

# The Effect of Monensin on Weight Gains of Steers and Heifers Grazing Fescue Pasture During the Winter

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## Story in Brief

Eighty cattle were grazed on fescue pastures and supplemented with two pounds of ground milo pellets with or without monensin (200 mg. per head per day). Monensin increased gains 32.5 pounds (23.2 percent) over the controls during the 112-day trial. The increase in weight gain due to monensin was quite large, especially since the extreme cold weather (1976-1977) limited forage production. The response to monensin was much larger during the last 56 days of the test where forage quality was probably at its lowest.

## Introduction

Monensin has been cleared and used to improve feed efficiency in feedlot cattle. Usually feed intake is reduced and gains not effected when monensin is added to feedlot diets. Monensin appears to improve energetic efficiency within the rumen of cattle. Other data in this publication (page 42) suggest that monensin may have a protein sparing effect.

When monensin is fed to cattle grazing forage, the improvement in efficiency shows a different pattern than in feedlot cattle, in that the cattle may not reduce forage intake, but usually increase their rate of gain.

Research suggests a six to 11 percent improvement in feed efficiency for feedlot cattle and possibly two or three times this improvement for stocker cattle. This occurs possibly because most of the energy that stocker cattle consume is used to maintain the animal and less is used for weight gain. Thus, a small improvement in energetic efficiency in the rumen or digestive tract could translate into a much larger increase in rate of gain.

The potential for decreasing the costs of stocker gains through the feeding of monensin is very large, especially since this compound does not reduce the response to implants used in stocker production on forage.

## Materials and Methods

Fifty crossbred steers and thirty crossbred heifers (25 steers, 15 heifers per pasture) were used in a trial from October 20, 1976, to February 8, 1977 (112 days). Cattle were weighed after an overnight stand without feed and water at

the start and at each 28-day weigh period. Routine processing was done at the start of the trial, and all cattle were implanted with 36 mg. of Ralgro<sup>®</sup> at this time. Pastures consisted of fescue, dry bermuda, and limited amounts of white clovers. Fescue growth was hampered by below average temperatures during the last 45 days of the trial. Two adjacent 40 acre fescue pastures were stocked at one animal per acre throughout the trial. Cattle groups were rotated every two weeks to minimize pasture effect.

Both the control and treatment cattle received a daily supplement of two pounds of pelleted ground milo per head. The treatment pellet contained 100 mg. monensin per pound, providing a daily level of 200 milligrams. Supplemental bermuda grass hay was fed in equal amounts to both groups during the last 47 days of the trial. Hay consumption averaged 9.41 pounds per head per day during this period.

## Results and Discussion

Cattle receiving the monensin pellet gained 32.5 lb (23.2 percent) more than controls. This difference was significant across steers and heifers ( $P < .01$ ). Period weights are shown in Figures 1 and 2 for heifers and steers, respectively.

Heifers fed monensin on the average gained 33 pounds (25.8 percent) more than the controls, while steers gained 32.2 pounds (21.9 percent) more

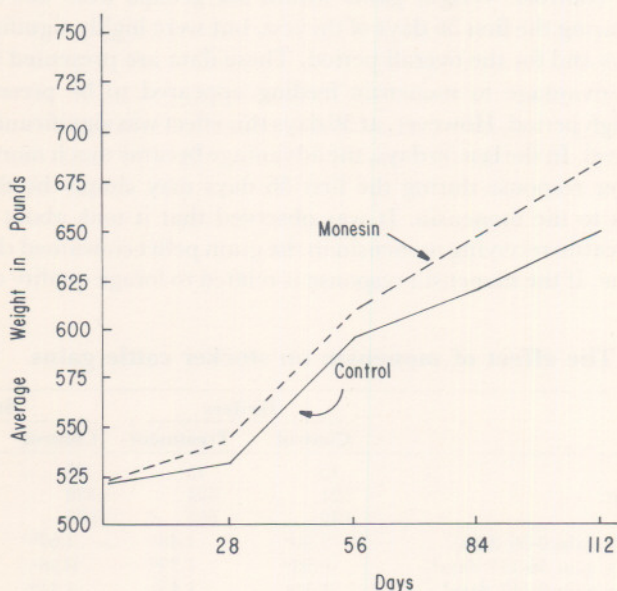
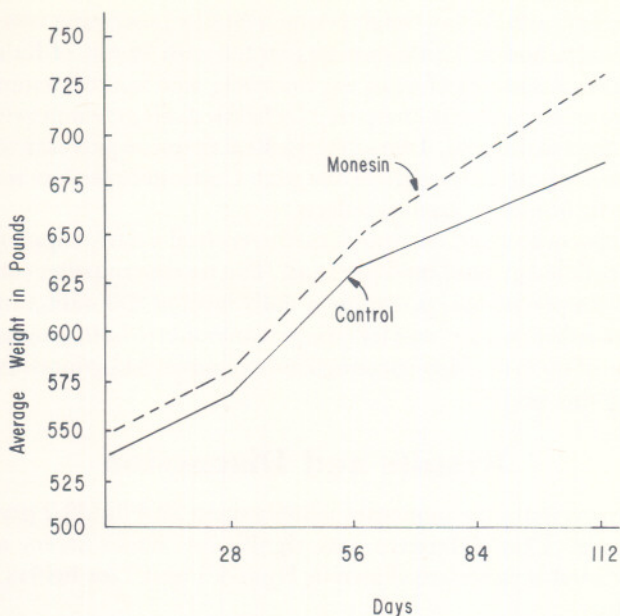


