New Air Dry Bin System Dries Corn For Less

Over the past 2 years, Ben Casper dried corn 4 to 6 points using 1/5 the energy of a conventional grain dryer. His Sectional Drying System (SDS) uses fans to push fresh air through specially vented bins to dry the crop. No heat needed.

"I blow air into the corn through 2 sets of perforated ducts," explains Casper. "A second set of perforated ducts lets moisture escape out of the bin."

Casper encircles the outside of the SDS bins with air tubes that deliver a steady flow through perforated tubes crisscrossing the interior. As it passes into the grain, the air picks up moisture and flows into layers of exhaust tubes to exit holes in the bin sides.

"Initially, I only had one exhaust layer with holes at the base of the bin with air also exhausting through the top of the bin, says Casper. "This past year I added an additional exhaust layer in the middle for more flow."

There are as many as 80 to 85 input and exhaust holes in a 10,000-bu. bin. The number of holes and tubes increases with bin size.

The multiple layers create multiple drying fronts throughout the grain bin. In a 36-ft. deep, 42-ft. dia., 40,000-bu. bin, air will move only 9 ft. from intake to exhaust, compared to 36 ft. in a conventional floor dryer bin. As a result, SDS requires only a fraction of the fan capacity. Casper estimates a 24 hp fan capacity will provide 1 cfm/bu. with the SDS compared to a 180 hp capacity needed to push air through the floor dryer bin.

"I use only two 3 hp axial fans on a 10,000-bu. bin and four 3 hp fans on a 25,000-bu. bin," explains Casper.

Casper is currently working with an engineer to determine airflow to convert a 55,000-bu. bin. He estimates conversion costs, including electrical work and construction and tube assembly, at about $1.00/bu.

"Other in-bin drying systems are limited to short (20 to 24-ft.) bins, but the SDS system works with any height bin," says Casper. "Stiffeners are required; however, either interior or exterior stiffeners are acceptable."

Ben Casper's Sectional Drying System uses fans to push fresh air through specially vented bins to dry the crop. No heat is needed. As air passes into the grain it picks up moisture that flows into exhaust tubes (right) that exit through the bin's sides.

Casper has converted bins on his family's farm. Over the course of 2 years and many modifications, he dried 150,000 bu. of corn for a friend. He says he learned a lot in the process.

"There is extensive work that needs to be done inside the bin with the network of tubes," says Casper. "To do it right, you really need my plans and experience."

While a self-install might be possible using those plans, he advises using a professional contractor. He notes that even with a man lift and appropriate tools, installation on a 25,000-bu. bin can take up to a week and a half.

"I have applied for patents, and I hope to license or sell the design," says Casper. "In the meantime, I am gearing up to produce parts to order. Let me know exact bin diameters and heights, and we can quote a price and begin the process."

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Old Snowblower Gets New Life With Snow Blade

"I built it about a year ago and can't imagine how I would get along without it," says Don Campbell, Gaylord, Mich., about the snowblower he fitted with a 51-in. wide snow blade. "The blower had been sitting around unused for several years, and the auger was rusted solid. Instead of spending several hundred dollars on new parts, I used a torch to cut off the blower and replaced it with the blade."

Don Campbell cut the auger and impeller off an old snowblower and replaced it with a 51-in. wide snow blade. "It'll push right through 6 in. of light snow," he says.

The 2000 Deere snowblower is powered by an 8 hp Tecumseh engine with only 10 hrs. on it. He cut off the auger and impeller, then made a circular cut all the way around the back side of the housing where the impeller had been. He used 16-ga. sheet metal to weld together a new box frame fitted with 2 blade pivot points. One pivot point is welded on the front of the snowblower and the other on the back of the blade. The blade pivots on a pair of 1/2-in. dia. pins, one at the top and one at the bottom. "By pulling out another center-mounted pin with a steel ring on top, I can rotate the blade left, right or straight ahead," says Campbell.

He used 16-ga. sheet metal to build the blade and reinforced it by welding a length of 2-in. flat bar on back. He also welded on a cutting edge made from 2-in. wide by 1/4-in. thick flat metal.

He replaced the snowblower's original 8-in. wheels with 12-in. wide by 18-in. tall wheels off a Steiner lawn tractor, using 1/4-in. plate steel to build wheel adapters. "I had a couple of 4-bolt tires and wheel rims sitting in the shop that bolted right up after I put some spacers in between to clear the frame," says Campbell.

"I'm real happy with how this little walk-behind plow turned out. It takes up very little space in my garage," he says. "I used it a lot last winter to move snow away from the edges of our driveway and sidewalks. If we get less than 5 in. of snow I just do the entire driveway with it. It'll push right through 6 in. of light snow."

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Joe Rishel built a cover for his Deere Gator out of an old fiberglass pickup topper. Metal struts from a camper awning support it.

Home-Built "Gator Topper"

Joe Rishel, Alanson, Mich., customized his Deere Gator by building a cover for it out of an old fiberglass pickup topper. It's painted yellow to match the Gator's green and yellow colors.

"It looks really nice and was fun to build," he says.

He got the topper for free. The width was just right, but the topper was too long. So he unbolted an 18-in. wide panel from the center and then put the front and back pieces together, fiberglassing them to make the joint waterproof.

He first put a piece of 1/4-in. thick plywood into a groove where the 2 panels meet. Then he glued on another piece of plywood and pushed the back piece of the topper onto it. After the glue dried he applied a strip of fiberglass resin all the way across and used a putty knife to smear the resin flat. After the resin dried he sanded it down.

He used the metal struts from a camper awning to make a metal frame that supports the topper. The frame rides in metal brackets that bolt onto the Gator frame. A pair of aluminum struts keep the front end of the topper from shaking.

He also added a tail light on back and clearance lights on front.

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