

Agricultural Economics Department

Cornhusker Economics

University of Nebraska - Lincoln

Year 2006

The Economics of Dry Distillers Grain as
a Creep Feed for Yearling Cattle

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CORNHUSKER ECONOMICS

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| Market Report | Yr Ago | 4 Wks Ago | 11/3/06 |
|---|-----------|--------------|---------|
| <u>Livestock and Products,</u> | | | |
| <u>Weekly Average</u> | | | |
| Nebraska Slaughter Steers, 35-65% Choice, Live Weight | \$88.98 | \$90.25 | \$88.77 |
| Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb | 131.26 | 126.93 | 114.97 |
| Nebraska Feeder Steers, Med. & Large Frame 750-800 lb | 117.65 | 118.70 | * |
| Choice Boxed Beef, 600-750 lb. Carcass | 145.30 | 142.35 | 147.52 |
| Western Corn Belt Base Hog Price Carcass, Negotiated | 59.69 | 65.51 | 62.59 |
| Feeder Pigs, National Direct 45 lbs, FOB | 54.95 | 52.84 | 56.71 |
| Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean | 64.09 | 67.45 | 66.80 |
| Slaughter Lambs, Ch. & Pr., 90-160 lbs., Shorn, Midwest | 93.75 | * | * |
| National Carcass Lamb Cutout, FOB | 246.15 | 245.21 | 251.62 |
| <u>Crops,</u> | | | |
| <u>Daily Spot Prices</u> | | | |
| Wheat, No. 1, H.W. Imperial, bu | * | 4.52 | 4.75 |
| Corn, No. 2, Yellow Omaha, bu | 1.54 | 2.48 | 3.15 |
| Soybeans, No. 1, Yellow Omaha, bu | 5.41 | 5.17 | 6.26 |
| Grain Sorghum, No. 2, Yellow Columbus, cwt | 2.27 | 3.82 | 5.09 |
| Oats, No. 2, Heavy Minneapolis, MN, bu | 1.87 | 2.33 | 2.71 |
| <u>Hay</u> | | | |
| Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton | 117.50 | 135.00 | 135.00 |
| Alfalfa, Large Rounds, Good Platte Valley, ton | 37.50 | 87.50 | 87.50 |
| Grass Hay, Large Rounds, Good Northeast Nebraska, ton | 52.50 | 82.50 | 82.50 |
| * No market. | | | |

With the expected increase in ethanol production, one may expect an increase in production of its by-product, distiller's grain. This by-product can be either sold as wet distiller's grain (WDG) or as dry distiller's grain (DDG). The value of DDG prices is expected to continue to fall relative to the value of corn, making this a much talked about alternative for feeding livestock of many different species. While much of the attention for the use of this by-product feed has been directed toward intensive livestock production such as dairy, hogs and fed cattle, recent work at the West Central Research and Extension Center (WCREC) has shown it to have value as a creep feed to young, yearly calves on range.

Seventy-nine crossbred summer' and fall-born steers and heifers were stratified by weight, calving group and sex, and then assigned to a treatment or control group. Forty yearlings in the treatment group (TRT) grazed native summer Sandhill range with ad libitum access to a DDG pellet in a creep feeder for 54 days of a 63 day grazing period. The remaining 39 yearling calves, the control (CON) group, were grazed in an adjacent pasture without DDG access. Immediately after the grazing period, both groups of yearlings were placed in a feedlot using an identical diet, and fed to a similar back fat (BF) harvest point. Individual forage and DDG intake estimates, animal average daily gain (ADG) and carcass characteristics were used to determine the value of DDG to TRT yearlings for two possible market opportunities: 1) at the end of the grazing period (feeder calf), and 2) at harvest (fat cattle). TRT calves had an ADG of 2.8 lbs while the CON calves had an ADG of 1.9 lbs during the 63 days on pasture. The TRT yearlings performed better during the first 30 days in the feedlot with an ADG of half a pound (.5) more than the CON yearlings. The TRT yearlings were harvested 14 days before the CON yearlings, which were harvested at 138 days on feed. Final weight, ADG and carcass characteristics were similar between TRT and CON

yearlings. There was a tendency for the TRT cattle to have a higher percent grading choice, 67 vs. 51 percent for CON calves. The estimated value of DDG to yearlings as a group grazing Sandhill range was greater than its estimated cost, both for animals sold as feeder calves and fat cattle.

