Economy Hay Package would total \$13,397, a savings of \$1,340.

The company also offers an online library of how-tos, FAQs, manuals and videos to help prospective customers learn about compact equipment.

“We import and work directly with manufacturers on product improvement,” says Nichols. “In the case of our balers, they’re customized to the needs of our customers. We have a dealer network and sell directly all over the U.S. and Canada. With direct sales, shipping costs can be higher.”

Contact: FARM SHOW Followup, Tractor Tools Direct, 800 South 9th St., Terre Haute, Ind. 47807 (ph 260-225-3429; www.tractortoolsdirect.com).