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Abstract

Two hundred forty-six commercial Angusbased cows were used to determine the effect of adding Aureomycin® for anaplasmosis control or Rumensin® to mineral supplements on summer beef cowherd performance. Cow/calf pairs were randomly allotted to summer native-pasture groups by treatment, and were fed an industry-standard mineral/trace mineral supplement for the duration of the trial. The study had three treatments: (1) control mineral supplement with no medication added, (2) the same base supplement with the addition of Aureomycin® (0.5 mg/lb cow body weight daily), and (3) the base supplement with the addition of Rumensin® (200 mg/cow daily). Feed additives were blended into the mineral mix to provide the targeted daily consumption. Treatments were initiated May 6 and maintained through October 6. Mineral intake was similar among treatments. Cow and calf weight gains were similar among treatments during the first 32 days of the study. By the trial end, there were no significant differences in cow body condition score gains and pregnancy rates. Total calf gains for the duration of the trial were similar for groups supplemented with Aureomycin®, and Rumensin®, and both were greater than for control calves (21 and 18 lb greater, respectively). Overall herd health was enhanced by feeding Aureomycin ® when compared with control or Rumensin ®. Foot rot was the main health concern in this trial, and the addition of Aureomycin ® to mineral supplements reduced foot rot.

Keywords

Cattlemen's Day, 2005; Kansas Agricultural Experiment Station contribution; no. 05-144-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 943; Beef; Aureomycin®; Rumensin®; anaplasmosis; Performance

EFFECT OF ADDING AUREOMYCIN® FOR ANAPLASMOSIS CONTROL OR RUMENSIN® TO MINERAL SUPPLEMENTS ON SUMMER BEEF COWHERD PERFORMANCE

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Summary

Two hundred forty-six commercial Angus-based cows were used to determine the effect of adding Aureomycin® for anaplasmosis control or Rumensin® to mineral supplements on summer beef cowherd performance. Cow/calf pairs were randomly allotted to summer native-pasture groups by treatment, and were fed an industry-standard mineral/trace mineral supplement for the duration of the trial. The study had three treatments: (1) control mineral supplement with no medication added, (2) the same base supplement with the addition of Aureomycin® (0.5 mg/lb cow body weight daily), and (3) the base supplement with the addition of Rumensin® (200 mg/cow daily). Feed additives were blended into the mineral mix to provide the targeted daily consumption. Treatments were initiated May 6 and maintained through October 6. Mineral intake was similar among treatments. Cow and calf weight gains were similar among treatments during the first 32 days of the study. By the trial end, there were no significant differences in cow body condition score gains and pregnancy rates. Total calf gains for the duration of the trial were similar for groups supplemented with Aureomycin®, and Rumensin®, and both were greater than for control calves (21 and 18 lb greater, respectively). Overall herd health was enhanced by feeding Aureomycin® when compared with control or Rumensin®. Foot rot was the main health concern in this trial, and the addition of Aureomycin® to mineral supplements reduced foot rot.

Introduction

Mineral supplementation is an important practice for cow/calf operations to meet cow mineral requirements during the summer grazing periods. Lack of specific minerals can decrease cow weights, calf gains, and reproductive rates. Still, the addition of medicated mineral premixes over and above standard mineral packages has the benefit of increasing cowherd performance and weight gains while reducing herd health concerns. The objective of this study was to determine the effects of medicated mineral supplements on cow and calf weights, cow body condition scores, and incidence of sickness compared with performance of a standard mineral supplement.

Procedures

Two hundred forty-six commercial Angus-based cow/calf pairs were randomly allotted to three treatment groups that were balanced for dam and calf age. Cows were weighed and body condition scored April 26 to establish baseline measures. On May 6, cows and calves were weighed, cows were body condition scored, and then pairs were sorted into treatment pastures. Pasture groups were allotted randomly to treatments. All cattle grazed native pastures with water available at all times. Cattle were rotated among the pastures on a 2- to 4-week schedule. A standard mineral/trace mineral supplement was provided to all pastures throughout the duration of the trial. All treatments were administered in an

industry-standard mineral supplement. Treatments were: (1) control mineral supplement with no medication added, (2) the same base supplement with the addition of Aureomycin®-90 (chlortetracycline HCl, 0.5 mg/lb body weight) for anaplasmosis control, and (3) the base supplement with the addition of Rumensin® (monensin sodium, 200 mg/cow daily). All cattle had free-choice access to mineral feeders throughout the trial. Mineral supplement consumption was monitored weekly, orts were recorded, and concentrations of medications were maintained to provide the designated amounts. On October 5, cows were weighed and body condition scored, and calf weaning weight was recorded. Cow weights, gains, body condition scores, and pregnancy rates were measured. Cow weight and condition scores were measured at the beginning of the trial, immediately before the breeding season, and on the weaning date. Cow/calf pairs were gathered in the late afternoon one day before measuring cattle weights, and were fed 10 lb/pair of prairie hay in drylots with no access to water. Cows and calves were separated just before weighing and body condition scoring, which began early the next morning. Body condition (scale 1 to 9, 1=emaciated, 9=obese) was determined by averaging the estimates obtained from four independent observers. Observers used both visual and palpation techniques to determine their score.

