

EnteroBac™ + Refresh™



QTI™

ANIMAL HEALTH & NUTRITION

Poultry Show Additive Effects: A Turkey Poult Battery Study with a Strong Enteric Challenge

Objective: Assess effects of EnteroBac feed additive, on turkey poults, during a significant enteric challenge in the form of exposure to three important turkey coccidiosis species.

Background:

- EnteroBac is a proprietary feed additive blend of GRAS ingredients specifically designed to augment intestinal health in high challenge poultry production systems.
- Refresh-Poultry is a proprietary drinking water supplementation product for poultry. It is specifically designed to augment nourishment and intestinal microbiome enhancement.
- Refresh-Poultry is recommended to be applied continuously at the recommended level for a minimum of 72 hours.
- Both EnteroBac and Refresh-Poultry have shown enteric-supportive effects in the face of significant coccidiosis challenges in broilers (Cook *et al.*, 2015, Schleifer *et al.*, 2016).
- Benefits of EnteroBac can be well assessed in a turkey coccidiosis challenge model.
- **Recommended Refresh-Poultry application is 8 oz./gal. stock solution proportioned at 1:128.**

Location: Southern Poultry Research, Athens, GA - June 27 - July 6, 2016

Study Design: Battery study - female turkey poults. 8 replications per treatment. 8 birds per battery.

Treatments:

Treatment	EnteroBac Usage	Refresh Usage	Coccidiosis Challenge*
Non-Treated/Non-Infected	None	None	No
Non-Treated/Infected	None	None	Oral Gavage DOT 2
EnteroBac/Infected	2 lb/ton (DOT 0-9)	None	Oral Gavage DOT 2
Refresh/Infected	None	8 oz./gal Stock (DOT 2-9)	Oral Gavage DOT 2
EnteroBac + Refresh/Infected	2 lb/ton (DOT 0-9)	8 oz./gal Stock (DOT 2-9)	Oral Gavage DOT 2

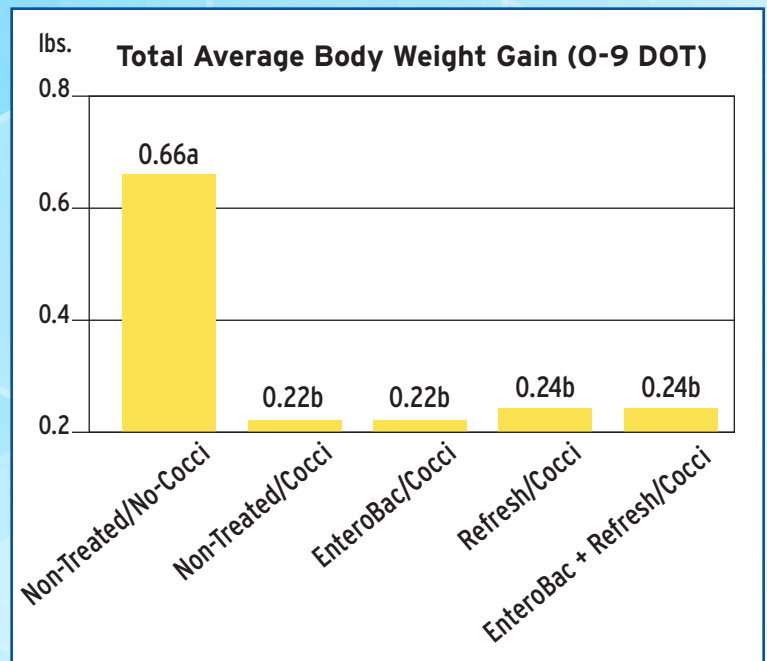
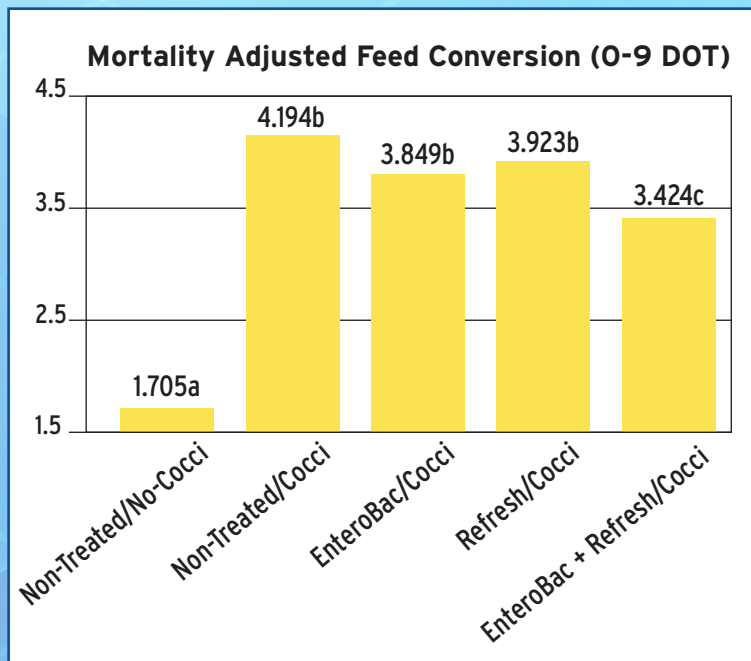
*Coccidiosis Challenge: *Eimeria meleagritidis*, *E. gallopavonis* and *E. adenodes* (Field isolates, 50,000 oocysts/species)

