

# Evaluation of Mintrex® Copper as a Source of Copper in Broiler Diets<sup>1,2</sup>

Zurong Wang, Sandro Cerrate, Cesar Coto, Fenglan Yan and P.W. Waldroup<sup>3</sup>

Department of Poultry Science, University of Arkansas, Fayetteville AR 72701, USA

### Abstract :

This study was conducted to evaluate the bioavailability of an organic copper source, MINTREX® Cu, compared with reagent grade Cu sulfate as a source of Cu in broiler diets. Nutritionally complete basal diets were supplemented with either copper sulfate or MINTREX Cu to provide diets with 0, 10, 25, 50, 125, 250 and 500 mg kgG1 of supplemental Cu. Fifty commercial broiler strain (Cobb 500) male chicks were placed in each of 48 pens. Each diet (except for 500 mg kgG1) was fed to four replicate pens. The 500 mg kgG1 level was fed to two replicate pens for each source. There were two feeding phases including starter (0-21 d) and grower (21-35 d). At the end of each phase, birds were weighed by pens and two birds per pen (four birds per pen for the 500 mg kgG1 levels) were killed to take liver and tibia samples for analysis of Cu concentration. Overall, there was no effect of Cu source or dietary Cu concentration on feed conversion or mortality. At 14 d the birds in the MINTREX treatment weighed significantly more than the birds in the Cu sulfate treatment. High Cu concentrations markedly decreased ( $p < 0.0001$ ) body weight regardless of Cu sources in both phases. Elevated dietary Cu concentration significantly increased ( $p < 0.01$ ) tibia ash Cu concentration for both Cu sources in both phases; however there was no good linear relationship between tibia Cu accumulation and non-zero Cu consumption. There were marked effects ( $p < 0.05$ ) of Cu source, concentration and their interaction on 14 d dry liver Cu concentration. Based on dry liver Cu concentration regressed on non-zero copper consumption, the relative bioavailability of MINTREX Cu was 111.63% for 14 d and 110.71% for 35 d when bioavailability of reagent grade Cu sulfate was set as 100%. This indicated that MINTREX Cu source has greater biological availability than reagent grade Cu sulfate for broilers.

### Key Word :

Broilers, copper, organic trace minerals, liver concentrations

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