

# Review of Recent Beef Cow Trials Feeding Distillers Grains

Doering-Resch, et.al. South Dakota State, 2005 Beef Research Report

## Effectiveness of Dried Distillers Grains with Solubles as a Replacement for Oilseed Meal in Supplements for Cattle Consuming Poor Quality Forage<sup>1</sup>

Two year study using 96 crossbred mid-gestating and 96 open cow fed in 15 pens one of three diets as described in table 1. Ground cornstalk rations were either supplement with SFM (sunflower meal supplemented), COMB (50/50 combination of sunflower meal and dried distiller grains with solubles) or DDGS (dried distiller grain with solubles).

Table 1. Composition and nutrient profile of treatment supplements

| Ingredient | Year 1                   |      |      | Year 2 |      |      |
|------------|--------------------------|------|------|--------|------|------|
|            | SFM                      | COMB | DDGS | SFM    | COMB | DDGS |
|            | ----- lb DM/d -----      |      |      |        |      |      |
| DDGS       | -                        | 1.49 | 2.97 | -      | 1.57 | 3.15 |
| SFM        | 2.85                     | 1.43 | -    | 3.5    | 1.75 | -    |
| Soy oil    | 0.35                     | 0.17 | -    | 0.35   | 0.17 | -    |
|            | ----- % of diet DM ----- |      |      |        |      |      |
| DM         | 90.1                     | 87.6 | 84.9 | 90.6   | 90.3 | 89.9 |
| CP         | 26.7                     | 28.6 | 30.8 | 24.0   | 27.9 | 32.6 |
|            | ----- % of CP -----      |      |      |        |      |      |
| DIP        | 88.0                     | 71.7 | 63.2 | 88.0   | 71.6 | 63.2 |

Table 3. Cow weights and weight changes

|         | Year 1            |                   |                   |      | Year 2 |        |        |      |
|---------|-------------------|-------------------|-------------------|------|--------|--------|--------|------|
|         | SFM               | COMB              | DDGS              | SEM  | SFM    | COMB   | DDGS   | SEM  |
|         | ----- lb -----    |                   |                   |      |        |        |        |      |
| Initial | 1286.1            | 1285.5            | 1293.3            | 10.7 | 1194.2 | 1212.9 | 1215.4 | 10.7 |
| Final   | 1355.6            | 1332.4            | 1341.2            | 13.0 | 1197.8 | 1231.7 | 1234.8 | 13.0 |
| Change  | 69.5 <sup>b</sup> | 46.9 <sup>a</sup> | 47.9 <sup>a</sup> | 8.6  | 3.6    | 18.8   | 19.4   | 8.6  |

<sup>a,b</sup> Means with uncommon superscripts differ ( $P < 0.10$ ).

**Summary:** Small and inconsistent differences in performance and the lack of differences in body condition between treatments suggest that DDGS can replace an oilseed meal in protein supplements without affecting animal performance. Supplementing DDGS as a sole protein source for cows consuming poor-quality forage is a viable management alternative for producers.

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## Evaluation of Dried Distillers Grains with Solubles as a Feedstuff for Heifers in the Last Trimester of Gestation<sup>1</sup>

96 crossbred heifers were used to evaluate the effect of dried distillers grains with solubles, fed in the last trimester of gestation, on heifer performance and reproduction. Treatments were dried distillers grains with solubles with grass hay and soybean hulls with grass hay and fed for nutrient requirements at the 240 gestation mark under thermo-neutral conditions.

Table 1. Composition of rations (DM basis)

| Item<br>Ingredient                 | Diet            |           |                 |           |
|------------------------------------|-----------------|-----------|-----------------|-----------|
|                                    | DDGS            |           | SBH             |           |
|                                    | Lb <sup>a</sup> | % of Diet | Lb <sup>a</sup> | % of Diet |
| Grass hay                          | 9.00            | 55        | 9.00            | 53        |
| Dried distillers grains + solubles | 6.60            | 41        | -               | -         |
| Soybean hulls                      | -               | -         | 7.25            | 43        |
| Supplement                         | 0.69            | 4         | 0.69            | 4         |
| Total                              | 16.29           | 100       | 16.94           | 100       |

<sup>a</sup>Pounds per head daily.