DOT 0	DOT 2	DOT 6	DOT 7	DOT 8	DOT 9
Birds randomized & weighed	Coccidiosis Challenge	Dropping pans cleaned	Dropping score OPG fecal collect	Dropping score OPG fecal collect	Dropping score OPG fecal collect
Feed treatment initiated					
Poults = 12 days of age					Poults = 21 days of age

OPG = Total oocyst per gram of feces - fecal float enumeration

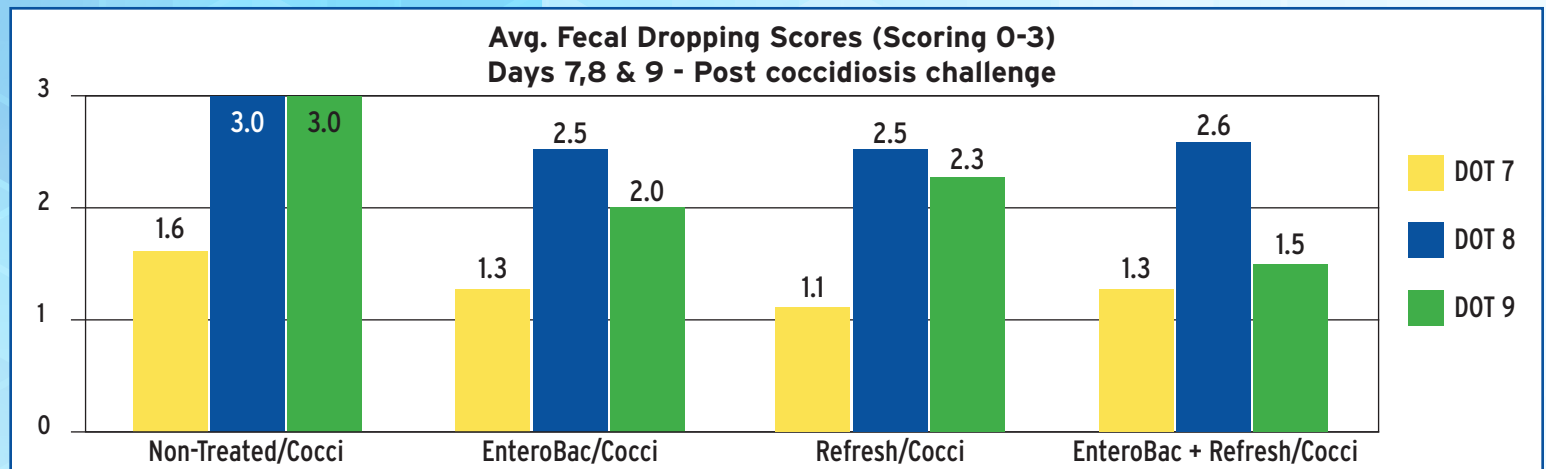
DOT = Day of treatment

Performance Results:

