

Technical Bulletin

Information from Phibro Technical Services

Direct-Fed Microbial Trial Demonstrates Significant Protection in Broilers After Necrotic Enteritis Challenge

MicroLife® Prime direct-fed microbial offers a unique combination of four microbial strains important for intestinal health in poultry. These strains offer superb heat stability, a long shelf life, have no refrigeration requirements and have high viability in the gut with a high survivability rate against gastric acid and bile salts. Results from a floor pen trial show:

- Compared to unchallenged controls, broilers fed MicroLife Prime and challenged with necrotic enteritis had statistically similar:
 - Body weight
 - Feed conversion
 - Mortality rate
 - Necrotic enteritis lesion scores
- Compared to the challenged controls, broilers fed MicroLife Prime and similarly challenged with pathogens also showed statistically reduced isolation of *Salmonella* from a litter challenge.

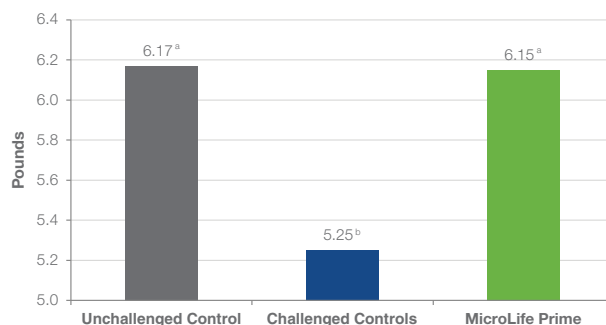
Trial Design

Commercial broilers were raised in pens of 60 birds each with 12 pens of birds fed MicroLife Prime and nine pens each of challenged and unchallenged controls. The challenged control and MicroLife Prime groups were subjected to a disease challenge, using built up litter containing *Salmonella* and *Clostridium perfringens*, the causative agent of necrotic enteritis. Results are presented at 42 days of age when the trial was terminated.

Results

The birds fed MicroLife Prime had statistically similar body weights to the unchallenged control group. Due to the necrotic enteritis challenge present, the challenged control group body weights averaged 0.9 pounds lower than the other two groups (Figure 1).

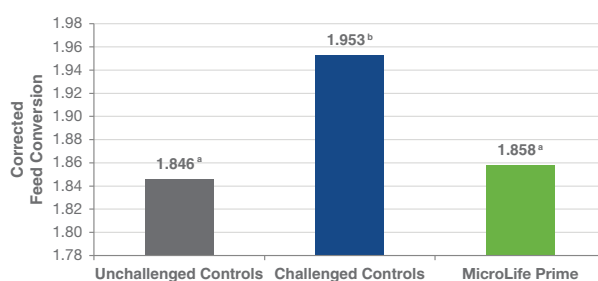
Figure 1. Body Weight



^{a,b}Means differ significantly ($P < 0.05$) as determined by Least Significant Difference. MicroLife Prime was fed at 530,000 CFU's per gram final feed. Source: Phibro Data, 2017

The birds fed MicroLife Prime had statistically similar feed conversion (feed consumed/body weight) to the unchallenged control group. The group fed MicroLife Prime ended the trial with 9.5 points improved feed conversion over the challenged control group (Figure 2).

Figure 2. Feed Conversion

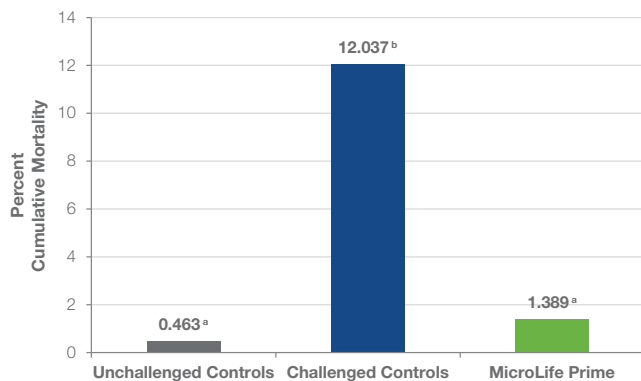


^{a,b}Means differ significantly ($P < 0.05$) as determined by Least Significant Difference. MicroLife Prime was fed at 530,000 CFU's per gram final feed. Source: Phibro Data, 2017

Direct-Fed Microbial Trial Demonstrates Significant Protection in Broilers After Necrotic Enteritis Challenge

Mortality was observed to be twelve percent in the challenged control group, demonstrating the severity of the necrotic enteritis challenge. The birds fed MicroLife Prime had statistically similar mortality to the unchallenged control group (Figure 3).

