# Ridin' Herd

► by **Rick Rasby,** *University of Nebraska*

## Corn silage may be economical cow feed this winter

***Drought continues in a number of states that have high beef cow populations. Harvested forages are abundant in some states that have received rain this spring and summer. Hay inventories nationally remain low, which lends itself to high forage prices this fall. At the same time, nationally a record number of acres were planted to corn in 2013 and the central and eastern Corn Belts have received ample precipitation that has reduced drought conditions in those regions.***

### Pricing corn silage

December corn futures are currently in the $5-per-bushel (bu.) range and will fluctuate through the rest of the summer and fall until corn harvest is completed. These conditions have developed an interesting situation in regard to the price relationship between a bushel of corn and a ton of good-quality alfalfa hay.

A rule of thumb for pricing corn silage at 65% moisture has been to value it at 8-10 times the price of a bushel of corn into the storage bunker. Another common pricing point of reference has been that corn silage is equal to one-third the price of alfalfa hay. So, what is the value for corn silage under current market conditions, and how might that price affect whether a field is harvested for silage or as grain using historic rules of thumb?

Corn: $5 per bu. Alfalfa hay: $175 per ton
Corn silage: 8 × $5 per bu. = $40 per ton
Corn silage: 9 × $5 per bu. = $45 per ton
Corn silage: 10 × $5 per bu. = $50 per ton
Corn silage: 0.33 × $175 per ton = $58.33 per ton

175-bu. corn at $5 per bu. = $875.50 per acre
175 bu. of corn per acre should yield approximately 22 tons of silage at 65% moisture.
22 tons of silage per acre at $45 per ton = $990 per acre at nine times the bushel price of corn.

### Cost per pound of nutrient

When comparing feeds to use in a feeding program, it is important to know the nutrient content (protein, energy, phosphorus, moisture, etc.) and to compare the feeds on a price-per-nutrient basis. How can grass hay at 88% dry matter and $130 per ton be compared to corn silage that is 35% dry matter and $45 per ton? The easiest way to compare different feeds is on an equal-moisture basis.

Silage and grass hay are used in cow diets as an energy source. For example, grass hay is an energy option priced at $130 per ton delivered. The hay tested 53% TDN (total digestible nutrients), 8% crude protein (CP) and 88% dry matter (DM). The cost of hay per pound of TDN on a 100% DM basis is $0.139 per lb. of TDN (2,000 lb. per ton × 0.88 × 0.53 = 932.8 lb. of TDN in a ton of hay at 100% DM; then $130 per 933 lb. of TDN = $0.139 per lb. of TDN).

Compare this to corn silage that was estimated to yield 175 bu. of corn per acre. This corn silage tested at 70% TDN, and the DM content is 35% dry matter (65% moisture or water) and cost of the silage packed into the bunker is $45 per ton. Using the same procedure as above, the cost per pound of TDN for corn silage is $0.092 per lb. of TDN (2,000 lb. per ton × 0.35 × 0.70 = 490 lb. of TDN in a ton of silage on 100% DM basis; then $45 per 490 lb. of TDN = $0.092 per lb. of TDN). If corn silage is priced at $50 per ton, the price per pound of TDN is $0.102 per pound of TDN.

### Corn silage in cow diets

Corn silage is considered a high-quality feed at 70% TDN. A lactating cow will consume about 2.5%-2.7% of her body weight on a DM basis of the high-quality corn silage. If the cow weighs 1,200 lb. and she eats 2.5% of her body weight on a DM basis, she will consume, on a daily basis, 30 lb. of silage. If the silage is 35% DM, this 1,200-lb. cow could eat 86 lb. of silage daily. This seems like a lot of silage, but remember that 30 lb. is silage and the rest is water.

If she is fed a full-feed of silage and the silage is 70% TDN, she could consume 21 lb. of TDN daily (30 lb. of DM daily × 0.70 = 21.0 lb. of TDN). This is more TDN than a 1,200-lb., average-milk production, lactating cow needs. The *Nutrient Requirements of Beef Cattle* published by the National Research Council (NRC) indicates this lactating cow needs about 16.8 (let's round to 17) lb. of TDN daily to meet her energy needs. Silage could be "limit-fed" to meet her energy requirement. She could actually be fed 69 lb. of corn silage to meet her energy requirement. This ration could be cheapened more if ground cornstalks were added to the mix. A protein source would need to be added to the ration to meet the protein requirement. Salt and minerals/vitamins could be added "free-choice."

This is only an example, and you would need to work with your extension person or nutritionist to help design a ration.

Nitrates will not be a concern for corn yielding 175 bu. per acre. In addition, any nitrates will be reduced 30%-60% during the fermentation process of making silage. The reduction in nitrates will occur after the silage has been allowed to go through the 21- to 28-day fermentation period.

### Final thought

As cattle producers work through the drought where forages are in limited supply and corn prices are potentially lower, corn silage may be an economical feed. This option could be for cow-calf producers who have the equipment to deliver the feed to the cows. There are a lot of different factors to consider when evaluating whether to harvest corn for grain or for silage. This feeding option has both methods of harvest, having advantages and disadvantages depending upon operation goals and objectives. Continued tight forage supplies combined with current corn-market conditions may heighten the attractiveness of harvesting corn for silage this year rather than for grain.

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