

COMPARISON OF IONOPHORES FOR FEEDLOT HEIFERS: LASALOCID A.M. PLUS OXYTETRACYCLINE P.M. -VS- CONTINUOUS MONENSIN-TYLOSIN

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Story in Brief

Forty-eight yearling heifers which had been in the feedyard for 60 days and had been receiving monensin (300 mg/hd/day) plus tylosin (90 mg/hd/day) were fed 96 days on an 88% concentrate ration (NE_g = 1.25 mcal/kg) with (1) monensin (300 mg/hd/day) plus tylosin (90 mg/hd/day) or with (2) lasalocid (300 mg/hd/day) fed A.M. plus oxytetracycline (75 mg/hd/day) fed P.M. Supplements were top dressed on the ration at each feeding. Feed intake was 4.7% greater, average daily gain was 4.8% higher, and feed efficiency 4.7% better in the monensin-tylosin treatment. Hot carcass weights, fat thickness over the rib, marbling scores and kidney-heart and pelvic fat were 1.9, 2.2, 5.8, and 4.9 percent, respectively, higher for the monensin-tylosin cattle. Dressing percent, rib eye area and yield grade were .20, 1.0 and 8.9 percent greater, respectively, in the lasalocid A.M. and oxytetracycline P.M. treatment.

Animals may be crossed over from one ionophore to another without any significant performance changes (i.e. monensin-tylosin to lasalocid A.M.-oxytetracycline P.M.).

(Key Words: Feedlot Heifers, Monensin, Lasalocid, Oxytetracycline, Tylosin.)

Introduction

The two ionophores, currently approved for use in beef cattle, monensin (Rumensin®) and lasalocid (Bovatec®), are extensively fed to feedlot cattle to improve efficiency of feed utilization. It has been demonstrated that several antibiotics are effective in reducing the incidence of liver abscess in feedlot cattle. Two of these antibiotics are oxytetracycline (Terramycin) and tylosin (Tylan). To date, only tylosin is cleared for use with an ionophore, and only with monensin. The combination of two drugs, such as ionophore and antibiotic, requires a voluminous documentation of efficacy prior to being cleared for use by the Food and Drug Administration. Consequently, two methods may be used to deliver an oral antibiotic for liver abscess control when an ionophore is used in the ration which has no combination clearance: (1) a high therapeutic level fed a few days each month, or (2) A.M.-P.M. continuous low level where all the ionophore is fed A.M. and all the antibiotic fed P.M. The objective of this study was to determine the efficacy and feasibility of A.M.-P.M. lasalocid + oxytetracycline versus the combination monensin-tylosin supplementation program.

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Materials and Methods

Forty-eight crossbred heifers were individually weighed, identified with ear tags and randomly allocated to two treatment and six pens on June 14, 1983. This design allowed each treatment to be replicated three times. The heifers had been in the L&W Feedyard, Follett, Texas since April 22, 1983 and had received routine feedlot vaccinations and implants, and had been managed on the standard feedlot nutritional program which included use of monensin-tylosin in the rations (Table 1).

The initial shrunk weight of the heifers on June 14, 1983 was 701 lb. The heifers were receiving the finishing ration upon initiation of the study and continued receiving this ration until completion of the study on day 96. Full weights were taken on days 28, 56, 84 and 96, and were subjected to a 4% pencil shrink for reporting purposes.

The purpose of the study was to test the efficacy of a monensin-tylosin (300 mg + 90 mg) feeding regime versus a lasalocid A.M. - oxytetracycline P.M. (300 mg-75 mg) feeding program.

The heifers were trucked 42 miles to Booker, Texas for slaughter. Gains and feed efficiencies for the total trial were calculated from hot carcass weights assuming a dressing percentage of 62. Performance and carcass data were compared using analysis of variance (Steel and Torrie, 1960).

Table 1. Diet consumption, dry matter basis.^a

Ingredient	Percentage
Corn, steam flaked	83.10
Alfalfa, ground	10.58
Wheat midds	1.13
Calcium carbonate	1.09
Meat meal	.80
Urea	.90
Sunflower meal	.80
Salt	.64
Cottonseed meal	.48
Potassium chloride	.18
Ammonium sulfate	.16
Dicalcium phosphate	.12
Premix ^b	.01

^aTo provide 12.5 percent crude protein, .65 percent calcium, .39 percent phosphorus, .68 percent potassium, and 1.25 mcal/kg dry matter (NE_g).

^bPerleted supplement composed 7.9 percent of the ration dry matter. The supplement for treatment 1 was formulated to supply 30 g/ton Rumensin per ton of air dry feed and 90 mg tylosin/head/day.

