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EXTENSION

Colorado State University Extension Golden Plains Area Extension

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For Immediate Release
(Wray, CO)

October 28, 2020

Corn Stalk Grazing

Historically, the Golden Plains Area counties impact Colorado's beef industry by providing corn stalk residue as a fall and winter feed source for dry pregnant cows. This opportunity has provided corn growers a second source of income from their crop, while providing cow/calf producers a less expensive forage and the opportunity to rest native winter range. Despite improved harvesting technology and equipment, grazing will reduce field volunteer corn stands that result as kernels pass through a combine, or ear lost to environmental weather conditions. With the opportunities that grazing corn residue brings, other key items should be considered before making any agreements.

Stocking fields correctly can have a dramatic economic effect for producers as leases are generally calculated on a per head basis. Research from the University of Nebraska-Lincoln (UNL) has concluded that there will be about 16 pounds of leaf and husk per bushel of corn yield left as residue. Therefore, in a field that yields 160 bushels/acre there would be 2560 pounds of quality residue. In a "take half, leave half" grazing practice, this equates to 1280 pounds, or enough residue per acre to feed one 1200-pound dry pregnant cow 48 days. The UNL Beef Team developed a simple excel spreadsheet to help producers determine field grazing capacity based on corn yield. Called the "Corn Stalk Grazing Calculator", it is available free online at <https://beef.unl.edu/learning/cornstalkgrazingcalc.shtml>. Still, unforeseen weather events such as wind, rain, and snow can have drastic effects on forage available. For example, leaf material is light and can be moved around by winds, and husks are easily tropped into muddy fields. Cattle can graze though as much as 4 to 6 inches of snow, but should that snow melt and turn to ice, cattle will be unable to uncover residue. It is prudent to have an emergency plan or reserve feed supply in case severe weather shortens the grazing period.

A bred 1200-pound cow needs to be gaining one pound per day during her last trimester. She should consume two percent of her body weight in dry matter. Corn residue averages around 85 percent dry matter, so the example cow eats approximately 26.5 pounds of residue daily. This is enough feed to meet her energy requirement, as average corn stalk residue provides between 52 and 55 percent Total

Digestible Nutrients (TDN). However, cattle selectively graze fields in an order searching out the excess grain, leaves, husks, cobs and finally stalks that make up corn residue. This means that although available energy starts as high as 70 percent TDN, it will decrease to less than 45 percent as cows are reduced to eating cobs and stalks. This problem is compounded as cows graze later into the winter because as residue energy levels fall, the cow's energy demands increase due to fetal development. During the same time as residue nutritional value drops and the cow needs increase, fetal growth is also compressing and limiting rumen space, so cows consume less of a diminished quality forage. If possible, cross fencing fields or strip grazing may allow for the best utilization of forage and give managers the ability to provide more consistent energy levels, thus maintaining cow body condition score.

Protein supplementation is need for pregnant cows grazing corn residue, especially during their last trimester. Corn fields will not provide enough protein to meet their daily 1.75 pounds Crude Protein (CP) requirement. Average corn residue is only 5 to 5.5 percent CP, leaving cows 0.3 to 0.5 pounds short of their daily needs. This is even more crucial as the excess corn and leaf material are gleaned from the field. Secondly, as excess corn is removed, residue grazing will not meet the phosphorous requirements of a late gestation cow developing a fetus. While residue should meet calcium requirement, phosphorus availability is below required levels. Phosphorous supplementation should be at levels that provide the desired 2:1 calcium to phosphorus ratio needed for fetal development. Free choice salt should be provided and can be combined in lose form with sodium bicarbonate to help buffer rumen acid levels as cows "hunt out" grain during initial grazing. Before turning out cattle, it is wise to check fields for any "dumped" corn piles, as piles would be easy opportunities for cows to overload on grain.

Finally, ensuring cattle have access to adequate water may be the most important factor to grazing stock fields. As always, restricted water intake equals reduced feed intake and decreased nutrient absorption particularly with a dry forage like corn residue. Research from the National Research Council suggest that it takes 8 to 12 gallon per day for a 1200-pound dry cow during the winter. That same cow may only intake 8 gallons on a 40 degree day, but may need 12 gallons if it is 70 degrees. It would be a safe assumption that water availability at one gallon per 100 pounds of body weight should be provided during winter grazing for dry cows. With this in mind, a 10 foot diameter 2 foot high standard round tank will hold approximately 1170 gallons and would water up to 100 head even on the hotter winter days in the Golden Plains Area.

Corn stalk residue grazing can be economically beneficial when it works into a producer's budget. Information on grazing lease rates, help with leases or other beef decision tools including determining your cow carrying costs can be found at the CSU Agriculture Business Management team website <http://www.wr.colostate.edu/ABM/resources.shtml>.

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