

## **Effect of chelated copper on growth performance and woody breast in broilers**

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Copper (Cu) has been widely used at high levels as growth promoter in poultry. The role of Cu in woody breast has not been widely studied. There are different forms of chelated and inorganic Cu sources available for the poultry producers to use at different doses. A floor pen study was conducted with 468 day-old male broilers to evaluate the effects of Cu methionine hydroxy-analogue chelate (Cu-MHAC) (MINTREX® Cu, Novus International, Inc.) on growth performance and incidence of woody breast in broilers in comparison to CuSO<sub>4</sub> and TBCC. The study consisted of 4 dietary treatments: 15 ppm Cu-MHAC, 30 ppm Cu-MHAC, 125 ppm CuSO<sub>4</sub> and 125 ppm TBCC, each with 9 replicates pens of 13 birds. The levels of other minerals from inorganic sources were equal among all treatments. Nutritionally complete typical US corn soybean meal based broiler diets were formulated for starter (0-14 d), grower (15-28 d), and finisher (29-42 d) phases. All diets were pelleted, and starter diet was crumbled after pelleting. All birds were orally gavaged with a coccidiosis vaccine at 10× the recommended vaccination dose on d 15. Breast fillets in broilers at 42 d of age were scored for woody breast using 4 points scoring system: 0 = normal; 1 = mild; 2 = moderate; 3 = severe. Woody breast results were analyzed by Chi-square. Performance results were analyzed by one-way ANOVA, means were separated by Fisher's protected LSD test. A P-Value ≤ 0.05 was considered statistically different. Both 15 and 30 ppm Cu-MHAC improved (P<0.05) FCR in comparison to CuSO<sub>4</sub>, and TBCC had intermediate FCR during starter phase. Growth performance was not different among treatments during grower and finisher phases. 15 ppm Cu-MHAC reduced (P<0.05) the incidence of moderate and severe woody breast compared to TBCC; while 30 ppm Cu-MHAC reduced (P<0.05) the incidence of moderate and severe woody breast compared to both CuSO<sub>4</sub> and TBCC. In summary, low doses of Mintrex Cu can replace high dose of TBCC and CuSO<sub>4</sub> without compromising growth performance and with benefits of reducing the incidence of moderate and severe woody breast in broilers.

**Keywords:** Chelated copper, CuSO<sub>4</sub>, TBCC, woody breast, broiler