Blood samples were collected May 16 and May 26 to determine the percentage of cows cycling before estrous synchronization and breeding. Estrous synchronization consisted of two shots of $PGF_{2\alpha}$, on May 26 and June 6, to initiate the breeding season. Cows were artificially inseminated to three purebred Angus bulls from June 7 through June 11 by using heat detection and the AM/PM rule. Polled Hereford bulls were then turned out on June 15 for natural service. Natural breeding season lasted 65 days. Pregnancy confirmation by rectal palpation occurred from October 14 to October 22.

In addition, cow and calf incidence of bovine respiratory disease, foot rot, pinkeye, and general health concerns for cattle were measured throughout the study. Sickness, health treatments, and mortality records were kept on the entire herd. Cows and calves were vaccinated and processed according to a protocol designed by our consulting veterinarian.

Results and Discussion

Daily mineral consumption was between 4.4 and 5.2 ounces per cow/calf pair (Table 1). Mineral intake was similar among treatments, but, numerically the Rumensin®-containing mineral was consumed in lesser amounts than the other mineral mixes. Mineral intake remained fairly constant from the beginning to the end of the trial. Rumensin® intake averaged 216 mg per cow/calf pair daily. Aureomycin® intake averaged 910 mg per cow/calf pair daily. The average weight of the cows fed Aureomycin® was 1084 lbs. Therefore, cows consumed an average of 0.84 mg Aureomycin®/lb body weight throughout the trial.

Table 2 lists the weights, body condition scores, and pregnancy rate of the cows. It is remarkable that cows gained nearly 3.7 lb/day during the first 32 days of the trial. These dates correspond to the 32 days before the start of the breeding season. Much of the weight gain can be attributed to gut fill as pasture quality improved over this period due to warming temperatures and rainfall (May 2004). Cow and calf weight gains were similar among treatments during the first 32 days of the experiment. During the first 32 days, cows fed Rumensin® gained about 0.1 body condition score more than did cows fed Aureomycin®. By weaning time, however, all treatments showed similar gains in body condition score. Body condition scores remained similar between treatments throughout the trial. Pregnancy rates were similar between treatments, ranging from 88.9 to 92.0%.

Calf gains were similar among treatments during the first 32 days of the trial (Table 2). Total calf gains for the duration of the experiment were similar for calves of cows supplemented with Aureomycin® and Rumensin®, and both were greater than gains of control calves (21 and 18 lb greater, respectively).

Table 3 shows the herd health data. Herd health was improved by feeding Aureomycin®, compared with the control or Rumensin®. The most common illness detected and treated was foot rot. Pinkeye and respiratory diseases were minimal throughout the trial period. Combining all categories of illness, cattle fed Aureomycin® incurred fewer bouts of sickness.

Addition of either Aureomycin® or Rumensin® to mineral supplements fed to cow/calf pairs grazing summer pastures will increase calf weaning weights without sacrificing cowherd weight, body condition, or reproductive rates. The addition of Aureomycin® to mineral supplements reduced the incidence of foot rot. This can lead to substantial savings in medical costs, labor costs, and animal handling.

Table 1. Average Intake of Mineral Mixes Used in Experiment

	Treatment		
Item	Control	Aureomycin®	Rumensin®
No. of cow/calf pairs	62	91	93
No. of pasture groups	2	3	3
Mineral intake, oz/pair daily	4.9	5.2	4.4
Medication intake, mg/pair daily	0	910	216

Table 2. Effects of Mineral Medication Treatments on Cowherd Performance

	Treatment			Contrast P-value	
Item	Control	Aureomycin®	Rumensin®	Control vs. Medicated	Aureomycin® vs. Rumensin®
Initial cow wt, lb	1013	977	981		
Initial BCS[a]	5.0	4.9	4.9		
Initial calf wt, lb	218	219	218		
Start of Trial to Beginning of Breeding Season (32 days)					
Cow breeding wt, lb	1109	1098	1108	0.25	0.07
Cow breeding BCS	5.0	5.0	5.1	0.52	0.19
Calf wt, lb	301	302	302	0.82	0.73
Cow wt gain, lb	121	114	120	0.61	0.32
Cow BCS change	0.15	0.18	0.30	0.08	0.03
Calf wt gain, lb	83	84	83	0.87	0.45
Start of Trial to Weaning (152 days)					
Cow Weaning wt, lb	1194	1181	1180	0.14	0.95
Cow Weaning BCS	5.1	5.1	5.0	0.40	0.18
Calf weaning wt, lb	561	579	581	0.0002	0.74
Cow wt gain, lb	206	198	192	0.28	0.60
Cow BCS change	0.2	0.2	0.2	0.52	0.98
Calf wt gain, lb	343	362	362	0.0001	0.97
Pregnancy rate, %	90.2	92.0	88.9	0.95	0.49

[a]Body condition score, estimated on a scale of 1 = emaciated to 9 = obese.

Table 3. Effect of Mineral Medication Treatments on Incidence of Cowherd Health Problems

	Treatment			
Item	Control	Aureomycin®	Rumensin®	P-value
No. of cows and calves	124	182	184	
	------ Percentage of Cattle Treated for Illness ------			
Foot rot	21.0	6.6	19.4	0.0006
Repull for foot rot	22.2	8.3	26.3	0.08
Pink eye	0.8	0.0	0.5	0.99
Respiratory diseases	0.0	0.0	0.5	0.99
All illnesses	21.8	6.6	20.4	0.0003