# No-Heat System Dries Grain Without Damage

Joe and Dave Loebach dehumidify grain rather than heating it with their experimental system. The low-energy dryer takes longer to bring down grain moisture, but the process saves money and is also gentler on the grain than pumping in hot air.

"It's competitive with natural gas and much better than propane," says Dave Loebach. "Since we don't raise the temperature, we don't affect germination or get cracks from heat."

"Drying time is not comparable to a heat-based dryer," acknowledges Joe Loebach. "It may take 2 to 3 months in a 30,000-bushel bin. We're aiming this at guys who were going to put air through their bin anyway. This lets them bring down moisture in the storage bin."

The closed loop system includes several novel aspects. Once a bin is filled, nitrogen or carbon dioxide is added to push the oxygen out, and the bin is sealed. This prevents spoilage as the grain dries. It is this oxygen-deprived air that is circulated through the drying mechanism at ambient temperatures, pulling moisture out of the grain with every pass.

The drying mechanism is a 2-coil system, with one coil acting as a condenser and the other coil acting as an evaporator. Moist air from the top of the bin is pulled through both coils. As the temperature of the condenser coil drops to 11 degrees below zero, moisture from the air condenses on the inside of the coil, drying the air, which then passes back to the grain. When the coil has filled with ice, its temperature is allowed to rise. At the same time, the second coil is cooled. While ice in the first coil melts and moisture drains out of the system, the second coil is pulling moisture from the air.

"We can keep it running continuously, switching back and forth between the 2 coils," says Dave. "Although we are only drying half the air being drawn through the system at a time, we can use ambient air. That means we can dry grain whether it is at 70 degrees or zero."

Dave Loebach, who lives in Idaho, actually got the idea for the system after training as a refrigeration specialist. Throughout his 40-year career, he periodically considered how the system could work. Dave would talk it over with brother Joe, who farmed in Iowa. Over the years both set aside parts they thought might work.

"My wife finally told me to build the thing or clean out the garage," says Dave.

Dave contributed a twin-flow evaporator, a compressor, reversing valve, condenser, expansion valves, a timer and a blower. Joe contributed electrical components, a 70-year-old flare box wagon, a grain floor from a drying bin, and a doorbell transformer.

The rough prototype the two put together in 2012 is a wagon box-sized system. They put the dryer floor in the bottom of the flare box wagon and a tarp over the top to seal it. The blower cycled the air through the system and a load of 23 percent corn dried down to 15 percent in only 3 days. Even better, they used a 12 kW wind generator to power the system. This is something they feel others could do as well, further reducing costs.

"We showed it to several seed corn companies with proof of germination quality, but there was limited interest," says Dave. "We've had some interest from a bin manufacturer, and now Iowa State is evaluating it."

University engineers working with the Loebach brothers' prototype were not prepared for how well it worked. "The first test started with 25 percent corn, and the researcher didn't check it often enough. It dried down to 12 percent," recalls Joe. "He said, 'This will work.'

"We're continuing to work on reducing costs and finding a company to commercialize it."

**Joe and Dave Loebach dehumidify grain rather than heating it. To test the idea, they installed a dryer floor in the bottom of a flare box wagon with a tarp over the top to seal it. A blower cycles oxygen-deprived air through the system.**

**Photo shows controls for the no-heat drying system.**

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# Bluetooth Tile Used To Track Turkeys

Bluetooth trackers called Tiles were created to locate keys and wallets, but Victoria Strauser decided to use them to keep track of her turkeys.

She raises lambs, rabbits and poultry for their farm-based business, Meadowfed Meats (www.meadowfedmeats.com).

The problem she had was with the four heritage breed Sweetgrass turkey hens that would leave the poultry barn every morning to free range.

"My turkey hens are prolific egg layers and always going off to tall grass, so you have no idea where their nests are," she explains. Besides wanting the eggs for food, Strauser doesn't want her hens to sit on nests all night where they're vulnerable to predators.

She tried to follow the hens, but they wouldn't nest when she was around. So she decided to try technology and attached a Tile to the protective aprons her hens wear. After they left the barn she waited half an hour to an hour before following them with her smartphone. When she got within about 150 ft. of the turkey, she could "ring" the Tile from the app on her phone so she could hear that she was getting closer. After finding the nest she would gather the eggs.

The only problem was that the hens kept moving their nests. Strauser solved the problem by buying ceramic eggs to leave one in each hen's nest. Now they lay eggs in the same spot and she doesn't need to track them every day.

Contact: FARM SHOW Follow-up, Tile (www.thetileapp.com).

**Victoria Strauser uses Bluetooth trackers called Tiles and a smartphone to keep track of her turkeys. Tiles attach to the protective aprons her hens wear.**

**When she gets within 150 ft. of a turkey, she "rings" the Tile from the app on her phone so she can hear that she's getting closer.**

**Haldrup, a German-based company, is opening a new factory in Indiana to bring plot-sized planters and combines to the U.S.**

# German Company Brings Plot-Sized Planters, Combines To The U.S.

North American researchers, breeders and seed companies have a new equipment option with Haldrup, a German-based manufacturing company, opening a new factory in Ossian, Ind.

"We are at capacity in Europe, and the only way to properly serve the North American market was to have a plant in the U.S.," says Tamra Boucher, managing director for Haldrup USA. Production, service and sales will all be handled from the Ossian facility.

Lab machinery and planting equipment is already available and custom orders are being taken for equipment needed next spring.

"Our equipment is designed for test plots," Boucher says. "We don't build it until the customer tells us what they are looking for."

Planting equipment is typically for 2, 4 or 8-rows. Mini combines cover 2 or 4-rows. Options include upgraded seats, data collection systems for weight and moisture, and a sampling system that brings grain samples into the cab to be bagged and recorded for analysis.

While the equipment can also be suitable for small acreage farmers, Haldrup's main focus is on customers who farm test plots, Boucher says.

Though there are already a couple of manufacturers, there is room for Haldrup's 40 plus years of experience in the industry.

The company sets itself apart because of its "customization and our willingness to work with customers," Boucher says. "Most of our new products created over the years come from our relationship with our customers."

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