



Grazing Cornstalks

PHOTO BY MATHEW ELLIOTT

Distillers' grains offer new options to producers faced with the rising costs associated with grazing cattle.

by Ed Haag

The cost of feeding cattle has taken a major turn upward, and grazing costs are no exception. Research conducted by the American Angus Association has confirmed that combined pasture, harvested forages and other feed costs have been increasing at the rate of \$5 per beef cow per year since 2000, raising the estimated annual cost of feeding an animal from \$209 seven years ago to \$245 today.

In addition, a recent Kansas State University (K-State) survey revealed the cost of summer pasture (lease rates) had increased 16% during the past five years, reflecting a nationwide trend upward.

Responding to these developments, beef researchers have been exploring options that would better utilize existing pasture, both in summer and winter grazing systems, by supplementing distillers' grains (DG). "Our research has shown it not only makes an excellent supplement for

protein, but it also has energy in the form of highly digestible fiber," Aaron Stalker, beef Extension specialist for the University of Nebraska, says.

Grazed forage and distillers' grains are highly compatible on several levels, he explains, using a mineral as an example. "Distillers' grains are high in phosphorous, while cattle in a range situation are typically deficient in this important mineral," he says. A lack of phosphorous in an animal's system can lead to serious reproductive problems.

Cornstalks and distillers' grains

Dan Loy, Iowa State University (ISU) beef nutritionist, sees distillers' grains as an excellent opportunity to move low-cost aftermath grazing to its next level. He points out that with the rising cost of maintaining beef cattle, it just makes sense to take advantage of what is left after the harvesters have done their work. "In the past, residue

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was often considered a liability," he says. "Now, with the high cost of other options it should be looked at as a feeding opportunity."

He cites as an example cornstalks. "In our part of the country, cornstalks are the lowest-cost forage available," Loy says. "Stover is abundant; it is available in every corner of the state. From a tonnage standpoint it is a tremendous opportunity, particularly with increasing corn production."

Corn production throughout the United States has risen approximately 15.5% in the last year, with acreage climbing from 78.3 million in 2006 to more than 90 million acres

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in corn this year. This is the highest number of corn acres in the country since 1944, when 95.5 million acres were grown. The increase in corn production has come at the expense of soybeans in the Midwest and cotton in the South.

If there is a single state whose economy is driven by corn production it is Iowa. With almost 14 million acres of corn produced in 2007, the state has the largest land base devoted to its production in the nation. Like the rest of the country, Iowa experienced more than a 10% increase in corn acreage between 2006 and 2007.

The grazing of cornstalks by beef cows is certainly not a new practice in his state, Loy explains. “Cornstalks have always been a grazing staple in Iowa. Most beef producers in this state also raise corn.”

Each fall, spring-calving beef cows are turned out on newly harvested corn ground for periods of 45 days or more depending on the weather.

He adds that this practice has given Iowa beef producers a competitive edge in feeding their cows. Because corn harvesting is an inexact science, during the first couple of weeks of grazing, this edge is compounded. “There is a considerable amount of grain left in the field after the corn harvest, and that is picked out by the cattle before they turn to the stalks,” Loy says. “As long as the cows are consuming a significant portion of corn they are getting everything they need except for some minerals.”

Once the grain is consumed, producers must provide supplementary protein and energy if they want to continue grazing the cornstalks without the cows’ losing body condition.

“Depending on the weight of the cow and her stage of production, her protein needs would be in the 8% to 10% range, while corn stover is 4% to 6% protein,” Loy says. “Historically, Iowa beef producers would feed some hay along with the stalks to make up the difference.”

A growing number of cattle producers are turning to distillers’ grains as a low-

cost alternative to supplementing higher-value products such as soybean meal, alfalfa hay, corn or purchased protein supplements. “Because distillers’ grains are so concentrated in protein and energy, it takes a relatively small amount to make it work with a corn residue intensive feeding program,” Loy says.

Testing the premise

For Daryl Strohbahn, ISU Extension beef specialist, the availability of distillers’ grains to the ISU research farm presented an opportunity to study in-depth how the ethanol byproduct could be used in

conjunction with grazing cornstalks. It is estimated that every fall Iowa cow-calf producers graze cornstalks at the rate of 1.9 acres per cow for an average period of 45 days. Strohbahn suspected the length of time cattle spent on cornstalks could be extended by supplementing their diet with distillers’ grains. Extending the cornstalk grazing period might assist producers in lowering their total annual feed cost.

