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POULTRY RESEARCH BULLETIN 16

Naverde reduced *Salmonella* load in *Salmonella enteritidis* challenged egg-laying hens

INTRODUCTION

Naverde is an all-natural, highly concentrated blend of yeast components, including complex carbohydrates, nucleotides, and peptides. This unique blend of hydrolyzed yeast and highly concentrated yeast cell wall reduces enteric pathogen challenges, improves digestive efficiency, supports immune function, and lowers gut inflammation.

The use of complex carbohydrates, such as those in Naverde, have been well-documented in the scientific literature as a means of reducing *Salmonella* prevalence and load in all types and phases of commercial poultry production. Specifically, the mannan-oligosaccharides (MOS) in Naverde bind to *Salmonella* and prevent them from attaching to the gut lining and colonizing the gut. Thus, there is a reduction in *Salmonella* prevalence and load in poultry.

This study was conducted to evaluate the effect of Naverde on *Salmonella* prevalence and load in *Salmonella enteritidis* challenged layers.

METHODS

- Fifty-four, 50 weeks-of-age, egg laying hens were allotted to three treatments with nine replicate cages per treatment and two hens per cage. The treatments were:
  1. Non-challenged control (NCC), 2. Challenged control (CC), and 3. Challenged – Naverde (100 g/ton). Hens were fed a corn-soybean meal mash diet formulated to meet their nutrient requirements. Following a four-week adaptation period, layers in the challenged groups were orally administered 1 mL of inoculum with $2x10^9$ CFU/mL of nalidixic acid resistant *Salmonella enteritidis* after a 12-hour feed withdrawal. The NCC group was given a sham inoculation.

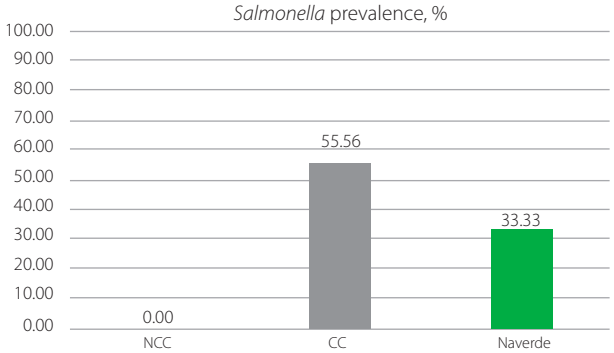
  At 7 days post-challenge, one hen from each cage was euthanized and ceca were collected for determination of *Salmonella* prevalence and load.

RESULTS

- *Salmonella* prevalence was 0, 55.56, and 33.33% in the NCC, CC, and Naverde treatment groups, respectively (Figure 1). Cecal *Salmonella* load was 1 log lower in the layers fed Naverde (1.597 log CFU/g) compared to the layers in the CC (2.613 log CFU/g) treatment group (Figure 2).

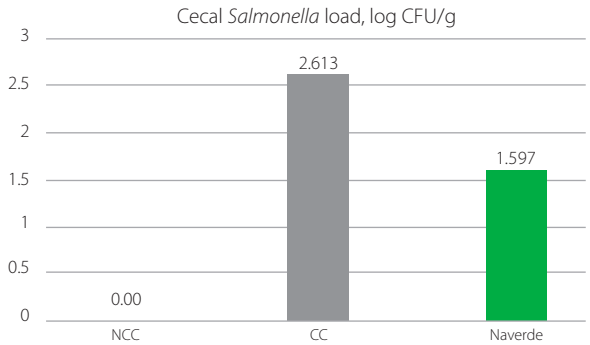
Additionally, Naverde increased (P<0.05) hen-day egg production for 14-days post-challenge (Figure 3).

Figure 1. The effect of Naverde on *Salmonella* prevalence in layers under a *Salmonella enteritidis* challenge.*



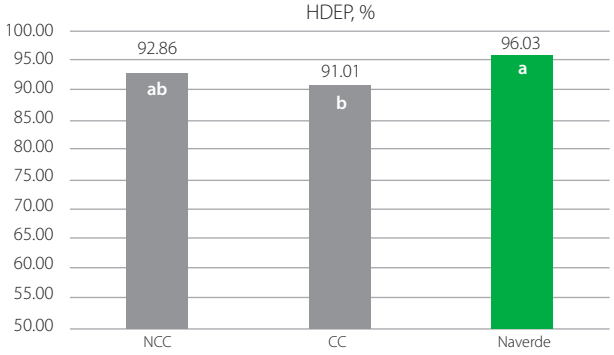
**Data are calculated from 9 replicates per treatment. NCC = non-challenged control, CC= challenged control.*

Figure 2. The effect of Naverde on cecal *Salmonella* load of layers under a *Salmonella enteritidis* challenge.*



**Data are means of 9 replicates per treatment. NCC = non-challenged control, CC= challenged control.*

Figure 3. The effect of Naverde on hen-day egg production (HDEP) of layers under a *Salmonella enteritidis* challenge.*



**Data are means of 9 replicates per treatment. NCC = non-challenged control, CC= challenged control.*

IMPLICATIONS

Naverde can be utilized to reduce *Salmonella* prevalence and load in egg-laying hens. Thus, Naverde may reduce the incidence of *Salmonella* contamination of shell eggs.

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P.O. Box 221
Newfield, NY 14867
844.NAT.BIOL (628.2465)
naturalbiologics.com