Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 1 *Cattleman's Day (1993-2014)*

Article 1033

1986

Effect of thiabendazole on gains of stockers grazing 50% endophyte fungus-infected, tall fescue pastures

F. Brazle

Recommended Citation

Brazle, F. (1986) "Effect of thiabendazole on gains of stockers grazing 50% endophyte fungus-infected, tall fescue pastures," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 1. https://doi.org/10.4148/2378-5977.2436

Effect of Thiabendazole on Gains of Stockers Grazing 50% Endophyte Fungus-Infected, Tall Fescue Pastures[1]

Frank Brazle[2]

Summary

Thiabendazole (TBZ®) wormer pellets were added to either a mineral or grain mix in two experiments with steers grazing 50% endophyte fungus-infected, tall fescue pastures. Research from other stations has suggested that TBZ® partially overcomes the toxicity of endophyte fungus. In our experiments, steers received .2 g of TBZ® per 100 lb body weight per day, but daily gain was not improved during the grazing period.

Introduction

Thiabendazole (TBZ®[2]) has been suggested to relieve the effects of endophyte fungus in tall fescue. Unpublished research at Alabama showed a .4 lb daily gain improvement in steers grazing greater than 80% endophyte fungus-infected tall fescue pasture when supplemented with TBZ® at .7 g per 100 lb body weight per day.

When TBZ® was fed in a receiving ration at Illinois for 42 days at .35 or .7 g per 100 lb body weight daily to calves or yearlings coming off endophyte fungus-infected, tall fescue pastures, the results were inconsistent. Although differences were not statistically significant, there was a trend toward lower body temperatures in calves treated with TBZ®. Also, treated calves gained .5 lb more per day than controls and showed improved feed conversion. There was no gain difference between treatments with yearling steers. The purpose of our experiments was to evaluate the effect of TBZ® at a lower dosage level on yearling steers grazing endophyte fungus-infected, tall fescue pastures.

Experimental Procedures

Two experiments were conducted using TBZ® on 50% endophyte-infected, tall fescue pastures. In experiment 1, 6.6% TBZ® pellets were added to a mineral-grain-Rumensin®[3] mixture (Table 34.1). The steers were randomly allotted to treatment and weighed individually on April 1. All steers were injected with ivermectin (Ivomec®[4]) on day 1 to remove any deworming effect of TBZ®. The

[1]Appreciation is extended to Merck and Co., Inc., Rahway, NJ for support of these trials, to 3-G Farms and Owen O'Brien for supplying cattle and facilities, and to Glenn Newcomber and Ted Wary, County Extension Agricultural Agents, for their assistance with these trials.

[2,4]MSD Agriet, Division of Merck and Co., Inc.

[3]Elanco Products, Division of Eli Lilly Co., Indianapolis, IN.

steers were rotated in 30-acre pastures to remove pasture effects. The steers were weighed off trial on June 20.

In experiment 2, steers were self-fed a 14% crude protein, salt-limited supplement with either 0 or 15 lb of TBZ® per ton, added as 6.6% TBZ® pellets. The steers were randomly allotted, weighed, and injected with Ivomec® on April 2. The steers were grazed in two, 160-acre tall fescue pastures (50% endophyte fungus-infected), and were weighed off July 13.

Table 34.1. Mineral - Grain - Rumensin® Mixtures Used in Experiment 1.

TBZ®	Control
500 lb (6.6%) TBZ®	1180 lb ground milo
680 lb ground milo	700 lb salt
700 lb salt	100 lb dicalcium phosphate
100 lb dicalcium phosphate	20 lb Rumensin® (60 g/lb)
20 lb Rumensin® (60 g/lb)	

Data were treated by Analysis of Variance with Least Squares Means Procedures.

Results and Discussion

In experiment 1, the steers supplemented with the mineral-grain-Rumensin® mixture plus TBZ® consumed .21 lb of supplement per day compared to .19 lb for the controls. This resulted in a daily TBZ® intake of 1.6 g per head or .20 g per 100 lb of body weight. Daily Rumensin® intake was 127 mg for the TBZ® group and 112 mg for the controls. However, there was no difference ($P>.05$) in gain as shown in Table 34.2.

The year 1985 was cooler than most, with only two days above 80°F during the experiment, and the fescue was lush and growing rapidly. These factors may have reduced the effects of the endophyte fungus on gains. The level of endophyte fungus infection also was lower in our pastures than in those cited earlier. Our dosage rate of TBZ® was considerably lower as well. The cattle were yearling steers, which in the Illinois research also showed no response to TBZ®.

In experiment 2 (Table 34.3), the steers consumed 6 lb of grain per day resulting in 1.35 g of TBZ® per head or .2 g per 100 lb of body weight per day, the same as in Experiment 1. These steers grazed longer into the summer when the environmental temperature was higher. Higher temperatures, in combination with high endophyte fungus-infected fescue pastures, normally result in reduced gains.

The yearling steers in Experiment 2 were receiving 6 lb of grain daily, which should have reduced forage dry matter intake, and consequently the amount of the endophyte fungus or toxins consumed.

At this level and under these conditions, TBZ® would not be recommended as an aid in reducing the effect of endophyte fungus on grazing yearling steers.

Table 34.2. Effect of TBZ® in a Mineral-Grain-Rumensin® Mixture on Gains of Stocker Steers Grazing 50% Endophyte-Infected, Tall Fescue Pastures

Item	TBZ®	Control
No. Steers	25	25
Starting Wt., lb	735	714
Days on Trial	80	80
Ending Wt., lb	913	889
Daily Gain, lb	2.22 ± .13[1]	2.19 ± .12

[1]Standard error.

Table 34.3. Effect of TBZ® When Self-fed in a Grain Mixture on Gains of Steers Grazing 50% Endophyte-Infected, Tall Fescue Pastures

Item	TBZ®	Control
No. Steers	52	51
Starting Wt., lb	549	560
Days on Trial	102	102
Ending Wt., lb	762	780
Daily Gain, lb	2.09 ± .06[1]	2.16 ± .06

[a]Standard error.