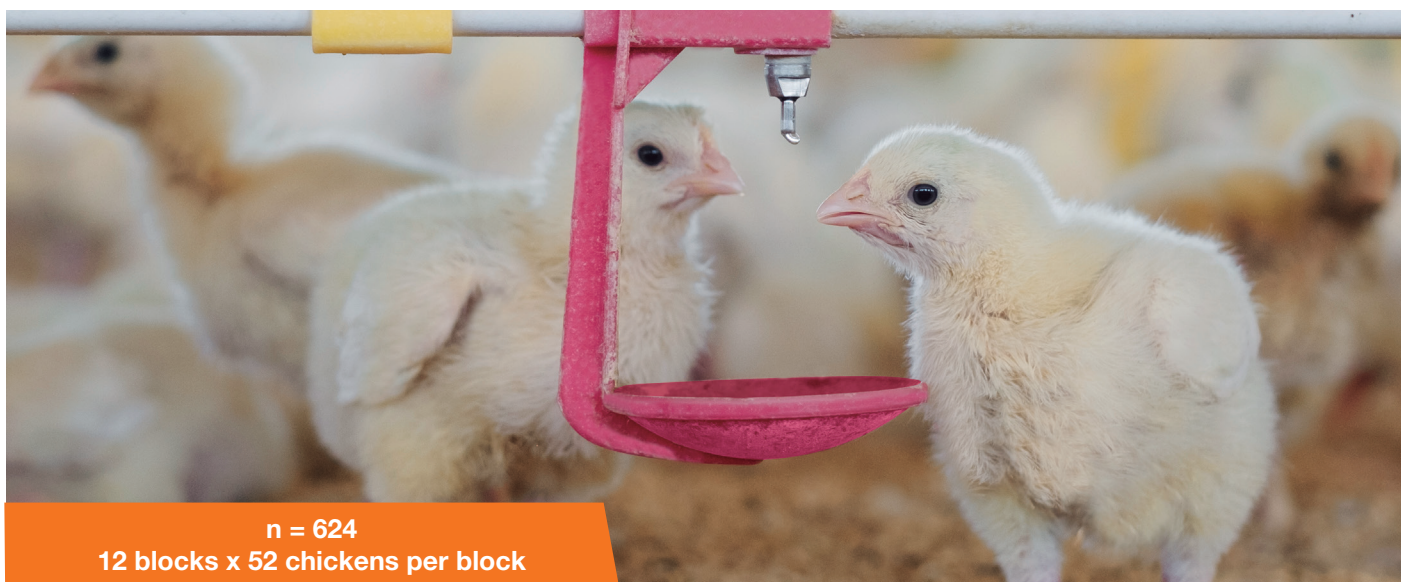


# Technical Bulletin

Information from Phibro Technical Services

## *Magni-Phi® Feeding Level and Duration: Effects on Performance and Carcass Yield*



Magni-Phi® nutritional specialty product is a patented natural enteric health solution, promoting intestinal integrity to help improve the defense against pathogens in poultry

### Introduction and Objectives

**The purpose of this study was to analyze the effects of Magni-Phi on performance and carcass yield and determine whether Magni-Phi feeding level or duration and timing of Magni-Phi feeding influences these responses.**

### Methods

In this trial, normal poultry industry corn-soy diets were fed to Ross 708 broilers. The feeds administered consisted of: starter (0-14 days of age), grower (15-28 days of age) and finisher (29-42 days of age). Each experimental treatment group was comprised of 624 birds, distributed in 12 blocks of 52 chickens per pen,

with an even distribution of 50% male and 50% female chicks in each pen.

At day of age, all birds were vaccinated for coccidiosis at the hatchery (Coccivac B52). Consistent with the objective described above, Magni-Phi was administered at two inclusion levels: 250 and 500 ppm. Table 1 describes the feeding periods where these levels of Magni-Phi were administered – from 0 to 28 days, from 29 to 42 days or throughout the entire grow-out (0 to 42 days). Additional treatments involving increasing levels (250 to 500 ppm) and decreasing levels (500 to 250 ppm) were also included. Feeding level and duration are presented for all treatments in Table 1.



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### Disease Challenge

In order to induce a level of bacterial and coccidial challenge consistent with typical U.S. production conditions, birds were raised on built-up litter that was sourced from a local Delmarva broiler farm. In addition, each pen was supplemented on Day 7 with a combination of infectious organisms containing: 300,000 *Eimeria acervulina*, 400,000 *E. maxima*, and 200,000 *E. tenella* sporulated oocysts. The inoculum also contained 200,000 CFU of *Clostridium perfringens*.

### Performance, Lesion Scores and Carcass Yield

On days 28 and 42 of the test, body weights and feed conversions were determined. Total mortality, 28-Day mortality and European Efficiency Factor (EPEF) were calculated at the same periods. At termination, pre-chilled carcass yield and whole breast yield (as a percent of body weight) were determined. All data were analyzed using ANOVA procedures and treatment means were separated by LSD using  $P < 0.05$  as an indicator of significance.

