

Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 2 *Dairy Research (1984-2014)*

Article 106

1987

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Recommended Citation

Anderson, K.L.; Nagaraja, Tiruvoor G.; Morrill, J.L.; and Reddy, P.G. (1987) "Performance of early weaned calves fed lasalocid," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 2.
<https://doi.org/10.4148/2378-5977.3031>

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Performance of early weaned calves fed lasalocid

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PERFORMANCE OF EARLY WEANED CALVES FED LASALOCID¹

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Summary

Twenty-two newborn, bull calves were used to determine the effects of lasalocid on growth and feed intake of early-weaned calves from week 1 to 12. Calves were assigned to lasalocid or control groups on day 3. Lasalocid-fed group received lasalocid in milk from day 4 to 7 and in milk and pre-starter from days 7 to 14 and in starter feed from weeks 2 to 12. Lasalocid-fed calves had a significantly higher feed consumption and greater weight gain than calves that did not receive lasalocid. The difference became apparent only after 6 wk of age. Lasalocid appears to be a beneficial feed additive for newborn calves.

Introduction

Early weaning of dairy calves contributes to early development of ruminal microbial activity because of increased intake of dry feed. Because of the rapid development of ruminal microbial activity, it may be beneficial to feed ionophore antibiotics to young calves. In addition to the benefits associated with altered ruminal fermentative characteristics, ionophore antibiotics may also contribute to the control of coccidiosis in growing calves. The effect of ionophore antibiotics such as lasalocid on growth performance of newborn calves has not been previously determined. Therefore, we incorporated lasalocid into milk and dry feed of calves raised on an early-weaning program and monitored dry feed intake, growth, and incidence of coccidiosis.

Procedures

Twenty-two Holstein bull calves were separated from their dams within 24 h after birth and fed colostrum until 3 d of age. The calves were then divided into two treatment groups, control or lasalocid-fed, and fed whole milk (8% birth wt.) until weaned at 3 wk of age. Calves in both groups were fed a pre-starter diet (Table 1) from d 3 until they reached a daily intake of 227 g. They were then fed a mixture of 227 g of pre-starter daily and all the calf starter (Table 2) they would eat until 6 wk of age, after which they were given ad libitum access to only the starter diet. Lasalocid-fed calves were given lasalocid (Bovatec® liquid premix, 20% w/w suspension, Hoffmann-LaRoche Inc., Nutley, N.J.) in milk at 1 mg/kg body weight daily from d 4 to 7, and at .5 mg/kg body weight daily during wk 2. Calves in this group had access to unmedicated pre-starter from d 3 to 7, but during wk 2

¹Financial support was provided by Hoffmann-LaRoche Inc., Nutley, NJ.

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they had access to pre-starter containing lasalocid (88 mg/kg pre-starter). After 2 wk of age, lasalocid-fed calves were given medicated pre-starter (88 mg/kg pre-starter) and starter (44 mg/kg starter) diets. The lasalocid concentration in the dry feeds was calculated to provide a daily intake of 1 mg of lasalocid/kg body weight.

Daily feed intake and weekly weight gain of all calves were monitored from birth to 12 wk of age. Feces of each calf were evaluated daily. Rectal fecal samples were also obtained from each calf at 4, 8, and 12 wk of age, and examined for coccidiosis.

Results

The body weights, weight-gain and feed consumption and daily intake of lasalocid of calves are shown in Table 3. The body weights of lasalocid-fed calves were significantly greater at 5, 7, 8, 9, 10, 11, and 12 wk of age than those calves that did not receive lasalocid. Accordingly, weekly weight gains were higher for lasalocid-fed than for control calves. Overall, lasalocid-fed calves weighed about 10 kg more than control calves at the end of the 12 wk period. Calves fed lasalocid consumed more feed after 6 wk of age than calves that did not receive lasalocid. However, at 1 to 4 wk of age, feed consumption was similar in both groups of calves. Daily lasalocid intake from 2 to 4 wk of age was less than the expected dose of 1 mg/kg body weight. However, after 6 wk of age because of increased dry feed consumption, lasalocid intake averaged 1.5 mg/kg body weight.

Fecal scores of calves were not affected by the treatment. Also, fecal examination at 4, 8 and 12 wk of age revealed no evidence of coccidiosis in calves of either group.

Table 1. Composition of Pre-starter diet^a

Ingredient	%
Dried whey	46
7-60 ^b	23
Dried skim milk	19
Sodium calcinate	12
Lasalocid ^c	+ or -
Additives ^d	+

^aCalfweena® Merricks, Union center, WI.

^bA mixture of milk solids and fat containing 7% protein and 60% animal fat.

^cPre-starter with lasalocid contained 88 mg lasalocid/kg.

^dIncludes preservative, vitamins, minerals, and flavoring compounds.

Table 2. Composition of starter diet^{a,b}

Ingredient	%
Alfalfa, ground	25
Corn, cracked	30.1
Oats, rolled	20
Soybean meal	18.4
Molasses, wet	5
Dicalcium phosphate	.7
Limestone, ground	.3
Salt	.25
Trace mineral salt	.25
Vitamins ^c	+
Lasalocid ^d	+ or -

^aAs fed basis.^bPellet, 4.8 mm diameter.^c2200 IU vitamin A, 330 IU vitamin D, and 110 IU vitamin E per kg.^dStarter with lasalocid contained 44 mg lasalocid/kg.

Table 3. Body weight, weekly weight gain and feed intake, and daily lasalocid intake of control or lasalocid-fed calves

Age (wk.)	Body weight, kg		Weekly weight gain, kg		Weekly dry feed intake, kg		Lasalocid intake (mg/kg body wt./day)
	Control	Lasalocid- fed	Control	Lasalocid- fed	Control	Lasalocid- fed	
0	41.3	42.0	-	-	-	-	-
1	43.0	44.5	1.6	2.5	.6	.4	1.0
2	43.9	45.1	.8	.5	.9	.7	.7
3	46.4	47.7	2.6	2.8	2.2	1.7	.4
4	47.7	49.2	1.3	1.4	4.5	4.4	.7
5	50.5	54.1†	2.8	4.9*	6.9	8.0	1.1
6	58.2	60.8	7.6	6.7	9.9	11.6†	1.4
7	63.8	67.7†	5.6	7.0†	13.2	14.7	1.4
8	70.0	74.6†	6.2	6.9	16.0	17.6	1.5
9	76.8	81.5†	6.9	7.0	17.5	20.0†	1.5
10	82.8	89.0*	6.0	7.3†	18.8	22.8*	1.6
11	90.7	96.2*	7.1	7.0	20.0	23.6*	1.5
12	95.7	104.9**	6.1	9.0**	22.2	24.6†	1.5

†Different from control (P<.1).

*Different from control (P<.05).

**Different from control (P<.01).