

# ASSESSMENT OF MONENSIN AND LASALOCID IN THE DIET OF HEAT STRESSED BROILERS

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## Story in Brief

Two studies utilizing 576 4-week old broiler chickens were conducted to evaluate the effects of monensin and lasalocid supplementation to the diet of heat stressed chickens. Monensin did not impact weight gain in either experiment, while birds showed a positive response to lasalocid in one trial. There was no detrimental effect on the survival of treated birds. The addition of the polyether antibiotics monensin and lasalocid to the diet of heat stressed broilers do not adversely affect production performance.

(Key words: Monensin, Lasalocid, Heat Stress, Gain)

## Introduction

Monensin, an effective anticoccidial drug, has been shown to depress growth when added to the diet of healthy chicks in a thermoneutral environment (Gard et al., 1975). Lasalocid, another anticoccidial drug has only resulted in slight growth depression when fed at up to three times the recommended concentrates. Both these polyether antibiotics have been used with considerable success to enhance gain and feed efficiency of broilers reared on floor pens where the growth-promoting effects are more likely to be maximized. When broilers are subjected to heat stress, a number of physiological changes occur and as such, management is quite often complicated. Several factors may contribute to the resultant perturbations in the growth of heat stressed broilers including the choice of anticoccidial drugs.

The study reported here was conducted in order to evaluate the growth promoting effects of monensin and lasalocid on broiler chickens reared under simulated summer conditions.

## Materials and Methods

Two studies utilizing 576 commercial male broiler chicks were conducted within an environmental chamber. Birds were weighed at four weeks of age and randomly allotted to treatments. Six chicks were housed in each wire floored grower battery compartment and the compartments randomly assigned to treatment groups to provide 16 replicates per treatment. Feed (Table 1) and water were continuously available, while the temperature within the chamber was allowed to cycle between 80 and 98°F over a twenty-four hour period, thereby simulating normal summer conditions.

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Table 1. Composition of Basal Diet.

Ingredient	%
Ground Corn	56.8
Soybean Meal	36.0
Fat	3.0
Dical. Phosphate	2.35
Calcium Carbonate	.90
Salt	.50
Vitamin Mix	.25
Trace Mineral	.10
DL-Methionine	.10
Total	100.00

In experiment 1., relative humidity fluctuated between 55 and 70%, while in experiment 2., relative humidity was held constant at 50%. Treatment 1 was the designated control, with birds in this treatment group receiving no dietary additives. Birds on treatment 2 received the basal diet supplemented with monensin at 110 grams per ton, while those birds on the 3 treatment were supplemented with lasalocid at 113 grams per ton of feed.

Feed and water consumption were monitored throughout each 21 day trial. At the end of each experimental period, body weight gain, feed consumption, feed efficiency and water consumption were determined. At the end of the first study birds were processed and the carcasses analyzed for fat and protein content.

### Results and Discussion

The use of grower batteries in these studies eliminated the "environmental disease level" that would normally be present in floor pens, thereby permitting a comparison of the growth promoting properties of these drugs, independent of organisms which may be present. The addition of monensin and lasalocid to the diet of heat stressed broilers in the first experiment did not impact weight gain (Table 2). There was

Table 2. Body weight gain, feed consumption, feed efficiency and water consumption of heat stressed broilers supplemented with monensin and lasalocid (Experiment 1).

	Control	Monensin (110 g/ton)	Lasalocid (113 g/ton)
Gain (g/day)	32.6	31.7	32.7
Feed (g/day)	98.4	94.5	95.4
Gain/feed	.34	.32	.34
Water (g/day)	263	248	252

however a tendency for feed consumption to decline since the birds supplemented with monensin and lasalocid consumed 3.9 and 3.0% respectively less than the control. Addition of these ionophores to the diet did not significantly affect water consumption, although there was a trend towards a decrease with the addition of these compounds. Carcass characteristics (Table 3) were not affected by the addition of either monensin or lasalocid.

Results of the second experiment (Table 4) indicate that the addition of lasalocid but not monensin increased body weight gain. The failure of monensin to improve body weight gain in this experiment may be due the feed intake reduction exhibited by these birds.

Survival values for both experiments (Table 5) indicate no apparent detrimental effect of ionophore addition to the diet of heat stressed birds. Birds on the lasalocid treatment tended to exhibit a greater degree of survival but this was not significant. Differences in values between experiment may be due to variation in the degree of stress.

The addition of the polyether antibiotics monensin and lasalocid, to the diet of broilers under simulated summer conditions does not adversely affect production performance.

Table 3. Dressing percent, percent fat and percent protein of heat stressed broilers supplemented with monensin and lasalocid (Experiment 1).

	Control	Monensin (110 g/ton)	Lasalocid (113 g/ton)
Dressing %	69.2 <sup>b</sup>	69.9	69.9
% Fat	13.95	12.97	13.99
% Protein	17.82	17.90	17.84

Table 4. Body weight gain, feed consumption, feed efficiency and water consumption of heat stressed birds supplemented with monensin and lasalocid (Experiment 2).

	Control	Monensin (110 g/ton)	Lasalocid (113 g/ton)
Gain (g/day)	35.2 <sup>b</sup>	35.5 <sup>b</sup>	38.2 <sup>a</sup>
Feed (g/day)	102.1 <sup>c</sup>	95.6 <sup>d</sup>	101.1 <sup>cd</sup>
Gain/feed	.35	.35	.37
Water (g/day)	322	256	340

<sup>ab</sup>Means in rows with unlike superscripts differ (P<.1).

<sup>cd</sup>Means in rows with unlike superscripts differ (P<.05)

Table 5. Effects of monensin and lasalocid on survival of heat stressed broilers.

	Survival %	
	Experiment <sup>1</sup>	Experiment <sup>2</sup>
Control	72.9	94.9
Monensin	72.9	96.9
Lasalocid	73.7	98.9

#### Literature Cited

- Gard, D.I. et al., 1975. Effect of monensin and dietary protein on growth, feathering, and anticoccidial efficacy. Poultry Sci. 54:1764