

Grazing Corn Stalk Residue to Reduce Forage Inputs

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With the fall harvest underway we are certain of one thing, winter is soon to follow. Pastures will soon go dormant and forage reserves will have to be accessed. Stockpiled forage in pastures may be low in some areas of the state this year due to low precipitation. Hay reserves may also be lower and one may be thinking about alternatives. As the corn is harvested from fields, one might consider making use of the available residue to extend forage reserves and lower feed costs.

Corn residues, or stalks as it is sometimes termed, can offer the opportunity to lower feed input costs as the expenses associated with planting and harvesting the corn are charged to the grain production enterprise. The quantity and quality of crop residue available will vary. As a general rule of thumb, however, one can assume the quantity of residue available is approximately equal to the grain yield for corn (Thompson, 1997). For example, a field yielding 120 bushels/acre of grain would be expected to have approximately 6,700 pounds of crop residue. Cattle will consume approximately 25% of the available residue or 1,675 pounds in our example. Dry cows may consume 22-25 pounds of corn residue (dry matter basis) per day with gains between 0.05-0.55 lb/d (Ward, 1978). Using our example field, one acre of crop residues would provide enough forage for two cows for

approximately 30 days or 60 days for one dry cow.

The quality of the corn residues is near the nutrient requirements for maintenance of a dry, gestating beef cow, but will be altered as grazing progresses. Cattle will select the higher quality, more digestible residues first. In vitro organic matter digestibility of available corn residues decreased from 72% in the fall to 59% in the spring as the proportion of grain, husks, and leaves decreased (Lamm and Ward, 1981). Utilization of residual grain, cob, leaf+husk, and stem were reported to be 96-100%, 39-61%, 53-56%, and 0-20%, respectively (Klopfenstein et al., 1987). Later studies revealed that residual grain availability declines rapidly during the first 35 days of grazing and availability is expected to be limited thereafter and the leaf sheath and stem is not consumed by growing calves (Gutierrez-Ornelas and Klopfenstein, 1991). These factors along with weather should be considered when implementing a supplementation program. The energy requirements for a dry cow in mid-gestation grazing stalks in November and December can be met by the grain and husk under normal weather conditions. Protein needs may be met early after turnout but can become limiting as the grazing period progresses. As the gestation period progresses nutrient needs increase while the quality of residues available declines making supplementation necessary. Supplementation strategies might be designed to stretch the crop residues by offering higher quality hay at a rate of 8-12 pounds per head or to balance the nutrient supply from crop residues and requirements by feeding protein and energy supplements. A mineral and

vitamin mixture should also be provided ad libitum to cows grazing crop residues.

The costs associated with grazing corn residues are primarily associated with fencing and watering systems and will vary depending on fencing materials used and design. Depending on the type of fencing materials used, costs per foot may be approximately \$0.10/ft. In order to fence in a 40 acre corn field with four strands of high-tensile wire, one would be looking out approximately \$2,000-\$2,500 initially. This cost should be spread out over the expected life of the fence and related to the number of years the area will have residue to graze which may vary depending upon crop rotations. Additional costs to consider should include watering systems. Costs for feeding alfalfa hay, corn silage, or grazing stalks were estimated to be \$11.78, \$9.73, and \$8.40 per animal unit month, respectively (Ward, 1978). Feed costs are the largest expense for the annual cow maintenance expenses and one should constantly be investigating methods for reducing feed costs while maintaining animal performance and health. Grazing stalks can be a viable option for reducing cow feed costs.

When grazing stalks, be sure to provide adequate fresh water, a balanced mineral/vitamin supplement, and protein and energy supplementation as needed. Those considering corn residues in drought stricken areas should be concerned with nitrate poisoning potential and have residues tested.

References and Additional Reading Material:

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Lamm, W.D. and J.K. Ward. 1981. Compositional changes in corn residues grazed by gestating beef cows. *J. Anim. Sci.* 52:954-958.

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