

The effect of dietary sorghum distillery's residue levels on tibia trait and leg appearance of Taiwan black feathered native chickens ⁽¹⁾

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Abstract

The objective of the study was to investigate the effect of different dietary dehydrated sorghum distillery residue (SDR) levels on tibia trait and leg appearance of Taiwan black feathered native chickens. Two hundreds and eighty eight 5-week-old Taiwan black-color native chickens (144 male and 144 female) with similar body weight were divided into 4 groups. Twelve birds were fed in one floor pen of each gender in each group with 3 replicates and fed one kind of isocaloric and isonitrogenous diets containing 0, 10, 20 and 30% SDR for 12 weeks. The diets used for 5 - 8, 9 - 12 and 13 - 16 week-old chicken were mash feed with CP (%) / ME (kcal/kg) as 21/3100, 21/3100 and 19/3100, respectively. Feed and water were supplied *ad libitum*. After blood were sampled from wing vein with syringe, chickens were slaughtered at 8, 12 and 16 weeks of age to evaluate the tibial traits and leg appearance of chickens were observed and recorded at 16 weeks of age. The results showed that except 12 week-old female chicken, the serum phosphorus concentration of male or female, or pooled male and female chickens increase with SDR content increasing linearly at 8 and 12 weeks of age. There is no significant difference in serum calcium concentration among the treatment groups at 8 and 16 weeks of age; however, pooled male and female 12-week-old chicken fed containing 20% SDR have the highest serum calcium concentrations among the treatments ($P < 0.05$). There was no effects on tibia ash, tibia breaking strength when chickens fed with the diets containing 10%, 20% and 30% SDR during 8-16 weeks of age. Moreover, no significant difference was observed on lame leg ratio among the treatments for 16-week-old birds. In conclusion, based on tibia breaking strength and leg appearance, 30% SDR used in isocaloric and isonitrogenous diet is recommended for Taiwan native black feathered chickens during 8 - 16 weeks of age.

Key words: Native chickens, Serum calcium, Serum phosphorous, Sorghum distillery residue, Tibia.

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