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Effect of Terramycin® and Bovatec® in free-choice mineral mixtures on gains of heifers grazing native grass

Abstract

Supplementing heifers in an intensive-early grazing program with Terramycin ® or Bovatec ® in free-choice, mineral-soybean meal mixtures resulted in Comparable cattle performance. Both feed additive mixtures increased heifer gains about .3 lb per day compared to controls supplemented with a simple mineral mixture.

Keywords

Cattlemen's Day, 1987; Kansas Agricultural Experiment Station contribution; no. 87-309-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 514; Beef; Terramycin®; Bovatec®; Heifers; Mineral; Native grass

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Effect of Terramycin® and Bovatec® in Free-Choice
Mineral Mixtures on Gains^{1,2}
of Heifers Grazing Native Grass

F. Brazle³, G. Kuhl, D. Harmon,
and S. Laudert⁴

Summary

Supplementing heifers in an intensive-early grazing program with Terramycin® or Bovatec® in free-choice, mineral-soybean meal mixtures resulted in comparable cattle performance. Both feed additive mixtures increased heifer gains about .3 lb per day compared to controls supplemented with a simple mineral mixture.

Introduction

Significant performance responses have been found from supplementing stocker cattle with antibiotics and ionophores on native grass pasture. However, these two types of feed additives have not been directly compared in mineral mixtures for grazing cattle. The purpose of this study was to evaluate the gains of stockers offered Bovatec® and Terramycin® in free choice, mineral-soybean meal mixtures.

Experimental Procedures

On April 22, 144 mixed breed heifers averaging 515 lbs were individually weighed and randomly allotted to three grazing supplement treatments: 1) a salt-dicalcium phosphate mineral mixture (control), 2) Terramycin in a mineral-soybean meal mixture, and 3) Bovatec in a mineral-soybean meal-grain mixture (Table 30.1). The heifers grazed in six native tallgrass pastures stocked at 1.8 acres per animal (intensive-early grazing), with two pastures assigned to each treatment. The supplement mixtures were fed in wind-vane feeders, with intakes monitored weekly. The heifers were weighed off trial on July 15 and shipped the same day 300 miles to a commercial feedlot in western Kansas. The heifers were reweighed on arrival at the feedlot and after 27 days on feed. Rumen fluid was collected by stomach tube for rumen pH and volatile fatty acid (VFA) analysis from 10 heifers on each treatment at the start and finish of the grazing period.

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Results and Discussion

There was no difference in pasture gains between the Terramycin and Bovatec supplemented heifers (Table 30.2). Cattle receiving these supplements gained about .3 lb more ($P < .01$) per head daily than controls. Intake of the Bovatec mixture was lower than desired, resulting in only 122 mg of Bovatec consumed per head daily. The desired level was 150 to 200 mg per day. Heifer consumption of the Terramycin mixture was more than adequate, with cattle receiving 422 mg of the feed additive per head daily.

Heifers fed Bovatec had the lowest shrinkage in transit to the feedlot of any treatment group. This may have been a function of slightly less gut fill in grazing animals consuming an ionophore. Heifer gains during the first 27 days in the feedlot favored the controls, but the difference was not statistically significant. Stockers fed either Terramycin or Bovatec gained faster over the total 110-day period than controls.

There were no differences ($P > .15$) among any of the treatments in rumen pH or molar percentages of propionic and acetic acid at the end of the grazing period (Table 30.3). Moreover, no changes were detected from the start to the end of the grazing period in these rumen parameters.

Table 30.1. Composition and Heifer Intake of Experimental Mineral Mixtures

Ingredients, lb/ton:	Terramycin	Bovatec	Control
Soybean Meal	200	200	----
Grain Sorghum	----	600	----
Salt	1340	1078.8	1500
Dicalcium Phosphate	300	100	500
Terramycin®, 50 gm/lb	160	----	----
Bovatec®, 68 gm/lb	----	21.2	----
<u>Daily Heifer Intake:</u>			
Mineral Mixture, lb	.105	.169	.069
Bovatec®, mg	----	122	----
Terramycin®, mg	422	----	----

Table 30.2. Effect of Terramycin and Bovatec on Gains of Heifers Grazing Native Grass

Item	Terramycin	Bovatec	Control
No. Heifers	56	46	44
Starting Wt., lb	523	511	516
Average Daily Gain, lb:			
Pasture, 83 Days	1.75 ^a	1.74 ^a	1.45 ^b
Feedlot, 27 Days	5.06	5.06	5.49
Overall, 110 Days	2.21 ^c	2.23 ^c	2.09 ^d
Trucking Shrink, lb ¹	39.7 ^a	35.9 ^b	38.1 ^{ab}

¹ Average heifer shrink from pasture to feedlot, shipped 300 miles.

^{a,b} Means in same row not sharing the same superscript are different (P<.01).

^{c,d} Means in same row not sharing the same superscript are different (P<.10).

Table 30.3. Effect of Terramycin and Bovatec on Rumen pH and VFA Levels of Grazing Heifers

Rumen Parameter	Terramycin	Bovatec	Control
pH	7.21	7.09	7.13
Propionic Acid, molar %	12.7	13.6	13.8
Acetic Acid, molar %	72.8	73.4	78.3