

**APPLICATION OF FEED ACIDIFIERS IN CONTROL OF POULTRY PATHOGENS IN COMMERCIAL LAYERS**

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**ABSTRACT**

A field trail was conducted to assess the effect of liquid and powder form of acidifiers in feed for controlling *Staphylococcus* spp., *Clostridium* spp., *E. coli* and *Salmonella* spp. in poultry. All the feed samples used under trial were analyzed for the presence of above organisms before and after the addition of acidifier. Before adding acidifier, majority of the feed samples showed the presence of all organisms except *Salmonella* spp. After addition of acidifier in the same feed samples, presence of organisms were decreased to a significant level and hen housed egg production and in turn per bird profit were also increased.

**KEY WORDS:** Feed acidifiers, Poultry Pathogens, Layers.

**INTRODUCTION**

The main aim of modern layer industry is to reduce the production cost with high productivity. Majority of the farmers are controlling the entry of the micro-organism through water sanitation and preventing environmental contamination by shed sanitation but no care was taken to the pathogens entering through the feed. Addressing these problems, acidifiers are generally used in poultry feed to reduce bacterial growth and to improve performance of birds. It suppresses the bacterial growth by lowering the pH without inhibiting the growth of beneficial bacteria (Steiner, 2006). Hence, this study was carried out to see the effect of addition of acidifier in feed on production performance of layers, mortality pattern, disease outbreaks and economics after edition of feed acidifier.

**MATERIALS AND METHODS**

The present study was carried out in commercial layer farms having the history of mortality with Colibacillosis, Gangrenous dermatitis and Necrotic enteritis. For the biological studies eleven different commercial layer chicken farms were selected and randomly divided into three groups viz control group I (one farm), group II and III five farms in each, which were fed with regular feed (Control group), feed with liquid acidifier (Supracid acid plus @500 ml/ton) and feed with powder form acidifier (Supracid dry plus@500gm/ton) respectively.

During this study period, 408 feed samples were collected before and after mixing of liquid and powder form of acidifiers in the feed. Feed analyses were done at Poultry Disease Diagnosis and Surveillance Laboratory, Namakkal, Tamil Nadu. The collected samples are subjected to qualitative analysis for the presence of microorganisms like *Salmonella* spp., *Stapholococcus* spp., *Clostridium* spp. and *E. coli* as per the OIE method. During the study period, mortality, disease outbreak pattern, hen housed egg production were recorded and economics were calculated.

**RESULTS AND DISCUSSION**

The feed samples were tested against presence of pathogens before and after adding of acidifiers are presented in table.1

**Table 1: Feed analysis before and after acidification for presence of pathogens**

S. No	Treatment	No. of samples	No. of feed samples showing the presence of the pathogens				Negative samples
			<i>E. coli</i>	<i>Salmonella</i>	<i>Clostridium</i>	<i>Staphylococcus</i>	
1.	Without Acidifier	408	78 (19%)	-	113 (27.69%)	112 (27.45%)	105 (25.73%)
2.	With Acidifier	408	-	-	33 (8%)	53 (13%)	322 (79%)

Before adding acidifier in feed, the majority of the feed samples showed the presence of organism expect Salmonella. Analyzed samples revealed that 19.00%, 27.69% and 27.45 % of *E. coli*, *Clostridium* and *Staphylococcus*, respectively and 25.73% of the feed samples showed absence of the all the organism. After adding acidifier, *E.coli* and *Salmonella* spp. were absent in all the positive samples and *Clostridium* spp. and *Staphylococcus* spp. count were reduced to 8% and 13% respectively. The resultant negative samples were also increased from 25.73% to 79.00%. Similar results were also observed by Mallicki et al. (2004) by use of organic acids in poultry feed to control *E. coli*.

The average mortality rate in groups fed with liquid and powder acidifiers were reduced to 8.1% and 8.8% respectively when compared with control group ie. fed without acidifier (13%). Observed mortality rate in acidifier treated groups is below normal and standard mortality per cent in layers farms. Among treated groups, mortality rate is lower in liquid acidifier than powder. Similar observations were made by Thirumeignanam et al. (2006) in broilers wherein the mortality was low (1.3%) in Acifed-FS at 0.1% of diet as compared to the control (5.3%). Hen housed egg production was increased from 305 to 318 and 319 per bird in groups fed with liquid and powder acidifiers respectively.

The birds fed without acidifier were affected by gangrenous dermatitis, necrotic enteritis, colicepticemia and egg peritonitis which ultimately reduced the profit of farms by the way of performance reduction, mortality and excess treatment cost. In this study, overall profit was increased upto Rs. 36.4 and 39.2 per bird in liquid and powder acidifiers fed groups respectively than control group. This result was supported by Olarve et al. (2007) that supplementation of organic mixture in the diets at 0.3 per cent was more economical than control birds.

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