

Kansas Agricultural Experiment Station Research Reports

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

Article 785

1992

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Recommended Citation

Brazle, F.K. (1992) "Effect of feed additives on shipping shrinkage of yearling heifers," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 1. <https://doi.org/10.4148/2378-5977.2188>

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EFFECT OF FEED ADDITIVES ON SHIPPING SHRINKAGE OF YEARLING HEIFERS

F. K. Brazle¹

Summary

Two studies were conducted to determine the effect of feed additives on the transit shrink of yearling cattle. In Trial I, 146 mixed-breed heifers were offered a mineral mixture containing either Terramycin® or Bovatec®, or without additive while grazing native grass pastures. Shrinkage after 300 miles in transit was lower ($P < .09$) for Bovatec-fed heifers than the other groups. In Trial II, 60 mixed-breed heifers were offered free choice prairie hay, plus soybean hulls without additive or containing either Aureomycin®, Rumensin, or Bovatec®. Both ionophores tended to reduce live weight shrink following a 10-hour withholding of feed and water, but treatment differences were not significant ($P > .05$). The small shrinkage differences observed in these two trials would not justify changes in the weighing practices of feeder cattle.

(Key Words: Shrink, Antibiotic, Ionophore, Feeder Cattle.)

Introduction

Many factors, including distance from the scale, time of day the cattle are weighed, and the amount of grain fed, have been used to determine an acceptable pencil shrink on feeder cattle. However, the increasing use of ionophores and tetracyclines in cattle on forage diets may also affect shrink. Rumensin has been shown by Texas researchers to reduce gut fill in pasture cattle. Therefore, the objective of these studies was to determine if

ionophores and tetracyclines affect the shrinkage of feeder cattle.

Experimental Procedures

In Trial I, 146 (517 lb) mixed-breed heifers were allotted randomly to three treatments: 1) Terramycin®, 422 mg/head/day; 2) Bovatec, 122 mg/head/day; 3) control. The heifers were grazed on native grass pastures (two pastures/treatment) for 84 days while the feed additives were fed in a mineral mixture. The heifers were co-mingled and weighed individually at 7 a.m. on July 15, then shipped 300 miles to a feedlot. The heifers were weighed individually upon arrival at the feedlot.

In Trial II, 60 mixed-breed (581 lb) heifers were allotted randomly to four treatments: 1) Aureomycin®, 296 mg/head/day; 2) Bovatec, 195 mg/head/day; 3) Rumensin, 165 mg/head/day; and 4) control. There were three pens of heifers per treatment with five head per pen. The heifers were fed 14.3 lb of soybean hulls per day plus free choice prairie hay for 10 days. The heifers were co-mingled and weighed individually at 7:30 a.m. Then, they were weighed every 2.5 hours over a 10-hour period. Between weighings, heifers were placed in a tight pen without feed or water to simulate shipment.

Results and Discussion

In Trial I, Bovatec-fed heifers shrank less ($P < .09$) than Terramycin or control cattle (Table 1). In Trial II, Rumensin and Bovatec-

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fed heifers experienced the least shrink (Table 2). However, differences among treatments in this study were not significant ($P > .05$).

Figure 1 shows the rate of shrink for all cattle in Trial II over the 10-hour period. The temperature ranged from 89 to 95 F during this period. The rate of shrink was about 1.4% per hour during the first 5 hours, then slowed to .68% by the end of the 10-hour period.

Table 1. Effect of Terramycin and Bovatec on Shrink of Feeder Heifers (Trial I)

Item	Control	Terramycin	Bovatec
No. heifers	44	56	46
Starting weight, lb	636	668	656
Trucking shrink, lb	38.1 ^{ab}	39.7 ^b	35.9 ^a
Shrink, %	6.0 ^d	5.9 ^d	5.5 ^c

^{ab}Means in the same row not sharing the same superscript are different ($P < .01$).

^{cd}Means in the same row not sharing the same superscript are different ($P < .09$).

Table 2. Effect of Feed Additives on Shrink of Feeder Heifers (Trial II)

Item	Control	Aureomycin	Bovatec	Rumensin
No. heifers	15	15	15	15
Starting wt., lb	658	676	649	666
<u>Weight, shrink, %:</u>				
7:00 a.m. to 9:30 a.m. (89 F)	2.28	2.64	2.32	2.18
9:30 a.m. to 12:00 p.m. (93 F)	2.65	2.48	2.67	2.57
12:00 p.m. to 2:30 p.m. (95 F)	2.25	2.34	2.21	2.14
2:30 p.m. to 5:00 p.m. (94 F)	1.88	1.57	1.66	1.75
Total shrink, 10 hours	9.07	9.04	8.87	8.66

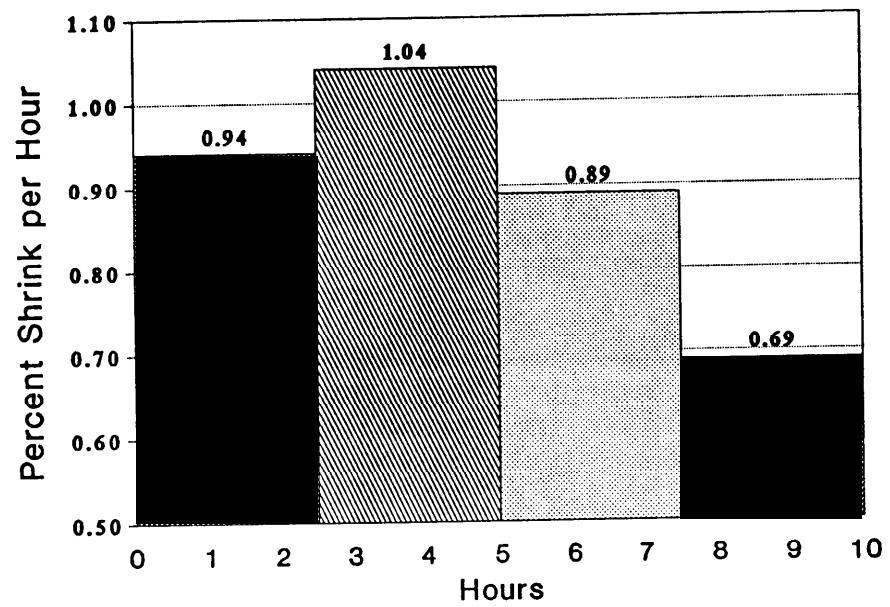


Figure 1. Rate of Shrink over a 10-hour Period in Feeder Heifers (Trial II).