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Zinc oxide as an effective mineral for induced moulting: Effects on post moult performance of laying hens in the humid tropics

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Abstract

The study evaluated the effectiveness of using zinc oxide, as a moulting agent for laying hens, on organ characteristics and post moult production performance. Two hundred (75 weeks of age) Isa Brown laying hens were used in this experiment. The birds were randomly assigned into five experimental treatments (T) made up of 40 hens each. Four replicate groups of ten hens, housed individually per cage, were randomly assigned to each of the five dietary treatments. Moulting was induced by feeding the hens with diets having different amount of Zinc Oxide. The experimental treatments (T) had 0%, 0.5%, 1.0%, 1.5% and 2% ZnO per kg diet representing T_0, T_1, T_2, T_3 and T_4, respectively. Birds in each treatment were fed 120g of the experimental diet daily for 14 days. Seven days after dietary treatment withdrawal, eight hens in each treatment were randomly selected and humanely slaughtered and used for organ evaluation. Egg production stopped completely by day 5 for 1.5% and 2% ZnO treated birds. Body weight loss for the same group of hens was highly significantly ($P<0.01$) reduced by about 11% and 15%, respectively in contrast with those on other treatments. Variation in body weight gain was observed in ZnO treated birds with hens on 2% ZnO diet gaining higher body weight day 14 after moulting. Feed intake of hens declined progressively as dietary ZnO contents increased. Feed conversion ratio (g/g egg weight) and percentage hen day production was significantly ($P<0.05$) better for 1% and 1.5% ZnO treated hens. The ovary, liver and kidney of the hens were affected significantly ($P<0.05$) by the dietary ZnO contents. A greenish coloration of the liver was observed for 1.5% and 2% ZnO treated hens. From these data, it was concluded that to achieve good post molt performance of laying hens in the humid tropics, farmers should practice the use of 1% ZnO inclusion per kg diet as an effective method to achieve induced moulting.

Biography

Machebe Ndubuisi Samuel is a Lecturer in the Department of Animal Science, University of Nigeria, Nsukka. He holds a PhD degree in Animal Science with a bias in Animal Physiology. He is a Registered Animal Scientist (RAS). He has more than 28 publications to his credit including books, peer-reviewed Journals and conference articles. He has attended many local and International Conferences, Workshops and Symposium. Recently, he presented a paper at the *4th International Symposium on Managing Animal Mortalities, Products and by-products and Associated Health Risk* in Dearborn, Michigan, USA (May 21- 24, 2012). He is a member of many Academic and Editorial Boards of Institutions and some Journals. He is a member of ResearchGate Scientific Network.