Results and Discussion

Prior to the start of this study the animals were receiving a standard feedlot finishing ration indicated in Table 1 which contained monensin + tylosin. The ration was contained monensin + tylosin at a level of 300 mgs + 90 mgs per head per day, respectively. The animals receiving the monensin-tylosin treatment continued receiving this ra-

tion. The pens receiving the lasalocid-A.M.-oxytetracycline-P.M. were immediately crossed over to this feeding regime. Feed delivery to the pens was by mixer truck. The supplements were top dressed on the ration to assure that the proper amount of supplement was delivered to each pen. Feedlot performance data are shown in (Table 2).

Average daily gain, daily feed intake and feed conversion was enhanced by 5.0, 0.5, and 4.9 percent, respectively, by the monensin-tylosin treatment. This same pattern has been observed in steers fed intermittent high levels of antibiotics (Gill et. al., 1984). One of the problem areas with A.M.-P.M. feeding of additives is that more than half the ration is fed in the A.M. whereas only half the supplement is apportioned at this time. In the typical custom feedlot situation, this may be a problem that is logistically insurmountable.

Table 2. Gains and feed efficiencies of heifers on different ionophore antibiotic feeding regimes.

	Treatments	
	Monensin + Tylosin	Lasalocid A.M. Oxytetracycline P.M.
Heifers, number	24	23
Weights, lbs ^a		
Initial	704 ^d	700 ^d
28 days	785 ^d	782 ^d
56 days	870 ^d	859 ^d
84 days	937 ^d	915 ^d
96 days, live	959 ^d	935 ^d
96 days, carcass	1005 ^d	986 ^d
Daily gains, lbs		
0-28 days	2.80 ^d	2.82 ^d
28-56 days	2.91 ^d	2.77 ^d
56-84 days	2.77 ^d	2.55 ^d
84-96 days	2.66 ^d	2.45 ^d
96 days, carcass	3.13 ^d	2.98 ^d
Daily feed, lb		
0-28 days	21.72 ^d	21.54 ^d
28-56 days	20.14 ^d	20.44 ^d
56-84 days	25.01 ^d	24.30 ^d
84-96 days	17.91 ^d	18.40 ^d
0-96 days	21.74 ^d	21.63 ^d
Feed/gain ^b		
0-28 days	7.49 ^d	7.38 ^d
28-56 days	6.61 ^d	7.41 ^d
56-84 days	10.52 ^d	12.16 ^d
84-96 days	9.59 ^d	10.69 ^d
0-96 days	6.92 ^d	7.26 ^d
Metabolizable Energy, mcal/kg	3.11 ^d	3.02 ^d

^a Interval weights are reported after a 4% shrink; weights for the test are based on hot carcass weight with 62 dressing percentage.

^b All consumption data on an as fed basis. (Ration dry matter = 87%).

^c Feed/gain for the trial is expressed on a 100% dry matter basis.

^d Means within a row with different superscripts differ (P<.05).

Table 3. Carcass measurements for heifers on different ionophore antibiotic feeding regimes.

Parameters	Treatments	
	Monensin + Tylosin	Lasalocid A.M. Oxytetracycline P.M.
Carcass weight	623 ^a	611 ^a
Dress percent	61.9 ^a	62.0 ^a
Liver abscess incidence, %	4.2 ^a	0 ^a
Rib eye area, square inches	11.88 ^a	12.00 ^a
Sq. In./CWT	1.90 ^a	1.96 ^a
Kidney-heart-pelvic fat, %	2.33 ^a	2.22 ^a
Fat thickness, in.	.46 ^a	.45 ^a
Marbling ^c	15.66 ^a	14.79 ^a
Yield grade	2.68 ^a	2.46 ^a

^{a,b}Means within a row with different superscripts differ (P<.05).

^c14=small; 15=small plus; 16=moderate minus.

There were no significant differences in the carcass parameters measured (P<.05). Hot carcass weights, fat thickness and marbling score were 1.9, 2.2 and 5.8 percent, respectively, higher for the monensin-tylosin cattle. Dressing percent, rib eye area and yield grade were .16, 1.0 and 8.9 percent, respectively, improved in the lasalocid A.M.-oxytetracycline P.M. treatment. One small liver abscess was noted in the study and occurred in the monensin-tylosin treatment. The 4 percent rate in this treatment and zero level in the lasalocid-oxytetracycline treatment is substantially below industry averages of condemned livers due to abscess (Foster and Woods, 1970).

Animals may be successfully crossed over from an ionophore-antibiotic combination to an A.M.-P.M. ionophore-antibiotic feeding regime with no significant differences in performance or carcass characteristics.

The supplement for treatment 2 was formulated to supply lasalocid at 30 g/ton and oxytetracycline at 75 mg/hd/day.

Literature Cited

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