

Use of Canola Seeds (*Brassica Napus*, L.) in the Poultry Rations

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Abstract

The high price of corn and soybean meal and their scarcity sometimes necessitated the search for locally produced ingredients that can partially replace the corn and SBM. Canola seeds are originated in North America as a source of good edible oil for human consumption. Meal of these seeds (by-product of oil extraction) can be used in the poultry diets. Research in this area proved that canola seeds could be successfully planted in Al-Hassa area of Saudi Arabia. The study reported here-in was conducted as a result of cooperation between the department of crop Sciences which planted and provided the canola and the Department of Animal Sciences that conducted the experiment. The objectives of this study were to determine the chemical analysis and metabolizable energy of a locally produced full fat canola seeds (LPFFCS). Also to determine the possibility of using whole or ground canola seeds in the diets of layers and broilers.

Chemical analysis and TME determination:

The chemical analysis of the seeds showed that it contained 95.4 % DM, 25.6 % CP, 38.2 % EE, 4 % ash and 6.8 % CF. ME, calculated from the determined TME showed a 4128 Kcal /kg value. Essential and non-essential amino acids were also determined as well as Na, Cl, Ca, P, Cu, Zn and Fe. It was concluded that with the exception of protein level canola seeds are very much similar to SBM in many aspects.

Layer experiment:

Five levels of whole canola seeds; 0, 5, 10, 20, and 30 % were used in the diets of 100 white leghorn pullets at age of 20 weeks. Each of these dietary treatments was distributed randomly on 5 cages (reps) containing 4 birds, each. The results of this experiment provided evidence that including up to 10 % whole canola in the layer diet made no harm to the performance of these birds in terms of hen-day egg production, egg mass, feed conversion and egg weight. Feed intake increased with increasing level of canola seeds in the diet. However most of these differences were season dependent. Hen-day production, egg mass and egg weight were very much lower when birds fed 30 % canola. The highest production rate was found in the fall season when birds fed 5 and 10 % canola seeds (90 and 88 %, respectively). No specific trend was observed on the effect of canola on egg specific gravity and yolk index. However, haugh unit was higher, yolk color was darker, weight gain was lower in birds fed 30 % canola seeds. It was concluded that incorporating up to 10 % LGFFCS in the layer diet might benefit the producer if economically priced.

Broiler experiment:

Four levels of whole canola seeds; 5, 10, 20, 30 % and same levels of ground canola seeds and a control (0 %) were included in the diets of 360 broiler chicks in such away that each treatments was fed to 40 birds (4 reps, each, 10 birds). The results of this study exhibited a negative effect of canola seeds on performance of broilers from hatch to 6 weeks of age. Although, treatment levels did not significantly affect feed intake in birds fed canola seeds, weekly weight gain was much lower than that of the control during the first 4 weeks of the trial. Small improvement occurred in weeks 5 and 6. Feed conversion followed similar trend to weight gain. Most of the mortality occurred in birds fed 30 % canola. Grinding the canola exacerbated the problems. The accumulated performance of the broilers in week 6 provided clear evidence that with exception of 5 % treatment, increasing level of canola from 0 to 30 % had negatively affected final body weight, mortality and feed conversion. However, cumulative feed intake did not significantly differ among treatments. Despite level of canola, higher intake was observed in birds fed whole seeds. Cumulative livability was very low in birds fed 30 % canola seeds. When form of canola is concerned, livability was better in birds fed whole canola seeds. Dressing analysis showed no significant differences among treatments pertaining to dressing %, fat % of dressed or live birds. However, fat weight was much lower in birds fed 30 % canola seeds. Regardless of canola level, birds fed whole canola had more fat than those fed ground canola. Numerically, males had higher dressing % and less fat than females. It was concluded that feeding more than 5 % LGFFCS to broiler from hatch to 6 weeks of age could be harmful. Grinding canola may cause more damage. Therefore it is suggested more studies are needed to determine the validity of feeding this type of canola to broilers at different ages.