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Feeding propionic acid-treated, flaked sorghum to finishing steers

Terry L. Gugle

G. Fink

Jack G. Riley

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Feeding propionic acid-treated, flaked sorghum to finishing steers

Abstract

Fifty-four yearling Hereford steers averaging 805 pounds were used in an 86-day finishing trial to determine the effect of adding low levels of propionic acid to steam flaked sorghum grain. Three treatments were examined. Treatment one consisted of sorghum grain steam flaked twice weekly for a maximum of 4 days between flaking. Treatment two was the same as treatment 1 except that propionic acid was added into the discharge auger at 0.15% of the weight of the flakes. Treatment three was flaking once a week with propionic acid added at 0.25% of the weight of the flakes. Both acid levels significantly ($P < .05$) improved gain and efficiency.

Keywords

Cattlemen's Day, 1976; Report of progress (Kansas State University. Agricultural Experiment Station); 262; Beef; Propionic-acid; Gain; Efficiency; Steam flaked sorghum; Finishing steers

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Feeding Propionic Acid-treated, Flaked Sorghum to Finishing Steers

Jack G. Riley, Terry Gugle, and Galen Fink

Summary

Fifty-four yearling Hereford steers averaging 805 pounds were used in an 86-day finishing trial to determine the effect of adding low levels of propionic acid to steam flaked sorghum grain. Three treatments were examined. Treatment one consisted of sorghum grain steam flaked twice weekly for a maximum of 4 days between flaking. Treatment two was the same as treatment 1 except that propionic acid was added into the discharge auger at 0.15% of the weight of the flakes. Treatment three was flaking once a week with propionic acid added at 0.25% of the weight of the flakes. Both acid levels significantly ($P < .05$) improved gain and efficiency.

Introduction

We, and commercial operators have observed that steam flaked grain appeared to lose quality and palatability when not fed the day it was processed. Even though flaked grain was dried to approximately 84% dry matter, it deteriorated noticeably when stored more than three days in warm humid weather. That prompted us to try propionic acid (less than 0.3% of flake weight) to maintain quality and to extend storage life of flaked grain.

Procedure

Fifty-four yearling Hereford steers averaging 805 lbs. were divided into 3 treatment groups for an 86-day trial. The three treatments were: (1) sorghum grain flaked twice per week for a maximum of 4 days storage between flaking; (2) sorghum grain flaked at the same intervals as treatment 1 with propionic acid added into the discharge auger at 0.15% of the weight of the flakes; (3) sorghum grain flaked once a week with propionic acid added at 0.25%. Composition of the rations on a dry matter basis was 80% steam flaked milo, 5% protein supplement, and 15% corn silage. The trial began November 12, 1974, and ended February 6, 1975. Individual weights were taken initially, at 28-day intervals, and at completion. Carcass data for each steer were collected at Wilson and Company, Kansas City, Mo.

Results

Results of trial 1 are shown in table 24.1. Treating with propionic acid significantly improved daily gain and efficiency of gain. Flaking twice a week and treating with 0.15% propionic acid reduced daily dry matter consumed so performance for this group was less than for the group getting milo flaked only once a week but treated with 0.25% propionic acid. This preliminary study indicates that adding propionic acid to steam flaked sorghum grain helps preserve feed quality so rate and efficiency of gain are improved.

Table 24.1 Effect of adding propionic acid to flaked sorghum grain on performance of finishing steers, Nov. 12, 1974 - Feb. 6, 1975 (86 days).

| Item | Propionic acid | | |
|--------------------------|--------------------|--------------------|--------------------|
| | 0 | 0.15%* | 0.25%* |
| No. steers | 18 | 18 | 18 |
| Initial wt., lbs. | 808 | 801.7 | 804.3 |
| Final wt., lbs. | 986.3 | 1009.8 | 1034.3 |
| Gain, lbs. | 178.3 | 208.1 | 230.0 |
| A.D.G. | 2.07 ^a | 2.42 ^b | 2.67 ^c |
| Dry matter/day, lbs. | 19.00 ^b | 17.44 ^a | 19.48 ^b |
| Dry matter/lb gain, lbs. | 9.18 ^a | 7.21 ^b | 7.30 ^b |

*Of weight of flaked milo.
 a,b,c Values in same line with different superscripts differ sign ($P < .05$).