

IVOMEC AND A TOTALON/WARBEX COMBINATION COMPARED FOR PARASITE CONTROL IN FEEDLOT HEIFERS

By

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Livestock producers are encouraged through media advertisements to include routine treatments for internal and external parasites as part of their animal health programs. These advertisements always promise a profitable return per dollar invested when used as directed, however, it is questionable whether the promoters claims hold true for all situations and locations. Ivomec, isolated from the fermentation of *Streptomyces avermitilis*, and Totalon, which is a systemic pour-on formulation of the compound levamisole, are two new worming products that have been highly promoted.

Ivomec, a revolutionary new compound, is a broad spectrum parasiticide that controls gastrointestinal roundworms, lungworms, grubs, lice, and mange mites that cause scabies in cattle. Totalon, a new formulation of the old compound levamisole, doesn't possess the broad spectrum of Ivomec, but does control gastrointestinal roundworms and lungworms. Warbex, also a reliable systemic pour-on that has been available for many years, controls grubs and lice. When Warbex is used in combination with Totalon the spectrum of parasiticide coverage is nearly as broad as that of Ivomec with the exception of scabies mites, which are not controlled.

Several research investigations using a variety of anthelmintics have been conducted at this station and at other locations in North Dakota and have resulted in no advantage for routine worming (Anderson, 1987, Andrews et al., 1984, Landblom and Nelson, 1985, Landblom et al., 1985a, and Stromberg, 1984). Ivomec, however, has been tested in cow/calf pairs in cooperator herds and a significant advantage for worming was reported (Wohlgemuth et al., 1987). In addition to the encouraging results reported by Wohlgemuth with Ivomec, it has been suggested by some parasitologists that Ivomec may possess some unidentified growth promoting properties as well as its ability to kill parasites. To further evaluate the potential of Ivomec in backgrounded feedlot cattle, it is being compared to a Totalon/Warbex combination which is capable of providing a nearly equal spectrum of coverage. The purpose of this investigation is to evaluate the efficacy, growth and feed efficiency, potential growth promoting effects, and to document the economics of using a single treatment of Ivomec when compared to a Totalon/Warbex combination treatment in backgrounded heifer calves.

Procedure:

Crossbred Charolais x Angus x Hereford heifer calves raised at the Dickinson Experiment Station were randomly allotted in a 117 day worming investigation in a 3 x 3 factorial design. Ivomec and a Totalon/Warbex combination were compared to a control group. Within each treatment group, the heifers were blocked into light, medium and heavyweight classes. The targeted starting weights for each weight class was 560 pounds in the lightweight group, 610 pounds in the mediumweight group, and 648 pounds in the heavyweight group. Genetic variables were reduced as much as possible by balancing calf sire and breed of dam across treatments.

Prior to the start of the investigation, all calves in each treatment were fecal sampled to determine the baseline level of worm egg shedding, and worm species distribution. Each treatment was further fecal sampled at each 28 day weigh period during the study.

Heifer calves treated with the Totalon/Warbex combination received 2.5 cc. of Totalon per 110 pounds of body weight, which was poured along the midline of the back according to the manufactures recommendations. The Warbex was also poured along the midline of the back but at the rate of 3 oz./head. Ivomec treated heifers were injected subcutaneously with 1 cc. for each 110 pounds of body weight. Dosage rate was calculated using the average weight of the calves in each weight class. The control calves did not receive wormer, but did receive Warbex and to remove the external parasite variable.

In addition to the worming treatments, the heifers in this study were given a 7-way Clostridium booster vaccination, and had been previously vaccinated with a killed bacterine for IBR, BVD, and PI₃.

The heifers were fed the complete mixed ration shown in Table 1. The ration batches were blended in a feedlot mixing wagon equipped with an electronic scale. When feed bunks were filled, all pens received an equally uniform portion from each batch to eliminate potential mixing variables between batches.

Pre-trial worm egg shedding, coccidia oocyst shedding, and the effects of each anthelmintic treatment has been charted in Figures 1 and 2.

The ration that was fed across treatments is shown in Table 1, and the growth, feed efficiency, and economic analysis has been summarized in Table 2.

Summary:

Pre-trial fecal analysis revealed a wide distribution of worm species. Egg shedding across treatments ranged from 34 epg in the control group to 15 epg in the Ivomec treated calves. An intermediary level of 24 epg was recorded in the Totalon/Warbex group. Although the worm species distribution was wide, the most prevalent species were cooperia and nematodiru. It is common to find coccidia oocysts being shed from healthy cattle and the fecal analysis in this study was no exception. Pre-trial oocyst shedding was 567, 700, and 1233 epg in the Ivomec, control, and Totalon/Warbex groups respectively. The products used were very effective in reducing the worm egg shedding to very low levels. Coccidia oocyst shedding dropped to very low levels at the first 28 day sampling period and remained low in all treatments for the remainder of the study. Therefore, the reduction in oocyst shedding was not due to a treatment effect.

