



Tropentag, October 9-11, 2007, Witzenhausen

“Utilisation of diversity in land use systems:  
Sustainable and organic approaches to meet human needs”

## Processed Kidney Bean (*Phaseolus vulgaris*) in Broiler Feeding — Performance Characteristics

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### Abstract

The effects of cooked and decorticated kidney bean (*Phaseolus vulgaris*) on performance characteristics of broilers were studied. A total of 120 one day old Abor-Acre broiler chicks was used for the study. The birds were randomly allotted to six dietary treatment groups with two replicate per treatment and ten birds per replicate in a completely randomised design. The processed kidney beans were used to replace two conventional protein sources: soybean meal (SBM) and groundnut cake (GNC), at 50 % level protein for protein in a 42 days feeding trial. Significant differences ( $p < 0.01$ ) were observed in feed intake and weight gain ( $p < 0.05$ ) across dietary treatments. Birds fed SBM - processed kidney beans diets had lower Feed: Gain ratio than birds fed sole GNC-based diet. This indicated a better feed utilisation by birds fed SBM - processed kidney beans diets. Protein Efficiency Ratio (PER) was not significantly ( $p > 0.05$ ) increased in diets that contained processed kidney beans. However PER was lowest in diets that contained decorticated kidney beans compared to values obtained for cooked kidney beans diets and the control diets. Nutrient digestibility results showed significant differences ( $p < 0.05$ ) across dietary treatments for crude protein, ether extract and crude fibre digestibility. Crude protein digestibility (49.50) was lowest in birds fed decorticated kidney beans.

It appeared that protein digestibility was not improved in spite of the removal of the testa which is the main tannin reservoir of the bean. This observation may be due to the presence of other anti-nutritional factors (including tannin) in the cotyledons. Cooking resulted in denaturing the heat labile anti -nutritional factors. Although decortication involved soaking in boiled water for a period of time, however the effect was not adequate to denature the heat-labile anti-nutritional factors compared to cooking.

A 50 % level protein for protein replacement of SBM with cooked kidney bean gave performance that was equally as good as feeding either sole SBM or GNC. Cooking was a better processing method for kidney bean compared to decortication.

**Keywords:** Broiler feeding, conventional protein sources, performance characteristics, kidney beans, *Phaseolus vulgaris*