**Table 1: Treatment Groups**

Treatment group	Treatment <sup>1,2</sup>	Age fed Magni-Phi
T1	None	0-42 days of age
T2	Magni-Phi 250 ppm	0-28 days of age (no MP from 29-42)
T3	Magni-Phi 250 ppm	29-42 days of age (no MP from 0-28)
T4	Magni-Phi 250 ppm	0-42 days of age
T5	Magni-Phi 500 ppm	0-28 days of age (no MP from 29-42)
T6	Magni-Phi 500 ppm	29-42 days of age (no MP from 0-28)
T7	Magni-Phi 500 ppm	0-42 days of age
T8	Magni-Phi 250 ppm days 0-28 Magni-Phi 500 ppm days 29-42	0-28 days of age 250 ppm and 29-42 days of age 500 ppm
T9	Magni-Phi 500 ppm days 0-28 Magni-Phi 250 ppm days 29-42	0-28 days of age 500 ppm and 29-42 days of age 250 ppm

<sup>1</sup>Treatments fed to 52 mixed-sex broilers per repetition with 12 repetitions per treatment.

<sup>2</sup>All birds were stressed by administering Clostridia and coccidia oocysts, along with other natural bacteria from build-up litter from a farm experiencing high mortality.



Magni-Phi provides proven and effective results demonstrated through credible research and field assessments

### Results

Performance, mortality and EPEF are presented in Table 2. Compared to controls, body weights and feed conversions were significantly improved in all treatments that received Magni-Phi in feed to Day 28 of the test. Treatments T3 and T6 did not show this effect because Magni-Phi was not provided to these birds until Day 29 of the trial. Although final body weights (Day 42) were

improved ( $P < 0.05$ ) in all treatments that received Magni-Phi, body weight was maximized when 500 ppm was fed for the entire growth period. Final feed conversion was significantly improved when Magni-Phi (250 ppm) was fed throughout the trial (days 0 to 42) and by 500 ppm fed to either 28 or 42 days (T6 was again an exception).

**Table 2: Live Performance Parameters Collected in Each Treatment Group**

Treatment group and period	Average Body Weight (g) Significance ( $P < 0.05$ )	Feed Conversion Corrected Significance ( $P < 0.05$ )	Mortality % Significance ( $P < 0.05$ )	European Production Efficiency Factor (EPEF) Significance ( $P < 0.05$ )
<b>T1</b> Days 0-28 Days 0-42	1292.9 (c) 2490.3 (f)	1.474 (b) 1.890 (d)	6.60 (c) 7.99 (e)	278.99 (c) 278.44 (e)
<b>T2</b> Days 0-28 Days 0-42	1370.8 (b) 2580.3 (e)	1.428 (a) 1.851 (bcd)	2.60 (b) 3.47 (c)	321.27 (b) 311.89 (c)
<b>T3</b> Days 0-28 Days 0-42	1292.8 (c) 2547.4 (e)	1.470 (b) 1.877 (cd)	5.38 (c) 5.56 (d)	282.77 (c) 297.36 (d)
<b>T4</b> Days 0-28 Days 0-42	1370.8 (b) 2620.8 (d)	1.427 (a) 1.838 (abc)	2.43 (b) 2.78 (bc)	322.68 (b) 323.08 (b)
<b>T5</b> Days 0-28 Days 0-42	1410.2 (a) 2691.0 (ab)	1.392 (a) 1.798 (a)	0.69 (a) 1.74 (ab)	349.52 (a) 342.42 (a)
<b>T6</b> Days 0-28 Days 0-42	1297.4 (c) 2580.6 (e)	1.479 (b) 1.861 (bcd)	0.68 (c) 6.42 (d)	279.79 (c) 300.52 (d)
<b>T7</b> Days 0-28 Days 0-42	1415.7 (a) 2700.2 (a)	1.395 (a) 1.794 (a)	0.52 8 (a) 0.69 (a)	350.99 (a) 350.51 (a)
<b>T8</b> Days 0-28 Days 0-42	1370.8 (b) 2655.5 (c)	1.429 (a) 1.821 (ab)	2.43 (b) 2.78 (bc)	322.09 (b) 330.62 (b)
<b>T9</b> Days 0-28 Days 0-42	1405.9 (a) 2660.2 (bc)	1.393 (a) 1.814 (ab)	0.69 (a) 0.69 (a)	348.37 (a) 342.00 (a)

Means with different letters at a given day of age, within columns, differ significantly.

Compared to controls, 28-day mortality was significantly improved in all treatments that received Magni-Phi until 28 days of age. As before, treatments T3 and T6 did not show this effect due to the start of Magni-Phi feeding at day 29. Final mortality was significantly improved by all Magni-Phi treatments regardless of feeding level or duration of feeding. A similar pattern of responses was observed for EPEF when measured at both 28 and 42 days of age.

