

TMR MIXER OPTIONS & FEATURES



From the mini mixer to the twin auger, options exist for every feeding situation.

by Paige Nelson, field editor

Dried distillers' grains, potato slurry, cottonseed hulls, backyard grass clippings, grocery produce waste ... These days, beef production is all about using byproducts to lower the No. 1 operational cost — feed.

The trouble is most byproducts, if not all, must be mixed with other ingredients to meet the nutrient requirements of cattle. Even those operations not feeding concentrate grains or byproducts recognize the benefits of being able to mix high-quality hay with low-quality straw for dry, gestating cows.

Thanks to new innovations in the feed equipment industry, feeding a total mixed ration (TMR) is no

longer a convenience solely for large operators.

The right fit

Tub grinder, feed wagon, mixer wagon — TMR mixers have many names. They are all designed, however, to do basically the same thing — take feed ingredients (corn silage, alfalfa, straw, mineral

pack, etc.) and blend/mix them into a uniform, small-particle-size ration.

Many mixer manufacturers exist, but here two of the industry-leading companies will be used as examples: Jaylor and Supreme International. Both manufacturers offer a wide range of mixer sizes, and the customizable features are plentiful, meaning just about every operation, big or small, interested in feeding a TMR can find what they need.

According to David Kammel, biological systems engineering professor at the University of Wisconsin-Madison, any buyer of a TMR mixer should use these questions to zero in on the right mixer for their situation.

- ▶ What kinds of feedstuffs are in the ration?
- ▶ Can this mixer incorporate dry hay/straw into the ration?
- ▶ Can this mixer make a uniform mix out of the feedstuffs?
- ▶ What size mixer is needed?
- ▶ How many hours per day will the mixer operate?
- ▶ Is there a local service facility or company?
- ▶ Is the mixer built well?
- ▶ Is the mixer available as a pull-type or a truck mount?
- ▶ What kind(s) of scales are available?
- ▶ Are there mixers of this brand close by for inspection?
- ▶ What special features are needed for the feeding situation?
- ▶ What is the budget?

While these are probably not all the questions to ask when choosing a mixer, they provide a good place to start.

TMR mixers use an auger with



This cow-calf operation has been using a TMR mixer to blend a high-forage diet of straw, alfalfa hay and corn silage to gestating and nursing cows during the winter months for more than 20 years.



Above: This vertical mixer is used in a feedlot to blend long-stemmed hay, corn silage, potato slurry and ground wheat.

Below: Truck-mounted mixers are handy for feedyards that must travel down the road to feed cattle.



knives on the edges in either a vertical or horizontal orientation to cut and blend the feed. The raw feedstuffs going into the mixer determine which type of mixer — vertical or horizontal — will best fit the feeding situation.

Vertical

Alan Vaage, ruminant nutritionist for Jaylor, says vertical

mixers were designed to process round bales and long forage.

“A vertical mixer has large vertical augers that pick up the feed and elevate it up to the top where it’s distributed at the top of the mixer, and then it flows down,” he explains. “The auger is just lifting it and using gravity to do the mixing action as it flows back down. Vertical mixers can

generally be used to 100% capacity.”

Vertical mixers come in both single- and double-auger models.

Matt Wakley of Valley Implement of Preston, Idaho, a Supreme International dealer, says Supreme only manufactures vertical mixers because of their versatility and reliability in producing a uniform and consistent mix.

Fig. 1: Mechanics of a vertical TMR mixer

Designed to process round bales and long forage, large vertical augers pick up the feed and elevate it up to the top where it’s distributed at the top of the mixer and gravity pulls it down.

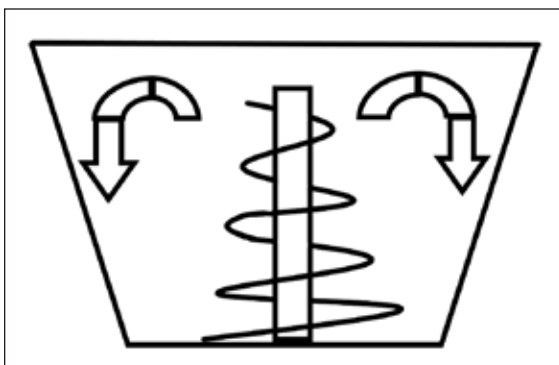
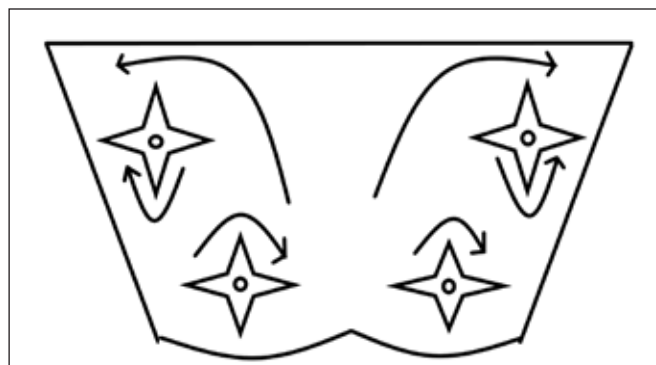


Fig. 2: Mechanics of a horizontal TMR mixer

A four-auger horizontal mixer uses the two bottom augers to push feed toward the front of the mixer. At the end of those two augers near the front, reverse flighting forces the feed upward. The two top augers then move the feed toward the back in a tumbling action.



“The general feeling is they do a better job with more feed and a little more capacity,” says Wakley.

Horizontal

Horizontal mixers push feed horizontally toward the front of the mixer, Vaage describes. A four-auger model, for instance, uses the two bottom augers to push feed toward the front of the mixer. Just at the end of those two augers near the front, reverse flighting forces the feed upward. The two top augers then move the feed toward the back in a tumbling action.

