



Big 4-wheeled pull-type cart holds 1,100 bu. of grain and has a front-mounted, turret-style auger that can load a semi from either side of cart.



A series of four hydraulically-controlled doors regulate flow of grain to auger.

Big Grain Cart Loads Semi In Less Than Six Minutes

With just the two of them to handle all of the harvest duties, Steven and Neil Soehren, Windom, Minnesota, figured a good-sized grain cart would give them some temporary storage capacity in the field.

"One truck wasn't enough to keep ahead of the combine, but we couldn't justify two and the second driver that would go along with it," Steven says. "I figured if we had a big cart, it would speed up harvest without adding much in the way of cost."

It took a little time and required that the brothers acquire some new skills, but they built the cart Steven envisioned in their farm shop.

Their four-wheeled pull-type cart holds 1,100 bu. of grain and has a front-mounted, turret-style auger that can load a semi from either side of the cart in approximately six minutes.

To build the cart, the Soehrens bought an above-ground fuel storage tank. "It was 11 ft. in diameter and 21 ft. long," says Neil. "We first cut the tank apart. It had 10-gauge steel on the bottom half and 12-gauge on top. We couldn't find anyone locally who would bend it for us, so we built our own breakpress to form the pieces into the shapes we needed. Then we welded the pieces together to make the box."

Their box measures 20 ft. long by 12 ft. wide and 14 1/2 ft. high. It slopes to the bottom center, where a drag auger pulls grain to the front. A series of four hydraulically controlled doors regulate the flow of grain

into the 19-in. turret auger.

The box mounts on a frame made of old bridge I-beams that measure 4 3/4 in. wide by 10 in. deep. The rear axle is the drive axle from a 750 Massey combine. The rear wheels and tires were salvaged from the same machine, but the tires had been designed for use on a Terragator. For the front axle, they went back to the junkyard and found an old IH heavy-duty truck front end. "The truck was rated at 18,000 lbs. I'd never seen anything with that size of spindles on it before," he says.

On the front, it has wheels and tires from a Gleaner combine. "I bought them at an auction for \$50. The Gleaner wheels fit the truck hubs with no adapter," Steven says.

In sizing the frame, they set the rear axle 7 ft. from the back of the box, so it would carry 70 percent of the weight. "In order to keep some weight on the front axle, we set it back about 3 ft. from the front," Neil notes.

That posed a bit of a problem for steering it with a tongue, though. After several attempts, though, the brothers designed a steering linkage that allows the tongue to pivot at the front of the box, with tie rods to the front wheels. "It actually steps down the action of the tongue, so it has to move quite a bit before the front wheels begin to turn," Neil says. "But it keeps the steering action from being jerky, which is something we needed to avoid in a wagon this big. It also makes it easier to back up than most four-wheel wagons."

Augers and how to drive them posed another problem. They bought 4-ft. lengths of 18-in. auger flighting and built the auger for the grain cart themselves. "We had to have the tubes formed for us, but we put it all together in the shop," he says.

On the front of the wagon, they mounted a gearbox they salvaged from a Bush Hog stalk chopper. "It's a big one," Neil says. "The tractor pto shaft goes into the center of the gearbox, and there are two shafts out the sides of it. We used sprockets and double 80 roller chain to make chain drives off of both sides of the gearbox to turn the augers."

During the course of building the big cart, they found they needed to cut bearing races and resize shafts and sprockets to fit shafts. Rather than taking the parts to a local machine shop, they calculated the cost and figured they could justify buying a used industrial metal turning lathe. "It's not a fancy lathe, but it does what we needed it to do," Neil says.

Since the augers are powered by the tractor pto, they need to leave a tractor with the wagon while it's in use in the field. They use a 4555 JD two-wheel drive to pull it to and from the field and run the augers and hydraulics.

The Soehrens designed the cart to sit in one spot in the field where it is accessible to both their 8820 Deere combine and the semi they use to haul grain from the field. "We can park it right in the road ditch and still reach

the semi parked on the road," Neil tells. "Because it holds so much grain and loads it out so quickly, I can keep up with just one truck."

Should it ever be necessary, they can pull the loaded wagon from the field and dump it into the auger that fills their on-farm grain bins. "We put a dump gate like those on straight trucks in the rear of the box, just in case," he says.

In building the cart, the brothers used chalk to make full-sized drawings of how they wanted it to look on the concrete shop floor. "Then we'd lay out the parts to fit the drawings and weld them together," Neil says.

The Soehrens didn't add up the total cost of their big grain cart. The biggest share of the cost was in the augers, which cost just under \$1,500. The front wheels and tires were just \$50. Everything else was salvaged from equipment they had on hand or at the junkyard and they say the total cost of all that wasn't much more than \$1,000. That means they put it together for under \$3,000. "Unless you count the cost of the metal lathe, that is. That cost us about \$1,500, but we've used it on so many other repairs since we made the wagon that it's more than paid for itself," Neil concludes.

Contact: FARM SHOW Followup, Steven and Neil Soehren, 91302 520th Ave., Windom, Minn. 56101 (ph 507 831-3646).

Drought Spawns Idea For Big Water Trough

The drought over the past few years in Canada's western prairie provinces has required stockmen to devote a lot of effort to hauling or finding water.

Floyd McMartin, Aberdeen, Saskatchewan, found himself in that fix and decided to do something about it.

He designed a round polyethylene drinking trough that fits around a 5,800-gal. polyethylene water tank.

The tank is 10 ft. in diameter and 12 ft. tall. Because the trough is also polyethylene, it's easy to clean and there's no rust or corrosion. The trough is 24 in. high and 14 ft. in diameter with 40 ft. of usable drinking space. A float valve controls water flow from the tank into the trough.

The tank and trough can be moved from pasture to pasture or set in a more permanent

location. While the system was designed primarily for warm season use, McMartin says it can be used in winter by installing a floating trough heater.

He says some buyers have set them up to catch roof run-off water. Others keep them full by installing solar-powered pumps on low-volume water wells.

McMartin's company, Hold-On Industries, offers a 12-month warranty. Suggested price is \$5,500 (Canadian) for the 5,800-gal. system. A 3,800-gal. system is available for \$3,300.

Contact: FARM SHOW Followup, Hold-On Industries Inc., Box 430, Aberdeen, Sask., Canada S0K 0A0 (ph 800 383-2228 or 306 253-4343; fax 306 374-7146); E-mail: holdon@hold-onindustries.com; Website: www.hold-onindustries.com).



Floyd McMartin designed this round polyethylene drinking trough that fits around a 5,800-gal. poly water tank.