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Modernizing Harvesting For Small-Scale Grain Farmers

Small-scale grain producers have long faced the challenge of relying on outdated equipment, often struggling with frequent breakdowns and hard-to-find replacement parts.

Ag Vance Systems was founded by Elam and Henry Fisher with a mission to deliver practical, affordable and advanced harvesting

solutions directly to small yet progressive farmers.

The company takes an unusual approach, contracting all manufacturing and customizing machinery to suit the needs of modest operations. Their machines are uniquely designed, incorporating the latest harvesting

technologies in packages tailored for affordability and practicality for tractor and even horse-drawn operations.

"Many farmers are using outdated equipment that breaks down often and features impossible or hard-to-find parts," says Elam Fisher. "Their designs can be 60 years old, and no companies were interested in using new designs and technology to make life easier for these operators."

The brothers began their partnership in 2021 with a junkyard John Deere TR70 combine. They removed the rotor, cut it lengthwise, and reassembled the parts to make the unit more compact. They used the rotor housing as the feeder house and ran the shaker bed sideways rather than at the back, as on a typical combine.

Since they envisioned their mini combine, which they named The Comet, being pulled either by a tractor or by horses, they added a 65 to 80-hp diesel engine to power the machine. They omitted the traditional grain tank, funneling harvested grain directly into a trailing wagon. The Comet was built to handle a 3 or 4-row head.

"When we first got it running, the prototype shelled corn better than anyone expected, including us," Fisher says.

The Navigator draper head for the Comet

became the brothers' next invention. The Navigator is a draper-style header custom-built for small-scale and horse-drawn farming. Its full-float system and poly skid shoes skim the ground, eliminating dirt pileups and the need to constantly adjust the head height.

"It provides a clean shave, consistent crop flow, and a harvest that keeps moving forward with less frustration," Fisher says.

The long finger tines reduce shattering, even when picking up downed crops, and its heavy-duty feed roll with sturdy retracting spikes feeds the Comet combine evenly.

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After successful field tests harvesting corn, soybeans and wheat across a dozen farms, Ag Vance Systems continues to refine its designs and expand production. They're exploring further enhancements, including adding an integrated grain tank.

Prices range from \$85,000 to \$100,000 for the full unit.

Contact: FARM SHOW Followup, Ag Vance Systems, 775 N 350 E, Rockville, Ind. 47872 (ph 765-435-1500).

Compost Extraction Used To Improve Soil Health

Hiwassee can help farmers and growers regenerate their soils by adding microbe-rich compost extract.

The Hiwassee X250 Compost Extractor operates at 500 gal/hr, processing 50 to 100 lbs of compost, depending on the desired dilution. Water is pumped in at 30 psi and directed through an auger and a mesh sleeve (40 to 80 mesh), with jets thoroughly rinsing the compost to extract soluble nutrients and microbes.

"The purpose is to capture the microbes, fungi, bacteria and any soluble nutrients from the material to make a powerful, broad-spectrum biological product," says Jesse Wiser, Director of Marketing and Outreach at Hiwassee.

Hiwassee monitors and confirms the effectiveness of the rinsing process, showing depleted microbes in the spent compost and a thorough transfer of biology into the extract. The X250's hopper holds 10 gal and can be expanded to 35 gal (about 200 lbs of compost) with optional extensions.

Users simply connect a water source, load compost into the hopper, and turn it on. Water agitation inside the hopper prevents bridging or sticking, maintaining moisture and smooth flow. The spent compost is augered through the machine and its screens before it exits the extractor.

Operation is plug-and-play. Cleaning is also simple, with tool-free removal of the screen and auger.

"The biggest decision-making point for our customers is the decision to go the biological route. Once they've made that choice, our extractors make a lot of sense and help them make healthier soils," Wiser says.

Row crop growers can apply extracts in furrows for targeted applications or use irrigation pivots for higher-volume, diluted applications, with foliar treatments during the growing season.

"Because the extract is a broad-spectrum biological, it'll have a positive effect on any growing plant. It also holds excellent nutrient density attributes, so it works amazingly well

on fresh produce fields," Wiser adds.

