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Effect of Monensin and Synovex-S on Growth Performance of Steers in a Dry-Winter Grazing Program

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Story in Brief

One-hundred and twenty-five fall-weaned steer calves from the same cow herd were allotted to two supplementation treatments (0 or 150 mg monensin/steer/day) and half of the steers in each group were implanted with Synovex-S to determine if monensin potentiates the implant response in growing cattle wintered on low-quality forage. The steers grazed dormant old world bluestem pastures for 93 d (December 7, 1999 to March 10, 2000), and were fed every other day in open bunks 6 lb/steer of cottonseed meal and wheat middling-based supplements that contained either 0 or 50 mg monensin/lb and 28.6% crude protein. Daily live weight gain ranged from .57 to .98 lb for the different groups of steers. Implanting increased daily gain of steers supplemented with both levels of monensin by about .13 lb/day. Monensin increased daily gain by .28 lb. Economically efficacious responses were obtained from both monensin and implanting steers in this dry-winter grazing program.

Key Words: Growing Cattle, Dry-winter grazing, Monensin, Implants

Introduction

We previously reported (Paisley et al., 1997; Ackerman et al., 1997) that daily gains of steers in a dry-winter grazing program on native tallgrass prairie or old world bluestem were increased by implanting despite having gains below 1.0 lb/day. In the study reported by Paisley et al. (1997 and 1999), 300 fall-weaned steers received one of four implant treatments (non-implanted, control; Synovex-C; Synovex-S; or Revalor-G), and were fed 3 lb/day of a 25% CP supplement, which was fed 3 times/week on a prorated basis and provided 100 mg monensin/steer/day. In a subsequent study (Horn et al., unpublished data), which was conducted with the same cooperating ranch but at a different location, 320 fall-weaned steer calves and the same implant treatments as Paisley et al. (1997 and 1999) were used. However, weight gain during the dry-winter grazing period was not increased by implanting. The second study differed from the first in that 1) the terrain and climate were harsher, 2) rate of gain of control, non-implanted steers was .35 as compared with .62 lb/day, and 3) the supplement did not contain monensin. Gardner et al. (1999) reported that weight maintenance of steers fed very low amounts of energy was enhanced by monensin. The objective of this study was to determine if monensin potentiates the implant response in stocker cattle wintered on dormant grass.

Materials and Methods

One-hundred and twenty-five fall-weaned steer calves from the same cow herd were used in this study conducted at the OSU Crosstimbers Range. The steers were received on November 19, 1999, and were placed on an old world bluestem pasture and fed 2 lb/day of a soybean meal/cottonseed meal-based supplement that contained 40% protein and 54 mg decoquinate/lb for control of

coccidiosis. The steers were processed and randomly allotted to two supplementation treatments on December 7. Processing included vaccination for IBR/PI3 and a 7-way Clostridial vaccine, and treatment for internal and external parasites. The steers had received a Synovex-C implant as suckling calves, and one-half of the steers within each supplementation group were implanted with Synovex-S. Steers were managed as two groups during the winter grazing period (December 7 to March 10, 93 days), and each group was fed every other day in open bunks 6 lb/steer of cottonseed meal and wheat middling based supplements (Table 1) that contained (as-fed) either 0 or 50 mg monensin/lb and 28.6% crude protein. Therefore, the steers received the equivalent of either 0 or 150 mg monensin/day. March 6 was the last day that supplements were fed. The old world bluestem area consisted of eight, 25-acre pastures that had accumulated substantial regrowth from a grazing trial the previous summer. Each group of steers was rotated among four separate pastures throughout the trial to ensure that forage allowance was more than adequate. Diet quality samples were collected by rumen evacuation of a set of cannulated steers in January and February. Crude protein content of the January and February masticates was 4.4 and 6.5% of DM, respectively. In general the winter was very mild, and the trial was terminated on March 10 because cool season annual grasses were becoming more prevalent in the pastures.

Initial and final live weights of the steers were measured after overnight shrinks in drylot without feed and water. Data were analyzed using the GLM procedure of SAS. Sources of variation included in the model included supplementation treatment, implant, and supplementation by implant interaction. Steer was considered the experimental unit. Data of one steer were deleted because of chronic health problems and very poor performance.

