

THE EFFECT OF IVERMECTIN ON HEALTH AND PERFORMANCE OF NEWLY ARRIVED STOCKER CATTLE

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Story in Brief

Eight hundred fifty-five newly received steer and bull calves and yearlings were used in two different experiments to determine the effect of ivermectin on performance and health. In experiment 1, 391 head averaging 462 pounds were divided into two groups. One hundred ninety-three received routine processing on arrival and 198 received routine processing plus ivermectin. Deworming with ivermectin increased daily gains by 28.2% (1.50 vs 1.17 lb/hd). The number of sick days per head decreased slightly with ivermectin (3.5 vs 3.8 days/hd).

In experiment 2, 463 head averaging 480 pounds were divided in two groups. Two hundred twenty-three received routine processing on arrival and 240 received routine processing plus ivermectin. Ivermectin treatment increased daily gains by 31.3% (1.76 vs 1.34 lb/hd). Ivermectin also tended to reduce the number of sick days per head (4.3 vs 5.0 days/hd) and reduce morbidity (48.6 vs 51.3%).

(Key Words: Ivermectin, Newly Received Cattle, Anthelmintics)

Introduction

The effects of anthelmintics on the performance of newly received stocker cattle has been variable (Davis and Caley, 1979). An anthelmintic is of no benefit if the cattle have minimal parasite burden or if resistance is present. The most pathogenic and economically important internal parasite of cattle is considered to be the abomasal nematode, *Ostertagia ostertagi*. Traditional anthelmintics have shown limited effectiveness against pre-type II and type II ostertagiasis (Williams et al., 1984).

Ivermectin has shown over 99% efficacy against inhibited larvae of *Ostertagia ostertagi* (Williams et al., 1981) and against all types of gastro-intestinal nematodes (Benz, 1983). It has been reported to improve weight gains of feeder calves by 11 to 21% (Holste, 1983; Giordia et al., 1984). The objective of this research was to study the effect of ivermectin on the health and performance of newly arrived stocker cattle.

Materials and Methods

In both experiments 1 and 2, this deworming study with ivermectin was superimposed across other research projects. In these experiments, all cattle with odd-numbered ear tags were dewormed with ivermectin^a (200 µg/kg) and those with even-numbered ear tags served as controls.

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The experimental animals and procedures followed in these experiments are described elsewhere in this publication (Hicks et al., 1986a, 1986b).

Results and Discussion

Effects of ivermectin on weight gains, sick days, morbidity, and mortality are shown in Table 1. In both experiments average daily gains were significantly increased by treatment with ivermectin. In experiment one gains were increased by 28.2% with ivermectin (1.50 vs 1.17 lb/hd) and in experiment two gains were increased by 31.3% (1.76 vs 1.34 lb/hd). The average number of sick pen days per head tended to decrease in cattle which received ivermectin. Morbidity was high in both groups, but ivermectin tended to reduce it slightly. Ivermectin had no effect on death loss in either experiment.

Table 1. Effect of ivermectin on daily gains, sick days, morbidity and mortality in stressed cattle.

	Experiment 1		Experiment 2	
	Controls	Ivermectin	Controls	Ivermectin
Number of head	193	198	223	240
Number of head never sick	89	92	113	131
Arrival weight, lb	455	466	480	480
Daily gain, lb	1.17 ^a	1.50 ^b	1.34 ^a	1.76 ^b
Daily gain of head never sick, lb*	1.56 ^e	1.80 ^f	1.85 ^c	2.42 ^d
Sick days	3.8	3.5	5.0	4.3
Morbidity, %*	53.9	53.5	51.3	48.6
Total Mortality, %	2.6	3.5	5.8	5.0
Mortality excluding treatment schedule A cattle, %	2.6	3.5	1.3	0.8

* Expressed as least square means.

^{a, b} Means within an experiment with different superscripts differ (P < .001).

^{c, d} Means within an experiment with different superscripts differ (P < .05).

^{e, f} Means within an experiment with different superscripts differ (P < .10).

Average daily gains by the sick cattle were also significantly increased by ivermectin in both experiments (Table 2). In experiment one gains were increased by 51.9% (1.23 vs .81 lb/hd) and in experiment two gains increased by 60.6% (1.06 vs .66 lb/hd). The number of sick days per head was not effected by ivermectin. Number of repulls or returns was significantly decreased by ivermectin in experiment two (11.2% vs 24.4%) but not in experiment one.

Table 2. Effect of ivermectin on daily gains, sick days and repulls in sick cattle.

	Experiment 1		Experiment 2	
	Controls	Ivermectin	Controls	Ivermectin
Number of head*	104	106	113	108
Daily gain, lb	.81 ^a	1.23 ^b	.66 ^a	1.06 ^b
Sick days*	7.1	6.9	9.6 ^d	9.1
Repulls, %	23.6	23.5	24.4 ^d	11.2 ^c

* Expressed as least square means.

^{a, b} Means within an experiment with different superscripts differ (P<.001).

^{c, d} Means within an experiment with different superscripts differ (P<.05).

The average daily gains for cattle in each truck load are listed in Table 3. In three of the loads, cattle treated with ivermectin gained faster (P<.05) than the control cattle. Load 5 of the interferon experiment is the only load in which control cattle gained more than cattle treated with ivermectin. With some loads, cattle may have been dewormed prior to arrival at the station which could explain why certain loads (MM #1, INF #3 and INF #5) showed no favorable response to ivermectin.

Under the conditions of this study, weight gains of newly arrived cattle were significantly increased by treatment with ivermectin over a 28 day receiving period. Thus, this practice should be economically beneficial for producers if increased gains are retained and cost of treatment remains low.

Table 3. Rate of gain by truck load.

Load ^a	Origin	Arrival Date	Daily Gain, lb ^b	
			Controls	Ivermectin
MM #1	TN	8-12-84	1.45	1.54 ^d
INF #1	TN	8-18-84	1.47 ^c	2.00 ^d
MM #2	AL	9-28-84	1.06 ^c	1.83 ^d
INF #2	AL	10-11-84	.22 ^c	1.74 ^d
MM #3	AL	11-03-84	1.54	1.89
INF #3	KY	11-14-84	2.22	2.29
MM #4	TX	12-06-84	.53	.81
INF #4	TX	12-20-84	.92	1.21
INF #5	OK & TX	2-15-85	1.91	1.80

^aMM= Mass medication experiment, INF= Interferon and RSV vaccine experiment.

^bDaily gain expressed as least square means.

^{c, d} Means with different superscript differ (P<.05).

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