"Adopting this technology represents a shift in thinking, focusing on the biology within compost rather than just its breakdown."

The Compost Extractor is adaptable, with bench-top models for transport, gravity-feed options, and electric power with a slip clutch for motor protection. Made in Tennessee, it's available across North America and internationally, with dealers in the EU and the U.K. Expansion is underway in Australia.

The X250 is ideal for farms under 500 acres; larger operations may consider Hiwassee's X350. Pricing ranges from \$10,000 to \$13,000, depending on options. Wiser encourages interested parties to view the educational content on the Hiwassee YouTube channel.

Contact: FARM SHOW Followup, Hiwassee Products, 120 Community Access Rd.,



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Madisonville, Tenn. 37354 (ph 423-436-0502; sales@hiwasseeproducts.com; www.hiwasseeproducts.com).

Air Filters Made From Field Corn

Aerterra, based in San Mateo, Calif., makes and sells homegrown, American-made air filters that perform like standard models and are 100% compostable.

"Aerterra was born out of two pressing problems that hit close to home: the COVID-19 pandemic and the wildfire smoke that settled over Chicago," says Val Demiri, a company representative. "Our co-founder, Curtis Firestone, was watching his two athletic sons push through soccer practices with masks on, the air thick with smoke, and couldn't stop asking, 'Is this really the best we can do?'"

Demiri, meanwhile, spent decades in the air filtration industry, watching traditional filters pile up in landfills.

"When Curtis and I met in 2023, we saw an opportunity to build something better: high-performance air filters made from renewable, plant-based materials that protect your lungs without polluting the earth."

Today, Aerterra filters achieve this goal.

"Most filters are made from petroleum-based synthetic fibers or fiberglass," says Demiri. "These materials are derived from fossil fuels and linger in landfills for decades. In contrast, Aerterra filters are made from

polylactic acid (PLA) derived from field corn grown right here in the Midwest."

She notes that polylactic acid is derived from the same type of field corn grown on millions of acres in the Midwest.

"Corn-based fibers are processed into high-performance filter media that capture particles down to the size of bacteria, smoke and fine allergens," she says.

The filter's renewable fibers are enhanced with nanofiber technology to achieve superior particle capture and airflow efficiency.

The resulting filters match or exceed the performance of conventional filters at MERV 8, 11 and 13 ratings. Each provides high-quality filtration with minimal airflow resistance throughout its lifetime. The plant-based frames are manufactured in the U.S.

"But unlike traditional filters, ours are compostable, returning to the earth rather than adding to the waste stream. This makes a meaningful difference for a product most households replace every one to three months."

Despite these environmental benefits, Demiri is quick to clarify that using the filters is no different from standard HVAC filters.

"You simply choose your size and MERV

rating and swap it in on your regular replacement schedule."

Pricing ranges from \$16 for 12-in. by 12-in. by 1-in. filters to \$48 for 20-in. by 25-in. by 4-in. filters. Automatic delivery is available through a subscription that includes free shipping. Subscriptions can be paused, swapped or adjusted online in the user's account.

"Our subscription service delivers filters on your timeline, so it's one less thing to think about," Demiri says. "Our ideal customer is really anyone with an HVAC system who cares about what goes into their home and where it ends up, whether that's a family dealing with allergies, a farmer who wants American-grown products, or someone who just wants cleaner indoor air without the environmental guilt. We've seen a lot of interest from the agricultural community, particularly given that our filters directly expand the demand for corn."

It's a product that's gaining attention.

In 2025, the National Corn Growers Association recognized Aerterra as one of the winners of its Consider Corn Challenge.

"This award validated what we've always believed: that American agriculture and



Aerterra filters are made from polylactic acid (PLA) derived from field corn.

innovation can work together to solve everyday problems," says Demiri. "The air filter industry has not changed much in decades, and we think it's overdue for a rethink. Every household in America replaces filters multiple times a year. That's a lot of plastic and fiberglass heading to landfills. We started Aerterra because we believe clean air shouldn't cost the earth, literally."

Contact: FARM SHOW Followup, Aerterra, San Mateo, Calif. (hello@aerterra.com; www.aerterra.com).