Ridin' Herd

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

Grazing corn crop residue with beef cows

Corn harvest should be completed by now. In some areas of the Midwest, the harvest season seemed to last a long time. The corn didn't dry down as quickly as in years past, and some fall moisture caused delays in harvest in some areas.

Corn residue is a good feed resource for spring-calving cows. In addition, weaned calves can be wintered on corn residue and average daily gain (ADG) can be dictated by the amount of supplement fed.

Challenges with grazing corn residue include fencing, water and the outlook of the row-crop farmer. The field may need to be fenced, as most permanent perimeter fences have been removed. Is water available at the site, or does it need to be hauled? Some row-crop producers are concerned grazing the corn residue will reduce yield of the subsequent crop, whether it be corn followed by corn or corn followed by soybeans.

Nutrient characteristics

The corn cob and stalk are lowest in protein, energy and palatability. The leaf and husk are intermediate in nutrient quality, but high in palatability. The grain is highest in nutrient quality.

In fields where the corn has been harvested as grain, there is very little grain left in the field. The amount of residual grain left in the field varies depending on factors such as harvest date, lodging due to insects and disease, and harvest efficiency.

Grazing characteristics

Cows are selective grazers when grazing corn residue. They will select and eat the grain first, followed by the husk and leaf, and finally the cob and stalk. There usually is not much grain left in the fields unless there has been wind damage prior to harvest.

The husk and leaf are more palatable than the cob and stalk, which is the primary reason for the selective grazing. Interestingly, the husk and leaf are higher in nutrient content than the cob and stalk. The diet could range from being very high in energy content [70% total digestible nutrients (TDN)] at first, when there is some corn left in the field, to very low (40%-50% TDN) if cows are left in the field for extended periods of time and are forced to eat mostly cob and stalk.

Also, as the stocking rate (number of cows per acre) increases, the nutrient content of the corn residue declines more rapidly as the grain, leaf and husk are being removed at a fast rate.

The amount of leaf and husk left in the field is related to grain yield, but hybrids obviously vary in this relationship. For every bushel (bu.) of corn, about 15-16 pounds (lb.) of husk and leaf are produced. When calculating stocking rates, assume cows will consume half the husk and leaf and leave the other half of the husk and leaf as organic matter to be trampled into the soil.

PHOTO BY TODD HERMEL

►It is important to leave corn residue in the field so it can be added back to increase organic matter of the soil.

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Remember, there are also cobs and stalks in the corn residue, and the stocking calculations don't have the cows eating the cob and stalk. If one assumes that 50% of the leaf and husk are available for cattle to eat, 180-bu. corn produces 2,880 lb. (180 bu. per acre × 16 lb. of leaf and husk per acre for every bushel of corn per acre = 2,880 lb. of husk and leaf per acre on a dry-matter basis) and, therefore, 1,440 lb. on a dry-matter basis is grazed.

If a 1,200-lb. cow eats 2.0%-2.2% of her body weight on a dry-matter basis daily while grazing corn residue, she will eat 24 lb.-26 lb. daily.

Using these calculations, an acre of residue produced by corn with a yield of 180 bu. per acre should feed a cow for about 55-60 days. There is a cornstalk grazing calculator (*http://beef.unl.edu/web/beef/learning/cornstalkgrazingcalc.shtml*) that can help you determine stocking rate based on yield on the University of Nebraska beef website. Using these stocking rates and if cows are body condition score (BCS) 5 at the beginning of the grazing period, University of Nebraska data would suggest the only supplementation needed would be salt and mineral.

How much is removed?

It is important to leave corn residue in the field so it can be added back to increase organic matter of the soil. The University of Nebraska–Lincoln (UNL) recommendations for grazing corn residue are based on research that shows cattle are selective grazers when they graze a corn-residue field.

As mentioned earlier, corn-residue components that are selected by cattle are based on the palatability of the different components of corn residue remaining in the field. Cattle will select grain first, followed by husk and leaf, and then the cob and the stem/stalk last. For every bushel (56 lb. per bushel), there is about 45 lb. of residue on a dry-matter basis.

We also know that for every bushel of corn there is 16 lb. of husk and leaves on a dry-matter basis. The UNL corn-residue grazing recommendation is to remove 8 lb. of husk and leaves per 1 bu. of corn. Only about 60% of the husks and leaves are digestible, meaning 40% is not digestible.

Using these numbers and targeting the grazing strategy for removal of 8 lb. of husks

and leaves per bushel means 12% of the total residue is removed (*https://www.youtube.com/watch?v=vi3tzpmAr0Q*).

Effect on subsequent yield

A crop owner may think that when cattle are grazing a cornstalk field that nutrients are being removed. If cows maintain weight while grazing a stalk field, by definition, no nutrients are lost. There will be some weathering and residue lost to wind. With this in mind, it can almost be assumed that essentially no organic losses can be attributed to cows grazing the residue. This concept is supported by many years of cornstalk grazing and measuring subsequent corn yield and finding no difference between grazed and ungrazed fields.

There is some need to expand this database to more soil types and landscape erosion potential. If calves graze cornstalk residue and are supplemented, more nutrients may be added to the field than removed due to grazing.

Final thoughts

Crop residues provide producers an opportunity to reduce cow costs. Don't leave cows on stalks after the grain, husk and leaf have been removed because they will lose weight and body condition. It is important to leave some corn residue on the field to build up organic matter as this impacts grain yield and water management decisions. When grazing is managed correctly, it can be a win-win for both the livestock and grain producers and enterprises.

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