# Supplemental Feeding of Mixed Co-products to Grazing Heifers

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## Introduction

The growth of the ethanol industry in the Midwest has greatly increased in the last 5 years. This increase has affected the cattle industry in many ways. The increased demand for corn by this industry has driven prices to new highs over the last 3 years. This has affected feed costs for the cattle industry. On the other hand, the growth of the ethanol industry has increased the amount of by-products that are produced.

Some key by-products produced by this industry are wet distiller's grains and wet corn gluten feed. Many companies are now marketing a pelleted version of this product. It is possible that this product may be more economical to cattle producers by providing the potential to extend the use of pastures while cheapening rates of gain at the same time. The pelleted feed produced by these companies is much easier to store, transport, and feed compared with the wet distiller's grains or corn gluten. This particular study was designed to evaluate the effectiveness of feeding this product to heifers in southern Iowa pastures.

## Materials and Methods

Sixty-four 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), and supplemented (Treatment). The supplementation level attempted represented approximately .75% of the treatment heifer's body weight as New Balance Commodities, Commodity Mix ™ pelleted droed distillers grains with, soy hulls, corn gluten, and a balancer.

The four pasture groups consisted of 16 paddocks ranging from 3.09 to 3.36 acres. Twelve of the paddocks consisted mostly of mixed cool-season grasses. The remaining four paddocks included a mixture of cool- and warm-season grasses. Each replication cycled through a four paddock rotation. The two control and two treatment groups were allotted equally across pasture species. Stocking rates differed by treatments. The control groups were assigned 15 head of cattle and the treatment groups were increased to 17 head of cattle/replication.

The heifers were weighed, condition scored, and assigned to treatments on May 12, 2009. On July 9, 2009, the cattle were re-weighed, condition scored, and poured with Agri-mectin (ivomec) 5cc, tagged with Y-tex fly tags, abamactin 8%, and injected with Bovashield Gold 5 (Pfizer) and pasturella vaccine (Pfizer). A portion of the cattle were also given 30 cc Liquamyacin (Pfizer) for pinkeye treatment. Final weights were taken on September 17, 2009. Initial and final weights were taken with cattle off feed and water for a twenty-four hour period. Total grazing period was 128 days.

All cattle were given free access to mineral containing 12% Ca, 8% P, 10% 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), although at times they ran out. Supplementation rates for the treatment groups were adjusted periodically for changes in cattle weights to target .75% of body weight daily. New Balance Commodities, Commodity Mix ™ was used May 20 through September 17. The product was in a pelleted form and was fed using two portable bunks per group. The analysis of the New Balance Commodities, Commodity Mix ™ product used in this study is shown in Table 1.

Pasture sward heights were measured in 10 random locations when the cattle were rotated in and out of each paddock. Two cages were also measured and moved at the time of rotation. The sward height inside the cages showed how much the pasture grew while the cattle were there. The data was analyzed using the GLM procedure of SAS.

## Results and Discussion

The average weights, daily gains, and condition scores of the heifers are shown in Table 2. The results in Table 2 are reported as treatment and control averages. The rate of gain advantage of the supplemented group was more than 1.03 lb/day compared with the control groups, which was a larger difference than found in the previous studies with other co-products. Actual supplement consumption was .65% of body weight. Wet weather may have played a factor in the gains of the cattle, with more maturity of fescue in the pastures. The wet weather caused a delay of pasture rotations due to excessive mud and also compaction of the grass during measurement. There was also a large incidence of pinkeye, which could also contribute to lower gains.

Measurements of pasture sward heights and related forage intakes found no grass substitution for the supplemented groups.

**Table 1. Analysis of New Balance Commodities, Commodity Mix™ product used to supplement grazing cattle.**

| | |
|---|---|
| Dry matter | 90.0% |
| Crude protein | 16.5% |
| Crude fat | 3.4% |
| Crude fiber | 25.0% |
| NEM/cwt | 87 mcal |
| NEG/cwt | 58 mcal |

**Table 2. Performance of heifers supplemented with New Balance Commodities, Commodity Mix™.**

| | Control | Supplemented | SE | Significance |
|---|---|---|---|---|
| Initial weight, lb | 498 | 493 | 12.1 | .87 |
| July 9 weight, lb | 515 | 565 | 11.8 | .0013 |
| Sept. 17 weight, lb | 595 | 719 | 13.0 | .0001 |
| Initial condition score | 3.87 | 3.70 | .1365 | .805 |
| July 9 condition score | 4.13 | 4.62 | .1409 | .0051 |
| Sept 17 condition score | 4.23 | 5.00 | .1358 | .0001 |
| ADG May 12-July 9, lb | 0.29 | 1.24 | .0868 | .0001 |
| ADG July 9-Sept 17, lb | 1.15 | 2.18 | .1055 | .0001 |
| Overall ADG, lb | 0.76 | 1.79 | .0615 | .0001 |
| DMI July 9-Sept 17, lb | 14.71 | 18.34 | | |
| --Forage | 14.71 | 14.4 | | |
| --Supplement | -- | 3.94 | ---- | |

**Table 3. Pasture productivity and costs.**

| | Control | Treatment |
|---|---|---|
| Gain per Acre; lb. | 109.19 | 286.36 |
| Supplement/head/day, lb. | --- | 3.94 (May-Sept) |
| Pasture and supplement cost cost/acre | $60 | $116.91 |
| Cost/lb gain* | $0.55 | $0.41 |

*$60/acre pasture rent and $170/ton for Commodity Mix™