

# Influence of an acidifier on broiler cecal microflora and growth performance

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## Introduction

**Organic acids (OA)** have a high antimicrobial efficacy, which can be improved by combining them with phytochemical, **cinnamaldehyde (CA)** and **permeabilizing substances (PS)**. PS damage the outer membrane of Gram-negative bacteria and boost the antimicrobial effect of OA and phytochemicals.

## Objective

To study the effects of dietary supplementation with a combined acidifier (CAc) consisting of a blend of OA, CA and PS (**Biotronic® Top3, BIOMIN, Austria**) in a diet based on corn-soybean meal on growth performance and cecum microflora.

## Conclusions

The improvement in growth performance was derived from the dietary supplementation of acidifier (**Biotronic® Top3, BIOMIN, Austria**), which reduced bacterial load of *E. coli*, *Salmonella* and *Clostridium perfringens* in cecum. The amount of *Lactobacillus* in cecum was increased in comparison with the control.

## Experimental set up

**Animals:** 400 day-old Arbor Acres broilers

**Groups:** 2 groups (4 replicates)

**Control:** Standard diet

**Trial:** Standard diet + 0.1% Biotronic® Top3

**Duration:** 42 days

## Results

### Cecum microflora in broilers, lg CFU/g

	Control n=8	Trial n=8
<b>Day 21</b>		
<i>E. coli</i>	8.356 <sup>a</sup>	7.643 <sup>b</sup>
<i>Salmonella</i>	7.352 <sup>a</sup>	6.781 <sup>b</sup>
<i>Lactobacillus</i>	7.825 <sup>a</sup>	8.827 <sup>b</sup>
<i>Clostridia perfringens</i>	7.901 <sup>a</sup>	7.497 <sup>b</sup>
<b>Day 42</b>		
<i>E. coli</i>	8.455 <sup>a</sup>	7.842 <sup>b</sup>
<i>Salmonella</i>	7.287 <sup>a</sup>	6.812 <sup>b</sup>
<i>Lactobacillus</i>	8.262 <sup>a</sup>	9.115 <sup>b</sup>
<i>Clostridia perfringens</i>	8.545 <sup>a</sup>	7.798 <sup>b</sup>

<sup>a,b</sup>means with different superscripts within a row differ significantly (P<0.05).

### Broiler performance data

	Control n=200	Trial n=200
<b>Day 42</b>		
<b>Final body weight, g/bird</b>	1953.1 <sup>a</sup>	2048.4 <sup>b</sup>
<b>Feed intake, g/day per bird</b>	86.5 <sup>a</sup>	88.5 <sup>b</sup>
<b>Daily weight gain, g/bird</b>	45.5 <sup>a</sup>	47.82 <sup>b</sup>
<b>Feed Conversion Ratio</b>	1.90 <sup>a</sup>	1.87 <sup>b</sup>
<b>EPEF*</b>	221.1 <sup>a</sup>	249.3 <sup>b</sup>
<b>Mortality (%)</b>	9.5	4.5

\*EPEF = European Production Efficiency Factor: (Liveability [%] x final body weight [kg]/age [days]/FCR) x 100  
<sup>a,b</sup>means with different superscripts within a row differ significantly (P<0.05).