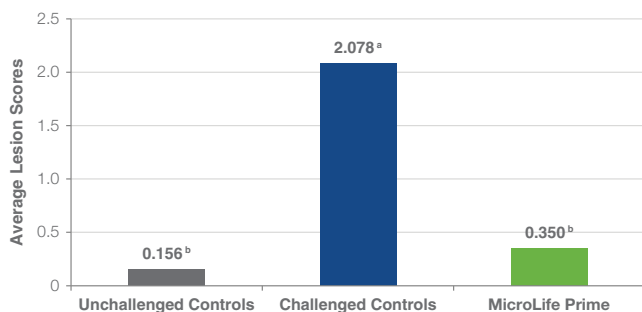
Figure 3. Mortality



^{a,b}Means differ significantly ($P < 0.05$) as determined by Least Significant Difference
MicroLife Prime was fed at 530,000 CFU's per gram final feed.
Source: Phibro Data, 2017

At the conclusion of the trial, all birds were scored for intestinal lesions due to necrotic enteritis. Scoring was from zero to four with the most pronounced lesions rated as four. The average necrotic enteritis lesion score of the birds fed MicroLife Prime was 0.35, which was statistically similar to the unchallenged controls (Figure 4).

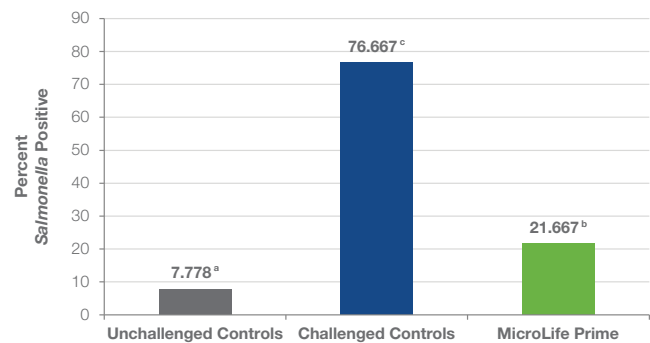
Figure 4. Necrotic Enteritis Lesion Scores



^{a,b}Means differ significantly ($P < 0.05$) as determined by Least Significant Difference
MicroLife Prime was fed at 530,000 CFU's per gram final feed.
Source: Phibro Data, 2017

In addition to *Clostridium perfringens*, *Salmonella* was also present in the litter of bird in the challenged control group and those fed MicroLife Prime. Birds fed MicroLife Prime showed 55% less incidence of *Salmonella* than the challenged control group (Figure 5).

Figure 5. Incidence of Salmonella



^{a,b,c}Means differ significantly ($P < 0.05$) as determined by Least Significant Difference
MicroLife Prime was fed at 530,000 CFU's per gram final feed.
Source: Phibro Data, 2017

Conclusion

Broilers were subjected to a disease challenge model using built-up litter, resulting in the manifestation of necrotic enteritis. Statistical analysis showed that those birds fed MicroLife Prime had similar production parameters of body weight, feed conversion and mortality to the unchallenged control group. Also, when birds were examined after the study, the necrotic enteritis lesion scores in the MicroLife Prime group were statistically similar to the unchallenged control group. Additionally, *Salmonella* was contained within built up litter in the challenged groups, leading to its dissemination amongst the group. MicroLife Prime significantly reduced *Salmonella* incidence among broilers subjected to this challenge.

To learn more about MicroLife Prime, talk with a Phibro expert at +1.800.677.4623.