

Rooster Thunder Sweeper can blow accumulated dust from barn heaters, sweep floors, and move debris from hard-to-reach areas.



## Mounted Blower Makes Barn Cleaning Easy

For poultry farmers needing better ways to clean, dust, sweep, and remove accumulated litter from their barns, LVI Manufacturing offers an innovative blower system.

The Rooster Thunder Sweeper is a hydraulic-driven, multi-directional blower mounted to the front of a skid steer using a universal quick attach. Its fan creates air speeds up to 200 mph and 4,200 rpm through a 6-in. dia. pipe capable of 90-degree discharge angles.

The unit makes quick and easy work of cleaning poultry barn interiors as it can be tilted and angled to access hard-to-reach corners.

"It works on any skid steer with 25 to 30 gpm of hydraulic flow," says Jay Zimmerman, LVI Representative.

The Rooster Thunder Sweeper can blow accumulated dust from barn heaters, sweep

floors, and move debris from hard-to-reach areas.

Additionally, its heavy-duty construction and high discharge rate capabilities make it perfect for removing snow and ice from yards and driveways.

An optional front-mounted blade comes equipped with attached hydraulic hoses and couplers, including a required case drain line. The blade makes removing stubborn hardpack from concrete floors easy.

The powerful Sweeper is available from a network of dealers across North America and ranges in price from \$7,000 to \$9,000 plus S&H.

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## Manure Eating Flies Produce Protein

Dairy manure fed to black soldier flies (BSF) produces protein that could be fed to livestock. The full circle concept received a \$618,000 research grant from the USDA. A research team of entomologists from Texas A&M and Mississippi State University hope to prove environmental and economic benefits to the practice.

If successful, they hope it'll lead to changes in current federal regulations, according to team co-leader Jeff Tomberlin, Ph.D., Texas A&M, Center for Environmental Sustainability through Insect Farming.

"We've been working on the process with manure since 2005," says Tomberlin. "This 3-year program is designed to make the process better, using microbes to enhance the viability of the black soldier flies. We're still refining the concentration and process, using microbes isolated from black soldier flies."

BSF consume their weight in organic waste daily. The process can reduce dry matter in the manure by 40 percent and moisture by 60 percent, leaving less waste to be dealt with by the farmer.

"We can reduce the manure load by 30 to 40 percent," says Tomberlin. "At the same time, we can produce a saleable commodity. We take a byproduct of one industry and create a new product."

Tomberlin has visited large, industrial, BSF production systems in Europe, Asia, and Africa, as well as North America. Some automated systems using BSF can digest 100 tons of waste per day. While those use a variety of waste streams, BSF production has been limited in the U.S. to pre-consumer food waste. He points to EnviroFlight in Kentucky as one example. He adds that Tyson Foods recently partnered with Protix, a Dutch insect ingredient company, to build a large-scale insect production facility.



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The team is gathering data from small batches of manure and BSF. They started with 2 lbs. of dairy manure in containers and have since expanded to 18 lbs. per tub. Each tub hosts 10,000 BSF for 2 weeks before they're harvested and replaced by BSF eggs.

BSF reared on approved organic waste are already being used in poultry, swine, and pet food. "Our goal is to make manure an approved organic waste," says Tomberlin. "When the larvae are harvested for use as a feed ingredient, the residual can be used as fertilizer."

Once the research effort is completed, the next steps will be up to entrepreneur companies, notes Tomberlin. "The insect production industry is still new," he says. "It's wide open for entities interested in pursuing the opportunities."

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## Sensors Alert Farmers To Bin Spoilage And Insects

Grain farmers can now receive alerts of stored grain beginning to spoil and insect infestations thanks to upgraded CO2 sensors from Prairie Grain Analyzers.

"Our CO2 sensors give a one-week earlier notification of spoilage than temperature and moisture cables," says Mehrdad Bagherzamani, Territory Sales Manager. "It doesn't show where the problem is, but it provides an alert for insect or spoilage activity in the bin."