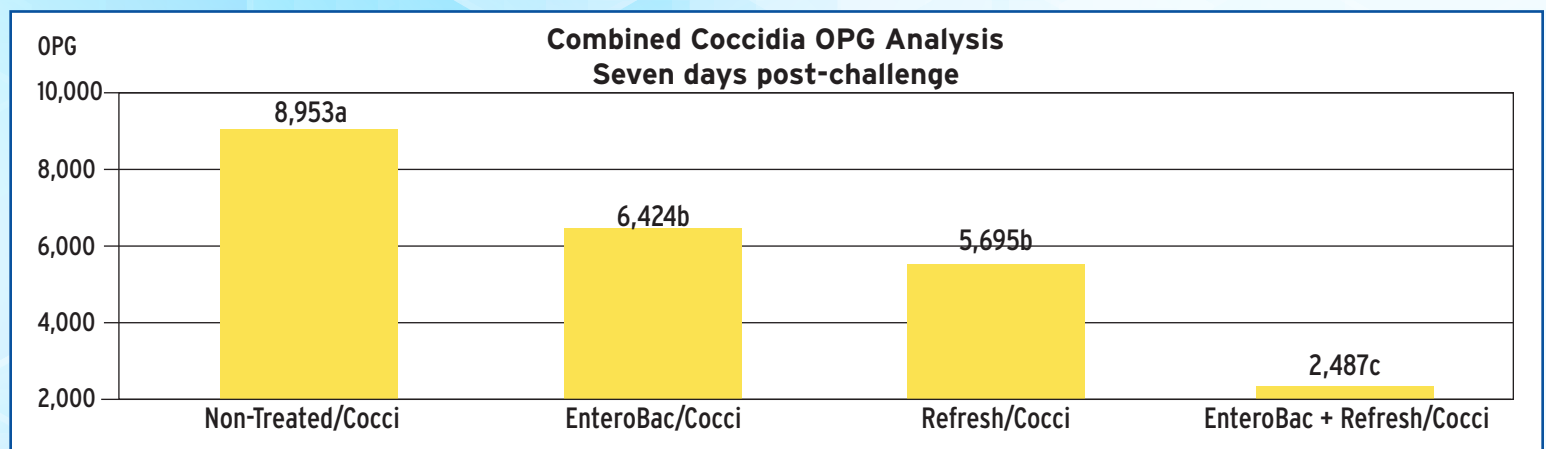


Note: No significant differences in mortality levels occurred between treatment groups.

Enteric Challenge Assessment Results:



Visual fecal pan scores: 0 = Droppings completely normal
 1 = Droppings slightly moist, scattering of blood/mucus
 2 = Droppings semi-liquid with scattered blood/mucus
 3 = Droppings liquid with profuse blood/mucus



OPG analysis was conducted on accumulated fecal samples from treatment on DOT 7, 8 & 9

Results: Numerical data

Treatment	Feed Conversion (Mort. Adj.)	Total Avg. Body Wt. (lb.)	Avg. <i>Clostridium perfringens</i> enumerations**	DOT 8 Dropping score	DOT 9 Dropping score	Fecal OPG enumeration
Non-Treated/No-Cocci	1.705 a	0.66 a	5.35	0 a	0 a	0 a
Non-Treated/Cocci	4.194 b	0.22 b	3.18	3.0 b	3.0 b	8953 b
EnteroBac/Cocci	3.849 b	0.22 b	2.31	2.5 c	2.0 c	6424 c
Refresh/Cocci	3.923 b	0.24 b	ND	2.5 c	2.3 c	5695 c
EnteroBac + Refresh/Cocci	3.424 c	0.24 b	ND	2.6 c	1.5 d	2487 d

**log₁₀ CFU/g feces

ND = below detectable limits 2.28 log₁₀

a,b,c,d Means within a column with the same letter are not significantly different P<0.05

Discussion:

- EnteroBac and Refresh provided significant improvements in fecal dropping scores on DOT 8 & 9 as well as fecal coccidia OPG enumerations compared to the non-treated and infected control group.
- EnteroBac and Refresh combined resulted in significantly improvement feed conversion rates, fecal coccidia OPG enumerations and fecal dropping scores on DOT 9 compared to other treatments.
- Numerical improvement in feed conversion rates was observed in the EnteroBac or Refresh-only treated poultts compared to the non-treated, non-challenged control group.
- This coccidiosis challenge can be considered severe basis feed conversion deterioration, the dramatic weight suppression and the highest dropping scores on DOT 8 & 9 for the non-treated control group.
- The decline in the fecal dropping scores for the EnteroBac-treated group on DOT 8, then DOT 9 indicates intestinal health was improving. It is expected the improvement would have continued had the trial progressed after DOT 9.
- It is recommended that EnteroBac be fed to turkey poultts at an inclusion rate of 2 lb./ton, from 1 day-of-age until a minimum of 8 weeks of age.
- Seven days of continuous Refresh-Poultry application is recommended in addition to dietary EnteroBac usage during extensive enteric challenge time periods.

References:

Cook, M. *et al.* 2015 QTI Technical Bulletin. Available on request.

Schleifer, J., T. Lohrmann, G. Mathis, B. Lumpkins. 2016 Int. Poult. Sci. Forum. Atlanta, GA

