Pasture Supplementation of Dakota Bran™ Pelleted Distillers Product to Growing Heifers in Southern Iowa

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Introduction

The sustained growth of the ethanol industry in the upper Midwest is well documented. There are many ways this affects the cattle industry. Increased demand for corn by the industry has driven prices to record highs in 2008. The increased cost and demand for corn have forced cattle producers to evaluate the many ways to use the by-products produced by the ethanol industry. Increased ethanol production has led to larger supplies of the by-product dried distillers grains with solubles (DDGS). Companies have started to market pelleted versions of this product that may be economical for cattle producers to use to extend pastures while cheapening gains. The increase in pelleted products has led to easier ways to transport, store, and feed these products to grass cattle. This study was designed to evaluate the effect of feeding mid-range levels of pelleted DDGS to heifers under southern Iowa grazing conditions.

Materials and Methods

Sixty-six fall born Angus heifers were blocked by sire and randomly allotted to four pasture groups and two supplement treatments. The treatments were non-supplemented control (CONT) and supplemented (TRMT). The supplementation level represented approximately 1.5 percent of the treatment heifer's body weight as Dakota Bran™ pelleted DDGS with solubles. The four pasture groups consisted of 16 paddocks ranging from 3.09 to 3.36 acres. Twelve of the paddocks consisted primarily of mixed cool-season grasses. The remaining four paddocks contained a mixture of cool- and warm-season grasses. A four pasture rotation was used for each replication. The two control and two treatment groups were allotted equally across pasture species. Stocking rates differed by treatment. The control groups were assigned 14 head and the treatments were increased to 19 head per replication.

The heifers were weighed, condition scored, and assigned to treatments on May 7, 2008. On July 1, they were re-weighed, condition scored, and poured with Dectomax (doramectin, Pfizer). Final weights were taken October 2. Initial and final weights were taken with cattle off water and pasture for 24 hours. Total grazing days were 148. All cattle were given access to a free choice mineral containing 12 percent Ca, 8 percent P, 10 percent salt, 2,500 ppm Mn, 3,000 ppm Cu, 23 ppm Ca, 30 ppm Se, 5,000 ppm Zn, 300,000 IU/lb Vitamin A, 35,000 IU/lb Vitamin D, and 500 IU/lb Vitamin E (as-fed).

Supplementation rates for the treatment groups were adjusted periodically for changes in cattle weights to target 1.5 percent of body weight daily. Dakota Bran used July 7 through October 1 was in a pelleted form and was fed using one portable bunk per group. The analysis of the Dakota Bran product used in this study is shown in Table 1. Pasture sward heights were measured in ten locations when cattle were rotated in and out of each paddock. Two cages also were measured and moved at that time. The sward height inside the cages showed how much the pasture grew while the

cattle were there. The data were analyzed using the GLM procedure of SAS.

Results and Discussion

The weights, daily gains, and condition scores of the heifers are shown in Table 2. The results in Table 2 are reported as four independent groups, and also as treatment and control averages.

Overall the weight gain of the heifers was slightly lower than expected. Wet weather may explain much of the reason for lower gains. The wet weather led to a week of scours for one of the treatment groups resulting in hindered performance for that week.

There was a direct correlation between the heifer's acceptance of the feed and weight gain. There was an initial acceptance period where the Dakota Bran™ had no real impact on weight gain. During period two, the supplemented cattle gained 0.69 lb/day faster than the control cattle. There were no differences in condition scores after the initial scoring. Supplemented cattle may have improved condition at a faster rate during the supplementation period, July 1 to October 2.

Calculations for daily dry matter intake based on sward height reduction in grazed pastures and cage growth, showed a 16.93 lb of dry matter/head/day intake average for the two control groups during the feeding period. The two treatment groups consumed 12.39 lb of dry matter/head/day; a reduction of 4.54 lb of pasture dry matter intake. Supplementation of 1.5 percent of body weight decreased pasture intake by 26.8 percent.

Summarized in Table 3 are pasture productivity and pasture supplement costs. These costs are not intended to reflect total cost of production, only those costs that change given changes in rate of supplementation. Given feed cost assumptions from summer 2008, supplementation improved gain/acre by 100 lb at a similar cost of gain.

Table 1. Analysis of Dakota Bran™ pelleted DDGS product used to supplement grazing cattle.[1]

Dry matter, %	93.4
Crude protein, %	14.4
ADF, %	6.3
NDF, %	24.9
Fat, %	13.6
Ca, %	0.10
P,%	0.76
K, %	1.31
S, %	0.72

[1]Percent of dry matter

Table 2. Performance of heifers supplemented with Dakota Bran™ pelleted DDGS.

	Control	Supplemented	SE	Significance
Initial weight, lb	469	452	2	<.04
July 1 weight, lb	526	482	21	NS
Oct. 2 weight, lb	598	619	33	NS
Initial condition score	4.07	3.98	.02	<.07
July 1 condition score	4.32	4.03	.40	NS
Oct. 2 condition score	4.21	4.34	.18	NS
ADG May 7-July 1, lb	1.05	0.54	.41	NS
ADG July 1-Oct. 2, lb	0.77	1.46	.56	NS
Overall ADG, lb	0.88	1.12	.22	NS
DMI July1-Oct. 2, lb	16.93	18.03	1.76	NS
--Forage	16.93	12.39	1.70	NS
--Supplement		5.65	--	

Table 3. Pasture productivity and costs.

	Control	Treatment
Gain/acre; lb	143.28	288.59
DDGS/head/day, lb	---	5.65(July-Oct)
Pasture and supplement cost		
Cost/acre	$58	$129
Cost/lb gain[1]	$.40	$.44

[1]Assumes $58/acre pasture rent and $205/ton for Dakota Bran.