

THE EFFECT OF MID-SUMMER DEWORMING WITH IVERMECTIN ON PERFORMANCE OF COWS AND THEIR CALVES IN SOUTHEAST OKLAHOMA

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Story in Brief

The effect of a single injection of ivermectin in mid-summer was evaluated in a herd of 138 cows and 107 calves in McCurtain County in Southeastern Oklahoma. Ivermectin treatment increased lactating cow weight by 23 lbs and improved calf gains by 21 lbs. Weight change in dry cows was not affected by treatment. Body condition score was significantly improved in lactating cows that were treated with ivermectin (.07 vs .34 units).

Introduction

The effect of routine treatment of cow herds with anthelmintics has been inconsistent. The response of a cow herd to deworming will depend on the level of infection and the type of parasite involved. Recent research has shown the intestinal nematode *Ostertagia ostertagi* to potentially be the most economically damaging of the internal parasites. Until recently, most available anthelmintics had only limited efficacy against the inhibited stage of *Ostertagia*. This stomach worm has the capacity to enter an inhibited stage of growth in the abomasum during periods when environmental conditions are unfavorable for completion of its life cycle. That period would coincide with the hot summer months in Oklahoma. The objective of this study was to evaluate the effect of treating beef cows and their calves with a dewormer capable of removing the inhibited form of *Ostertagia* as well as other internal parasites.

Materials and Methods

A total of 138 beef cows and 107 nursing calves were used to evaluate the effect of treatment with ivermectin (Ivomec*) on cow and calf weight gain and cow body condition change. The trial was conducted on a ranch near Broken Bow in McCurtain County in Southeastern Oklahoma. Calves were from 2 to 7 months old at the start of the trial. On July 14, 1986, all cattle were gathered, individually identified with ear tags and weighed. As cows passed through the working chute, alternate cows were separated into two small holding pastures of about 5 acres each and designated to be controls or to be injected with ivermectin. Because it was not known which calves belonged to which cows, it was necessary to match cows with their calves. This was accomplished by building a gate only large enough to allow passage of calves between the two holding pastures and placing all calves in one of the pastures. Most calves had found their dams by the following day. A few cows that obviously had not been nursed were moved to the proper pasture.

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On July 16, all cows and calves were individually weighed and cows were scored for body condition (scale of 1=very thin to 9=very fat). The ivermectin-treated cows and calves were injected subcutaneously at the rate of 1 cc/110 lb of body weight. Both treatment groups were then grazed on adjacent pastures estimated to have equivalent quantity and quality of forage. Bermudagrass, dalisgrass and fescue were the predominant grass species.

During the trial an effort was made to match ear tag numbers of cows with their calves. All but 5 control calves and 6 ivermectin group calves were matched with their dams. Cows matched with calves are designated in Table 1 as "lactating" while "dry" includes dry cows and cows not matched with calves. The study was terminated on September 29 which coincided with normal weaning time for the herd. Data were analyzed by General Linear Models procedure.

Results and Discussion

The dry cow group was heavier and in fatter body condition in mid-July than were lactating cows, as would be expected (Table 1). In spite of random allotment to treatment, ivermectin lactating cows were 35 lb heavier at the start of the trial than control lactating cows. However, statistical analysis showed no significant effect of initial body weight

Table 1. Effect of ivermectin on cow and calf performance.^a

Item	Control	Ivermectin	Prob ^b
Number of animals:			
Cows:			
Dry ^c	22	20	
Lactating	44	52	
Calves	49	58	
Cows:			
Weights, 7/16/86 (lb):			
Dry ^c	995	1017	
Lactating	908	943	
Weight changes to 9/29/86:			
Dry ^c	90	86	<.80
Lactating	68	91	<.04
Condition scores ^d , 7/16/86:			
Dry ^c	5.3	5.7	
Lactating	4.9	4.9	
Condition score change, (units) to 9/26/86:			
Dry ^c	.20	.44	<.11
Lactating	.07	.34	<.01
Calves:			
Weights, initial, 7/16/86 (lb)	359	365	
Weight gain to 9/29/86	122	143	<.01

^aLeast squares means.

^bProbability that the difference between means could occur by chance.

^cIncludes 5 control and 6 ivermectin cows that were nursing calves but were not matched with calves.

^dScale of 1=very thin to 9=very fat.

or condition score on cow weight change during the study. The average condition score of 4.9 for lactating cows at the start of the trial would be considered moderately thin.

Treatment with ivermectin in mid-July increased weight gain of lactating cows by 23 lb (68 vs 91, $P < .04$) and increased body condition by .27 units (.07 vs .34, $P < .01$) compared to control cows. Weight change of dry cows was not significantly affected by ivermectin treatment. It is possible that the stress of lactation characterized by the lighter body weights and lower condition scores of lactating cows made them more susceptible to damage by internal parasites.

Mean weights for calves of both treatment groups at the start of the study were similar (359 vs 365 lb for control and ivermectin groups). Calves that received ivermectin gained 21 lb ($P < .01$) more than controls during the 74 day study. As expected, steer calves gained faster than heifers (141 vs 124 lb, $P < .01$). There was no significant interaction between calf sex and treatment.

The positive response by lactating cows and their calves, in this herd, to treatment with ivermectin strongly suggests damaging infections of internal parasites. Inhibited *Ostertagia* would be suspected during mid to late summer in Oklahoma although the specific internal parasite or parasites causing damage in this study were not determined. At an average selling price of \$0.60/lb, the 21 lb additional weaning weight would be worth \$12.60 which would easily cover the cost of dewormer and labor in most situations. The economic impact on cows is more difficult to assess. However, the marginal body condition of lactating cows at the start of the study would indicate the likelihood of rebreeding problems. An increase of body condition would probably translate into improved rebreeding performance. Beef cattle in thin body condition but grazing adequate quantity and quality of forage should be suspected of being parasitized.