

IMPACT ON ANIMAL AND HUMAN HEALTH – L27

The impact of mycotoxin co-occurrence on necrotic enteritis in broilers

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Deoxynivalenol (DON) and fumonisins (FB) are important mycotoxins produced by *Fusarium* species and commonly co-occur in animal diets. Over 54% of cereal samples collected from European countries were contaminated with both DON and FB (Monbaliu et al., 2010). Previously, we showed a predisposing effect of DON on subclinical necrotic enteritis (NE) in broilers. *Clostridium perfringens* induced NE is a major problem in the worldwide broiler industry, leading to significant production losses. The predisposing effect could be contributed to DON affecting the intestinal barrier function. Fumonisins on their behalf, inhibit the glycosphingolipid biosynthesis, and as such have a negative effect on the intestinal integrity and intestinal epithelial renewal. The objective of this study was to evaluate the effect of co-occurrence of the mycotoxins DON and FB, at concentrations approaching the European guidance levels, on the predisposing effect on NE.

The study was conducted in triplicate using a subclinical necrotic enteritis model (Gholamiandehkordi et al., 2007). Per replicate 120 one-day-old Ross 308 broilers were randomly divided into four groups. Throughout the entire experiment, group 1 received a mycotoxin blank diet, while groups 2, 3 and 4 received a mycotoxin contaminated diet. The diet of group 2 was experimentally contaminated with approximately 20,000 µg FB1+FB2/kg feed, group 3 was fed a diet contaminated with DON at a concentration of approximately 5,000 µg/kg feed. The last group was fed the combination of both mycotoxins at similar dosages. All birds were challenged orally with *C. perfringens* NetB positive strain 56 for four consecutive days starting at day 17. At 1, 2 and 3 days after the final challenge with *C. perfringens*, 10 chickens per group per day were euthanized and scored macroscopically for intestinal NE lesions (Keyburn et al., 2006).

Results will be presented at the conference.

References

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