



# Ridin' Herd

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

## Supplementing cows grazing corn residue

*There are some corn residue fields that should not be grazed by livestock due to topography/landscape and/or corn grain yield, but there are very few of those fields in Nebraska. Another concern is animal performance from grazing residue that has been genetically enhanced. Residue grazing is an important management practice for many cattle operations as either a winter feed resource for maintaining the breeding herd or putting weight on cull cows. Spring-born calves weaned in the fall can be wintered on corn residue using supplementation to achieve targeted gains.*

### Stocking rates

Stocking rate influences the amount of grain, husk and leaf available per animal. The amount of grain, husk and leaf available affect diet quality because all are highly digestible. The rate of decline in the most digestible components of a corn-residue field are affected by stocking rate, trampling, the amount of residue components available and environmental factors. Comparisons have shown that gains increase as stocking rate decreases. Residue (leaf and husk) remaining in the field after grain harvest is related to grain yield. Leaf, leaf sheath, husk and shank are about 40% of the total corn plant. On a bushel-of-corn basis, the amount of husk and leaf is equal to about 16 pounds (lb.) per bushel (bu.) of corn.

Using 16 lb. of husk and leaf components per 1 bu. of corn and using the estimate of

50% utilization of the leaf and husk, and understanding that some residue disappears by trampling and other factors, grazing days/stocking rate can be determined.

As an example, if corn yield is 180 bu. per acre, this yield produces 2,880 lb. (180 bu. per acre  $\times$  16 lb. of husk and leaf per 1 bu.) of leaf and husk per acre on a dry-matter (DM) basis and 1,440 lb. (50% of the total 2,880 lb.) of husk and leaf components on a DM basis available for cattle to consume. This is equivalent to about 2.0 animal unit months (AUM) (1,440 lb. of husk and leaf per acre at 50% use  $\div$  702 lb. of feed per AUM). One AUM is the amount of forage required to sustain a 1,000-lb. cow or equivalent for one month, and it has been determined that a 1,000-lb. cow will consume 702 lb. of dry matter monthly.

A 1,200-lb. cow is 1.2 AU and would

consume 842 lb. (702 lb.  $\times$  1.2 AU) of forage dry matter per month. If the corn yield were 180 bu. per acre and produced 2,880 lb. of husk and leaf per acre on a DM basis and 50% of the husk and leaf are consumed, this residue field would provide 1.7 AUM (1,440 lb. of husk and leaf on a DM basis per acre  $\div$  842 lb. of forage per month for a 1,200-lb. cow = 1.7 AUM) per acre for a 1,200-lb. cow or 51 days of grazing (30 days per month  $\times$  1.7 AUM = 51 days of grazing).

If one acre of corn that yielded 180 bu. per acre supplied enough husk and leaf to feed a 1,200-lb. cow for 51 days, then this field would supply enough husk and leaves to feed a 600-lb. calf for 102 days. You can find a helpful "cornstalk grazing calculator" online at <http://beef.unl.edu/learning/cornstalkgrazingcalc.shtml>.

### Gestating spring-calving cows

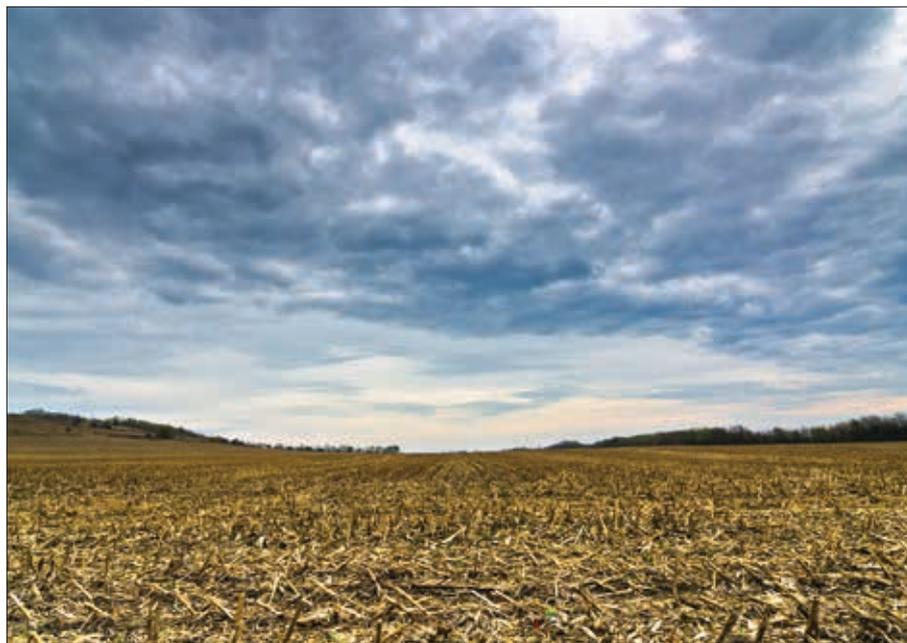
Nutrient (protein, energy, mineral and vitamin) requirements for beef females increase as their stage of production proceeds from mid-gestation to calving. Spring-calving cows typically will have their calves weaned in October or November and will not be lactating while grazing crop residue.

