Ridin' Herd

by **RICK RASBY,** *Extension beef specialist, University of Nebraska*

Using crop residues as winter feeds: Part 2

Residue grazing is an important management practice for many cattle operations, primarily as either a winter feed resource for maintaining the breeding herd or putting weight on cull cows. Last month we looked at the nutrient profile of crop residues, along with how to estimate the amount of grain left in the field, stocking rates and potential grazing strategies. This column will focus on supplement strategies for residue grazing.

Supplementation strategies

As long as cows have grain in a cornstalk field, the diet is probably above 8%-9.5% crude protein (CP) and as high as 70% total digestible nutrients (TDN; see Fig. 1). This will exceed the protein and energy needs of a 1,200-pound (lb.) cow in mid-gestation. Based on Fig. 1, with the average TDN content of a cornstalk field that has approximately 1 bushel (bu.) of ear drop per acre, the diet is about 66% TDN, and the protein content is likely between 7% and 8% the first 25 days that the residue is grazed.

As days of grazing increase, energy content decreases. Between days 25 and 45 for cows grazing cornstalk residue, TDN content of the diet will average 54%, and CP will be about 5.0%. For the 1,200-lb. cow in mid-gestation and average body condition, energy is adequate, but the diet is deficient in protein. These cows are deficient approximately 0.38 lb. CP per head per day. This protein deficiency could be made up by feeding 2.5 lb. of alfalfa [18.0% CP, 58% TDN, 88% dry matter (DM)] or 1.5 lb. of a 32%-CP range cube (90% DM) per head per day.

As grazing days on the same residue field increase, nutrient quality decreases while spring-calving cows move closer to calving and nutrient needs increase. To avoid a lot of supplementation, it would be best to move to a fresh field after 50-60 days of grazing the same cornstalk field at recommended stocking rates.

Consider the animal

Nutrient quality of a stalk field between days 50 and 60 of continuous grazing will average about 48% TDN and 4.9% CP. Cows in late gestation will be deficient in protein and energy. These cows are deficient about 0.67 lb. of protein and 1.9 lb. in energy per day. All calculations are based on a stocking rate determined using grain yield, considering 50% of the remaining residue is available to be grazed.

Spring-calving heifers in mid-gestation grazing residue fields the first 25 days will likely meet both their protein and energy needs, and should gain weight and body condition. After the grain has been consumed, protein and energy supplementation will be needed. Between days 25 and 45, TDN content averages 54%, and CP during this time period will be about 5.0%.

For the 1,020-lb. heifer in mid-gestation and average body condition, energy and protein in the diet are deficient. These heifers are deficient approximately 0.68 lb. CP and 0.7 lb. energy per day. These deficiencies could be made up by feeding 4-5 lb. of alfalfa (18.0% CP, 58% TDN, 88% DM) per head per day or 2.4 lb. of a 32% range cube (90% DM) per head per day.

Corn milling byproducts, like distillers' grains and corn gluten feed, would be good choices as supplements in this situation because they are excellent protein and energy sources. They complement forage diets that are deficient in these nutrients.

Heifers in late gestation grazing the same stalk field for 60 days will need supplementation of both energy (deficient 2.4 lb. per day of TDN) and protein (deficient 0.8 lb. per day in CP). It would be recommended to move first-calf heifers to a fresh stalk field after 50 days of grazing or start feeding them harvested feeds.

