



After renting a vertical beater spreader, Abram Bowman and his son, Mervin, decided to convert this converted late model International 575 spreader.



The Bowmans jobbed out the construction of the beaters to an auger specialist. Flighting on the 36-in. dia. beater was made from 3/8-in. steel.

By Jim Ruen, Contributing Editor

Manure Spreader Retrofitted With Vertical Beaters

Abram Bowman and his son, Mervin, wanted a vertical beater manure spreader but couldn't justify the cost. So they mounted vertical beaters on a late model, 10-cu. yard, International 575.

"We had rented a vertical beater spreader, and it did a much better job than horizontal beaters do," says Abram Bowman. "It chopped materials up fine and spread more evenly over a larger area. There are all kinds of options for new vertical spreaders, but they are expensive."

Since the Bowmans have a custom manufacturing business on their farm, they decided to convert a horizontal beater spreader to vertical style. If it worked, they would have a better spreader and possibly an addition to their business.

They began by stripping off the old beater, trimming the sides to a 15° angle and reinforcing the spreader body to handle the

strain. "We welded a heavy 4 by 4-in. steel beam (at the 15 degree angle) to each side," says Bowman. "We also added 6-in. wide steel side extensions to both sides to make the box more rigid, offer more load transfer across the box, and increase capacity."

The Bowmans jobbed out the construction of the beaters to an auger specialist. The flighting was made from 3/8-in. steel with each beater 36 in. in diameter.

"We mounted hammers at the edge of the flighting," says Bowman. "They are fixed, but will shear off if they hit something too hard. You can run it with one or two missing, but not more, as the beaters have to be carefully balanced end to end and side to side."

The beaters were mounted in a framework of 12-in. channel iron attached to the rear of the spreader. A gearbox mounted on the side drives a sprocket at the top. Heavy-duty, #80 roller chain drive powers the beaters. Drive

sprockets and chain were boxed in with more channel iron.

"Because of the angle of the framework, we needed to put a double yoke on the beater driveshaft before it entered the gearbox," says Bowman. "We also added an override clutch to the beater shaft as the beaters continue to spin when you stop the pto. We added shear bolts as well for protection should we hit a rock or something."

Other changes to the spreader included converting the apron chain from pto drive to hydraulic. The hydraulic motor offers infinitely variable unloading speeds.

Bowman says they have had quite a bit of interest in their spreader, which is doing all they hoped it would as a manure handler. The key, he says, in deciding to do such a project is the condition of the existing spreader.

"You can spend \$5,000 to \$7,000 to convert one," he says. "If you've got a good spreader



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box and apron chain, you can avoid spending from \$30,000 to \$60,000 on a new vertical spreader."

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"Mighty Midget" Forklift

"Several years ago I was loading hit and miss engines onto a trailer at a show by hand, which was a lot of work. I decided to build a small forklift that I could take to shows and still use around my small shop," says Alan Schoonmaker, Walworth, N.Y.

The forklift he built measures only 5 ft. long by 3 ft. wide and is powered by a Briggs & Stratton Vanguard 14 hp engine coupled to a 3-speed transmission. It rides on big turf tires. The front ones are 23 in. high by 8 1/2 in. wide while the back ones are 16 in. high by 8 1/2 in. wide. The mast can lift loads up to 44 in. high and handles up to 1,000 lbs.

"It's small enough that I can maneuver in tight places, yet low to the ground so it's very stable. I don't have to worry about tipping over," says Schoonmaker. "With the big tires on front I can use it outside without worrying about getting stuck."

"I built it small on purpose because I wanted to use it in my shop which is quite small, measuring 70 ft. long by 25 ft. wide and with only a 9-ft. high ceiling. I had been using an old Clark forklift, but it was too clumsy and tall, says Schoonmaker. "It's also easier to transport. I can load it on a double axle trailer along with a couple of my homemade tractors or some farm engines, and once I'm at the show I can use the forklift to unload everything from the trailer."

"I also use it to load 12-ft. logs onto my bandsaw mill. It also works great for handling logs when cutting firewood or doing other chores around my place."

He started with the rear end off a 1970's Cub Cadet garden tractor. The forklift is powered by a Briggs & Stratton 14 hp vertical shaft engine, which shaft-drives

a hydraulic motor that powers a gearbox. The transmission is operated by stepping on a forward/reverse, foot-operated pedal. "I like being able to use a foot pedal instead of having to fiddle with a gearshift lever. Makes it easier to move back and forth," says Schoonmaker.

The engine shaft-drives 2 pumps. One pump operates the tractor and the other one — originally designed for a pickup-mounted snowplow — operates a pair of hydraulic cylinders that are used to raise and lower the forklift and also tilt it forward and backward.

He made the forklift's frame out of 2-in. sq., 1/4-in. thick tubing. A 275-lb. weight on back slides into the frame tubing for better balance when needed. "By pulling a pin I can slide the weight out in couple of different locations," says Schoonmaker. "For example, if I have an unbalanced load I can slide the weight back which lets me lift more and also makes the rig easier to steer."

The channel iron rails off an old appliance hauling cart form the forklift's sides. A hydraulic cylinder chain-drives the mast to raise it up and down. Schoonmaker made the forks out of 3-in. wide, 3/4-in. thick bar stock.

"It's a handy tool and was a fun project to build," says Schoonmaker. "It's built low to the ground for stability. It can only lift 44 in. high but I wouldn't want to go higher than that since the machine is only 3 ft. wide."

"I already had most of the material that I used to build the machine and spent a total of between \$1,000 and \$2,000. I paid \$200 for the engine and bought the steering wheel and some other parts at a tractor supply company. The steering shaft is enclosed in a piece of



Alan Schoonmaker recently used his home-built forklift to haul 800-lb. loads of tile down to his house during a remodeling project (above). Wheelhorse garden tractor parked in front of forklift shows how small it is.

square tubing and is chain-driven to the rig's rear steering wheels. I used rectangular tubing to build the hydraulic reservoir and mounted the gas tank on top of it.

"I bought the seat and many of the hydraulic components from Surplus Center in Lincoln, Neb. (ph 800 488-3407; www.

surpluscenter.com). They deal in overages and end-of-the-line stuff."

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