



Question of the Week: Can Corn Replace Hay for Wintering Cows? (This question comes from Fergus County)

The following information is a summary from Ohio State University Research

Corn grain is the least expensive harvested feed per unit of digestible energy available to cattle producers in Ohio. The most common feed used for wintering beef cows and replacement heifers is hay. This is despite the fact the hay often costs 50 percent to 100 percent more than corn on a per unit of energy. It seems; rather obvious that it should be economically advantageous to use corn to meet the energy requirements of beef cows rather the hay. However, this strategy has not been tested previously. It is possible to program intake of corn based diets to meet requirements for gestation, lactation, or a level of growth desired for replacement heifers. The intake of these animals would need to be restricted to prevent consumption of excess energy which would cause fattening.

Research from Ohio State University has led to development of the following procedures for spring calving cows:

- In November and December, feed 2-3 pounds of first cutting hay, 2 pounds supplement and 12 pounds of whole shelled corn (per cow basis). We feed once a day.
- From January through April (until spring pasture is ready), feed 2-3 pounds of hay, 2 pounds of supplement and approximately 14 pounds of corn. Adjust corn intake to achieve desired weight and/or body condition score. These procedures were developed for 1,300 pound cows. Larger cows would require more corn and smaller cows would require less corn.
- When starting the program, take 3-4 days adjusting up the corn and decreasing hay to 2-3 pound level. Make sure bunk space is adequate so all cows can get their share of feed. Cows will finish their feed in about 30 minutes, so a securely fenced area is required.
- The supplement used contained 36 percent protein, 3.75 percent calcium and 1.0 percent phosphorus and had the following composition (supplement was pelleted):

Ground Corn	31.95%
Soybean Meal	45.6%
Urea	4.1%
Limestone	7.8%
Dicalcium Phosphate	4.3%
Trace Mineral Salt	3.2%
Dyna K	2.3%
Selenium Premix (220 ppm)	.4%
Vitamin Premix,	. 2
Rumensin 60 (60g rumensin/lb)	.15%
*Vitamin A, 15,000 IU/gram: Vitamin D, 1,500 IU/gram	

*Provides 180 mg rumensin/lhdld

Rumensin™ in the supplement was fed the past two years. Rumensin™ is a feed additive routinely used for feedlot cattle to improve feed efficiency and reduce acidosis (off feed) and bloat problems. During the first two years when com-based diets were fed, Rumensin was not used and 3-4 cows each year went off feed for a couple of days. When this occurred, the cow was separated from the herd and fed hay for two days and then gradually adjusted back to the corn diet before returning her to the herd. During the past two years, Rumensin™ was used in the supplement, and no off-feed problems have occurred. Just like for feedlot cattle, Rumensin™ will also improve feed utilization for cows.

Cows which were limit-fed corn had similar performance as cows which were wintered on round baled first cutting hay. Cows wintered on corn had as good or better conception rates and calf weaning weights as cows wintered on hay. During the past four years, the average feed cost per cow was \$.82/day for the corn fed cows and \$1.38/day for the hay fed cows. For a 150 day winter feeding period, this would be a savings of \$84 per cow. These feed costs were calculated with corn at \$2.20/bushel, supplement at \$172 /ton and hay at \$80/ton. Another way to look at these numbers is to calculate a break-even price for hay. With the above prices of corn and supplement, the break-even price for hay would be \$49.70/ ton. This means if you can make or buy hay for less than \$49.70/ ton, hay would be your cheaper feed. However, if it costs more than \$49.70 to make or buy hay (and it frequently does), then wintering cows on a corn-based diet will save money. Producers should investigate the option of feeding corn and selling their hay if this increases total farm profit.

This program for wintering cows was developed to reduce daily feed costs as much as possible, thus only a minimum amount of hay is provided. The concept is similar to that utilized by swine producers to feed pregnant sows. The sows are fed a corn-soy diet, and intake is restricted so the sows don't get fat.

It is important to keep in mind that cows limit-fed corn as described above are getting the same number of calories as cows fed hay free choice. They have the necessary nutrients to maintain their weight, provide for the developing fetus and to be in good condition going into the breeding season. However, they think they are hungry because their bellies aren't as full. It's kind of like have a chocolate donut for breakfast vs. having a big bowl of bran flakes.

Diets with only 2-3 pounds of hay per day will be the most economical, but secure facilities to control hungry cattle may be limiting for some producers. In these instances, higher levels of hay(5-6pounds/ day) can be fed. As a general rule, 2 pounds of hay is equal in energy to 1 pound of corn. For example, if you wanted to increase hay from 2 pounds/day to 6 pounds/day -then you should decrease corn by 2 pounds /day. An alternative to providing extra hay would be to keep the corn level the same and provide straw, corn stover or other low quality roughage. However, this roughage must be purchased or produced at a very cheap price to maintain an economical diet. It is possible to meet the cows' energy requirements with any combination of hay and corn. Corn can be used to stretch hay supplies if you don't have enough hay to make it through the winter. Unfortunately, supplementing a hay based diet with more than 4 pounds of corn per day will decrease the digestibility of the hay. The bottom line is if you want to use corn to extend hay supplies, it would be better to feed a corn based diet and then switch to hay, rather than feeding a mixed diet of half corn and half hay through the winter. A supplement similar to the one described above should always be fed if most of the cow's calories are coming from corn. This will insure that the cow's protein and mineral requirements are met.

Limit feeding corn to cows instead of using hay has several potential applications for the cow-calf producer. If less hay needs to be made, then there would be more pasture available, and cow numbers (carrying 1 capacity of the farm) could be increased.

Alternatively, it may be feasible to eliminate hay making altogether, thus reducing the costs of equipment and hay storage facilities. For the producer using year-round or extended grazing, this program could be used in emergency situations such as during times of snow cover

or when forage is depleted. Limit-fed corn-based diets also could be used during a summer drought as an alternative to purchasing hay.

In summary, limit-fed corn based diets are an effective alternative feed for wintering beef cows. As with all management decisions, the beef producer should choose feeds which meet the cow's requirements at the lowest cost. When corn-based diets are used for pregnant cows, there are no detrimental effects on performance of the cow, or subsequent performance of the calf. Any time a limit-feeding program is used, body weight and/or cow condition should be monitored to assure cows are maintained in adequate condition. Remember, feed costs represent approximately 65 percent of total beef production costs. Cow harvested feed is the least expensive feed supply available. When cow harvested forage is unavailable, the profit minded producer should investigate the use of feeds which meet the cow's nutrient requirements for the lowest cost.

Source: Can Corn Replace Hay for Wintering Cows by Stephen Boyles, Beef Extension Specialist and Steven Loerch, The Ohio State University