Performance measurements of economic importance which include total gain, average daily gain, feed/head/day, feed/pound of gain, and feed cost/hundredweight of gain did not differ significantly between the treated groups and control heifers. Although significance was not attained, heifers treated with Ivomec were 11 pounds heavier than the controls and were 8 pounds heavier than the Total/Warbex treated heifers. These differences are small, therefore, the suggestion by some parasitologists that Ivomec may possess an unidentified growth promoting factor was not confirmed in this investigation.

A partial marketing analysis has been developed. Net returns from sale of these animals at \$69.80/hundredweight favored those heifers that were treated with Ivomec. Net returns were \$142.35 for the control group, \$141.07 for the Totalon/Warbex group, and \$146.13 for the group treated with Ivomec. Ivomec treated heifers returned \$3.78 more per head than the control heifers, and \$5.06 more than those heifers treated with the Totalon/Warbex combination.

The number of animals represented in this investigation are small, therefore, the project will be repeated a second wintering to increase confidence in the data.

**Table 1. As Fed Complete Mixed Backgrounding Ration Fed Across Treatments
Comparing Ivomec and a Totalon/Warbex Combination**

Ingredients	Percent (As Fed)
Corn Silage	35.1
Mixed Hay	28.0
Alfalfa	9.76
Barley	26.7
Dicalcium phosphate	.17
Trace mineral salt	.17
Vitamin A D & E	<u>.038</u>
	100.28%

Nutrient Analysis:

Crude Protein	7.65% As Fed 11.10% Dry Matter
Calcium	0.47% As Fed 0.68% Dry Matter
Phosphorous	0.28% As Fed 0.34% Dry Matter

Table 2. Backgrounding Gain Performance, Feed Efficiency, Feeding Economics, and Marketing Analysis among Heifers Treated with either Ivomec or a Totalon/Warbex Combination, 1988

	Control	Totalon/ Warbex	Ivomec
Gain Performance:			
No. Head	15	15	15
Day Fed	117	117	117
Initial Wt., lbs.	589	609	608
Final Wt., lbs.	890	904	911
Gain lbs.	292	295	303
ADB, lbs.	2.50	2.52	2.59
Feed Efficiency:			
Feed/head, lbs.	3286	3259	2296
Feed/head/day, lbs.	28.1	27.9	29.0
Feed/lb. of gain, lbs.	11.2	11.1	11.2
Feeding Economics:			
Feed Cost/head, \$	95.70	94.92	99.02
Feed Cost/day, \$.818	.811	.846
Feed Cost/lb. of gain, \$.3277	.3218	.3268
Feed Cost/cwt. of gain \$	32.77	32.18	32.68
Marketing Analysis:			
Feeder Heifer Cost, \$ at \$80.00/cwt	478.40	487.20	486.40
Parasite Treatment Cost, \$			
Warbex	.47	.47	
Totalon		2.27	
Ivomec			3.35
Gross Return/head at \$69.80/cwt., \$	621.22	630.99	635.88
Net gain or loss \$	+142.35	141.07	146.13
Treatment advantage/head compared to the control, \$		-1.28	+3.78
Ivomec advantage over Totalon/Warbex/head, \$			+5.06

Worm Egg Shedding, Epg.

