

**P208 Synergistic effect of dietary inclusion of organic trace minerals and synthetic antioxidants in reducing wooden breast in 41d old broilers fed diets containing oxidized fat**

**Vivek Kuttappan\*, Megharaja Manangi, Juxing Chen, Mercedes Vazquez-Anon, Kim Walter, Alex Corzo, Bryan Fancher Novus International, Inc.**

Wooden breast (WB) is a degenerative myopathy of unclear etiology causing increased hardness on raw breast fillets leading to economic loss to the modern broiler industry. Our previous study showed that feeding oxidized fat increased incidence of severe degree of WB in broiler birds and dietary inclusion of antioxidant (SANTOQUIN®M6 with 66.6% Ethoxyquin (ETX) at 125ppm) reduced oxidative stress and tissue damage in muscle leading to reduced incidence of severe WB. The objective of the present study is to evaluate the effect of dietary inclusion of combination of organic trace minerals and synthetic antioxidant on the incidence of WB in broilers fed diets containing oxidized fat. Day old YPM x Ross-708 male chicks (n=1080; 15 chicks/pen; 18pens/treatment) were randomly assigned to 4 treatments: inorganic trace minerals (sulfates of Zn, Cu, and

Mn at 110, 20, and 120ppm, respectively) without ETX (T1); T1 with ETX (T2), organic (HMTBA-chelated) trace minerals (MINTREX® Zn, Cu and Mn at 40, 25, and 40 ppm, respectively) without ETX (T3), and T3 with ETX (T4). Other than the treatments, the basal diets were nutritionally equivalent across the trial and contained oxidized soy oil with around 5meq peroxide/kg in the starter, and 7meq peroxide/kg in the grower and finisher diets. On 41d, 2 birds/pen were processed to score (0 to 3) the severity incidence of WB and muscle samples were collected to determine Thiobarbituric acid reactive substances (TBARS) levels. Performance and TBARS data were analyzed using ANOVA and means were separated with Fisher's protected LSD test, while the proportion of individual WB scores were analyzed as binomial random variables using the SAS GLIMMIX procedure. At 41d, there were no differences ( $P>0.05$ ) in body weight and cumulative feed intake between the treatments, however T2, T3, and T4 showed improved ( $P<0.05$ ) cumulative feed conversion ratio and performance index compared to T1. Percentage of birds without WB were higher ( $P<0.05$ ) and muscle tissue TBARS levels were lower

( $P<0.05$ ) in T4 compared to T1. The results from the trial suggest that there is a synergistic effect between chelated organic trace minerals and synthetic antioxidants in reducing the oxidative stress in muscle tissue and increasing percentage of birds without WB.

**Key Words:** Myopathy, minerals, wooden-breast, antioxidants, broilers