

# Finishing Steers on Conventional Grain Diets vs. Forage Plus Grain, With and Without Monensin

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## Story in Brief

Twenty-nine crossbred steers were allotted to three treatments: 1) high-concentrate feedlot ration (no monensin), 2) sorghum-sudan pasture supplemented with concentrate at 1 percent (as-fed basis) of body wt or 3) Treatment 2, plus monensin at 150 mg/head/day. In this experiment all animals were slaughtered at the same time, eliminating age differences among treatment groups.

Steers receiving the high-concentrate finishing ration made faster gains ( $P < .05$ ) and had higher ( $P < .05$ ) carcass grades than either of the two groups on pasture. However, the feedlot animals had significantly smaller rib eye areas than the pasture animals. The feedlot steers and those receiving monensin on pasture showed similar but heavier carcass weights ( $P < .05$ ) than those on pasture not fed monensin. Moreover, feeding supplemental monensin on pasture increased ( $P < .05$ ) daily gain (+.23 lb/day), rib eye area, fat thickness and quality grade compared to those not receiving supplemental monensin. However, yield grade was lowered slightly. Steers receiving monensin on pasture required 0.83 lb less supplemental feed/lb of gain than those not fed monensin. Since the amount of supplement fed to cattle on the sorghum-sudan pasture was controlled, no difference in grain intake was noted.

## Introduction

One of the major objections to finishing cattle on forage is that the animals tend to make slower gains than animals in a feedlot. In addition, the carcasses of forage-finished beef tend to grade lower due to a decreased amount of marbling. One way to overcome these difficulties might be to supplement animals on pasture with some grain. Another might be to feed supplemental monensin. The effect of monensin on certain carcass characteristics, however, has received little study.

The objective of this study was to compare the weight gains and carcass characteristics of animals finished on forage plus supplement, either with or without monensin, to those of animals in a feedlot situation. Although not reported here, detailed lipid analyses were also conducted to ascertain changes in fat composition.

## Materials and Methods

Twenty-nine Brangus x Angus x Hereford steers were randomly allotted to three finishing programs: 1) a high-grain finishing ration, 2) sorghum-sudan pasture plus supplemental concentrate fed at 1 percent of body weight and 3) Treatment 2 plus 150 mg monensin per day. The ingredient composition of the feeds is given in Table 1. Steers on the two pasture treatments were grazed in two nearly identical pastures and then rotated to two new pastures as needed to insure an adequate forage supply. By the

In cooperation with the U.S. Southern Great Plains Field Station, Woodward, Oklahoma.

**Table 1. Composition of feeds**

Type of feed	Ingredient	% in feed
Supplement for animals on pasture <sup>1</sup>	Cracked corn	36.0
	Cracked milo	36.0
	Cottonseed meal	24.8
	Molasses	2.0
	Calcium carbonate	1.2
Feedlot ration	Cracked corn	40.0
	Cracked milo	40.0
	Cottonseed meal	7.0
	Cottonseed hulls	10.0
	Molasses	2.0
	Calcium carbonate	0.8
	Dicalcium phosphate	0.2

<sup>1</sup>Monensin was added to obtain a daily intake of 150 mg per day for one pasture treatment. No monensin was added to the feedlot ration.

last month of the study, the sorghum-sudan pasture had deteriorated through the loss of leaves via grazing but still produced an acceptable forage supply until cattle slaughter.

The steers averaged 771 lb when the experiment began on October 3, 1979. The animals were slaughtered on January 7, 1980, after a 96-day feeding period. The trial was conducted at the U.S. Southern Great Plains Field Station located at Woodward, Oklahoma. Weights on the animals were obtained after feed had been withheld for 24 hours.

