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Evaluation of Bambermycins (GAINPRO®) as a Feed Additive in Receiving Rations for Beef Calves

Abstract

Three-hundred-forty-eight newly weaned beef calves were used in duplicate 28-day experiments to evaluate GAINPRO®, Aureomycin, or no feed additive. Diets fed were formulated to provide 14.5% crude protein (CP) and .48 megacalorie per pound net energy (Mcal/lb. NEg) . Aureomycin reduced ($P < .05$) average daily gain (ADG) for the first 14 days compared to GAINPRO® or no feed additive. This effect disappeared by 28 days on feed, and ADG favored ($P < .05$) Aureomycin-supplemented calves compared to those given no feed additives. Calves receiving GAINPRO® fell between the two treatments for 28-day ADG.

Keywords

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Evaluation of Bambermycins (GAINPRO®) as a Feed Additive in Receiving Rations for Beef Calves

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Summary

Three-hundred-forty-eight newly weaned beef calves were used in duplicate 28-day experiments to evaluate GAINPRO®, Aureomycin, or no feed additive. Diets fed were formulated to provide 14.5% crude protein (CP) and .48 megacalorie per pound net energy (Mcal/lb. NEg). Aureomycin reduced ($P < .05$) average daily gain (ADG) for the first 14 days compared to GAINPRO® or no feed additive. This effect disappeared by 28 days on feed, and ADG favored ($P < .05$) Aureomycin-supplemented calves compared to those given no feed additives. Calves receiving GAINPRO® fell between the two treatments for 28-day ADG.

Introduction

Previous research at this station (ASL- R425 and ASL-R820) has evaluated feed additives for starting cattle on feed. Bambermycins, antibiotic products of the fermentation of *Streptomyces spp.*, it has been used in pork production under the tradename Flavomycin® for several years. Recently, Bambermycins have been cleared for use in beef cattle and marketed as GAINPRO®. GAINPRO® differs from ionophores by enhancing ruminal protozoa populations and appears to enhance fiber digestion. In previous studies, GAINPRO® proved beneficial for improving performance on pasture cattle but had little effect on cattle receiving high-grain finishing diets. This study was designed to evaluate GAINPRO® as a feed additive for starting newly weaned calves on a typical receiving diet.

Material and Methods

Three-hundred-forty-eight beef calves from the Rhodes Research Farm were used in two studies to compare no feed additive, chlortetracycline (Aureo, positive control), and Bambermycins (GAINPRO®) as feed additives for starting newly weaned calves on feed. In experiment 1, 175 calves were weaned with an average weight of 465 pounds. These calves were stratified by weight and randomly allotted to nine pens (three pens per treatment). Calves were weighed at weaning and at 14 and 28 days on feed. At the conclusion of experiment 1, another 173 calves with an average weight of 511 pounds were weaned and allotted to pens in a duplicate experiment (experiment 2).

In experiment 1, the diet fed (dry matter basis) was 46% corn grain, 42% rye silage, and 12% supplement. In experiment 2, the diet fed (DM basis) was 15% corn grain,

75% corn silage, and 10% supplement. These diets were formulated to provide the nutrient analysis shown in Table 1.

Table 1. Calculated nutrient analysis of diets (DM basis)

Nutrient	Calculated analysis
NEm (Mcal/lb)	.76
NEg (Mcal/lb)	.48
Crude protein (%)	14.5
Calcium (%)	.71
Phosphorous (%)	.34

The supplements fed are shown in Table 2.

Results and Discussion

Performance response for the combined studies is shown in Table 3. Aureomycin significantly reduced ($P < .05$) daily gain for the first 14 days compared to the control or GAINPRO® treatments. While the GAINPRO® treatment showed numerically superior feed conversion compared to the other two treatments (6.16 vs. 6.66 and 8.44 pounds feed DM per pound of gain sufficient variation existed so that these differences were not detectable statistically in this study. From days 15-28, the aureo-fed calves gained significantly faster ($P < .05$) than the other treatments. Overall, aureo-fed calves gained faster than those given no feed additive (2.20 vs. 1.87 pounds per day $P < .05$). GAINPRO® fed calves were not different in daily gain overall than control or aureo-fed calves.

There was a significant treatment x experiment interaction for daily gain for the first feeding period in that aureo-fed calves in experiment 1 had lower gains than all other treatments (Figure 1). This difference disappeared by the end of 28 days (Figure 2).

Implications

GAINPRO® showed promise as a feed additive for starting calves on feed by stimulating daily gain for the first 14 days on feed. This advantage dissipated by 28 days, and GAINPRO® appeared intermediate to control and aureo-fed calves in performance. Further research with other base diets is warranted.

Table 2. Supplements fed (as-fed basis).

Ingredient	Control	Treatment aureo	GAINPRO®
Cracked corn	314	304	312
Cane Molasses	80	80	80
Soybean meal, 44%	1459.7	1459.7	1459.7
Ground limestone	97.5	97.5	97.5
Iodized salt	31.3	31.3	31.3
Trace mineral premix	2.5	2.5	2.5
Vitamin A premix ^a	15	15	15
Aureo - 50 ^b		10	2
Gainpro®-10 ^c			

^a Vitamin A premix at 2,000,000 IU/lb.

^b Contains 50g chlortetracycline/lb.

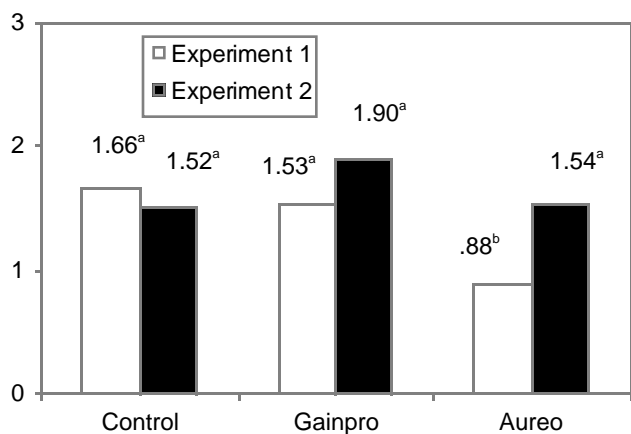
^c Contains 10g Bambermycins/lb.

Table 3. Performance response to feed additives by treatment.

	Control	Gainpro®	Aureo
Initial weight	485	491	487
Final weight	508	515	505
Days 0-14			
DMI, lb	10.6	10.6	10.3
ADG, lb	1.59 ^a	1.72 ^a	1.22 ^b
F/G, lb	6.66	6.16	8.44
Days 15-28			
DMI, lb	16.1	16.2	17.1
ADG, lb	2.14 ^a	2.29 ^a	3.13 ^b
F/G, lb	7.52	7.07	5.46
Days 0-28			
DMI, lb	13.6	13.7	14.0
ADG, lb	1.87 ^a	2.02 ^{a,b}	2.20 ^b
F/G, lb	7.27	6.78	6.36

a,b Means differ (P < .05)

Figure 1. Daily gain (days 1-14) by experiment.



^{a,b} Means differ ($P < .05$)

Figure 2. Daily gain (overall) by experiment.

