

Comparing performance efficacy of Osprey Biotechnics' *Bacillus* species in a *Clostridium perfringens* induced necrotic enteritis challenge in a reused litter pen trial

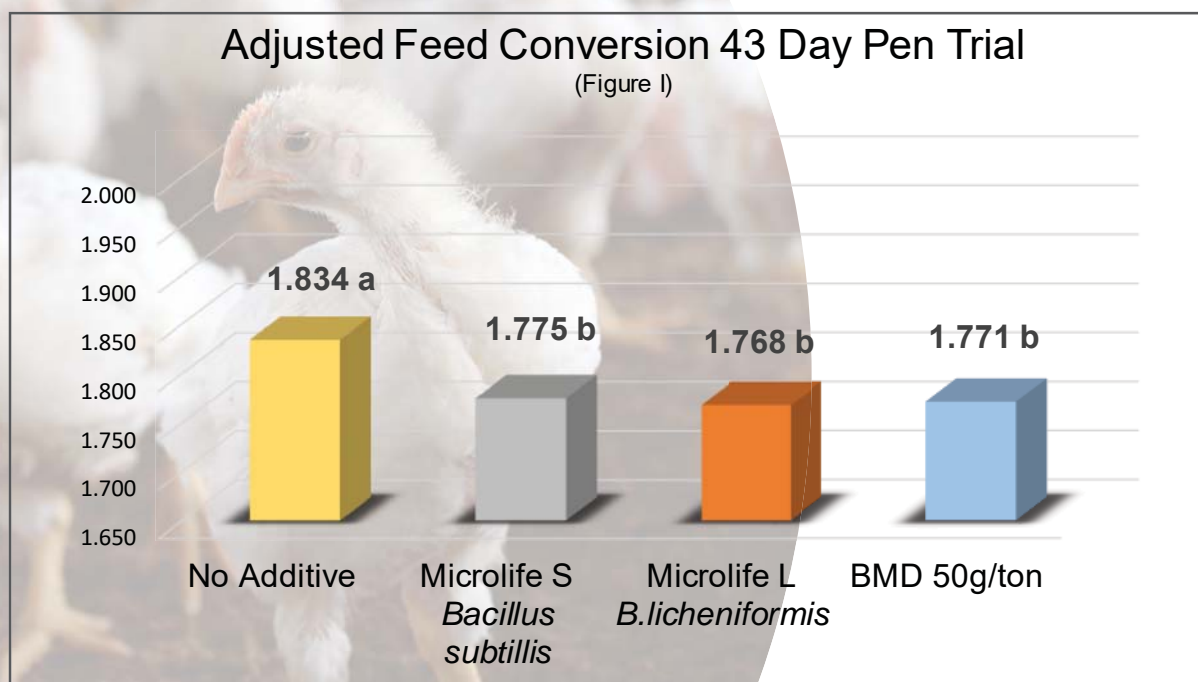
Objective: To evaluate performance of Osprey Biotechnics' Microlife[®] probiotics compared to the antibiotic BMD 50g/ton (Bacitracin Methylene Disalicylate). A re-used litter pen trial was designed to introduce a moderate coccidia and bacterial challenge replicating a U.S. industry poultry house environment.

Study Location: Southern Poultry Research, Inc., Athens, GA. Greg F. Mathis, PhD.

Animal Information: (1,200) day-of-hatch male chicks of the strain Ross x Ross. All birds were vaccinated (by spray cabinet) with Huvepharma Advent at the normal recommended dosage.

Measurements: Measurements for weight gain, feed consumption, feed conversion, lesion scores and mortality were recorded.

Results: Early negative effects of intestinal distress were present by DOT 22. The benefit of Microlife[®] *Bacillus* probiotics were seen very quickly colonizing and preventing negative effects of the bacteria in the litter even before the challenge. This trend of improved feed efficiency was evident at DOT 29 and then became statistically significant by study termination DOT 43 (Figure I). Feed efficiency, body weight, and necrotic enteritis lesion scoring were equal to BMD. Overall, the Osprey Biotechnics' Microlife[®] *Bacillus* probiotics performed well preventing subclinical necrotic enteritis according to study director (Table A).



Introduction: The purpose of this trial was to compare Microlife® L and Microlife® S to the commonly used antibiotic BMD 50g/ton. The modern poultry industry collects hatching eggs from hens and inoculates them in a very clean (almost sterile) hatchery environment. Therefore, when a chick with a normal flora and naive intestine are combined with reused litter, it presents an opportunity to have very early negative effects on their intestines' ability to assimilate feed for growth. Select strains of *Bacillus* have been shown to survive feed pelleting process and provide positive gut health.

Microlife® Innovative Microbials™ are the culmination of decades of leading microbial research and manufacturing by Osprey Biotechnics. Microlife® L is a patented, proprietary strain *B. licheniformis* selected to enhance GIT microflora and promote poultry health. Microlife® S provides a *B. subtilis* strain to complement the line of Direct Fed Microbials.

Materials and Methods: Unmedicated experimental all vegetarian, non-medicated commercial-type broiler starter, grower, and finisher diets were compounded according to diets provided by Osprey Biotechnics and fed ad libitum from date of chick arrival. Treatment groups were assigned to pens using randomized complete block and assigned to four (4) treatment groups with six (6) replicate pens per treatment and 50 birds per pen.

NE / Coccidia Challenge: Coccidia challenge was from cycling of DOT 0 vaccination. *Clostridium perfringens* was added onto the complete feed on DOT 19, 20, and 21 at a dose of ~1x10⁸ cfu/m/bird.

Treatment	Day 22			Day 29		Day 43	
	AFC	AWG	NE	AFC	AWG	AFC	AWG
No Additive	1.559a	0.586a	0.47a	1.671a	0.913a	1.834a	1.909a
Microlife <i>B. subtilis</i> 3 x 10 ⁵ cfu/g finished ton of feed	1.447b	0.591a	0.53a	1.592bc	0.908a	1.775b	1.901a
Microlife <i>B. licheniformis</i> 3 x 10 ⁵ cfu/g finished ton of feed	1.491ab	0.586a	0.37a	1.599bc	0.935a	1.768b	2.028a
BMD 50 µg finished ton of feed	1.482ab	0.580a	0.37a	1.642ab	0.908a	1.771b	2.000a

Adjusted Feed Conversion (AFC), Average Weight Gain (AWG), NE Lesion Scores (NE)

Necrotic Enteritis Intestinal Lesion Scoring: On DOT 22 five (5) birds per pen were humanely euthanized, necropsied and lesion scored by Dr. Hofacre (Hofacre, 1998). The scoring was based on a 0 to 3 score, with 0 being normal and 3 being the most severe. Microlife® L lesion scoring was numerically equal to BMD 50g/ton treatment. (Figure II)