If mature cows are in body condition score (BCS) of 5 or greater, and grazing days are calculated per the example previously described, cows will not need supplementation other than salt and a mineral/vitamin supplement. If mature, gestating cows are thin at the time they begin grazing crop residues, they will respond to protein supplementation.

Begin by supplementing 1 lb. per head per day of a supplement that is 25%-32% crude protein (CP). Because corn-milling byproducts are high in protein and energy, consider supplements based on distillers' grains if priced economically. The "eye of the manager" is critical when managing thin cows grazing crop residues, and supplementation strategies may need to be modified to get spring-calving cows in a BCS of at least 5 by calving.

### Other classes of cows

For the first-calf heifer, the pounds of CP and total dietary nutrients (TDN) needed on a daily basis increase from mid-gestation to late gestation. If average weight of the heifers



is 1,000 lb. at their first calving, they will eat about 22 lb. of feed daily on a DM basis of corn residue. Percent of the ration needing to be CP is 7.5% (1.7 lb. daily) and 10.0% (2.2 lb. daily) for first-calf heifers in mid- and late gestation.

Likewise, the percent of the ration that needs to be TDN is 52% (11.4 lb. daily) and 61% (13.4 lb. daily) in mid- and late gestation. The reason for the higher percentage of nutrients required by first-calf heifers compared to cows is that first-calf heifers weigh less; therefore, the amount of feed consumed daily is less. In addition, first-calf heifers not only have a nutrient requirement for the growing fetus, they also have a nutrient requirement for their own growth.

Mid-gestating, first-calf heifers will need protein supplementation while grazing corn residue. Heifers at this stage of production will be about 0.5 lb. of protein per head per day deficient. As an example, heifers would need to be fed 1.7 lb. per head per day of a 32% protein supplement that was 90% dry matter [ $(0.5 \text{ lb.} \div 0.32) \div 0.90 = 1.7 \text{ lb.}$  per head per day as fed].

Late-gestating heifers will be 0.9 lb.-per-head-per-day deficient in protein and 1.3 lb.-per-head-per-day deficient in TDN (energy). As an example, heifers would need to be fed 3.1 lb. per head per day as fed of a feed that was 32% CP, 88% TDN and 90% DM.

Fall-calving, lactating cows will need supplementation. Data at the University of Nebraska reported supplementation at 5 lb. per head per day of distillers' grains on a DM basis was not quite enough to maintain adequate body condition. The calf will consume some of the supplement, and that needs to be taken into account.

## Final thoughts

Corn residue is an underused feed resource that can be incorporated into the feed system for beef producers. As mentioned in last month's article, grazing according to Nebraska's recommendations, there will not be a reduction in subsequent grain yield whether it be a field with a corn/soybean rotation or corn-followed-by-corn cropping system. Spring-calving cows in a BCS of at least 5 in the 1 to 9 system don't need supplementation other than salt and mineral. Young cows and thin cows will need supplementation as described above.



**EMAIL:** rrasby1@unl.edu

**Editor's Note:** Rick Rasby is a beef specialist with the University of Nebraska.