



Beef Tips

September 2007

Department of Animal Sciences & Industry

www.asi.ksu.edu/beeftips

Upcoming Events

Beef Stocker Conference
September 27
Manhattan, KS
details on page 4

**Applied Reproductive Strategies in
Beef Cattle**
September 11-12
Billings, MT
<http://westcentral.unl.edu/beefrepro>

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Feedlot diets high in distillers grain increase yield grades with little impact on quality grades

Chris Reinhardt, feedlot specialist

The ethanol industry is here to stay, at least for the foreseeable future. The ramifications of this new reality are higher grain prices. When human use (fuel) and livestock use (feed) collide for consumption of a resource (grain), most often, the humans can outbid the livestock. The price of corn to the farm gate, particularly in the high plains, has nearly doubled in the past twelve months. And profitability of ethanol production, driven by high fuel prices and additional governmental ethanol subsidies, has fueled continued construction of new ethanol plants and expansion of existing facilities. This tells the livestock feeder that high corn cost is something we must learn to live with.

Another new reality which is counter-intuitive, especially to us old-timers, is that while our number one energy source is being priced nearly out of reach, supplemental protein is becoming increasingly abundant and affordable, especially when priced relative to corn. From every bushel of corn, ground and fermented for ethanol, we get about one-third back in the form of distillers grains. The fermentation process converts the starch in corn to ethanol, thus concentrating the remaining fractions of the corn by three fold. In other words, while corn starts out about nine percent protein, four percent fat, and 0.3 percent phosphorus, distillers grain is typically 27 percent protein, 12 percent fat, and 0.9 percent phosphorus. Therefore, ethanol plants are producing a byproduct which is fairly high in protein, yet has similar energy content to dry-rolled corn.

So if distiller's grain is priced similarly to corn, we can feed about one-third of the diet as distiller's grain replacing corn 1:1, on a dry matter basis (DM), before some of the relative

efficiencies are lost. If we feed this level, the crude protein requirement is met without adding additional protein sources. However, if we feed distiller's grain at 30 to 40 percent of the diet (DM), we are also adding a net 2.4 to 3.6 percent fat to the diet, above the level in a non-distillers grain diet.

University finishing studies have demonstrated that feeding 30 percent distillers grain in place of dry-rolled corn improves daily gain, final weight, and feed conversion. The bulk of these studies have also demonstrated an increase in fat content of the carcass. What the industry has discovered, yet largely ignored, is that many mechanisms which improve performance also increase fat content of the carcass. This would not be as disconcerting if all fat depots increased proportionately, but they don't. There appears to be an upper limit to the daily deposition of fat as marbling, yet there may be no practical limit on the amount of fat which can be deposited externally. So what we've done by increasing daily gain through inclusion of distillers grain is increase the amount of extra energy which is deposited as external fat, thus increasing the animals' yield grade, but we haven't increased the amount of fat going into marbling depots. So the ratio of marbling to yield grade goes down.

Although marbling deposition is not affected by feeding distillers grain, the acceleration of backfat deposition results in either an increase in yield grade four to five carcasses (heavily discounted at market) or earlier marketing of the cattle, which shortens

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Distillers grains continued from page 1

the number of days cattle have to deposit marbling fat. They have achieved a target yield grade, yet not the previously proportional target marbling score.

What does this mean in the real world? At inclusion rates of less than 23 percent distillers grain (DM), there is no net effect of distillers grain on marbling score (figure 1). At inclusion rates of 30 to 40 percent (DM), marbling scores would be expected to be reduced by about 15 to 20 units if yield grade is kept the same. That is not actual percent Choice, only marbling score. The net effect on percentage Choice will be relative to what percent Choice the cattle would have been to begin with. That is, if the cattle are about 50 percent Choice with no distillers grain, that means a very large number of cattle in the pen are very near the Choice-Select line, assuming a relatively uniform pen in breed and age. If marketing occurred 2 weeks sooner than normal due to accelerated fattening, we could expect a 5 to 15 percent reduction in total cattle grading Choice and above (figure 2).

However, if you feed very high grading cattle and 70 to 80 percent of the cattle would normally grade Choice or higher, the net effect of “premature fattening” on percent reaching Choice would be reduced, even imperceptible. But at the same time, a greater percentage of these high-grading cattle are near the line for premium grades; therefore, early marketing may exhibit a greater effect on the percentage of cattle reaching premium grades.