To test this hypothesis, Strohbahn initiated a 41-day demonstration project Oct. 11, 2006. Eighty acres of fall-harvested cornstalks were split with electric wire into three

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paddocks of approximately equal size. Sixty-seven nonlactating, mid-pregnancy Angus and Simmental cows from the ISU beef teaching unit were released for strip-grazing onto the first paddock. The second paddock was opened for grazing Oct. 23; the third paddock, Nov. 7. Strohbahn notes that the cows were allowed access to the prior grazing locations as the trial progressed.

“This trial involved cattle that ranged from first-calf heifers to mature cows,” he says. “We monitored their beginning and ending weights, their condition scores, and looked at what happened over the 41 days.”

The cows were supplemented with modified distillers’ grains with solubles (MDGS) three times a week (Monday, Wednesday and Friday). “We were able to obtain the distillers’ grains from our research facility. They use it all the time,” Strohbahn says. “The modified is about 50% dry matter (DM).” The MDGS were hauled from the ISU Beef Nutrition Farm once a week and fed on the ground to the cows.

There was a specific reason why the MDGS was fed three times a week rather than on a daily basis. “Because so many of our beef producers in Iowa are working off the farm, we were looking at the possibility of supplementing just three times a week,” he says, adding that finding ways to save on-farm time was emerging as a major issue with ranchers in his state.

Higher stocking density

For Strohbahn, the underlying goal of the study was to develop a better understanding of how best to integrate distillers’ grains into a corn-residue grazing program and implications for beef producers who engaged in the practice.

“We not only looked at it in the context of a supplementation strategy for protein and a little bit of energy but we also were interested in trying to lengthen the number of grazing days we could get per acre,” he says. “From



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► High-yield irrigated corn provides a bonanza of corn stover.

that perspective it worked quite well, and we felt that was accomplished.”

During the 41 days of the grazing study, a total 19,200 pounds (lb.) of MDGS were fed for an average daily as-fed intake of 7.0 lb. The MDGS from the Beef Nutrition Farm were purchased in three different loads and had a range in DM content of 52.67% to 62.45%, establishing a MDGS DM intake average of just less than 3.9 lb. per cow per day. Because the distillers’ grains were fed only three times a week, the average MDGS DM fed on each of those days was 9.03 lb.

Strohbahn points out that *on average* females maintained both body weight and condition score. *Individually*, while maintaining weight, some 2-year-old females had a numerically lower body condition score (BCS) at the end of the study. Three of the 15 heifers lost one BCS, while one heifer gained a score. The remaining animals did

not change during the 41 days. All other age groups tended to maintain weight and BCS.

The data collected during the study showed that the stocking rate was 1.2 acres per cow for a 41-day period, or 0.03 acres per head per day. This proved to be considerably higher than the 0.042 acres per head per day that represents the state average for grazing corn stover.

One of the issues to emerge during the study was contamination of feed resources, especially in inclement weather. Significant rainfall occurred during the first 10 days of the grazing study, resulting in considerable cornstalk contamination. In turn, this necessitated moving cattle to the next paddock earlier than expected.

Strohbahn adds that the study highlighted the importance of planning how one intends to feed the cows the distillers’ grains to avoid contamination. “We tried to put the MDGS along the fencerows where there was grass and clean ground,” he says. “There is normally a lot less dirt contamination along the edges of the field.”

He cites another study involving supplementing grazing with distillers’ grains as an example of what can be done to modify the delivery system to accommodate a single-site feeding. In that situation, the feed was deposited in a location where it was on one side of an electrical wire and the cows were on the other. This allowed the animals to eat the product, but prevented them from defecating and treading on their feed source.

Table 1: Weights and body condition scores (BCS) by age group for beef cows grazing cornstalks and fed MDGS

Variable	All ages	2-year-olds	3-year-olds	4-year-olds	Mature
No. of head	67	15	9	8	35
Start wt., lb.	1,450.4	1,277.3	1,367.8	1,410.0	1,555.1
Start BCS	6.36	5.47	6.22	6.13	6.83
End wt., lb.	1,455.5	1,278.0	1,376.7	1,430.0	1,557.7
End BCS	6.36	5.33	6.44	6.38	6.77
Weight change	5.1	0.7	8.9	20.0	2.6
BCS change	0.0	-0.13	0.22	0.25	-0.06

Source: Iowa State University Animal Industry Report, 2007.

