

Winter Feed Options

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The drought of 2012 will be one for the record books and for livestock owners the drought is already affecting winter feed options. Competition for scarce hay supplies is driving the price for even low quality hay to record highs. At hay auctions around the Wayne County area within the last month or so it is not uncommon to see lots of hay selling for \$400 per ton or higher. I saw some hay that sold for \$500 per ton. With those kinds of prices, it is not easy to make a forage purchase decision. In these circumstances what options can be considered to feed the cow herd through the winter? I recently had a phone call from a beef producer asking about the use of corn silage. He wanted to know how much could be fed to a cow, what kind of nutrient levels to expect and how feasible it might be to purchase and haul silage left over from a previous year. I decided to make some phone calls to some OSU Extension specialists to get their input on these questions.

My first phone call was to Steve Boyles, Extension beef specialist, to find out what he would advise regarding feeding corn silage. Well-eared, good quality corn silage will have a crude protein content (CP) somewhere around 9%, with a total digestible nutrient (TDN) content of about 68%. Silage made from drought stressed corn does not have the same nutrient values. Energy content (TDN) will be lower. How much lower depends upon the amount of corn grain that developed. Fiber levels will also be higher since there are fewer corn ears. On the other hand, CP values may be one to two units higher. All in all, if drought stressed corn is chopped at the proper moisture content it can make good silage. Steve mentioned that feeding corn silage free choice to beef cows will likely result in cattle consuming an excess of energy. In this case, monitor the body condition score of the cow and if cows begin to put on extra condition, back off the amount fed.

Another way to use corn silage rather than feeding it free choice is to use it as the main portion of the ration, with a little bit of hay and maybe some protein supplementation thrown in. This requires knowing cow nutrient requirements and nutrient values of the corn silage and hay. Nutrient requirements of a 1200 lb. cow for mid-gestation and late-gestation are given in the following table:

	Mid Gestation		Late Gestation	
Cow weight	CP (lbs/day)	TDN (lbs/day)	CP (lbs/day)	TDN (lbs/day)
1200	1.5	10	1.7	12

While we talked on the phone, Steve used a computer program and book values for good quality corn silage and mature fescue hay to develop a ration. The ration program fed 40 lbs. of the corn silage on an as-fed basis with a small amount of hay. Figuring corn silage at 35% dry matter and using the values mentioned earlier in this article, means this ration provides about 9.5 lbs. of TDN and 1.26 lbs. of CP. To meet the remaining need in mid-gestation will require about 3.5 lbs. of hay per cow (using a CP content of 9% and a TDN value of 50%). This will result in the crude

protein requirement being met and the TDN requirement being exceeded by about one pound per day. In late gestation, feeding this same amount of corn silage (40 lbs. as fed or 14 lbs. on a dry matter basis) will require that about 6.5 lbs. of hay be fed to meet the nutrient shortfall. Steve then plugged in a lower quality silage with few ears; similar to what might be seen in drought conditions. In this case, the program fed corn silage at 20 lbs. as fed (7 lbs. dry matter), 12 lbs. of mature fescue hay and about one-third pound of soybean meal. More or less silage can be fed depending upon the needs of the cows and your supply of feed. During the course of this discussion, Steve pointed out that getting a forage analysis of the hay is an important factor in putting together accurate rations. Testing the corn silage is probably also a good idea, particularly if the quality is lower due to the drought. As we talked, Steve commented that many smaller cow/calf producers may not be set up to handle and feed corn silage. He suggested that they consider other feed options, which I will cover later in this article.

My next phone call went to [Mark Sulc](#), Extension forage specialist. My question to Mark dealt specifically with transferring silage from one silo to another farm silo or pile. To answer this question, Mark referred to a fact sheet on this topic from the University of Wisconsin Extension forage team. According to this fact sheet, this type of silage moving and handling can result in both good and bad experiences. There will be loss of both nutritive and dry matter value because of the introduction of oxygen into the transferred silage. The severity of the loss depends upon the quality of the corn silage to begin with, and factors within the transfer process.

The goal in either transferring silage or feeding silage is to minimize the heating and resulting spoilage that will occur once oxygen is introduced. Therefore, if silage is to be transferred from one farm to another it should be done during periods of cold weather to reduce heating. Once the silage arrives at its destination it should be put into a bunker silo, or pile and re-packed to exclude oxygen. Covering the pile after packing will also help to reduce spoilage. In some cases, adding a propionic acid based additive can reduce the growth of yeasts and molds. According the University of Wisconsin fact sheet, these products are usually added at a rate of about 4 lbs. /ton of as-fed silage. Finally, the transfer and transport of the silage should be done as quickly as possible. The shorter the distance between farms, the better.

