

**Effect of different levels of sorghum inclusion and the addition of a serine protease on live performance of broilers from 1 to 35 days of age.**

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Sorghum can be utilized to replace corn in areas where corn is not readily available. Serine protease has been proposed to improve the digestibility of sorghum because it could degrade disulfide bonds of kafirin proteins. One experiment was conducted to evaluate the effects of sorghum inclusion level and the addition of a serine protease on chicken live performance from 1 to 35 d of age. Eight treatments from a 4x2 factorial arrangement with 4 inclusion levels of sorghum (0, 25, 50, and 100% replacement of corn) and presence or absence of protease (0 or 500 g/ton for 600,000 U/g), as main factors. A total of 1,280 Ross 708 d-old male chicks were placed in 64 pens with 20 chicks per pen raised on used litter. Group BW and feed intake (FI) were recorded at 0, 14, and 35 d. BW gain and FCR corrected by mortality BW weights were calculated at the end of each phase. Data were analyzed as a randomized complete block design with a 4x2 factorial arrangement with 8 replicates per treatment combination. There was an effect of sorghum level ( $P < 0.05$ ) on BW at 35 d. The heaviest broilers were associated with the treatments that were fed 100% corn diets which were not different from 25 and 50% sorghum, but were heavier ( $P < 0.05$ ) than the ones fed 100% sorghum diets. Similar effect ( $P < 0.05$ ) was observed on BW gain from 14 to 35 d, and BW and FI from 1 to 35 d. There was a 2-way interaction effect ( $P < 0.05$ ) observed on FI for sorghum level and enzyme. Broilers fed diets with 100% sorghum without the addition of a protease consumed less ( $P < 0.05$ ) feed than the same diet with the addition of protease. Protease improved FCR in the starter from 1 to 14 d only in diets with 100% corn. This positive effect of protease ( $P < 0.05$ ) on FCR was detected again from 14 to 35 and 1 to 35 d of age in diets with 100% corn. It was concluded that corn can be replaced with up to 50% sorghum and that the addition of a protease could improve FCR of broilers fed corn diets and FI in 100% sorghum diets.

**Key Words:** sorghum level, serine protease, broiler performance