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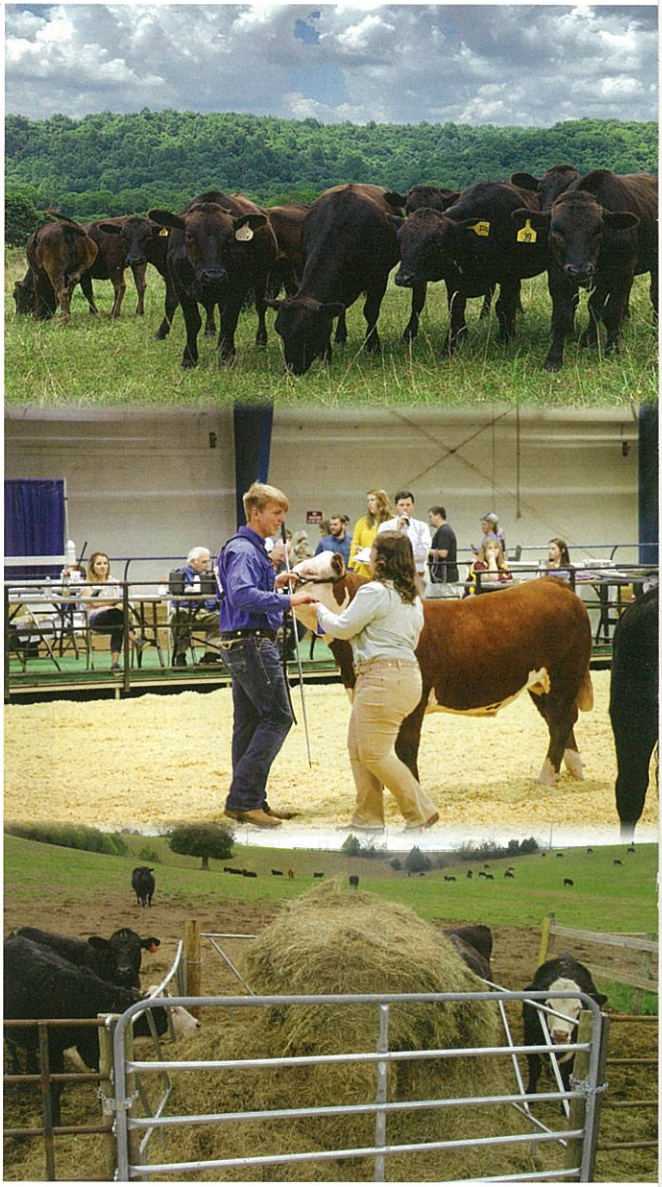

On the cover:
Tommy Ragland stands in front of his Wagyu herd. Photo by Charles Hord.

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Fence Line Hay Feeders: Thinking Outside the Fence

By Matthew Webb, UT Extension Marshall County

As an Extension Agent, I get to visit with a lot people on a lot of topics. On any given day, I can answer questions about producing quality hay, pruning trees or what can be done about this bug in my garden. About a year to eighteen months ago, I had a farmer come in the office that shared an idea he saw on a video that got me excited as well as others about a potential system that could make feeding hay quicker, efficient and safer. It could also become a management tool we can use to reduce the effects of mud on cattle performance.

The before mentioned video was produced by Eden Shale Farm https://www.edenshalefarm.com/ in Owenton, KY. This former University of Kentucky research dairy farm is now managed by the Kentucky Beef Network in partnership with UK and the Kentucky Cattlemen's Association. They have been developing various demonstrations on hay feeder design, livestock water systems, rainwater harvesting and forage management. A group of agents and specialists have taken two trips to visit their fence line hay feeder systems. Fortunately, we have now replicated those feeder systems here in Tennessee.

