Meeting the Nutritional Needs of Cattle

with Dried Distillers Grains and Next Generation Feed Products

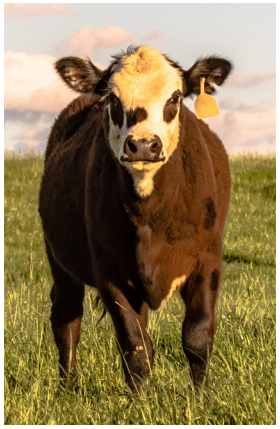
Background on DDGS

Distillers grains (DGs) often marketed as dried distillers grains with solubles (DDGS) are a co-product of the ethanol production process and an important source of rumen undegradable protein that continues to be produced in large quantities by the dry-grind fuel ethanol industry. They are rich in the protein, fat, minerals, yeast, and vitamins that animals need, making them a very popular feed ingredient for cattle, swine and poultry alike.

These distillers grains are widely used as feed for livestock and are marketed as DDGS, modified distillers grains with solubles (MDGS), wet distillers grains with solubles (WDGS), or condensed distillers solubles (CDS or corn syrup). Approximately 40 million metric tons of DDGS are produced annually. Cattle account for nearly 80% of DDGs consumption (50% attributed to beef cattle and 30% attributed to dairy cattle) and are a very important customer of this co-product. Cattle producers recognize the product as an economically beneficial, nutritionally valuable source of protein and energy and research has found that increasing DDGS inclusion rates increases average daily gain.

Cattle & Distillers Grains

There are multiple advantages to feeding distillers grains. Drying them increases shelf life, allowing DDGs to be transported longer distances. Distillers grains can also be sold wet to local feeders and while the shelf life is not as long, the nutritional value is actually better for feedlot cattle and these wet distillers grains are generally more economical due to savings on drying costs. Dry distillers grains can effectively comprise up to 40% of the ration dry matter intake for finishing cattle. Energy intake has been found to be greater when byproducts were included at 40% of diet (DM). These results agree with previous research on traditional distillers grains products. Though digestibility is lower, the increased energy supply contributes to the increase in performance observed in other experiments where these byproducts were fed. Historically, cattle have responded well to DDGs with excellent growth performance and carcass and meat quality. The yeast generated in fermentation is in addition, a very important functional component of the protein found in distillers feed products.



"We use modified distillers in our grower and finisher diets," said Clark Price, a corn grower and cattle producer from Washburn, North Dakota. "Depending on the price of the product we use it as an energy source first, which at 20-to-40 percent in the ration, provides us with all of the protein requirements also. The modified distillers also works as a ration conditioner which binds the ration together and eliminates cattle sorting as well as a rumen conditioner due to its bypass protein." MDGS have been proven to have an increased fat content and fat digestibility, leading to great improvement in TDN (Total Digestibile Nutrients) for beef cattle.

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Where the Industry is Headed

Coproducts from wet and dry corn milling have become important sources of energy, protein, digestible fiber, minerals, and vitamins and as improvements in operating efficiency of biorefinery ethanol plants occur, new products and innovations are continuously being developed. There are several new corn fractionation technologies being deployed in dry mills across the US. These technologies create value by separating out the various components of corn to allow improved utilization of the subsequent product streams. By separating corn into its most valuable components, there is opportunity for the nutritional needs of individual animal species to be better met and the subsequent protein and oil streams to have improved utilization. While corn and the current distillers grain products are adventageous when fed in combination and will continue to be a great choice, cattle at different stages of growth may further benefit from specifically fractionated feed products that have the ability to provide nutrients at more optimal levels than products currently produced. Fractionation allows ideal rations to be developed for cattle in various geographies and life stages.

Research from the Ohio State University has proven that DDGS are one of the key ingredients that continue to be under priced in terms of its value in cattle feeding. Dry distillers grains are an economic source of nutrients for beef cattle when compared with a wide range of alternative commodity feed ingredients. But even as ingredient prices rise, DDGS tend not to drop out of the ration. Feedlots continue to see ruminal benefits from inclusion of DDGS in the feed. Mitch Schweers, a corn and cattle producer from Northeast Nebraska, comments "DGs are an incredible value added feed source. When deciding on the rate of DGs added to the ration we price against value of corn and nutritional value. When looking at adding new products to our ration we rely heavily on our nutritionist to give us the best combination of feed source for the best conversion rate and lowest cost of gain."

With ongoing research and feeding trials, resources and materials for producers and nutritionists are being developed. In particular, further opportunities for beef cattle include developments in providing the correct level of protein, the utilization of next generation fibrous feed products, new research into the benefits of syrup and yeast from distillers grains, and specialized feed targeted to specific growth stage, an example of precision farming coming to the beef feedlot industry. Many farmers, like Clark and Mitch, work hard to balance cattle performance with cost of benefit, which is why lifecycle specific nutrition holds many exciting opportunities for producers. In stages of the lifecycle that require higher protein, a producer may choose to utilize HiPro DDGS which have been found to not affect total tract nutrient digestibility as compared to DDGS in steam flaked corn or dry rolled corn based diets when analyzed for rumen fermentration. Other stages of the lifecycle require heavy emphasis on overall growth. Beneficially, a study from Iowa State University found that the incorpartion of a co-product from corn kernel fiber based cellusloic ethanol, helped cattle maintain significant growth performance when replacing corn in finishing diets.

It is important to note that while some ethanol plants may invest in the biorefinery technology and produce these new products, others may not, which presents an opportunity for cattlemen to continue using the traditional DDGS products available to them but also explore new options.

While there is much more to come on next generation feed products, it is important to remember the value of current distillers grains products as well as corn grain. Any new products will require ongoing research and feeding trials to determine cattle response and performance and communication within the cattle industry to help producers make the choices that best serve their bottom line. For these reasons, the corn, ethanol and animal agricultural industries are co-dependent upon one another for their success and mutual prosperity. The National Corn Growers Association (NCGA) and its affiliates are proud to play an integral role with two important industries that impact the health of rural America.

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