Table 5. Ionophore comparisons from feedlot trials at Oklahoma State

Ionophore	Cattle fed	Trials	Daily gain			Feed efficiency		
			Control	Drug	Response	Control	Drug	Response
			lb	lb	%	lb	%	
Monensin	800	7	3.33	3.33	0.0	5.82	5.53	5.0
Lasalocid	84	1	3.38	3.40	0.6	5.75	5.31	7.7
Salinomycin	140	1	3.10	3.39	9.4	6.53	6.02	7.8

Lasalocid for Feedlot Steers

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Story in Brief

Lasalocid and monensin were supplemented at 0, 20 or 30 grams per ton with a shelled corn diet and fed to 140 steers (initial weight 679 lb) for 119 days. Rate of gain tended to be greater with the higher level of lasalocid than the higher level of monensin addition to the feed. Feed intake was reduced by 4.1 percent with lasalocid and 2.0 percent with monensin. Efficiency of gain was improved by 5.9 percent with addition of either drug and was slightly greater (7.6 percent vs 4.3 percent) with lasalocid than monensin. Calculated metabolizable energy was increased with either drug (3.8 percent) and greater with lasalocid than monensin (5.1 vs 2.4 percent). Fecal starch tended to be lower with lasalocid than with monensin feeding. Fat thickness tended to be lower with drug feeding, and percent of carcasses graded choice was significantly greater for steers fed lasalocid than those fed monensin due to slightly higher marbling score. Results indicate that lasalocid increases efficiency of feed use by feedlot steers to a level equal to or greater than monensin. The lower feeding level (22 ppm) proved as effective as the higher level of either drug. When legally cleared for feedlot cattle, lasalocid should be a useful feed additive.

Introduction

Monensin is fed widely to feedlot cattle to improve efficiency of feed use. A summary of six trials in Oklahoma (Witt et al., 1980) indicated that at 33 ppm, monensin depressed rate of gain very slightly but reduced feed intake (19.2 vs 18.2 lb/day) and improved feed efficiency by 4.8 percent. Monensin is cleared for feeding in the range of 5 to 30 grams per ton. In one previous trial (Gill et al., 1978), monensin was fed to steers at 15 or 30 grams per ton with a high-moisture corn diet. Gains and feed efficiencies with the 0, 15 or 30 grams per ton monensin diets were 3.22, 3.20 and 3.17 lb/day and 5.51, 5.36 and 5.33 lb feed/lb gain.

Thornton and Owens (1976) reviewed the available literature and concluded that though monensin reduces feed cost most when fed at 30 grams per ton of feed, lower levels are more economically advantageous when yardage and interest costs are high relative to feed costs. Lasalocid functions in a manner similar to monensin. The objective of this experiment was to determine the effect of feeding monensin or lasalocid at 20 or 30 grams per ton on performance and carcass characteristics of feedlot steers.

Materials and Methods

Steers of mixed breeding which had been pastured together for several months near Purcell, Oklahoma, were sorted, and 140 steers were trucked to Stillwater, Oklahoma, on January 23, 1981. Steers had an average shrunk weight of 679 pounds following arrival. Steers were blocked into two weight groups averaging 640 and 719 pounds and randomly allocated within group to pens. Treatments were randomly allotted to pens within a weight group. Within each weight group, half of the pens received a starting ration diluted with cottonseed hulls while for the other half, the ration was diluted with dehydrated alfalfa meal. Steers were ear tagged and vaccinated for IBR-BVD-P13 and blackleg (5-way) on arrival. The ration (Table 1) was diluted with roughage to a level of 40 percent roughage for 3 days, 30 percent roughage for 3 days, 20 percent roughage for 2 days and 12.5 percent roughage for 2 days. On days 28, 55 and 90 of the trial, steers were weighed full. Samples of feces from three steers per pen were obtained on day 20 and day 115 of the trial for pH, dry matter and starch analysis. On day 119 of the trial, steers were weighed after 18 hours without feed and water. Steers were then re-fed and trucked to Booker, Texas, for slaughter the following morning. Slaughter and carcass data were obtained, and livers of steers fed lasalocid were discarded.

Table 1. Ration composition (dry matter basis)

	Ration roughage level (%)				
Ingredient	40	30	20	12.5	5[a]
Whole shelled corn	53.87	63.87	73.87	81.37	88.87
Cottonseed hulls	25	15	10	5	5
Alfalfa meal or cottonseed hulls	15	15	10	7.5	0
Pelleted supplement[b]	6.13	6.13	6.13	6.13	6.13

[a]Calculated composition (dry matter basis) is 3.15 mcal ME/kg; 12.08% protein; .65% K; .47% Ca; .37% phosphorus. Analyzed between 89 and 91% dry matter.

[b]Contained, as a percent of the total ration, soybean meal, 3.4; limestone, 1.03; urea, .50; KC1, .40; salt, .30; dehy, .27; dicalcium phosphate, .23. Vitamin A at 30,000 IU/g, .01; and monensin (60 g/lb) at 0, .016 or .025 or lasalocid (20%) at .011 or 0.16.