The overall value of DDG for the TRT cattle as a group through the grazing period was \$146.86 per ton, and \$139.02 per ton for animals retained to harvest (Table 1). This indicates that DDG had a value in excess of its estimated cost, labor included, of \$125.00 per ton. These results indicate that DDG, given the assumed cost of grass and cattle prices during the time of the study, was an economically viable feed source. However, it needs to be pointed out that different weight groups of steers performed differently, and when the calves were analyzed based on these different weight groups, the return over the value of the DDG varied.

The value of DDG varied for three weight classes of steers, both when calculated for expected returns of fat and feeder cattle. This difference was most evident between the light (500-650 lb.), and the heavy (greater than 700 lb.) steers (Table 1). The DDG values for cattle marketed when finished were more variable than the value of DDG for those marketed at the feeder calf stage. This difference is primarily due to the weight gain that occurred in the feedlot. The cost of DDG exceeded its value in the light and middle weight (651-700 lb.) steers. The value of DDG for the heavy steers marketed as fat cattle was \$361.90 per ton compared to a negative \$221.15 per ton for the light steers. The DDG value for the middle weight steers was \$24.46, over \$100.00 less than its estimated cost.

The difference in value of DDG for the fed cattle was a result of differences in ADG and carcass value. The TRT steers in the light category had a 48.50 pound lighter hot carcass weight (HCW) than the CON steers at harvest (Table 2). Additionally, the light TRT steers graded 44 percent Choice, whereas the light CON steers graded 64 percent Choice. In contrast, the heavy TRT steers had a 33.06 heavier HCW than the contemporary CON steers.

The heavy TRT steers graded 10 percent Prime, 70 percent Choice and 20 percent Select, when the heavy CON steers graded 42 percent Choice and 58 percent Select. These results indicate that calves with the greatest growth potential benefitted most from the use of DDG, and that calves with little growth potential were unable to realize an advantage to DDG supplementation.

It was estimated the TRT yearlings consumed 30 percent less forage than the CON yearlings. Assuming this reduced forage consumption, the area of pasture required to support a single CON yearling would support approximately 1.4 TRT yearlings. If pasture is limiting, such as in the case of a drought, the carrying capacity of a given area may be extended with ad libitum use of DDG.

Three price sensitivity analyses were conducted using pasture cost, feedlot costs and animal prices. It was estimated that the price for 650 lb. steers would have to have fallen more than \$23.10 per cwt from the \$115.52 per cwt base price before the value of DDG as a creep feed would have been less than the \$125.00 per ton cost. Fed cattle choice yield grade 2 carcass values would have to have fallen more than \$35.78 per cwt from the \$155.58 per cwt base price before the value of DDG as a creep feed would have been less than the cost. The cost of pasture rent in AUM terms would have to have decreased by more than half, from the \$28.30 per AUM base price to \$13.44 per AUM before the DDG supplementation would not have paid.

The use of DDG as a creep feed for yearling calves on pasture was a viable method of increasing returns given the prices and productivity of the cattle in this study. The largest returns were for those calves with the greatest growth potential retained through the fattening process. Further work needs to be done to verify the results of this study.

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Table 1. Value (\$/ton) of DDG to Yearling Cattle Sold after the Grazing Period or at Harvest Classified by Weight Category and Sex

| Production Points | All Cattle | Light Steers | Middle Steers | Heavy Steers | Heifers |
|-------------------|------------|--------------|---------------|--------------|----------|
| Feeder Cattle | \$146.86 | \$110.20 | \$152.76 | \$139.08 | \$140.84 |
| Fed Cattle | \$139.02 | \$(221.15) | \$24.46 | \$361.90 | \$205.95 |

Table 2. Average Steer Weights (lbs) and Quality Grade (%) by Weight Class and Whether They had Access to Ad Libitum Dried Distillers Grains during the Grazing Period (TRT) or not (CON)

| | Light Steers | | Middle Steers | | Heavy Steers | |
|--------|--------------|-----|---------------|-----|--------------|-----|
| | TRT | CON | TRT | CON | TRT | CON |
| HCW | 743 | 791 | 844 | 848 | 906 | 873 |
| Prime | 0% | 0% | 0% | 0% | 10% | 0% |
| Choice | 44% | 64% | 62% | 56% | 70% | 42% |
| Select | 56% | 36% | 38% | 44% | 20% | 58% |