In birds fed Magni-Phi to 28 days of age, coccidial lesions (at Day 21) were significantly reduced compared to controls (Graph 1). Because treatments T3 and T6

did not receive Magni-Phi at this scoring time, lesions for these treatments were equivalent to controls. By day 42, all Magni-Phi treatments, regardless of feeding level or feeding period, presented significantly fewer coccidial lesions than controls.

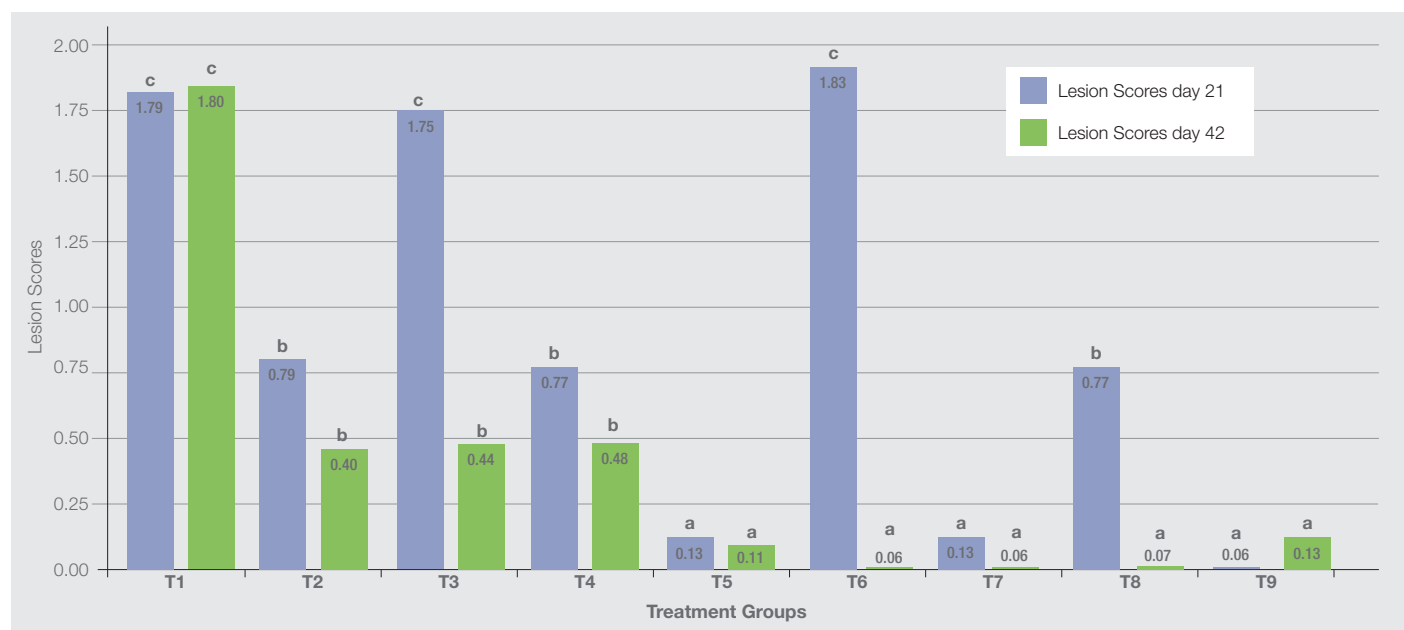
Magni-Phi fed at 500 ppm improved ( $P < 0.05$ ) carcass yield and breast meat yield as a percent of live weight (Graph 2). Conversely, Magni-Phi at 250 ppm improved yield measurements when fed for the duration of the growth period but had no effect on yield measurements when fed only 28 days.



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### Graph 1: Lesion Scores in Each Treatment Group



Means with different letters at a given day of age, differ significantly,  $P < 0.05$ .

### Graph 2: Processing Factors Collected in Each Treatment Group



Means with different letters at a given day of age, differ significantly,  $P < 0.05$ .

Means with different letters at a given day of age, differ significantly,  $P < 0.05$ .

## Conclusions

A coccidiosis field challenge on built-up litter was applied to all treatments in this study. In this environment, Magni-Phi significantly improved ( $P < 0.05$ ) live performance (body weight gain, feed conversion ratio and mortality) compared to the control group that contained no Magni-Phi.

Feeding Magni-Phi resulted in additional carcass yield, as well as significant improvements in total breast meat yield (as a percent of live weight).

Differences between 500 ppm and 250 ppm were observed in most carcass measurements, with 500 ppm providing the greatest consistency in carcass responses. Feeding 250 ppm for short durations did not improve carcass measurements.

Trial was conducted at AHPharma in Salisbury, MD.

This information has been prepared for industry technical professionals only and may be presented and discussed with them upon request.