

Self-Propelled Feed Mixer

Samuel Yoder used an Allis Chalmers WD 45 to self propel an old stationary TMR mixer. Ideal for use on the concrete between silos and feed house, it's easy to maneuver, and is sized right for his small dairy herd. Best of all, if he quit dairying tomorrow, he could put his WD 45 back together and be out in the field a few hours later.

"When I started milking about five years ago, I needed a mixer," recalls Yoder. "Combining an old, unused 2120 Knight TMR with the WD 45 on a steel frame gave me power and a way to get from one silo to another."

The frame is a simple rectangle welded from 7-in. channel iron and reinforced by the tractor and mixer frames. Yoder bolted the weight bars of the 2120 Knight to the rear half of the frame. This kept the scales functional.

In order to mount the WD 45 and use the pto to drive the mixer, Yoder removed the rear fenders, wheels and seat. He needed to make room on the rear to mount a big no. 60 sprocket on the pto shaft and position it flush against the front of the mixer.

The front end of the WD 45 bolts to the front of the channel iron frame. Large U-bolts over the main axle secure it to both sides of the frame.

Without a seat, Yoder needed to be able to control the self-propelled TMR from the ground. To do so easily, he lowered the unit's frame. He replaced the rear tractor wheels

with a set of cut down centers.

"I wrapped steel around a set of old wheel centers," he says. "They let me kneel on the frame and control the tractor with my hands."

He also removed the wide front end and installed a caster wheel at the unit's rear. The homemade caster wheel lets Yoder steer the unit with the brakes. The wheel is two, 1/2-in. round steel plates bolted to each side of the caster mechanism.

To power the TMR, Yoder ran a #60 roller chain from the sprocket on the pto shaft to the drive shaft of the mixer. The rotation was wrong, so he had to make a special bracket with tightener to reverse the roller chain direction. The chain runs up one side and then back down around the mixer drive sprocket before returning to the pto.

"The chain doesn't slip, even when I stall out the WD 45," says Yoder. "The only thing I can't do is to weigh the feed as I mix it. The pull of the chain throws off the scales."

While the TMR/WD 45 has its limitations, such as not being able to easily drive off concrete, those are outweighed by positives.

"The overall length is less than if I had a trailer mounted TMR, so it's easier to get into tight places and back up to silos," says Yoder.

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Samuel Yoder uses an Allis Chalmers WD 45 tractor to self propel an old stationary TMR mixer (above). Tractor's pto is used to chain-drive the mixer.

Simple Solution To 3-Pt. Hookups

Don Ramberg has a simple solution to dealing with 3-pt. implements. He "tongue jacks" them by welding trailer tongue jacks to the front of 3-pt. hitch attachments and implements. The jacks make them easier to store and easier to hook up.

"I often borrow my brother-in-law's cultivator, and it seems that every time I do, it falls on its nose," explains Ramberg. "Then I have to find blocks to hold it up. I've always used tongue jacks on trailers and thought, why not use them on 3-pt. implements, too?"

Ramberg buys his jacks for \$19 each (less

when they are on sale) at Harbor Freight. He attaches them in spots where they won't interfere with the implement's use.

"A tongue jack is especially handy on heavy attachments like snowblowers," he says. "I screw the jack up until the arm on the opposite side slides into place. Then I raise or lower it to match the near side arm. It makes hooking up the 3-pt. easy."

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Don Ramberg welds trailer tongue jacks on front of 3-pt. implements such as his cultivator (left) and snowblower.



Two rows of round bales are set tight against each other and about 20 ft. apart. Combine drives alongside and dumps high moisture shelled corn between bales.

Round Bale Grain Storage

"It's not a place to keep corn permanently, but it's easy to feed cattle out of it for a few weeks and eliminates drying costs," says Rex Gogerty, who uses rows of round bales to temporarily store high moisture shelled corn harvested late in the season.

His round bale feed bunker is located next to his feedlot. He sets up two rows of round bales tight against each other and about 20 ft. apart, and then drives his combine alongside and dumps 18 to 20 percent moisture shelled corn between the bales. A loader tractor

scoops the corn into a wagon, as needed.

"It's a good way to get rid of high moisture corn without having to dry it," says Gogerty. "We store about 1,500 bu. between the bales. The corn keeps for quite a while, because the weather is colder by the end of the harvest season. Usually we get all the corn fed out within a few weeks, before it can spoil."

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Manure To Power Electric Plant

By next year, manure briquettes from Wisconsin dairy farmers could be used to power coal-burning power plants. Efrim Energy, a Great Neck, N.Y., based company has agreements to work with half a dozen farmers in Brown and Kewaunee counties in northeastern Wisconsin to set up on-farm facilities to make the briquettes.

The three-step process begins by pumping manure into a slurry separator that squeezes out liquid to reduce moisture content to about 65 percent. Next, the manure goes through a dryer that creates friction and raises the temperature to a point where it kills pathogens and reduces moisture to about 15 percent - no additional heat is added to the process and no impurities are introduced into the atmosphere. Finally, the dried manure is squeezed through dies to make odorless 3 by 5-in. briquettes.

Only a small amount of electricity is used to operate the system. The energy content of the briquettes varies slightly according to the cattle's feedstock.

"In Wisconsin, it's between 8,000 and 8,500 btu/lb., almost like a lower grade coal," says Raphael Fink, managing partner of Efrim Energy.

Utility companies are required to meet federal EPA and state-mandated standards by increasing use of green energy sources.

The briquettes can help them meet the requirements without the utility company having to build new infrastructure. Briquettes can be delivered regularly with consistent moisture content, which is often difficult with other biomass products such as wood. The briquette form is easy to transport, and companies can pulverize it along with coal.

For farmers, especially those with a concentrated animal feeding operation, turning manure into fuel solves the huge problem of finding enough land to spread manure. Producers still get the benefit of the nutrient-rich liquid that is left, which can be applied year round instead of just a couple times a year.

Fink is working with interested farmers and state officials to find funding to set up the processors. They require 40 by 100-ft. facilities on concrete slab with protection from the weather.

The estimated set-up cost per processor is \$1.5 million. Potentially, six farms could produce 54,000 tons of briquettes a year.

"Wisconsin was the first to introduce digesters, and we'd like to introduce this new technology in this state," Fink says.

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