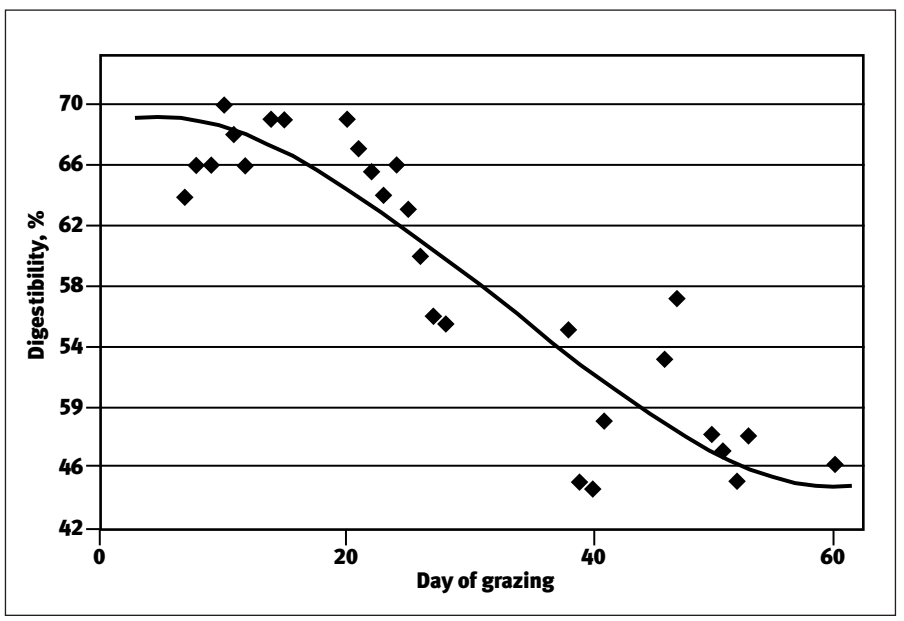
Lactating cows, such as fall-calving cows, grazing crop residue must be managed carefully. As long as lactating cows have grain to select in the field, their energy needs should be met, but protein will need to be supplemented. During the first 25-30 days on a fresh stalk field, a 1,200-lb. cow producing 18-20 lb. of milk daily would eat about 27 lb. of DM and need a diet that is about 10% CP (2.7 lb.) and 64% TDN (17.3 lb.). If the crop residue consumed in the first 30 days is 66% TDN and 9% CP, then the lactating cow is deficient 0.3 lb. in protein.

After 25-30 days of grazing the same stalk field, substantial supplementation of protein and energy will be needed. Again, this is a situation where corn-milling byproducts, such as distillers' grains or corn gluten feed, will work. It may be as beneficial to move the lactating cows to a fresh field every 30 days. This may also be a scenario where early weaning the calves and managing a dry cow on stalks with no supplementation may be the most cost-effective.

A protein supplement for cows grazing cornstalks could contain some nonprotein nitrogen (NPN), but I recommend that 10% or less of the

(Continued on page 31)

Fig. 1: In vitro dry-matter disappearance of the roughage fraction of diets selected by esophageally fistulated calves grazing cornstalks



Ridin' Herd *(from page 29)*

protein in the supplement come from an NPN source.

When supplementing cattle, it is essential all animals get their share. Feeding the protein source every other day or every third day means larger quantities are fed, and timid and young cows are more likely to get their share compared to daily feedings.

Salt, mineral and vitamin A supplements are recommended for cattle grazing crop residues during the time that cows are not being fed a protein or energy supplement. The supplemental mineral profile will change depending on the type of supplement fed. If corn-milling byproducts are used as the source of supplement, then phosphorus (P) in the mineral supplement can be eliminated. Supplements can be supplied free-choice.

As grazing days on the same residue field increase, nutrient quality decreases.

Final thoughts

Producers who graze livestock on crop residue should have an emergency feed supply, such as hay or silage, for use during severe weather.

There are a few experiments that have evaluated the effect of winter grazing of crop residues on subsequent grain production. Three years of data from experiments conducted in Nebraska indicate that fall and winter grazing have no significant effects on crop yields compared to ungrazed areas.

Recent concerns with changes in animal performance due to genetically modified corn residues have also been evaluated. We found no difference in performance of steers grazing Bt-corn rootworm protected or Roundup®-Ready hybrids and their parental controls. To determine the effects of grazing crop residues for Bt-corn hybrids on performance of pregnant beef cows, one non-Bt-corn hybrid and three Bt-corn hybrids were compared. Rates of change in the concentrations of digestible DM and CP during the winter were not significantly affected by corn hybrid.

The data from these experiments suggest genetic enhancement has no effect on corn residue utilization by grazing beef cattle. Producers can take advantage of increased yields and reduced herbicide/pesticide use with Bt-corn rootworm protected or Roundup-Ready hybrids without adverse effects on corn residue grazing performance.