## Results and Discussion

The weight gains of the animals are presented in Table 2. Steers on pasture plus monensin made more rapid gains than those which did not receive monensin. While the weight gains for the feedlot group were generally low, these animals still gained considerably faster than either of the pasture groups. The lower-than-expected weight gains for the feedlot cattle may be due partly to the fact that the calves were very fleshy and young when the trial started. However, there was no difference in carcass weights between the feedlot group and the steers receiving monensin on pasture, both of which were somewhat heavier than pasture-fed steers receiving no monensin. There was some

**Table 2. Performance data**

Item	Feedlot	Treatment	
		Pasture + supplement no monensin	Pasture + supplement with monensin
No. animals	9	10	10
ADG, lb	1.64 <sup>a</sup>	1.22 <sup>c</sup>	1.45 <sup>b</sup>
Initial weight, lb	771	771	771
Final weight, lb	928 <sup>a</sup>	888 <sup>c</sup>	910 <sup>b</sup>
Feed intake/day, lb <sup>d</sup>	13.2	6.37	6.37
Feed/gain, lb/lb <sup>d</sup>	8.03	—	—
Supplement/gain, lb/lb <sup>de</sup>	—	5.23	4.40

<sup>abc</sup>Means without a line not sharing a common superscript differ significantly ( $P < .05$ ).

<sup>d</sup>DM basis.

<sup>e</sup>Sorghum-sudan pasture fed *ad lib*.

**Table 3. Carcass characteristics**

Trait	Feedlot	Treatment	
		Pasture + supplement no monensin	Pasture + supplement with monensin
Carcass weight, lb	534.2 <sup>a</sup>	520.2 <sup>b</sup>	534.1 <sup>a</sup>
Dressing percent	57.6 <sup>a</sup>	58.6 <sup>b</sup>	58.8 <sup>b</sup>
Rib eye area, in. <sup>2</sup>	10.57 <sup>a</sup>	10.80 <sup>b</sup>	11.80 <sup>c</sup>
Fat thickness, in.	.27 <sup>a</sup>	.18 <sup>c</sup>	.22 <sup>b</sup>
Marbling score <sup>1</sup>	9.3 <sup>a</sup>	6.7 <sup>b</sup>	7.1 <sup>b</sup>
Quality grade <sup>2</sup>	8.2 <sup>a</sup>	7.1 <sup>c</sup>	7.5 <sup>b</sup>
Yield grade	2.31 <sup>a</sup>	1.91 <sup>b</sup>	1.87 <sup>b</sup>

<sup>1</sup>Marbling score: 11 = average slight, 8 = average traces, 5 = average practically devoid.

<sup>2</sup>Quality grade: 10 = average good, 7 = average standard.

<sup>abc</sup>Means within a line not sharing a common superscript are significantly different ( $P < .05$ ).

indication of greater muscling in the animals receiving monensin since their rib eye areas were significantly different from either of the other groups. The steers which were on pasture but received no monensin also had significantly greater rib eye areas than the feedlot steers. This probably indicates that the feedlot steer deposited more external fat than the pasture groups, but they also produced less lean tissue.

Monensin increased gains on pasture ( $P < .05$ ) by .23 lb/day. Final weight, carcass weight, rib eye area, fat thickness and quality grade were all significantly increased by monensin. Moreover, monensin saved .83 lb of supplemental feed/lb of gain when fed to cattle on pasture. Monensin is presently legalized for use in both stocker and feedlot cattle.

## The Effects of Decoquinatate on Gains of Stressed Cattle

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### Story in Brief

The influence of decoquinatate, a coccidiostat, on gains of newly received cattle was measured in three trials with a total of 230 cattle. The coccidiostat was fed for approximately 30 days after which steers grazed native range. The addition of decoquinatate did not alter performance during the first 30 days. During the subsequent 4 to 9 months of grazing, gain was increased by 9.9 percent in one trial, but the drug had less effect (+1.1 percent) in the other two trials.

### Introduction

Severe infestations of coccidia can reduce cattle performance and thereby reduce profits. Decoquinatate is a feed additive which effectively restricts coccidial growth in the intestinal tract of cattle. The purpose of this study was to determine the effect of decoquinatate on gains of pasture cattle.