

THE DIGESTIVE TRACT

Minimize winter-feeding losses

by Dan Shike, University of Illinois



One of the largest determinants of profitability in cow-calf operations is feed costs. The majority

of these costs are associated with feeding stored feed during the winter months when grazing is not an option.

While strategies exist to extend the grazing period, most cows will likely need to be fed stored feed for some period of time. Grazing crop residue, winter annuals and stockpiled forages are all viable options for extending the grazing period. Obviously, geographic location and weather largely dictate the success of these management practices.

Regardless, every operation needs

to have plans for what their winter feeding program will be. Not only should you have a plan, but you need to be ready to adjust that plan depending on the weather and the condition of your cows.

Feeding hay

Most winter feeding plans rely on feeding hay. There are certainly some reasons why this makes sense. Feeding big bales of hay requires minimal equipment and doesn't have to be done daily. Also, hay harvested on your farm or ranch would likely be easy to transition to from grazing as the forages would be similar.

The ease of management and familiarity with this management practice are two of the biggest reasons why feeding hay remains a prominent strategy throughout the

industry. However, there are several factors that ultimately will determine if hay feeding is the best option for you.

First, not all hay was created equal. In the last issue, I wrote about some nutritional basics and discussed the needs of analyzing forages. It is very challenging to have a good winter hay-feeding plan if you do not test your hay. Yes, if you know the species of grass, how much legume is present, and the maturity at which the hay was harvested, you can get close on the analysis; but you can be surprised. If you are purchasing hay, testing is a must.

I am not saying you need to only

have the highest-quality hay available. In fact, in many cases you don't want the highest quality if you

Managing hay loss and waste that can occur during storage and feeding has the potential to cut your hay needs in half.

are going to be feeding the hay free-choice.

Forage intake in cows is regulated by physical fill. This means that the cow will eat until she is full — not until she has met her requirements. High-quality forages that are more digestible will have faster passage rate and will allow for greater intakes. Low-quality, poorly digestible forages will have slow passage rate and low intakes.

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For example, cows consuming high-quality alfalfa hay harvested in the vegetative stage may have dry-matter intakes equivalent to 3% of body weight. However, cows consuming low-quality mature grass or crop residue would likely have dry-matter intakes near 1.5% of body weight.

The fact that the quality and digestibility of hay ultimately determines intake is one of the challenges associated with feeding hay. Again, if you recall in the last issue, I stressed the importance of matching forage resources to cow requirements. This is essential for determining your winter feeding plan. If you feed your dry, pregnant cows your highest-quality hay, they will likely consume substantially more than what they need to meet their requirement. The cows will be in a positive energy balance and will gain weight and condition.

If your cows were already in ideal condition, all this did was cost you money! Likewise, if all you have left is poor-quality hay when your cows are calving and in early lactation, they will not be able to physically eat enough of that hay to meet their requirements. Now the cows will be in a negative energy balance and will be losing weight.

Predicting needs

Another essential piece to the plan

is predicting what your needs will be. It is impossible to predict how mild or severe each winter will be. It is a good practice to build in extra.

If you are going to calculate the amount of hay needed, you not only need to factor in the number of days you plan to feed and estimate intake, but you also need to account for storage and feeding losses. These losses can be substantial and are quite variable from operation to operation depending on management practices.

Hay that is stored uncovered outside on the ground can have storage losses of nearly 50%. Hay needs to be pretty cheap if you are going to harvest or buy twice as much as you need! At the other end of the spectrum, hay that is stored in a building may have storage losses as low as 2%.

Minimize hay losses

If hay is the primary source of winter feed for your operation, you should do some math to see how long it would take for you to pay for a shed to store your hay.

If storing hay outside is your only option, there are several basic

things you should do to minimize loss. Place bales end to end with about 3 feet (ft.) between rows. Orient rows north and south, and avoid storing in low-lying areas. Additionally, you may want to consider storing bales on gravel or on pallets and covering them with net wrap or plastic.

Minimizing storage losses is just half the battle. Feeding method also can contribute substantially to hay loss. There are multiple options for feeding hay, including traditional bale ring feeders, cone feeders, trailers and cradles, rolling out hay, and bale processors.

Research conducted at the University of Missouri evaluated hay-feeding losses with different bale feeders and forage types (see Fig. 1). Hay waste was minimal (about 5%) regardless of feeder type when alfalfa haylage was fed. However, when fescue was fed, cone feeders resulted in less waste than an open ring (10% vs. 20%). Feeder type

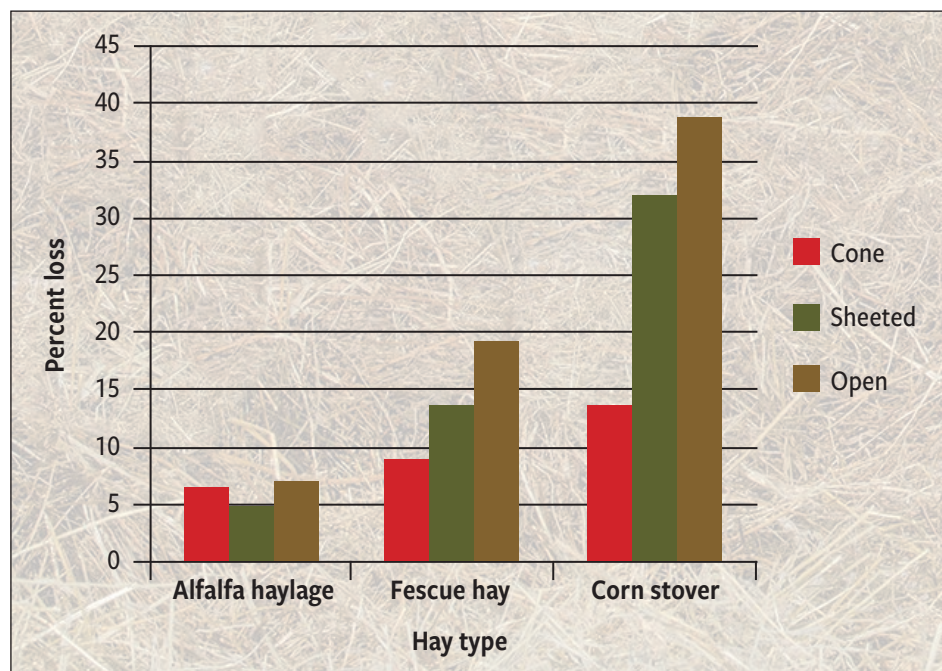
had the most dramatic effect when corn stover was fed; the cone feeder resulted in about 10% waste and the open ring feeder resulted in nearly 40% waste.

Another option for minimizing hay waste is to limit access to hay. Research at the University of Illinois determined that limiting time of access to hay to 6 hours resulted in similar performance to feeding hay *ad libitum*, but significantly reduced hay waste and manure production. If you have the facilities and labor to implement this strategy, this is a good option to consider — especially when you have high-quality hay and your cows' requirements are low.

Controlling feed costs during the winter months will significantly impact your profitability. Develop a plan that works for your operation. Managing hay loss and waste that can occur during storage and feeding has the potential to cut your hay needs in half. Have your hay analyzed, and do your best to match the quality of hay to the requirements of your cows. |

Editor's note: "The Digestive Tract" is a regular column in the *Angus Beef Bulletin* focused on nutrition for the beef cattle life cycle. Dan Shike is associate professor in animal sciences at the University of Illinois.

Fig. 1: Hay losses by bale feeder type and type of hay



SOURCE: Moore and Sexten, professional animal scientist, 2015.



PHOTO BY SHAUNA HERMEL

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