This past winter, five different fence line hay feeder systems were built and implemented by the farm crew at the Tennessee Beef Heifer Development Center in Lewisburg. These are two bale feeders with either geotextile fabric with rock/chert or concrete pads that are 8 feet wide by 12 feet long. Two systems are identical with concrete pads but differ in that one is roofed and the other is not. The other systems are all on chert/rock pads but one uses metal feeder panels and the other are homemade wooden panels. The last system is constructed using two pieces from a 3-piece hay ring built into the fence. This last system is actually a 3 bale feeding system because purchasing two 3-piece hay rings results in three feeding stations. So far through observation and conservation, we are seeing the benefits, possibilities and suggestions along with just a couple of issues becoming apparent with our use of these systems.

Benefits

Time Management – These fence line hay feeders hold multiple bales of hay at one time. As a result, it is possible to move from feeding hay daily to a couple of times weekly. For example, a typical TN beef cow herd is 30-35 cows. If you built a feeder that could hold 6 bales (pushing 6 bales would be about the limit for most tractors), feeding hay may only be a 1 to 2 times a week job. Since most producers are part-time, this would be an advantage for those of you who feed after dark in the winter.

Safety – Part of the drudgery of feeding hay in the winter is the getting up and down off the tractor, the opening the gates, pushing cows away from hay rings, the tractor and the hay bale. Additionally, there is the worry of getting the tractor or yourself stuck in the mud, potentially spearing a cow or getting yourself trampled. With these feeders, you are on one side of the fence and the cattle are on the other side. Again this simple fact makes feeding cattle so much safer whether we are feeding in the day or in the dark.

Less Hay Waste – There is potentially more hay consumed and less wasted in these systems. Since the feeders are set up on good pad and on a well-drained site, there is less "wicking" of moisture at the bottom of the hay bale. In the systems utilizing feeder panels that are 8 feet wide, cattle are forced to stretch their necks into the bale to feed. Instead of dropping the excess hay from their mouth on the ground at their feet, the excess hay falls back into the feeder. If cattle are forced to utilize all of the hay they can reach, there is a 12 to 18 inch band of hay left in the feeders. This is not a problem as it will be pushed to the front of the feeder when the next bale of hay is slotted into the feeder.

Animal Health – We have all seen cattle up to their bellies in mud around a hay ring. Research has shown that when mud gets over 8 inches deep, animal performance starts to decline. Cattle have to eat more and better feed to maintain themselves in these conditions. Feet problems are more likely. Also with deep mud, calves are more susceptible to scours or worse becoming stuck or trampled to death. The pads under these feeders allow the opportunity for these animals to get out of the mud.

Restrict Damage To Pasture – Every year, I am asked what farmers can do to repair the damage to pastures from winter hay feeding. These sites are hard to repair because we are dealing with compaction from hooves and tractor tracks, decomposing hay, poor seed beds and exploding weeds. The last couple of winters have been wet winters so the damage to pasture has been widespread. With properly placed fence line hay feeders, the areas where pasture damage occurs can be restricted to smaller, more manageable areas that will require less inputs to deal with the loss of ground cover or outstanding weed pressures.

Possibilities

Weaning/Receiving Areas – Because the fence line hay feeders are oriented perpendicular to the fence line, cattle behavior can be modified during the weaning or receiving phase of production. Everyone that has weaned or bought new calves knows that their first behavior is to walk the fence line looking for momma. In the case that they are in an area that has access to a fence line hay feeder, they will be forced to walk into the feeder. We have learned that the best thing we can do with newly purchased cattle is to get them to eat and the best feed to feed them is good quality hay.

Drought Feeding – Drought is a given. One of the worst practices that cattlemen do is to open all of the gates during a drought to allow cattle to pick what forage they can find. This results in pastures that are poor at recovering and are more open to weed issues. Having a "sacrifice" area dedicated to times of slower or no pasture growth can allow the producer to remove cattle from pastures and feed hay. Once the rains return, pastures will respond back quicker. Fence line hay feeders would be a logical fit for sacrifice areas.

