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Effect of Sodium Bicarbonate on Gains
of Stocker Cattle Fed Grain on
Tall Fescue Pastures¹

Frank Brazle²

Summary

Adding sodium bicarbonate to the grain supplement of steers grazing lush, low endophyte, tall fescue pasture had no effect on cattle performance.

Introduction

Sodium bicarbonate supplementation of sorghum silage rations has resulted in improved intake and average daily gain. Research conducted at the Fort Hays Branch Experiment Station (Kansas Agric. Exp. Sta. Bull. 556) showed that steers fed sorghum silage rations supplemented with 100 gm of sodium bicarbonate daily consumed 4% more dry matter and gained 8% faster than controls. However, research at Manhattan (Kansas Agric. Exp. Sta. Bull. 448) showed no differences in feed intake or gain on forage sorghum silage when sodium bicarbonate was supplemented at 112 gm per head daily.

When grain is fed at a high level on lush grass, the forage to grain ratio is similar to that of a silage diet. The objective of this trial was to evaluate the effect of adding sodium bicarbonate to a grain supplement fed on lush spring fescue.

Experimental Procedures

On April 8, 1985, 44 steers were randomly allotted to either a sodium bicarbonate or a control group. The two groups were rotated between two 25-acre fescue pastures (10% infestation of endophyte fungus). The control supplement consisted of wheat, milo, and soybean meal, and contained 14% crude protein. The bicarbonate group received the same supplement plus 103 gm of sodium bicarbonate per head daily. The cattle were hand-fed 4 lb of supplement per head each morning. The steers were gathered June 10, mixed together, and then weighed the morning of June 11. The data were evaluated by Analysis of Variance with Least-Squares Means Procedures.

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Results and Discussion

The results of feeding sodium bicarbonate to steers on tall fescue pasture are shown in Table 33.1. There was no significant difference in gain. The steers weighed 800 lb when the trial started; therefore, the 4 lb of grain would be only 15 to 25% of the steer's daily dry matter intake. This low percentage of grain in the diet may not have been enough to reduce rumen pH to the point of affecting fiber digestibility, thus explaining why sodium bicarbonate was without benefit.

However, lighter cattle or higher levels of supplementation could give a different response. Additional research on sodium bicarbonate is needed with 400 to 500 lb calves supplemented with 4 to 5 lb of grain on lush grass.

Table 33.1. Effect of Adding Sodium Bicarbonate to a Grain Supplement on Gains on Steers Grazing Tall Fescue Pasture

| Item | Control | Sodium Bicarbonate (103 g/day) |
|----------------------------|------------------|--------------------------------------|
| No. Steers | 22 | 22 |
| Starting Wt., lb (April 8) | 796 | 803 |
| Ending Wt., lb (June 11) | 924 | 927 |
| Daily Gain, lb (64 Days) | $2.00 \pm .08^1$ | $1.94 \pm .08^1$ |

¹Standard Error.