There are certainly challenges faced by feeding high levels of distillers grain. But the realities thrust upon the livestock producer by the advancement of the biofuels industry force the producer to conquer these challenges to maximize their profit potential. Because biofuels are here to stay ---for now!

“At inclusion rates of less than 23 percent distillers grain (DM), there is no net effect of distillers grain on marbling score.”

Figure 1. Effect of increasing levels of distillers grains on marbling score corrected to a common yield grade

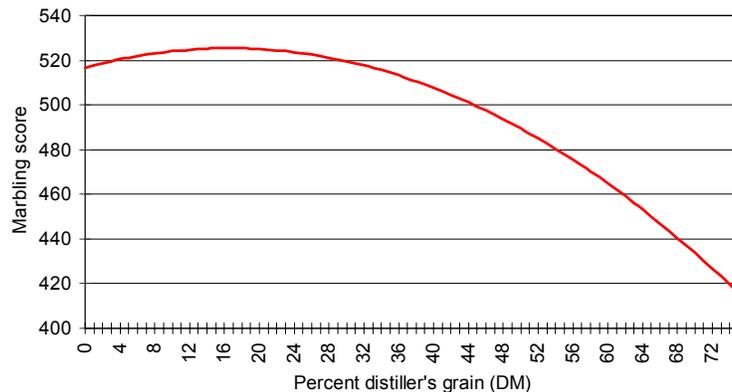
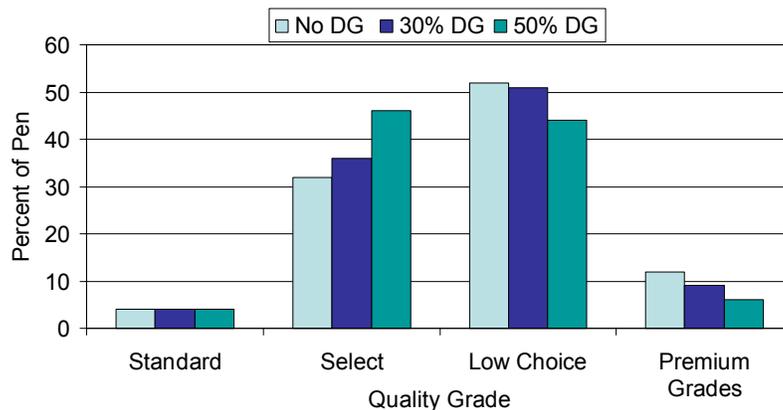


Figure 2. Impact of distillers grain (DG) on quality grade in theoretical data set



Seasonality of cull cow price provides opportunity

Karl Harborth, livestock specialist

Cow-calf producers cull cows for many reasons. The top two reasons as reported by the National Animal Health Monitoring System, (1997) are cow age and pregnancy status (Table 1). Since cull cows can contribute from 15 to 30 percent of a cow-calf operation's revenue, producers should consider options to optimize their value.

There are two main ways to increase the value of cull cows: 1) take advantage of the seasonality of the cull cow market and sell culls during months when prices are typically the highest, and 2) market cows into a higher grade by increasing body weight and dressing percentage.

Table 1. Cow-calf operations main reason for culling (NAHMS, 1997)

Reason	Percent
Age or bad teeth	39.8
Pregnancy status	24.3
Economics	18.5
Producing poor offspring	5.7
Other reproductive problem	2.9
Other	2.9
Physical soundness	2.1
Udder problem	1.5
Temperament	1.3
Bad eye(s)	0.8
Respiratory problem	0.2
Digestive problem	0.0

The cull cow market is historically seasonal and producers who cull in the spring can automatically take advantage of this seasonal price increase. Figure 1 shows the 2006 and 2007 monthly average price compared to the ten year monthly average for Utility grade cows. The seasonal trend can be seen in the ten year average with higher prices in the spring and lower prices in late fall. The 2006 monthly average followed this general trend but there was a larger seasonal difference compared to the ten year average.

Data available through July of 2007 indicate a delay in the price rise normally seen in late winter. What will happen the rest of this year and the next is unknown and producers should be aware of year to year differences and plan accordingly.