Results and Discussion

Daily live weight gain of the steers is shown in Figure 1, and ranged from .57 to .98 lb for the different groups. Implanting increased ($P<.01$) daily gain by about .13 lb/day regardless of supplementation treatment or level of monensin. Supplementation with monensin and implanting increased gain by .41 lb/day (i.e., from .57 to .98 lb/day). Because the supplementation by implant interaction was not significant ($P=.88$), main effects of level of monensin and implanting are shown in Table 2. Monensin increased daily gain by .28 lb ($P<.001$). We would expect this response to be due to 1) a shift in rumen VFAs concentrations from a high acetate fermentation to one with greater proportions of propionate, and 2) to the protein-sparing effect of monensin in supplements for growing cattle wintered on low-quality roughages as reported by Horn et al. (1982).

While the implant response may be seemingly small, implanted steers were 12 lb heavier at the end of the 93-d grazing period. At a value of weight gain of $83.84/100 lb (i.e., 10-yr seasonally adjusted average as discussed by Paisley et al. (1997), this would result in a gross return to implanting of about $10.00/steer which would pay for some of the initial processing cost.

However, Paisley et al. (1999) also found that implanting steers dry-wintered on native tallgrass prairie increased skeletal and overall carcass maturity, and increased the percentage of carcasses that graded U. S. Standard or below.

Literature Cited

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Table 1. Feedstuff and nutrient composition of supplements[a].

Ingredients	% as fed
Cottonseed meal	49.03
Wheat middlings	27.5
Soybean hulls	15.00
Cane molasses	5.00
Limestone	1.80
Fine mixing salt	.50
Rumensin 80 [b]	
Urea	1.00
Trace mineral salt	.05
Vitamin A-30,000[c]	.08
Crude protein	28.6
Calcium	.92
Phosphorus	.83

[a]Fed as a ¾-in pellet at the rate of 3 lb/steer/day on an every other day basis.

[b]0 or 1.25 lb/ton to provide 0 or 50 mg monensin/lb of supplement.

[c]To provide 10,215 IU vitamin A/lb of supplement.

Table 2. Main effects of monensin supplementation and implanting on growth performance of steers on dormant old world bluestem pasture.

	Monensin[a]		Implant[b]		
	0	150	-	+	SE
Number of steers	61	63	61	63	
Steer wt					
Initial, Dec 7	475	473	475	473	6.9

Final, Mar 10	534	558	541	551	6.8
Wt Gain (93 d)					
Lb/steer	59	85	67	78	3.2
Lb/day	.64	.92	.72	.84	.035

[a]0 or 150 mg monensin/steer/day.

[b](-) = non-implanted, control steers; (+) = Synovex-S.

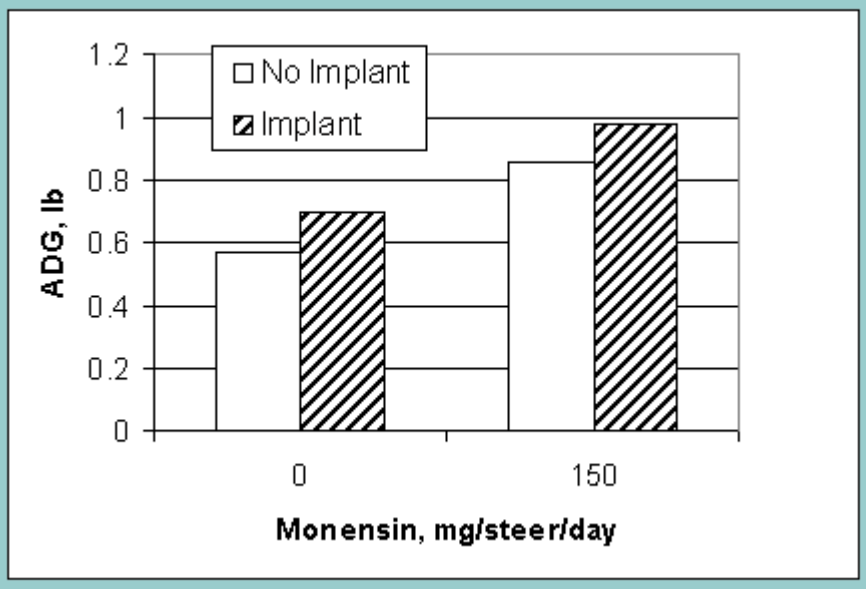

Figure 1. Effect of monensin and Synovex-S on daily weight gain of steers.

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