My next conversation was with Bill Weiss, an Extension dairy nutrition specialist located at OARDC. Bill said that transferring silage between farms is something that is commonly done and losses can be as low as 1 to 2 percent when everything is done right. Done right means starting with well-fermented, high quality silage. Transfer is done during cold winter temperatures and the silage is either re-packed into a silage bag or bunker silo within a 48- hour period. The sooner the better. The worst situation would be transferring during warm weather over more than a 48- hour period and storage on bare soil. Recognizing that utilizing silage as a one-time emergency feed will not justify pouring a concrete slab to store silage, Bill said that bagging would be the preferred storage method. He said that bagging would pay for itself several times over by what it would save in spoilage. Bill thought that by transferring silage in cooler fall temperatures, and doing it quickly within 48 hours or sooner, and bagging on the farm could reduce losses to the 5% level. If the only alternative is to pile on bare soil, it is critical that the pile is well packed and then covered with plastic. It is likely that losses will be in the 10% range in this situation according to Bill.

If at all possible, a preferable situation over silage transfer would be for the producer to contract with a custom operator to chop this year's corn crop, haul it to the farm and either pack it into a bag or pack in a pile, cover, and let the ensiling process take place on the farm. Corn should be chopped at a moisture level of 65 to 68% (32-35% DM). The ensiling process is generally complete in about 3 weeks for corn chopped at the proper moisture content. Most producers typically allow at least 4 weeks after ensiling before they begin feeding corn silage. Once a pile or bag is opened, the face is exposed to oxygen and subject to heating. Producers should try to feed/remove at least 6 inches across the face of the pile per day to keep dry matter losses to 3% or less for densely packed silage. Looser packed, more porous silage will have greater losses and/or will have to be fed to remove a larger volume. It is likely that a producer would need at least 30 cows feeding corn silage at between 25 to 30 lbs. /head (as-fed) to maintain a removal rate of 6 inches/day on an 8- foot diameter bag of silage.

Alright, now back to the suggestion by Steve Boyles that producers consider some other feed options other than corn silage to stretch hay supplies. One of those options is to feed corn grain and limit feed hay. Shelled corn has a TDN (energy) content of 88%. In most of our ruminant meat animal enterprises, energy is most often the limiting nutrient. At \$8.00 per bushel, the cost of one pound of TDN on a DM basis is 19 cents. Given the year we have had for haymaking, second cut grass hay with a TDN value of 64% is probably reasonable. The breakeven cost for hay of this quality to equal corn on a TDN basis is \$200/ton. If the hay price /ton is higher, then it is more economical to feed corn. If the TDN value of hay is lower than 64%, that will push the breakeven price of hay even lower. The point is, that even at \$8.00/bushel, corn can be an economical feed option when hay prices are very high.

According to an article written by [Steve Loerch](#), a ruminant nutrition researcher at OARDC, for the OSU Extension beef cattle letter, cows can be fed a ration of 10 to 12 lbs. whole shelled corn with 4 lbs. of average quality first cutting hay. This ration does require a feedlot protein supplement fed at 2 lbs./cow/day, an adjustment period to work the cows on to this diet, and enough bunk space so that all cows get their share of the ration. For more specific information about this diet, click on the following link: <http://beef.osu.edu/library/limitfed.html> .

Another feed option Steve Boyles mentioned was the use of wheat middling's to stretch hay supplies. Wheat mids can be fed up to about 1% of body weight, contain 14 to 18% CP with an energy value that is 80 to 85% of corn. Click on this link: <http://beef.osu.edu/library/wheatmid.html> for an article on using wheat mids written by Steve Boyles. Recently Steve has recorded a number of short you tube videos explaining the use of wheat midds as well as some other alternative and by-product feeds that could be considered by cattlemen. Find those videos at: <http://www.youtube.com/OSUBeefTeam>

For most beef producers this fall and winter will be a challenging time to feed the cow herd. There are some feed options out there, but deciding which one is right for your operation will take some investigation, cost analysis, and consideration of what is required to feed an alternative feedstuff.

EDITOR'S NOTE: For more regarding the process of bagging silage, see this recent video.