

The following Syncra® AVI related abstracts were presented at The Poultry Science Association 102<sup>nd</sup> annual meeting, held in San Diego, California, 22-25<sup>th</sup> July 2013. Abstracts have been published in Poultry Science Vol. 92 (E-suppl. 1) 2013 Poultry Science Association Annual Meeting Abstracts (<http://www.poultryscience.org/psa13/abstracts/toc.htm>).

**200 Reduction in necrotic enteritis in broiler chickens fed exogenous enzymes and or a direct fed microbial.** G. F. Mathis\*<sup>1</sup>, C. Hofacre<sup>2</sup>, L. F. Romero<sup>3</sup>, and B. S. Lumpkins<sup>1</sup>, <sup>1</sup>*Southern Poultry Research, Inc., Athens, GA*, <sup>2</sup>*University of Georgia, Athens*, <sup>3</sup>*Danisco Animal Nutrition-DuPont Industrial Biosciences, United Kingdom*.

This study assessed the feeding of a direct fed microbial and / or different feed enzymes on performance, necrotic enteritis (NE) lesion scores, and mortality of broilers subjected to a *Clostridium perfringens* (CP) challenge. Fifty Cobb × Cobb 500 male coccidia vaccinated chicks were initially placed in pens with a stocking density of 0.93 sq. ft. / bird. Bird weights and feed consumption were measured on d 12, 23, 35, and 42. A commercial grade diet with a 3 phase program was formulated and used as the basal, which was incorporated into the following treatments: no enzyme, Amylase from *Bacillus licheniformis* (A), Protease from *Bacillus subtilis* (P), and a combination of xylanase from *Trichoderma reesei*, A, and P (XAP; Danisco Animal Nutrition). The treatments were repeated with the addition of a combination of spores from 3 defined strains of *Bacillus subtilis* (DFM) and all treatments were CP challenged except for one treatment with no enzymes or DFM. The DFM was applied at  $7.5 \times 10^4$  cfu/g feed. On d 20, 21, and 22 all CP challenged birds were dosed with a *C. perfringens* at  $1.0 \times 10^{8-9}$ . On d 23, 3 pre-selected birds were examined for the degree of NE lesions. A moderate NE infection developed with 11% NE mortality in the no enzyme, no DFM, CP challenged group. All DFM treatments reduced the clinical effects of the *C. perfringens* with significantly ( $P < 0.05$ ) lowering NE mortality and improving performance on d 23, 35, and 42 compared with all non-DFM, CP challenged treatment fed birds. The XAP without DFM fed birds had significantly reduced % NE mortality compared with the no enzyme, no DFM, CP challenged treatment. On d 42, the FCR and BWG of birds fed the XAP diets with and without DFM were better than the CP challenged birds fed no enzymes. Furthermore, the birds fed protease non-DFM diets also had better performance than CP infected birds with no enzyme. The combination of XAP and DFM in a CP challenge had the best performance, which was comparable to that of non-challenged birds. The reduction in NE with DFMs was aided by the feed enzymes singularly or more effectively with a combination of enzymes.

**Key Words:** DFM, amylase, protease, necrotic enteritis, *Clostridium*

Copyright© 2013 DuPont or its affiliates. All rights reserved. The DuPont Oval Logo, DuPont™ and all products denoted with ® or ™ are registered trademarks or trademarks of DuPont or its affiliates. Local regulations should be consulted regarding the use of this product, as legislation regarding its use may vary from country to country. Advice regarding the legal status of this product may be obtained on request. The information contained in this publication is based on our own research and development work and to our knowledge is reliable. Always read the label and product information before use. Users should conduct their own tests to determine the suitability of our products for their own specific purposes. Statements contained in this publication should not be considered as, and do not constitute a warranty of any kind, expressed or implied, and no liability is accepted for the infringement of any patents.