Levucell SB
Live Yeast for monogastrics

LEVUCELL SB limits the negative impact of *Clostridium perfringens* development

(Southern Poultry Research LLC, USA, 2014)

USA

CONTEXT

- *Clostridium perfringens* is a bacteria normally found in a chicken's lower intestinal tract. *Clostridium perfringens* can rapidly proliferate and produce toxins in the intestine causing necrotic enteritis (NE). This usually occurs during changes in feeding program, physiological or environmental stressors (overstocking, vaccination, etc.) but classical NE can be produced by mild coccidiosis.
- Necrotic enteritis is a global economical issue for broiler producers due to high mortality and decrease in performance. For instance, in United States, it is estimated that NE affects up to 40% of commercial broiler flocks and costs the U.S. broiler industry five cents per bird (McDevitt *et al.*,2006).
- **LEVUCELL SB** (*Saccharomyces cerevisiae boulardii* CNCM I-1079) has a triple effect in the intestine by impacting positively gut microflora, intestinal wall structure and stimulating a natural defense mechanism.

OBJECTIVE

Evaluate LEVUCELL SB effect in a challenge model with *C.perfringens* in commercial broilers compared to antibiotic treatment.

MATERIALS AND METHODS

PLACE Southern Poultry Research LLC, Georgia, USA.

YEAR 2013 - 2014

DURATION 28 days.

ANIMALS Cobb 500 broilers. Males from the female breeder line. 480 birds divided in 4 batches, 120 birds per batch separated into 15 cages of 8 animals.

FEEDING PROGRAM Feed and water were given *ad libitum*.

TREATMENTS

BATCH	TREATMENTS	COCCIDIAL CHALLENGE*	*Clostridium perfringens*
Positive control	Non medicated	Day 14	No
Challenged control	Non medicated	Day 14	Day 19, 20 and 21
LEVUCELL SB	LSB dose (100g/ton /1x10^9 CFU/kg)	Day 14	Day 19, 20 and 21
Antibiotic	Virginiamycin (450g/ton)	Day 14	Day 19, 20 and 21

*Coccidial challenge was performed to enhance good conditions for *C.perfringens* development.

MEASURED PARAMETERS

Zootechnical performance:

- All bird weights were recorded at placement (day 0) and bird weights and feed were recorded by cage on day 14, 21 and 28.
- Mortality was calculated at the end of the trial.

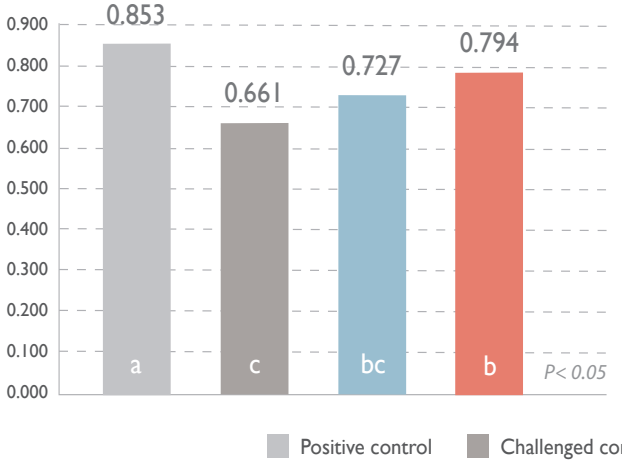
Pathogenic damages evaluation:

Necrotic enteritis score: on day 21, three birds from each cage were selected, sacrificed, weighted, and examined for the degree of presence of NE lesions. The scoring was based on a 0 to 3 score system, with 0 being normal and 3 being the most severe.

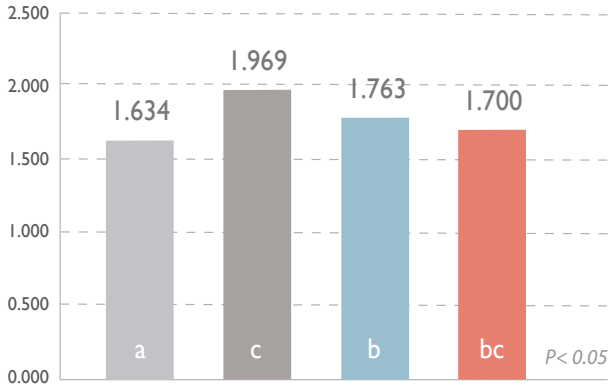
RESULTS

LEVUCELL SB HELPS TO LIMIT THE PERFORMANCE DECREASE CAUSED BY PATHOGENIC CHALLENGES

Weight Gain in Kg (0-28 days)



Feed Conversion Ratio (0-28 days)

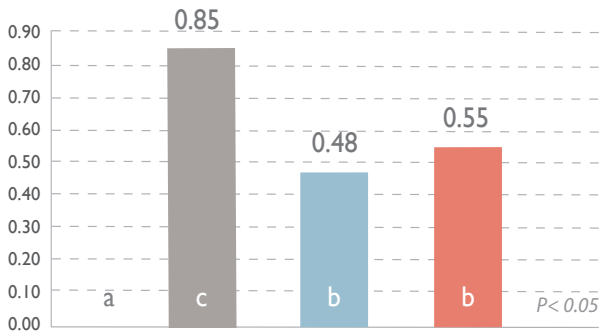


Positive control | Challenged control | LEVUCELL SB | Antibiotic

Due to the type of animals used in this trial (males from female breeder line), here displayed performance are lower than the strain standards. Nevertheless, a significant negative effect on weight gain and feed conversion ratio is induced by the *Clostridium* challenge. **LEVUCELL SB** tends to limit the drop in performance and was comparable to the antibiotic treatment.

LEVUCELL SB LIMITS THE DAMAGES DUE TO NECROTIC ENTERITIS

Necrotic Enteritis Lesion Score



Positive control | Challenged control | LEVUCELL SB | Antibiotic

Mortality Rate

	TOTAL MORTALITY (%)	MORTALITY DUE TO NECROTIC ENTERITIS (%)
Positive control	8	0 [a]
Challenged control	18	8.75 [c]
LEVUCELL SB	10	2.5 [b]
Antibiotic	14	3.75 [b]

P< 0.05

The lesion score indicates the severity of NE which is the direct consequence of *C. perfringens* development and toxin release. In this trial, it was observed that **LEVUCELL SB** significantly limits the negative effect of *C. perfringens* development and tends to be more efficient than the antibiotic solution.
The mortality data confirm this hypothesis. The mortality caused by the pathogen is significantly decreased with **LEVUCELL SB** and numerically lower than the antibiotic group.

CONCLUSION

LEVUCELL SB appears as a credible alternative to limit the negative impact of *C. perfringens* on commercial broilers. From a pure zootechnical performance side, LEVUCELL SB is at least as efficient as the antibiotic treatment while offering a natural and sustainable solution to broiler producers.

Création : Yapeak -ISO 14001- LSB Broiler_TS_ Clostridium USA2014_ENG_1216

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