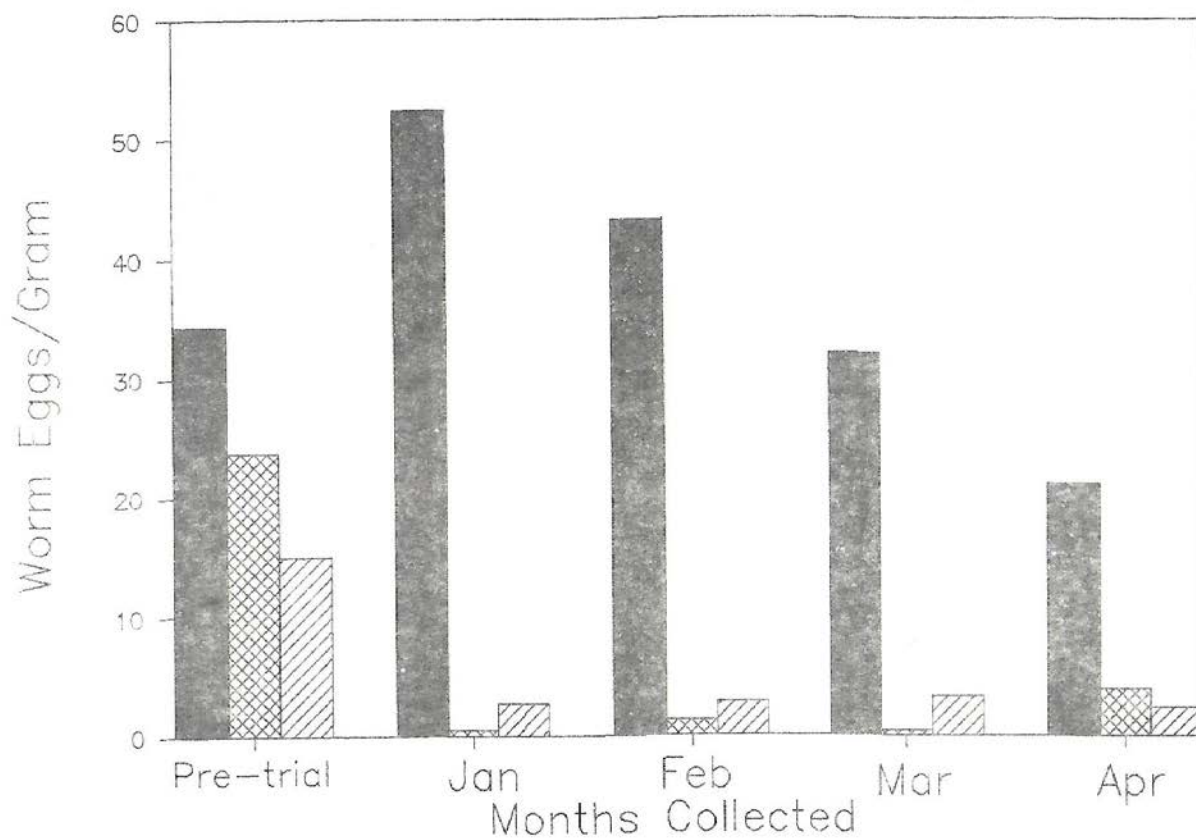


Fig. 1

Control Totalon/Warbex Ivomec

Coccidia Oocyst Shedding, Epg

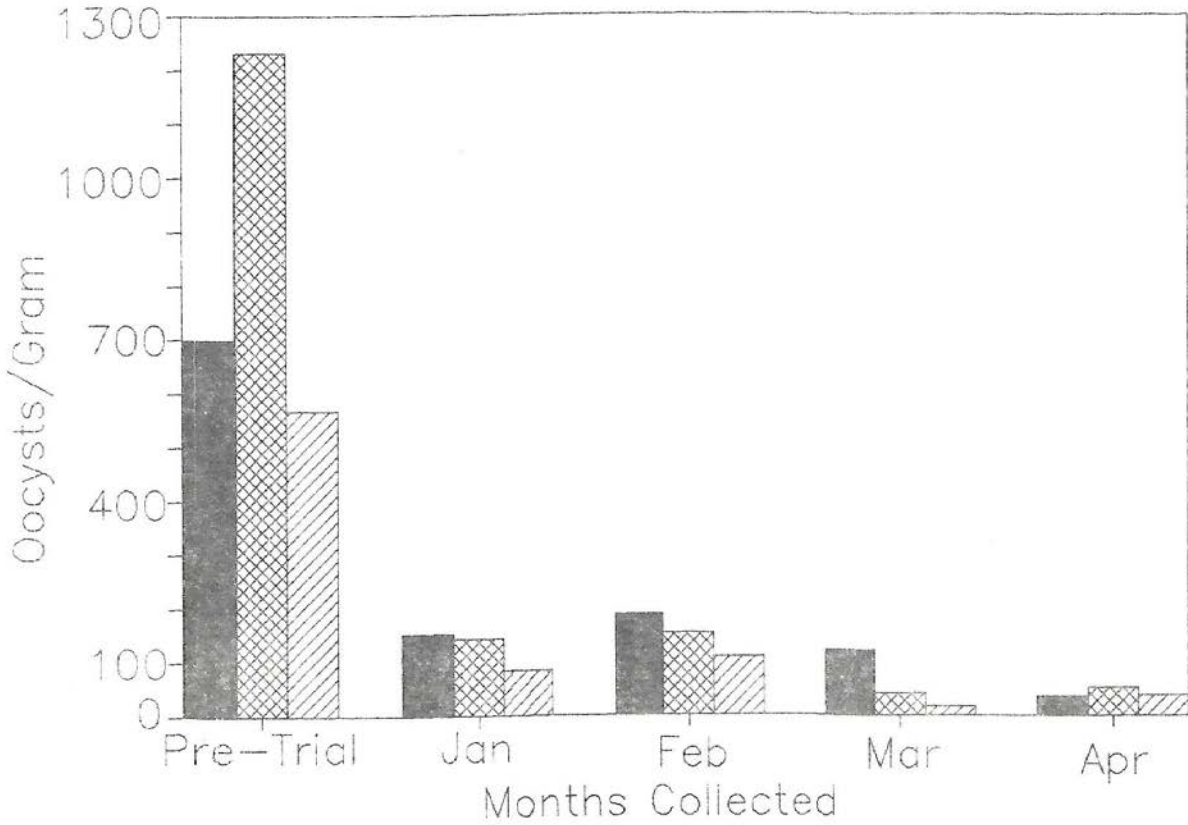


Fig. 2 ■ Control ▨ Totalon/Warbex ▩ Ivomec

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