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Supplementing Modified Wet Distillers Grains with Solubles to Long Yearling Steers Grazing Native Range

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Summary

Modified wet distillers grains with solubles (MDGS) was supplemented on the ground to yearling steers with access to native range during summer grazing. Supplemented steers had greater ADG than non-supplemented steers and were heavier entering the feedlot. NRC energy equations determined that 1.0 lb supplementation of MDGS replaced 0.74 lb forage during summer grazing. Additionally, these data suggest response to MDGS may exceed response to dried distillers grains with solubles (DDGS) for gain during grazing, based on previous experiments.

Introduction

Efficiency of gain has traditionally favored the calf-fed system over the yearling production system (*2009 Nebraska Beef Report*, pp. 37-39). Co-products of the corn dry milling industry fit well into forage production systems, because distillers grains provide a highly fermentable fiber source that does not negatively impact forage digestion (*2004 Nebraska Beef Report*, pp. 22-24), and they supply additional undegraded intake protein (UIP) to meet metabolizable protein deficiencies common to young cattle grazing forage.

The yearling system capitalizes on use of the animal to harvest forage, as opposed to the calf-fed system that requires additional harvesting costs associated with any forages utilized. The yearling production system is further segregated into short or long yearlings. Short yearlings are received in the fall, backgrounded during the winter, then returned to the feedlot in the spring; long yearlings are received in the fall and backgrounded through the following fall, at which time they re-enter the feedlot. The objective of the current research was to determine effects of supplementing modified wet distillers grains with solubles (MDGS) on the ground to long yearling steers grazing native Sandhills range.

Procedure

In 2008, 240 long yearling steers (BW = 504 ± 35 lb) were backgrounded on cornstalk residue from late fall to mid-spring (144 days). While grazing cornstalks, calves were supplemented 5.0 lb/steer daily of wet corn gluten feed. Following backgrounding, steers were allowed to graze smooth bromegrass pastures for 21 days. After grazing smooth bromegrass, calves were weighed, stratified by BW, assigned randomly to summer grazing treatments, and relocated to graze Sandhills range at the University of Nebraska Barta Brothers Ranch. Summer grazing treatments included grazing native range with no supplementation (CON) and grazing native range with MDGS supplementation at 0.6% BW (SUPP). Weights were projected for summer grazing treatment assignment to account for weight gain. MDGS was fed daily on the ground with a tractor and feed wagon, allowing for steers to be distributed to different locations within each pasture at the time of feeding. Steers grazed Sandhills range for 135 days before entering the feedlot on Sept. 24. Steers were limit fed at 1.8% BW (DM basis) for 5 days; initial and final BW for summer were the means of weights taken on 2 consecutive days.

Data were analyzed using the MIXED Procedure of SAS (SAS Inst. Inc.) as a completely randomized design; feedlot pen was the experimental unit. Summer grazing treatment was considered a fixed effect, with animal nested within summer grazing treatment and residual as random effects. Because there were different numbers of cattle in each treatment, the weight option was used.

Results

Table 1 provides descriptive statistics for the current experiment. At the time of summer treatment assignment, BW was not different between SUPP and CON steers (P = 0.47); however SUPP steers had 0.84 lb greater ($P < 0.01$) ADG during summer grazing than CON steers. Consequently, SUPP steers were 116 lb heavier ($P < 0.01$) than CON steers at feedlot entry. Using these summer performance data, *in vitro* dry matter digestibility (IVDMD) of the native Sandhills range from the two previous years, and NRC energy equations, it was determined that 0.74 lb grass was saved for every 1.0 lb MDGS fed (DM basis). Also, based on visual appraisal,

Table 1. Effect of supplementing modified wet distillers grains during summer grazing on performance of long yearling steers.

Item	CON	SUPP	*P*-value
Initial BW[1], lb	506	504	0.801
Spring BW[2], lb	730	735	0.539
Feedlot BW[3], lb	915	1030	<0.001
Summer ADG[4], lb	1.36	2.20	<0.001

[1]Initial BW = weight taken during first fall.
[2]Spring BW = weight taken after grazing corn stalks.
[3]Feedlot BW = weight taken after grazing summer pastures.
[4]Summer ADG = gain attained when grazing summer pastures.

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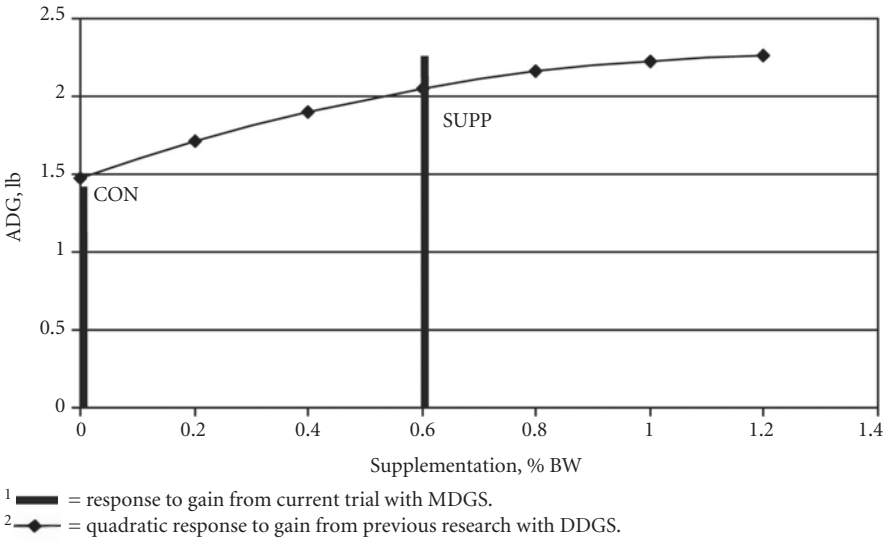

Figure 1. Effect of supplementing modified wet distillers grains during summer grazing[1] on ADG compared to meta-analysis[2].

feeding MDGS on the ground did not have a negative impact on native range.

Additionally, a meta-analysis of 12 pasture grazing experiments (*2009 Nebraska Beef Report*, pp. 37-39), in which dried distillers grains with solubles (DDGS) was fed in a bunk, found a quadratic response to DDGS for ADG ($y = -0.0124x^2 + 0.1866x + 1.507$; Linear < 0.01; Quadratic = 0.17). Figure 1 shows the meta-analysis quadratic response to DDGS for gain with the ADG for CON and SUPP steers from the current experiment, to illustrate the relative difference between the two trials. These data suggest response to MDGS may exceed response to DDGS for ADG during grazing.

It is important to note these results are based on one year of data; however, the experiment will be replicated over the next two years to provide additional power. It can be concluded after one year, however, that supplementing MDGS on the ground at 0.6% BW (DM basis) to long yearling steers grazing native range increased ADG during summer grazing.

A simple economic analysis was conducted on data from cattle performance. The MDGS was priced at $0.07/lb of dry matter and $0.10/animal was charged daily for feeding the MDGS (above routine animal care). The grass saved (0.74 lb/lb MDGS) was priced at $0.04/lb ($27/AUM). Based on these prices, the cost of gain for the additional 116 lb gained by supplementing MDGS was $0.35/lb.

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