Cart is equipped with steering arm that runs from the axle to a ball hitch that mounts on toolbar pulling the cart. Keeps cart from pulling to left or right and turns precisely.

TRACKS PRECISELY BEHIND IMPLEMENT

"Steerable" Fertilizer Caddy

There are many uses for this versatile new fertilizer caddy that "steers" itself to precisely follow in the tracks of any implement.

What makes it unique, according to inventor Roger Montag of Howardstown, Ky., is a steering arm that runs from the axle on the cart to a ball hitch that mounts on the toolbar pulling the cart. The cart's tongue pivots on a separate ball hitch on the toolbar.

The cart itself features a simple air delivery system that Montag invented several years ago for deep placement of fertilizer (Vol. 17, No. 3). The design has been incorporated into equipment produced by several manufacturers.

Montag built the new cart to combine his air system with the "steerable" axle in order to come up with a fertilizer cart that would adapt to many different situations.

"It's a simple, low-cost system. You can use it to do everything from deep banding fertilizer to planting soybeans," says Montag. "We used it last year on more than 1,000 acres, mostly to sidedress dry fertilizer in corn. With the cart behind the toolbar the driver has a great view of the knives. It could also be used to apply preplant fertilizer or it can be used behind a planter to apply herbicides or starter fertilizer. In addition, you can pull it behind a field cultivator or disk to plant soybeans.

"By replacing the hopper and air metering system with a tank and pump, you could use it to apply liquid fertilizer or herbicides.

"The steering system keeps the cart from pulling to the left or right and allows it to follow directly behind the implement instead of lagging downhill or in the direction you're turning. When you turn at the end of the field, the cart follows the rows almost as tight as you can turn the planter and, at the end of the turn, it 'squares up' to come back between the rows immediately without driving over them. The steering system allows the cart to pull easier at the end of the field and also makes it easier to back up.

"It eliminates the need for expensive long hitches that are normally necessary on tow-behind carts to keep from catching on the implement when turning at the end of the field. The short tongue also reduces the blowing distance."

The cart is equipped with a hydraulic-driven blower mounted behind the hopper. The blower sends air into a series of stainless steel "acceleration chambers" mounted at the bottom of the hopper. Air spins around inside each chamber and picks up fertilizer metered to it by a ground-driven auger inside the hopper. The spinning air blows the fertilizer through hoses ahead to the toolbar where it's injected into the soil.

"Separate air chambers for each row ensure that the same amount of fertilizer is delivered to each row," says Montag.

He expects to have 3-ton (shown in photo) and 5-ton carts available this fall. The 3-ton model will sell for about $2,000 and the 5-ton model for about $3,500.

Contact: FARM SHOW Followup, Roger Montag, 7500 Stiles Rd., Howardstown, Ky. 40051 (ph 502 549-5359).

Cart can be used to do everything from deep banding fertilizer to planting soybeans.

David and Martin Ray made their own bins from scratch by welding sheets of 10 and 12 ga. steel together so that they're smooth inside and out.

20,000-BU. BINS WELDED TOGETHER FROM SCRATCH

They Make Their Own Grain Bins

You've never seen grain bins like the ones built by David and Martin Ray of Winfield, Kan., who put up four 20,000-bu. "peaked", smooth-sided bins that are as tight or tighter than any commercial built bins.

The bins look a little like the ends of giant-size bullets sticking out of the ground. They're 33 1/3 ft. in diameter and stand 24 ft. high at the eave and 45 ft. at the peak. They were made by welding 6 by 20-ft. sheets of 3/16-in. thick, 10 and 12 gauge steel together so they have smooth sides both inside and out. Each bin has a rung ladder on the side that leads up to a stairway and hand rail on the roof.

Each bin has an auger that's permanently mounted on the roof and powered by a 5 hp electric motor. A pair of 40-ft. long, 8-in. dia. portable augers are used to dump grain into the roof augers. Grain is unloaded by auger out the bottom of the bin.

"We saved a lot of money by building them on our own," says David, who says that he gives credit to the Lord for their abilities. "The steep 45 degree roof angle increases the bin's capacity and makes it stronger. It also eliminates the need for trusses. By filling the bin all the way to the peak we can increase capacity to 21,000 bu. while also reducing the surface area available to insects.

"We've stored wheat and milo in the bins for up to 2 1/2 years with no insect problems. Because the bins are welded together, there are no cracks for insects to crawl through and no bolts or seams to catch and hold grain like on commercial bins. Also, grain can't catch on the round access door at the bottom of the bin like it can on a conventional door frame. There are only two ways insects can get into our bins - through the blower at the bottom or the fill hole at the top. Another advantage is that the smooth sides make the bins easy to sweep out.

"We store high moisture milo in a couple of the bins. Thermal heat caused by the sun heating the roof can raise the inside temperature by 20 degrees. The aeration system we use pulls air from the top of the bin and out the bottom, which combined with the thermal heat allows the grain on top to dry first. As a result we can unload about 5,000 bu. from the top without having to wait for the entire bin to dry. We've cut milo with up to 23% moisture with no problems, although when it's that wet we fill the bin only 1/2 to 2/3 full."

The Rays used a home-built crane on a truck axle to build the bins. It tows behind the tractor and can raise a 750-lb. load 55 ft. in the air. "We put up one 6-ft. high steel ring at a time," says Martin. "We weld ears on the first ring which ends up being the top ring, then bolt trusses to them and weld the roof into place. Then we remove the trusses. After the roof is welded together, we use the hoist to raise the entire bin 6 ft. so we can install the next ring. Once the cement floor is poured it takes two men about 10 days to get the first ring up and finish building the roof. It takes about one week to weld the body of the bin together. We then install grain temperature sensors as well as the augers.

"The sides of the bins are anchored by 7/8-in. dia. steel rods spaced 2 ft. apart and cast in cement. The rods stick about 8 in. above the cement and are welded to the bottom ring on the bin. The cement foundation is 3 1/2 ft. deep."

The Rays unload grain from the bins into a 1,200 bu. overhead holding bin that allows semi trucks to be loaded fast. A nearby 400 bu. hopper serves as a holding bin for a grain cleaner that mounts inside a shed. Eventually they plan to add a leg system which will make it easier to load and unload the bins and will allow them to start their own wheat seed cleaning business.

They make their own augers by welding flighting that they buy from an auger manufacturer onto steel tubes, then inserting it into a pipe. They use their own lathe to make stub shafts that they weld into the ends of the auger. "We build our own augers for less than half the cost of new commercial augers," says David.

Contact: FARM SHOW Followup, David and Martin Ray, RR 2, Box 236A, Winfield, Kan. 67156 (ph 316 221-3541).