



Portable 40-ft. long, 30-in. wide belt conveyor allows Ben Graber to load chicken litter into semi trucks fast.



Variable speed motors drive a stirrator inside conveyor's hopper, and the belt.

## Custom-Built Conveyor Is Powerful, Yet Simple

Ben Graber needed a portable, trouble-free conveyor to handle chicken litter fast. So he built a 40-ft. long, 30-in. wide belt conveyor that has lasted for 15 years. Graber says the rollers have never been replaced, yet they are hardly worn. It tows easily from farm to farm.

"I haul out about 17 to 18 semi-loads of poultry manure 4 times a year," says Graber. "That's a lot of material, and it is pretty harsh stuff. The fewer moving parts you have, the better. This one has no chains and only 6

bearings."

It also has lots of speed. Powered by a 35 hp Vanguard engine, it can load an 18-wheeler in 12 to 15 min. "I can't keep up with it working with a 90 hp skid steer that has a 1,500-lb. capacity bucket," says Graber.

He credits the longevity of the conveyor and much of the speed to using ultra high molecular weight polyethylene for the rollers on the belt. How the belt tracks is also important as is designing the hopper so

manure can't get under the belt.

Having plenty of power lets Graber drive the stirrator in the hopper and the belt with variable speed motors for greater control. He also installed a hydraulic lift in place of the prior model's hand crank lift.

"I've made 6 for other people, and so far I've had zero negative feedback," he says. "One guy bought one for haylage. All he had to do was take the stirrator out, and he liked it fine. It will handle anything that moves on

a belt without sliding."

Graber is still making the conveyors. He prices them at \$26,500.

"I wouldn't sell mine for anything," he says. "When I'm cleaning barns, I don't like to have to work on the equipment too. My conveyor is as trouble-free as you will find."

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Richard Crabtree's home-built, 32-ft. conveyor loads manure into trucks about as fast as a skid loader can fill the hopper.

## "Made It Myself" Conveyor Moves Tons Of Manure Fast

"Farmers around here have chicken buildings that are 60 ft. wide by 500 ft. long and the poultry in them generates about 300 tons of litter each year. That much litter makes for a lot of trips with skid steer or tractor loaders to clean the buildings," says retired mechanic Richard Crabtree.

"A fellow who had worked for me in my shop as an 18-year-old approached me about building something to help load out the litter. Together we built a 32-ft. long conveyor that loads directly into a truck about as fast as a skid steer can fill the hopper, saving lots of time and trips."

Crabtree came up with the conveyor idea and together with his helper built the device without any plans or blueprints. Says Crabtree, "We just started cutting 2-in. square tubing and welding it together to build a frame. It has a square bottom and angled sides on the top. We made 8-ft. sections and put 4 of them together to make the finished conveyor 32 ft. long. It rides on a steel tube axle. At times we decided something wasn't going to work right so we'd change it and go another way. By the time it was finished all of the 'bugs' were pretty well worked out."

The conveyor has head and tail rollers salvaged from a coal mine and smaller rollers purchased from a coal industry supplier. They guide the 30-in. wide rubber belt. The top of the angled sides are covered with sheet metal to keep material from falling off. A 5-ft. square hopper at the bottom end allows an operator to fill the conveyor with a skid steer

or loader bucket. Crabtree fashioned a beater bar to break up chunks before material moves up the conveyor. He mounted a 25 hp. Onan gas engine on one side of the frame to power the beater, belt and hydraulic cylinders that raise and lower the conveyor. "The speed of the motor determines how fast the belt runs. When the engine idles the belt moves at 32 ft. a minute. The conveyor will load a semi in about 10 minutes, moving material as fast as someone can fill the hopper."

Crabtree said building the conveyor was fairly easy because he spent more than 50 years working as a mechanic on gravel and coal conveyors. He knew how to set up the drive and idler rollers and how to connect the drive system because "basically every conveyor, whatever it moves, is made the same way."

Crabtree's first conveyor, which he painted Deere green and yellow, had people thinking it was made in a factory. "I told them it was made in my factory, which is a 25-ft. by 45-ft. building." His first conveyor was so successful that he made another one just like it for a different poultry producer. "I think they're made right because I know the first one has loaded probably 500,000 tons of chicken litter and never broken down," Crabtree says.

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Liquid manure injection system sidedresses manure into standing corn. At the same time, a toolbar-mounted Gandy Orbit-Air seeder broadcasts cover crop seed.

## Dual Tool Injects Manure And Seeds Cover Crops

Chesapeake Bay area farmer Virgil Gutshall, Sr., takes care of his crop and the environment in a single pass. While his 4,250-gal. liquid manure injection system sidedresses standing corn, the toolbar-mounted Gandy Orbit-Air seeder broadcasts cover crop seed. The dual-tool system ensures that any nutrients not used by the crop will be taken up by the cover crop for release the following year.

"Everything is controlled with the monitor on the tractor," explains Gutshall, a retired ag instructor, who farms with his son Virgil Jr. The Gutshalls got the idea from Ohio State University research that showed a 20-bu. yield increase with sidedressed liquid hog manure. They especially like the Krohne flow meter for its control and as-applied data recording.

"We can switch from 7,000 gal. of manure in one field to 6,000 in another," says Gutshall.

What the Ohio State setup didn't address was cover crops. The Gutshalls practice zone tillage and wanted to interseed cover crops. They mounted the Gandy unit to the Houle tank spreader toolbar. Seed is delivered via air stream to hoses with PVC nozzles. The seed strikes the ground to the rear of the liquid manure injectors.

In 2015, the Gutshalls used drag chains to cover the seed. This year they are mounting 15-in. wide Binkley & Hurst rolling baskets in place of the chains.

"The spring-tensioned rolling baskets will improve seed incorporation and germination," says Gutshall. "We are also replacing the PVC nozzles with 12-in. wide shop vacuum nozzles for a wider seed pattern."

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