The second way to increase the value of cull cows is to improve their quality grade. Research has shown that feeding cows to higher weights increases their chance to obtain a higher grade. By increasing body weight the amount of lean tissue and fat stores that may have been depleted are replenished.

Cows can be classified into Commercial, Utility, Cutter or Canner quality grades, with most falling into Cutter or Utility grades. Since 1989 there has been an average difference of \$5.28 per hundred between cows grading Utility and Cutter/Canner, but the seasonal difference within a grade can be as great or greater.

Some studies have shown increasing a cull cow's weight can be accomplished fairly quickly by feeding a high concentrate diet due to their lower maintenance requirements. The optimal length to feed depends on the amount of weight and condition that needs to be added to the cow in order to potentially classify for a higher grade and feed price and availability.

If cattle are going to be fed or held over for more favorable prices, a breakeven price and budget should be formulated in order to make sure that it will be economically feasible to take this strategy.

Studies have shown cows can be fed a variety of diets and still gain the needed weight to potentially move up in grade. Energy dense diets (grain based) work well but are not always economical depending on grain prices. Forage based diets such as dormant winter range can be used effectively but must be supplemented properly to do so.

Only healthy cows that are free from injury should be retained and fed. All cows with structural problems or other ailments should be marketed at the time of culling. Thinner cows typically feed better than heavier conditioned cows. Thin cows typically gain more efficiently and maintain this efficiency throughout the feeding period.

See Cull Cow on page 4

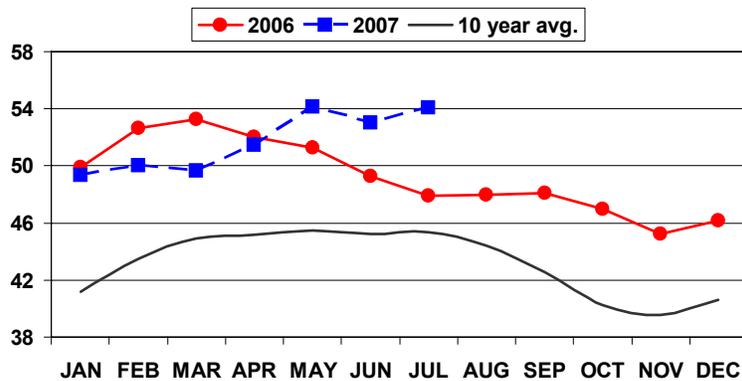
“...a breakeven price and budget should be formulated in order to make sure that it will be economically feasible to take this strategy.”

Cull Cow continued from page 3

Feeding cull cows is not a common practice in the cow-calf industry, but can be a viable way for producers to maximize their income. In some cases, cows culled in the fall may be fed over the winter months allowing weight, quality grade and price to increase before marketing. The economic feasibility of feeding culls will vary from year to year and from operation to operation, especially with the dynamics of the current grain market.

Producers should evaluate their resources and the current market to make themselves aware of the options available. In some cases the maximum amount of value may be achieved at culling, but unless all options are investigated, money may be left on the table

Figure 1. Average monthly Utility cow price (adapted from Cattle-Fax 2007)



2007 Stocker Conference to offer management tips

The 2007 KSU Beef Stocker Conference will be held on Thursday, September 27 at the Clarion Hotel, Manhattan, Kansas. This conference will offer practical information and management tips to optimize stocker operations. These tools will give producers greater flexibility as market and environmental conditions continue to unfold. The conference will include the following presentations: Cattle Market Outlook by Dr. Ted Schroeder, Kansas State University; Health Protocols that Add Value, Dr. Van Ricketts, Merial; Evaluating a Sick Calf, Dr. Brad White, Kansas State University; Selecting Your Antibiotic, Dr. Hans Coetzee, Kansas State University; Strategies for Controlling Input Costs, Dr. Dale Blasi, Kansas State University; and Using Byproduct Feeds for Receiving and Growing Diets, Dr. Sean Montgomery, Corn Belt Livestock Services. The day will conclude with a tour of the KSU Beef Stocker Unit and evening barbecue. Pre-registration of \$20 is due by Sept. 14th or \$30 the day of the conference. For more information, contact Lois Schreiner, 785-532-1267 or lschrein@ksu.edu.