Figure 1. Monensin field trial crossbred heifers Idabel, OK 1976-1977.





**Figure 2. Monensin field trial crossbred steers Idabel, OK 1976-1977.**

than their controls. Weight gains within sex groups were not statistically different during the first 56 days of the test, but were highly significant for the last 56 days and for the overall period. These data are presented in Table 1.

The advantage to monensin feeding appeared to be present at each 28-day weigh period. However, at 56 days this effect was significant only at the ( $P < .10$ ) level. In the last 56 days, the advantage became much more apparent. The smaller response during the first 56 days may simply be the result of adaptation to the monensin. It was observed that it took about two weeks before the cattle receiving monensin in the grain pellet consumed the pellets in a short time. If the monensin response is related to forage quality or a protein

**Table 1. The effect of monensin on stocker cattle gains**

	Heifers		Steers	
	Control	Treatment	Control	Treatment
Number	15	15	25	25
Initial weight	521	524	538	549
Final weight	649	685	685	729
Average daily gain 0-56 days <sup>1</sup>	1.30 <sup>a</sup>	1.48 <sup>a</sup>	1.67 <sup>b</sup>	1.74 <sup>b</sup>
Average daily gain 56-112 days <sup>1</sup>	0.98 <sup>a</sup>	1.39 <sup>b</sup>	0.96 <sup>a</sup>	1.47 <sup>b</sup>
Average daily gain 0-112 days <sup>1</sup>	1.14 <sup>a</sup>	1.43 <sup>b</sup>	1.31 <sup>b</sup>	1.60 <sup>c</sup>

<sup>1</sup>Numbers with different superscripts differ significantly ( $P < .05$ ).

sparing effect, the forage quality was much higher during the first 56 days than in the last. Bermuda hay made up a large part of the total dry matter intake during the last 47 days of the trial. Daily intake of protein should have been very adequate in the early part of the test, but would have declined to marginal levels during the last 56 days due to the weather related failure to grow green forage.

The overall response to providing 200 mg. of monensin to cattle grazing fescue, later supplemented with bermuda hay, was excellent in a 112-day test conducted in southeast Oklahoma. Some question remains as to the response on high vs. low quality forage, but it appears that the response was larger as the forage quality was lowered.

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## Monensin for Range Beef Cows

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### Story in Brief

Seventy-two mature Hereford cows were employed to evaluate the supplemental value of monensin for beef cows grazing low quality dry winter range grass. The two treatments were 30 percent natural crude protein supplements with zero or 200 mg of monensin/cow/day.

Cow weight change during the dry grass portion of the trial was not affected by monensin, although weight gain of cows grazing green grass tended to be higher when monensin was fed.

Monensin supplemented cows did not differ from control cows in pounds of milk produced, percent milk solids, butterfat or solids-not-fat. However, addition of monensin to the supplement decreased ruminal molar percent acetate and butyrate, and increased ruminal propionate.

This experiment indicates that the addition of monensin to range supplements: (1) does not affect cow weight change during the dry winter grass portion of the year, but it may increase cow weight gain when green grass appears in the spring; (2) decreased grazing time about 15 percent during the dry winter grass portion of the trial; (3) increases propionate and decrease