Table 4. Weight and body condition score (BCS) of heifers fed distillers dried grains plus solubles (DDGS) and soybean hull (SBH) treatments at 40% of the diet dry matter during the last trimester of gestation

| Item                     | DDGS              | SBH               | SEM <sup>d</sup> |
|--------------------------|-------------------|-------------------|------------------|
| Initial wt., lb          | 1117              | 1130              | 1.37             |
| Final wt., lb            | 1249 <sup>a</sup> | 1230 <sup>b</sup> | 4.75             |
| Wt. change, lb.          | 132 <sup>a</sup>  | 110 <sup>b</sup>  | 3.76             |
| Initial BCS <sup>c</sup> | 5.94              | 5.88              | 0.04             |
| Final BCS <sup>c</sup>   | 5.96              | 5.84              | 0.07             |
| BCS change <sup>c</sup>  | 0.02              | -0.04             | 0.06             |

<sup>a,b</sup> Means within rows (dried distillers grains plus solubles vs. soybean hulls) having different superscripts are different (P < 0.01).

<sup>c</sup> Body condition score.

<sup>d</sup> Standard error of the mean.

Table 5. Calving ease and calf vigor scores, and birth weight for distillers dried grains plus solubles (DDGS) and soybean hull (SBH) treatments

| Item                      | DDGS | SBH  | SEM <sup>c</sup> |
|---------------------------|------|------|------------------|
| Calving ease <sup>a</sup> | 1.22 | 1.22 | 0.14             |
| Calf vigor <sup>b</sup>   | 1.42 | 1.20 | 0.20             |
| Birth wt, lb              | 87.0 | 85.0 | 1.48             |

<sup>a</sup> Calving ease score: 1 = no assistance, 2 = easy pull, 3 = hard pull requiring calf jack, 4 = caesarian section, 5 = malpresentation.

<sup>b</sup> Calf vigor score: 1 = nursing w/o assistance, 2 = assisted nursing but calf lives at least 1 week, 3 = calf dead within 1 week, 4 = calf dead within 24 hours of birth, 5 = calf dead at birth.

<sup>c</sup> Standard error of the mean.

**Summary:** Heifer body conditions score and calf birth weights were similar for both treatments and there were no differences in calving ease of calf vigor scores. These results suggest that in limit fed situations DDGS and SBH can both be supplemented at 40% of the ration with no negative affects on cow performance, calf birth weight, or calving difficulty.

## Influences of limit-fed dry corn gluten feed and dry distillers grain with solubles on performance and lactation of beef cows.

This study involved 114 Simmental and 88 Angus cows nursing calves in two separate studies for either 77 or 68 days, respectively. Simmental cows were limited fed ground corn stalks and supplemented with either CGF or DDGS, while the Angus were limit fed corn shucklage and supplemented with either CGF or DDGS. Both groups were fed to meet cow maintenance and lactation requirements.

Table 1. Performance of Simmental and Angus cows on Ground Cornstalks supplemented with Corn Gluten Feed or Dried Distillers Grains with Solubles.

|                            | Corn Gluten Feed | Dried Distillers Grains with Solubles |
|----------------------------|------------------|---------------------------------------|
| Dry matter intake, lbs/day |                  |                                       |
| Simmental                  | 22.2             | 21.2                                  |
| Angus                      | 19.8             | 19.1                                  |
| % Co-product in ration     |                  |                                       |
| Simmental                  | 77%              | 76%                                   |
| Angus                      | 55%              | 53%                                   |
| Milk Production, lbs/day   |                  |                                       |
| Simmental                  | 22.9             | 20.9                                  |
| Angus                      | 21.2             | 19.2                                  |
| Calf ADG                   |                  |                                       |
| Simmental                  | 2.2              | 2.2                                   |
| Angus                      | 1.8              | 2.0                                   |

**Summary:** In both trials there were no differences in cow ADG, milk production or calf ADG when using CGF or DDGS. Limit-feeding lactating, beef cows CGF and DDGS is an alternative to feeding full-feed hay rations. Limit-feeding CGF and DDGS with either limit-fed ground corn stalks or limit-fed corn shucklage resulted in acceptable performance and lactation.

Stalker, et.al. 2005; University of Nebraska

## Effects of Dried Distillers Grains Supplementation Frequency on Heifer Growth

48 crossbred heifers being grown for replacements were fed free choice a 53% TDN hay with 6.6% Crude Protein and then supplemented 3 times or 6 times weekly with a supplement containing dried distillers grains at 3 lbs/head for 84 days. The supplement was 94.2% DDG, 2.9% molasses, 1.6% limestone, 1% salt, 1.16% TM premix and .06% vitamin premix.

Table 1. Performance of heifers fed DDG supplement either 3 or 6 times per week at 3 lbs/head

| Item                    | 3X   | 6X   | P-value |
|-------------------------|------|------|---------|
| Initial body weight, lb | 426  | 424  | .420    |
| Final body weight, lb   | 559  | 571  | .005    |
| ADG, lb                 | 1.58 | 1.74 | .010    |

**Summary:** Sufficient growth for developing replacement heifers was achieved with both treatments. However, heifer gain was greater when the DDG supplement was fed 6 times compared to 3 times per week.