

The Distillers' Challenge

Reality dictates more distillers' grains will be fed, but with what effect on beef quality?

Story by
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For Dick Carlson, the rise of the ethanol business — and the increased availability of distillers' grains for feeding livestock — is ultimately a good thing for the cattle business.

But there are also questions about the effects of feeding distillers' grains on beef quality and feed efficiency — and the quicker the industry answers them, the better off it will be.

"Right now, there are more questions than answers," says Carlson, who serves as nutritionist for Producers Feedlot, a 40,000-head-capacity feeding company based in Greeley, Colo. "The reality is that the impacts of the ethanol business will most likely be permanent, and we've got to find ways to work with it."

To answer some of those questions, Carlson recently headed up a company research project to evaluate the effects of feeding distillers' wet grains (DWG) to 2,000 head of British-Brahman cattle.

Preliminary results show the cattle fed a higher percentage of DWG [25% as fed, 15% dry-matter (DM) basis] had lower quality grades and higher yield grades when compared to cattle fed lower amounts of DWG.

At the same time, the cattle fed a high-DWG ration also generated more profit, a function of their lower cost of gain; the DWG blend cost less than the rations consisting of a higher-percentage and higher-priced corn.

"I'm not convinced that feeding distillers' grains is going to negatively impact quality and yield grades as much as people think it will," Carlson says. "But that doesn't mean we don't need to learn everything we can about feeding it."

"Today the beef industry is commonly using 10% to 30% distillers' grains in finishing rations. With increased demand for corn and significantly greater ethanol production, we will see rations containing 60% distillers' grains as commonplace," says Mark McCully, director of supply development for Certified Angus Beef LLC (CAB). "The growth in the ethanol industry will force the largest structural changes seen in the beef industry in the last 50 years due to demand for corn. There are currently 108 ethanol plants in the U.S. producing 32 billion pounds (lb.) of distillers' grains. That number is projected to triple in five years."

Rapid rise

Like Carlson, the rapid increase in the use of distillers' grains in finishing rations has researchers scrambling to identify possible effects on beef quality — and advocating that producers, stockers and feedlots take appropriate measures to improve carcass marbling and yield grade.

An evaluation of 14 separate studies by Chris Reinhardt at Kansas State University

(K-State) earlier this year concluded that marbling levels decreased by 20 points on a 1,000-point scale when rations included more than 29% distillers' dried grains (DDG) compared to rations that included no distillers' grains at all.

"That may not sound like much, but it's significant, especially when grid premiums are on the line," says Larry Corah, CAB vice president.

The K-State study also showed a correlation between feeding increased levels of DDG with increased percentages of undesirable yield grades.

"Just a hundredth of this scale can mean the difference between Choice and Select, or CAB and Choice," McCully adds. "A 2005 CAB packer study showed 12% of graded cattle had marbling scores that only ranged 2% on either side of the Choice-Select line. Millions of cattle could earn a premium — or drop out of that bonus circle — with only minor changes in management, nutrition, health or genetics."

Results of these studies come on the heels of the 2005 National Beef Quality Audit (NBQA), which showed that purveyors, restaurateurs and retailers ranked insufficient marbling as their leading beef-quality concern. The NBQA estimated that failure to meet the ideal quality grade makeup costs the beef industry \$26.81 for every steer and heifer it harvested in 2005.

Information, too, from CAB points to similar product-quality challenges. The percentage of cattle qualifying for CAB decreased from 21% in 1999 to 14% in 2006. The primary reasons for the decline were insufficient marbling and yield grades that are too high.

"Of the eligible cattle that are rejected from CAB, 85% of them are rejected for inadequate marbling versus 16% being rejected for not meeting the yield grade requirement," McCully says. "As such, CAB has grave concerns over management factors that might affect marbling score, even to the slightest degree, for fear of decreasing the acceptance percentage below the current level of 14%."

On the positive side, research shows that feeding condensed distillers' grains (CDG) and distillers' wet grains with solubles (DWGS) did not negatively affect marbling.

While data are limited on sensory attributes, tenderness and/or color stability of beef from cattle fed distillers' grains, work currently available from the University of Minnesota and the University of Nebraska indicates that there is no effect on flavor profile or tenderness when feeding up to 50% distillers' grains. However, research also indicates that distillers' grains can negatively influence the stability of steaks, making the fat more yellow in color.

Actions to take

So what actions can producers take now to help improve carcass quality — even though



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increased amounts of distillers' grains will be fed to cattle in the next few years?

"The current thinking on marbling deposition in feedlot cattle is that weaning is a critical window in determining later marbling potential," says Fred Owens, professor emeritus, Oklahoma State University, and consultant for Pioneer. "As such, early management is bound to have an impact on marbling deposition and marbling score at harvest."

One of the advantages of feeding distillers' grains to calves, Carlson adds, is that they transition to eating it quickly — and for this reason, it may be a valuable part of the ration to provide necessary amounts of energy early on to ensure marbling down the line.

Carlson is concerned about the possible environmental implications of feeding distillers' grains. Because it's high in nutrients like phosphorous (P) and sulfur (S), feedlot operators will need to keep a close eye on how distillers' grains affect their nutrient-management practices.

"We need to conduct a lot of research on this, too," Carlson says. "We need to know if the higher levels of phosphorous and sulfur in distillers' grains are going into the manure."

Owens laid out suggestions for each industry segment during a Feeding Quality Forum sponsored by CAB, Pfizer and *Feedlot* magazine in Amarillo, Texas, Nov. 9, 2006:

Cow-calf. Producing a quality, consistent product begins long before the calf is born. Producers should aggressively seek out and use sires that are proven not just for desirable production characteristics, but also carcass quality.

Select for cattle that are polled, possess calm dispositions and avoid the use of *Bos indicus* genetics. They should also use technologies that enable them to track feedlot and carcass information from individual calves back to specific cows — and retain those cows that produce desirable feedlot and carcass characteristics.

Select for cows with calm dispositions and smaller mature size for more efficient maintenance. Castrate calves at birth, and dehorn them prior to sale. Avoid implants, practice early weaning or creep-feeding, and provide supplements during bad weather to avoid periods of energy deficiency among calves. Precondition calves with appropriate vaccinations and ensure calves are stocker- or feedlot-adapted prior to delivery.

Stocker/backgrounders. Buy only preconditioned calves that have good dispositions. Practice parasite control and provide appropriate vaccination boosters. It's also critical to maintain the calves' rates of gain to ensure high levels of marbling later on, and have supplemental feed available during periods of drought or snow. Avoid implants, and retain ownership of cattle through finishing to receive feedlot and carcass information on the cattle.

Feedlots. Feeders should buy only preconditioned, tame cattle. They should administer appropriate vaccinations, boosters and parasite controls. Their rations should be balanced with concentrates containing ionophores and other compounds. They should not use implants. They should sort and sell cattle to avoid excess fat thickness and avoid overweight carcasses. And, they should

share health, performance and carcass data with the originating ranch and stocker operator, if applicable.

Owens concludes, "We need to control things from the pasture to the plate if we expect to maintain beef quality."



Editor's note: *The National Cattlemen's Beef Association (NCBA) will be funding a wide array of research projects aimed at answering the many questions surrounding the feeding of distillers' grains. CAB has advocated that the research should also help characterize the nutrient content of distillers' grains and provide a better understanding of the food safety ramifications of feeding it. Angus Journal will provide results of these studies as they become available.*