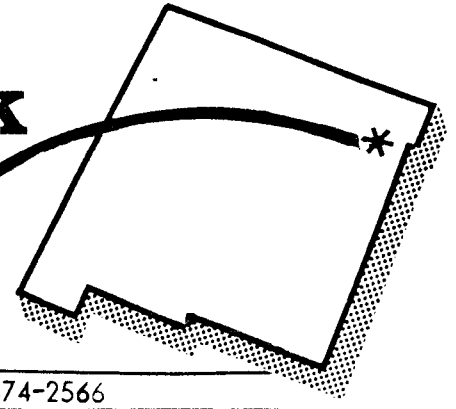




Clayton Livestock Research Center

PROGRESS REPORT



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EFFECT OF WEEKLY ROTATION OF LASALOCID AND MONENSIN ON PERFORMANCE OF FEEDLOT STEERS

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Previous research conducted at the Clayton Livestock Research Center (Progress Report No. 47) indicated the potential for improving performance of growing-finishing feedlot cattle by alternating lasalocid and monensin¹ at weekly intervals. To further investigate the potential merits of ionophore rotation programs, two additional trials were conducted.

In Trial 1, 126 crossbred steers were allotted to six treatment groups consisting of: C - control (no ionophore); L - lasalocid fed continuously at a level of 30 g/ton; M - monensin fed continuously at a level of 30 g/ton; L/C - lasalocid alternated weekly with control; M/C - monensin alternated weekly with control; L/M - lasalocid alternated weekly with monensin. In Trial 2, 242 steers were fed the C, L, M and L/C diets used in Trial 1 with the addition of lasalocid (30 g/ton) alternated weekly with monensin at 30, 25, and 20 g/ton (L/M30, L/25, and L/M20, respectively). Tylosin was not fed in combination with monensin in either of the two trials.

In Trial 1 (Table 1) no significant ($P > .10$) differences were observed among treatments for either average daily gain (ADG), daily feed intake (DFI) or feed-to-

gain ratio (F/G). Average daily gain, however, was increased numerically for the L, M and L/M groups compared with C, while alternating either lasalocid or monensin with no ionophore decreased ADG slightly relative to C. Mean DFI in L cattle was greater than with other treatment groups. Feed-to-gain ratio was least for L/M followed by M and L. A poorer F/G was exhibited by L/C and M/C groups, indicating that alternating either lasalocid or monensin at weekly intervals with no ionophore may depress performance.

In Trial 2 (Table 2), after 140 days on feed, ADG was increased ($P < .10$) for cattle receiving the C, L, M, L/M30 and L/M25 diets compared with L/C. There were no differences ($P > .10$) in ADG among C, L, M, L/M30 and L/M25; however, ADG was greater numerically compared with C. The greatest improvement in ADG was obtained in the M and L/M30 groups. Daily feed intake was increased for cattle receiving L, M and L/M30, compared with C, L/C, L/M25 and L/M20. Feed conversion efficiency again was improved in the M and L/M30 groups compared with the other treatments. In the L/M30, L/M25 and L/M20 groups, performance tended to decline as the level of monensin decreased from 30 to 20 g/ton.

¹Lasalocid supplied as Bovatec 68 and Monensin supplied as Rumensin 30.

Results from this study indicate that similar performance can be achieved by either continuous feeding of lasalocid or monensin or by alternative feeding of lasalocid and monensin at weekly intervals. Results also suggest a monensin level within the range of 33 to 27.6 mg/kg may be required for optimum performance in weekly ionophore rotation programs. Rotating either lasalocid or monensin at weekly intervals with no ionophore did not appear to be a viable ionophore rotation program because performance in these groups was generally lower compared with other treatments.

If ruminal microbial adaptation to ionophore is occurring, a weekly "on-off" schedule of ionophore administration might be as effective as weekly rotation of lasalocid and monensin to minimize adaptation. Because ADG, DFI and F/G for L/C and M/C were either equal to C, L and M as in Trial 1, or actually decreased by L/C

as in Trial 2, the question arises to whether minimizing microbial adaptation to ionophores may be the primary mode of action for the animal performance response observed with ionophore rotation.

The fact that tylosin was not fed in conjunction with monensin in the present study may partially explain the differences between results observed in this study and those reported in Progress Report No. 47. Because tylosin is effective for control of liver abscesses in feedlot cattle, it may be plausible that animal performance in the present trial was diminished because of inadequate control of liver abscesses. To achieve adequate liver abscess control, the shortest possible rotational period would seem desirable, suggesting a potential for daily rotation of lasalocid and monensin/tylosin. Additional research is currently being conducted in this area.

Table 1. Effects of Alternating Monensin and Lasalocid at Weekly Intervals on Overall (91 Days) Performance of Steers - Trial 1

Item	Treatment						SE ^a
	C	L	M	L/C	M/C	L/M	
Initial wt., lbs	738	744	736	749	727	747	6.9
ADG, lbs.	3.79	4.00	3.87	3.70	3.68	3.88	.12
DFI, lbs.	25.2	26.2	24.8	24.8	24.7	24.6	.55
F/G, lbs.	6.67	6.56	6.41	6.70	6.74	6.35	.17
Final wt., lbs.	1083	1107	1088	1087	1062	1100	13.7

^aStandard error of mean, n = 3.

Table 2. Effects of Alternating Monensin and Lasalocid at Weekly Intervals on Overall Performance of Steers - Trial 2^a

Item	Treatment							SE ^a
	C	L	M	L/C	L/M30	L/M25	L/M20	
Initial wt., lbs.	543	541	544	541	544	545	543	5.0
ADG, lbs.	3.23 ^b	3.30 ^b	3.34 ^b	3.06 ^c	3.37 ^b	3.28 ^b	3.19 ^{bc}	.07
DFI, lbs.	20.9	21.8	21.3	20.6	21.6	20.9	20.9	.49
F/G, lbs.	6.47	6.61	6.38	6.80	6.41	6.37	6.55	.15
Wt., 140 d, lbs.	991	1004	1011	970	1017	1004	992	10.0

^aStandard error of mean, n = 3

^{b,c}Row means with different superscripts differ (P < .10).

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