Results and Discussion

Rate of weight gain was influenced little by drug source or level (Table 2). Gains were slightly faster with the low than with the high monensin level when calculated on a shrunk or a carcass weight basis. Daily feed intake was reduced by 0.9 lb per head daily (4.1 percent) with lasalocid and 0.5 lb (2.0 percent) with monensin. Efficiency of gain was 5.9 percent greater with addition of either ionophore and tended to be greater (7.6 vs 4.3 percent) with lasalocid than monensin. Metabolizable energy content of the ration was calculated from weight

Table 2. Steer performance and intakes

	Drug level, g/ton				
Lasalocid	0	20	30	0	0
Monensin	0	0	0	20	30
Weights, lb					
Initial	680	684	675	677	676
55 days	919	928	922	922	915
119 days					
Live	1090	1103	1109	1100	1094
Carcass[a]	1085	1089	1085	1080	1083
Daily gain, lb					
0-55	3.53	3.59	3.65	3.61	3.52
56-119	3.38	3.46	3.64	3.50	3.50
0-119 live	3.45	3.52	3.64	3.55	3.51
0-119 carcass[a]	3.38	3.37	3.42	3.36	3.39
Daily feed, lb dry matter					
0-55	19.3	18.8	18.4	18.4	18.4
56-119	20.2	18.8	19.8	20.1	20.5
0-119	19.8	18.8	19.2	19.3	19.5
Feed/gain					
0-55	5.50	5.26	5.07	5.11	5.26
56-119	5.98[b]	5.44[c]	5.45[c]	5.72[bc]	5.86[b]
0-119 live	5.75[b]	5.35[cd]	5.27[c]	5.43[cd]	5.58[bc]
0-119 carcass[a]	5.86	5.86	5.63	5.71	5.79
ME carcass[e]	2.91[d]	3.05[b]	3.07[a]	3.01[bc]	2.95[cd]

[a]Calculated as hot carcass weight/.62.
[bcd]Means in a row with different superscripts differ significantly (P<.05).
[e]Calculated from feed intake and rate of gain.

gain, rate of gain and net energy equations. Metabolizable energy was increased 3.8 percent by ionophore addition, with lasalocid being superior (5.1 vs 2.4 percent) to monensin.

Fecal dry matter, pH and starch (Table 3) were all increased with ionophore addition. Fecal pH tended to be greater and starch content tended to be lower from steers receiving lasalocid than those receiving monensin.

Carcass characteristics are presented in Table 4. Dressing percentage tended to be lower with feeding of either ionophore. While only three steers had liver

Table 3. Feces compositon

	Drug level, g/ton				
Lasalocid	0	20	30	0	0
Monensin	0	0	0	20	30
Dry matter, %	19.9[b]	24.7[a]	21.6[ab]	25.1[a]	23.4[ab]
pH	5.94[ab]	6.13[a]	6.24[a]	5.61[b]	6.02[ab]
Starch, % of DM	13.6[b]	17.9[ab]	15.0[b]	25.8[a]	20.1[ab]
Whole kernels, % of samples	17	29	21	50	37

[ab]Means in a row with different superscripts differ significantly (P<.05).

Table 4. Carcass characteristics

	Drug level, g/ton				
Lasalocid	**0**	**20**	**30**	**0**	**0**
Monensin	**0**	**0**	**0**	**20**	**30**
Carcass weight, lb	673	675	673	670	671
Dressing percent	61.8	61.2	60.7	60.9	61.4
Liver abscesses					
Incidence, %	36	36	59	32	39
Severity[a]	2.0	1.8	1.9	1.5	1.8
Fluke incidence, %	3.6	0	4.2	0	3.6
Rib eye area					
Square in.	12.0	12.2	12.2	12.1	11.9
In.^{2}/cwt	1.79	1.82	1.82	1.82	1.78
Fat thickness, in.	.44[d]	.34[e]	.39[de]	.39[de]	.39[de]
KHP, %	2.3	2.3	2.3	2.3	2.3
Marbling score[b]	13.0	13.1	12.6	12.4	12.7
Federal grade[c]	12.7	12.6	12.6	12.4	12.4
Percent choice	67.9[d]	60.7[de]	56.7[de]	39.3[e]	40.0[e]
Cutability, %	50.4	51.1	50.8	50.8	50.6
Yield grade	2.90	2.70	2.84	2.82	2.73
Carcass value, $/cwt	61.40	61.82	60.56	61.54	61.78

[a]Scored from 1 = a single small abscess to 3 = several severe or active abscesses.
[b]Slight plus = 12; small minus = 13.
[c]Good plus = 12; choice minus = 13.
[de]Means in a row with different superscripts differ significantly ($P<.05$).

flukes, over 40 percent had liver abscesses. Abscesses were of moderate severity. Rib eye area was smaller than in most previous trials but was not affected by treatment. Fat thickness over the 12th rib was lower with addition of either drug. Marbling score and federal grade tended to be lower with drug addition. Percent of carcasses graded choice was greater for steers fed lasalocid than for those fed monensin. Cutability and yield grades were not altered with drugs.

Literature Cited

Gill et al. 1978 Anim. Sci. Res. Rep. p. 92.
Thornton and Owens. 1976. Panhandle Feeders Day.
Witt et al. 1980. Anim. Sci. Res. Rep. p. 125.