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Layout Suggestions

Location – The placement for these fence line hay feeders is the most critical part in order to realize the benefits and possibilities from these systems and reduce the impact of the issues you will have to deal with in their use. Areas that need to be used should be level and well-drained areas. Ridgetops and flat fields are ideal. Access to a road makes feeding much easier, efficient and less muddy. Poor sites would be close to water sources or low laying sites. Mud will be much more of a problem on these sites and environmental issues with water quality are much greater. Also, these areas tend to be colder and wetter and we know that those are the conditions that cattle will demand a greater amount of forage for heat and maintenance.

Design – Construction of pads for fence line hay feeders should at minimum be 28 feet wide for feeders that utilize feed panels. This allows 8 feet for hay placement in the feeder and 10 feet on either side to accommodate cattle feeding. These feeders can be as long as you desire as long as your tractor is able to push hay bales and leftover hay across the feeder. It has been suggested that most feeders not hold more than 6 bales otherwise larger tractors would be required that may not fit the 8 foot width of the feeder. Pads need to have geotextile fabric with crushed stone, chert or concrete. Having a 2% slope will aid in allowing excess moisture to run off. Hay ring feeders will need a little different design. There should be a 6.5 foot spacing to attach 2 pieces of the hay ring and then 10 feet on either side. Feed panels and rings should have a skirt to reduce wastage and soiling. Feed panels 12 feet long will allow 6 animals to feed at one time and two pieces of a 3-piece hay ring will allow 10 animals to feed at one time.

Access to hay barn/working facilities/pastures – Ideally fence line feeders should be placed in areas close to hay barns, working facilities or pastures that allow time and fuel to be used more efficiently or animals can be moved more effectively. Some of the feeders that we toured in Kentucky were adjacent to hay storage and feeding was done in minutes. Could you imagine an opportunity to feed cattle in less than an hour only once or twice weekly? Others we saw were near barns that contained working facilities. This aided in helping move cattle that had health or calving issues. Additionally, the feeders we saw were centralized around 3 or 4 fields and were made a part of a rotational grazing system.

Issues

Some of the issues with the fence line hay feeder systems is cost, manure management, hay quality and maintenance. The cost to put these systems in place have ranged from $1489 to $2325 at the research farm in Lewisburg. These costs are for materials only and do not include labor, site prep or equipment rental. The Eden Shale Farm feeders cost estimates ranged from $1340 to $4050 and again these costs do not include labor.

I have put down that manure management is an issue from the stand point that the feeders will have a little waste in them and will need to have manure cleaned out from around them at some point. Ideally, this manure needs to be piled away from water sources and allowed to be dried before land application. I believe ultimately that the manure would prove to be an asset to those fields that need the nutrients.

Hay quality will be an issue in these systems. If hay is average or better, utilization by the cattle will be very good. However, if we use poor quality hay that may have been stored outside, rotted or over mature (8 foot tall johnsongrass), cattle rejection and the amount of waste in these feeders will be much higher. Likewise, more cleaning of the feeders will be needed in order to use the feeders effectively.

The fence line hay feeding systems are not maintenance free. Since we are feeding cattle on a pad, whether it is rock or chert on geotextile fabric or concrete, at the edge of the pad will eventually develop a drop off formed by cattle traffic that will need some replacing of rock or chert. Cattle hooves will form "dips" at the feeders that are on the rock or chert pads that will need filling in as well. Also, with time, feeder panels or posts may need to be replaced.

Opportunities to Look

These feeders will be on display at the Tennessee Beef Heifer Development Center in Lewisburg at two upcoming field days. Those field days will be the Forage Field Day on September 5th and at the Beef Heifer Development School on October 18th.

Additionally, Eden Shale Farm has an outstanding website of their feeder systems that include videos. Recently, a short video was produced by the University of Tennessee Institute of Agriculture and may be found at YouTube at https://www.youtube.com/watch?v=KNbn2VBe1GE.

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