

Public Abstract

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Title:Evaluation of heat-processed sorghum, high-oleic and low-trypsin inhibitor soybean cultivars as alternatives for corn and conventional soybeans for broilers

Three 21-d studies were conducted to investigate the effects of feeding heat-processed sorghum, high-oleic soybeans, and low-trypsin inhibitor soybeans on growth performance and nutrient digestibility of broiler chickens. Energy and proteins are the most costly nutrients in poultry feed, comprising 95% of total feed cost. Recently, corn has been used for ethanol production resulting in increased corn price. Sorghum is an alternative to corn as energy source, however with lower nutritional value. In order to increase the nutritional value, we investigated if heated sorghum at 105, 115, 125, and 135°C will improve the growth performance of broiler chicks. Although commodity soybean meal has been the standard protein source for animal feed, commodity soybeans contain undesirable nutrients named anti-nutritional factors. In addition, other ingredients such as distiller grains or soybean meal with advantaged nutritional properties may become better options to commodity soybeans due to cost or nutritional value. Therefore, we investigated if feeding broiler chicks with developed soybeans with nutritional benefits will maintain or improve growth performance of broiler chicks. The results showed that heat-processing of sorghum did not ameliorate the growth performance of broilers, feeding high-oleic soybean meal to broilers did not affect growth performance of 21-d old broilers, and low-trypsin inhibitor soybean meal improved growth performance compared to commodity soybean meal. In conclusion, the sorghum source evaluated may have been of a similar nutritional value, therefore not requiring further processing, however studies should be conducted evaluating sorghum of lower nutritional value. High-oleic and low-trypsin inhibitor soybeans improve soybean position in the market maintaining similar or improving growth performance of broiler chicks, respectively.