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Abstract

Twenty-four individually fed heifers were used to evaluate four combinations of micronized or dry-rolled milo and soybean meal or urea supplements in prairie hay growing rations. Feeding 5 lbs. of micronized milo produced 23% faster and 18% more efficient gains than feeding 5 lbs. of dry-rolled milo. Heifers fed micronized milo + urea tended to gain faster and more efficiently than heifers fed dry-rolled milo + soybean meal.

Keywords

Cattlemen's Day, 1976; Report of progress (Kansas State University. Agricultural Experiment Station); 262; Beef; Micronized milo; Urea; Rations; Heifers

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Micronized Milo and Urea in High-hay Growing Rations for Beef Heifers¹

Keith Bolsen and Jack Riley

Summary

Twenty-four individually fed heifers were used to evaluate four combinations of micronized or dry-rolled milo and soybean meal or urea supplements in prairie hay growing rations. Feeding 5 lbs. of micronized milo produced 23% faster and 18% more efficient gains than feeding 5 lbs. of dry-rolled milo. Heifers fed micronized milo + urea tended to gain faster and more efficiently than heifers fed dry-rolled milo + soybean meal.

Introduction

Previous research at Manhattan and other midwest stations has shown properly gelatinized milo to be superior to dry-rolled milo in high-grain, beef finishing rations. No data are available to compare the feeding values of gelatinized milo and dry-rolled milo fed in limited amounts in high roughage, beef cattle growing rations. Soybean meal and urea supplements have generally given similar performance in high-grain rations; in high-roughage or silage rations, soybean meal has supported faster and more efficient gains than urea.

This trial evaluated four combinations of micronized or dry-rolled milo and soybean meal or urea supplements in hay rations for growing beef heifers.

Experimental Procedures and Results

Twenty-four Hereford and Hereford-Simmental heifers were allotted by breed and weight to sheltered, individual feeding pens. Six pens were assigned to each of these treatments:

| <u>Milo</u> | | <u>Supplement</u> |
|---------------|---|--------------------|
| 1. dry-rolled | + | soybean meal (SBM) |
| 2. dry-rolled | + | urea |
| 3. micronized | + | soybean meal (SBM) |
| 4. micronized | + | urea |

¹ Grain, supplements and partial financial assistance provided by Way-More Feeds, Inc., St. Joseph, Mo. 64501.

All heifers were fed twice daily and received chopped prairie hay to appetite, 4 lbs. of the appropriate milo and 2 lbs. of the appropriate supplement daily. Both supplements contained 32% crude protein (as-fed basis)^a. Initial and final weights of the heifers were taken after they had gone 15 hrs. without feed or water.

Results of the 84-day growing trial are shown in Table 14.1 (parts a and b).

Heifers fed micronized milo + SBM or micronized milo + urea gained faster than heifers fed dry-rolled milo + urea (part a). Heifers receiving micronized milo + SBM were more efficient than those receiving either dry-rolled milo + SBM or dry-rolled milo + urea.

Heifers receiving micronized milo gained faster ($P < .05$) and more efficiently ($P < .05$) than heifers receiving dry-rolled milo (part b). Heifers fed SBM gained 0.1 lb. per day faster and required 1.04 lbs. less dry matter per lb. of gain than heifers fed urea. Heifers fed the urea-containing liquid supplement consumed more hay than heifers fed the SBM supplement (10.55 vs. 10.15 lbs. daily). However, the higher moisture content of the urea supplement compared with the SBM supplement (45% vs. 13%), resulted in identical total ration dry matter consumptions (15.81 lbs. daily).

^a Soybean meal supplement: rolled milo, 688 lbs.; soybean meal, 1186 lbs.; dicalcium phosphate, 54 lbs.; salt, 42 lbs.; trace minerals, 8 lbs.; soybean oil, 21 lbs. and vitamin A, 1 lb. Urea supplement: urea mix (100% CP), 514 lbs.; cane molasses, 390 lbs.; calcium lignin sulfonate, 423 lbs.; trace minerals, 2 lbs.; 10-34-0, 70 lbs.; distillers solubles, 600 lbs. and vitamin A, 1 lb.

Table 14.1 Performance of Yearling Heifers fed Dry-Rolled or Micronized Milo With Soybean Meal (SBM) or Urea.¹

| Part a: | Dry-rolled milo | | Micronized milo | |
|-------------------------------------|---------------------|--------------------|-------------------|----------------------|
| | SBM | Urea | SBM | Urea |
| No. of heifers | 6 | 6 | 6 | 6 |
| Initial wt., lbs. | 599.0 | 604.0 | 591.0 | 601.7 |
| Final wt., bs. | 708.7 | 709.0 | 730.3 | 727.7 |
| Avg. daily gain, lbs. | 1.31 ^{b,c} | 1.25 ^c | 1.66 ^a | 1.50 ^{a,b} |
| Avg. daily feed, lbs. ² | | | | |
| prairie hay | 10.12 | 10.64 | 10.18 | 10.47 |
| milo | 3.89 | 4.10 | 4.19 | 4.34 |
| supplement | 1.61 | 1.03 | 1.64 | 1.05 |
| Total | 15.62 | 15.77 | 16.01 | 15.86 |
| Feed/lb. of gain, lbs. ² | 12.12 ^b | 12.55 ^b | 9.69 ^a | 10.98 ^{a,b} |

| Part b: | Milo | | Supplement | |
|-------------------------------------|--------------------|--------------------|------------|-------|
| | Dry-rolled | Micronized | SBM | Urea |
| No. of heifers | 12 | 12 | 12 | 12 |
| Avg. daily gain, lbs. | 1.28 ^b | 1.58 ^a | 1.48 | 1.38 |
| Avg. daily feed, lbs. ² | | | | |
| prairie hay | 10.38 | 10.33 | 10.15 | 10.55 |
| milo | 4.00 | 4.26 | 4.04 | 4.22 |
| supplement | 1.32 | 1.34 | 1.62 | 1.04 |
| Total | 15.70 | 15.93 | 15.81 | 15.81 |
| Feed/lb. of gain, lbs. ² | 12.55 ^b | 10.33 ^a | 10.92 | 11.96 |

¹ 84 days (May 3 to July 25, 1975).

² 100% dry matter basis.

a,b,c Means on the same line with different superscripts differ significantly (P<.05).