The unique sensors read CO2 levels each hour. Normal readings are between 300 and 500 ppm, but if over 1,000 ppm, the grain is beginning to spoil, or large numbers of insects are gathering and eating.

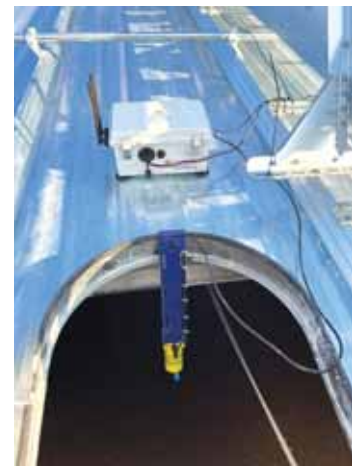
As CO2 is heavier than air, the sensors need to be mounted on a bin rooftop vent to work properly. Two power options are available, including a solar-powered rechargeable battery and a standard 110 or 220-volt electrical receptacle.

Farmers need Wi-Fi in their yards for sensors to send notifications to the cloud and alert them via phone or email.

"What sets us apart is we have no subscription fees," Bagherzamani says. "Farmers are happy with them, so word is getting out. We've got plenty of orders."

The CO2 sensors are manufactured in Oak Bluff and available across North America through a network of dealers.

Everything to get a farmer started, including mounting hardware and power box,



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adds up to approximately \$1,800 (CAD) plus S&H.

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## Ultra-High-Pressure Jets Provide Benefits For Row Crops

Susterre Technologies Inc. is borrowing a proven technology from the industrial manufacturing sector for use in row crop applications. The technology uses ultra-high-pressure (UHP) jets to pump water or liquid fertilizer at 60,000 psi, creating a narrow stream of approximately .007 in. in width directly in front of a planter's disc openers and seeding mechanism.

"The first benefit of using these jets is to avoid the hair-pinning of residue, which kills yield," says Michael Cully, Susterre founder. "We're also able to deliver the seed better to the proper depth for improved soil contact in heavy residue conditions."

Susterre retrofits existing planters, installing one injection unit per row. A tractor's PTO and hydraulic system will drive up to 12 rows, while larger units of up to 24 rows require a power cart equipped with a diesel engine and up to 1,300 gal. liquid tank. Approximately 150 hp. is required to power a 12-row planter.

The tiny trench created by the jets offers the proper seed placement depth with minimal spray or dust back.

"An opening in the nozzle draws air inside, creating a shield and protecting it from clogging," Cully says. "The jet is moving at Mach-3, so the speed automatically pulls air through."

As planters vary, Susterre takes a customer-by-customer approach in their designs considering the size and capabilities required. Much depends on soil conditions and equipment models and dimensions.

"We work with farmers to customize their needs. Our system can be universally adapted to any make or model of planter. To get it right, we visit the farmer, take measurements of the unit, locate where the jets should be placed, and then bracket them to the toolbar," Cully says.

The UHP injection units have been field-tested in corn, soybeans, sorghum, and cot-



**Tiny trench created by the jets offers the proper seed placement depth with minimal spray or dust back.**

ton. The current focus is on rows 15-in. wide or larger. Plans include adding capabilities for small grains like canola and wheat, which normally use 7 1/2 in. spacings.

Manufacturing of the row units and power carts is completed in Ontario.

To calculate cost, Susterre uses the rule of thumb of approximately \$20,000 per row, including a power system, tank, and all required injector units. They estimate a 2 to 3-year payback for the farmer.

"We're seeing significant increases in crop yield using our system, and by keeping farmers employing regenerative practices, we can lower their costs," Cully says. "It's a quick payback compared to other options. No-till farmers normally end up tilling every 3 years or so, but we believe we can add seasons for cost savings, building up their soil and organic matter, and reducing the amount of nitrogen they're applying."

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