“Horizontal mixers will mix fairly well with small loads, 15% of their capacity, but they need room at the top, so 15%-70% of their capacity that you put feed into. But because of the nature of the design of the augers, they really don’t mix long forages very well,” says Vaage.

They work well in feedlot situations where most of the feeds are preprocessed and particle size breakdown isn’t required. Jaylor manufactures both vertical and horizontal mixers.

Pull, mount or plant

Mixers come in three forms:

- ▶ pull-type, in which a tractor pulls the mixer;
- ▶ truck-mounted, for which the mixer is mounted over the bed and rear axles of a truck; or
- ▶ stationary, often used in very large feedlot and dairy settings.

Wakley says those using truck-mounted mixers are most often traveling some distance between their stackyard and feedbunks.

The time savings really add up if you have to travel, he says.

Still, there are trade-offs with a mixer bolted onto a vehicle.

“In my personal experience, having not had the best truck in the world under the mixer,” recalls Wakley, “we had more trouble keeping our truck running than we did mixing feed and feeding with it. It just seems like the tractor is real reliable running it off the PTO. ...”

“When your truck is broke

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down, you look at alternative ways of feeding cattle real quick,” he continues.

A different scenario, however, creates a different outcome. Eloy Mendoza of Broken Arrow Cattle of Lewisville, Idaho, says what he likes best about his used truck-mounted mixer is that it hasn't given him a day's worth of trouble.

“It goes up and down the road a lot quicker,” he says. “If you have to move around, the truck-mounted is nice.”

Bottom line: Take the time to assess needs and ensure a contingency plan is in place in case of breakdown.

Size equals time

A bigger mixer requires more horsepower, but it can process more feed and lay it in front of cattle more quickly. It also comes with a heftier price tag. A smaller mixer requires less horsepower, but may take longer to mix and feed due to smaller batches.

Feedyards typically use larger models that will mix and feed cattle faster. Jaylor's largest model is the 51250HD. It handles four, 5x6 round bales at a time. Supreme International's largest model is the 1900TR with a payload of 60,000 pounds (lb.). A feedlot may even opt for stationary mixers and use truck-mounted forage boxes with moving floors to feed cattle, explains Vaage.

Wakley says his most popular model for feedlots, dairies and cow-calf ranches is the Supreme 700T (twin-screw model). It handles a payload of 14,000 lb. and requires 100 hp units.

“A lot of our guys do want that flexibility to fit in some tighter spaces along bunks, and it's got enough capacity that you're not having to mix all the time,” Wakley explains.

He also sells the Supreme 500 model to smaller operators.

“We still will have guys that are smaller producers buying those. If they mix a full load and don't eat it all, they park it under the shed and



The modifications on this mixer allow the operator to raise the conveyor to the customized height, elevating the feed over the rail of the portable feeder.

feed it the next day,” he says.

Even smaller-scale cow-calf operations can find a fit. Vaage says Jaylor offers two mini-mixer options. The 5050 and 5100 are self-powered with Honda engines and a hydraulic drive system. Jaylor now has a first-in-the-marketplace skid-steer mixer that uses high-flow hydraulics. The mini-mixers are low-profile and fit in tight spots.

Supreme's line, Segue by Supreme, offers the same Supreme tub and auger design but in a

smaller form. The 3S Segue has a payload of 6,000 lb. and requires 50 hp units with the option of a right or left side door.

Optional features

While the main design of each TMR mixer is similar across brands, the features and feature combinations are vast.

Vaage ensures that whatever the customer's feeding situation is, there is a mixer with feature options to fit.

For example, Jaylor offers different door configurations. A front door with a conveyor is ideal for feedlots and ranches who are feeding in bunks or feeders with varying heights, because a flip-up conveyor with up to a



Above: This 900T Supreme Vertical truck-mounted mixer comes standard with a viewing platform with optional feature of a 10-inch industrial belting extension.

Right: A 6-ft. conveyor extension on this mixer uses a dog leg to elevate it out of the way of the flat conveyor, allowing the mixer to fill tight-spaced bunks, as well as high-rail feeders. The 10-inch industrial belting extension is further customized by more belting located in the front to combat spillage when mixing. A Digi-Star scale and cab control panel further customize the equipment.



6-foot (ft.) extension can be added.

However, he says, “A corner door is much less expensive than a large conveyor, and for people who have fenceline feeders or feed on the ground, a corner door is all that's required. It saves a few thousand dollars.

“If you get someone who wants to feed off the corner to save some money but might feed in a J bunk and needs a little elevation, then they can go with a corner door with a 3-ft. flip-up conveyor,” he continues.

Supreme offers a right-hand or left-hand delivery door with a dog leg to elevate the conveyor above the standard height of the discharge chute, says Wakley. Supreme also offers conveyors that feed off of either side.

GPS navigation may be an additional feature to consider. Ruminant nutritionist and cattle rancher Zak Miller took his feedlot operations a step further when he realized he could reduce feed waste and increase efficiency by using GPS mapping and implement steering to guide the tractor.

“We've got modifications on our mixer to reach out and feed in feeders in the field, but then that also becomes a hindrance in the feedlot. We've had operators actually tear the whole thing off before. We've felt like our loss on feed has gone down because we're putting the feed in the right place at the right time, and we don't worry about tearing down the equipment or tearing down the corrals,” notes Miller.

Where there is a need, farmers and ranchers always seem to find a solution, and feeding cattle is no exception. While the TMR mixer scene is dominated by feedlots, TMR mixer companies are innovating their designs, so no matter the size of the business, cattlemen can provide their animals the best nutrition possible. |

Editor's note: Paige Nelson is a freelance writer and cattlewoman from Rigby, Idaho.