

Effect of various levels of full-fat sunflower seed on performance of broiler chickens

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Introduction Sunflower (*Helianthus annuus*L.) is one of the most widely cultivated oilseeds in the world and ranks third in importance as a source of vegetable oil. As an alternative to fats and oils, full-fat oilseeds such as soybean seed are used to replace the supplemented fats and oils in broiler diets. However, soybean seed has anti-nutritional factors such as trypsin inhibitors, which need further processing, thus increasing the cost of soybean seed. Among the various oilseeds available on the market, full-fat sunflower seed (FFSS) contains more ether extract (EE) and is available at a relatively low price. This experiment was conducted to study the effect of FFSS (that FFSS had 18% CP, 38% EE, 14.3% CF, and 3868 kcal/kg ME) on performance of broiler chickens.

Materials and methods In this study, 176 day-old male broiler chickens (Ross strain) were allocated to four treatments with four replicate (11 in each replicate) in a completely randomized design to evaluate the effect of FFSS on the performance of chickens for 7 weeks. Treatments were 0, 7, 14 and 21 percent of FFSS for starter (1-21 days) and grower phases (22-49 days). The diets of starter phase calculated to contain 20.86% CP and 3000 kcal of ME per kg of diet. They also contained 18.75% CP and 3000 kcal of ME per kg of diet for the grower phase. Body weight gain and feed consumption were recorded. Data for all parameters were subjected to an analysis of variance, using the general linear model procedure of SAS (SAS Institute, 2004).

Results Feed intake increased significantly ($p < 0.05$) when increasing levels of FFSS was incorporated in the diet during the experiment except for 43-49 days of age (Table). Weight gain also increased significantly in the different stages of our experiment ($p < 0.05$). Except for 1 to 21 and 1 to 49 days of age, feed conversion ratio (FCR) improved significantly ($p < 0.05$).

Table 1 Effect of full-fat sunflower seed on performance parameters of broiler (1-49 days of age)

FFSS (g/kg)	Feed Intake (g/b)				Weight Gain (g/b)				Feed Conversion Ratio			
	1-21	22-42	43-49	1-49	1-21	22-42	43-49	1-49	1-21	22-42	43-49	1-49
0	823.6 ^b	2446 ^b	1019	4125.1 ^b	417 ^b	1117 ^b	350 ^b	1741 ^b	1.97	2.54 ^a	2.91 ^a	2.39
70	874.7 ^{ab}	2793 ^a	1089	4757.4 ^a	451 ^{ab}	1099 ^b	456 ^{ab}	1935 ^{ab}	1.94	2.48 ^a	2.38 ^b	2.45
140	903.6 ^{ab}	2950 ^a	1168	4985.6 ^a	503 ^a	1199 ^{ab}	450 ^{ab}	2096 ^a	1.79	2.19 ^b	2.59 ^{ab}	2.38
210	932.1 ^a	2809 ^a	1139	4762.9 ^a	497 ^a	1311 ^a	492 ^a	2155 ^a	1.90	2.14 ^b	2.31 ^b	2.22
SE	29.47	24.40	85.35	5.93	10.01	20.97	24.83	0.069	0.121	0.281	0.10	

^{a,b}Within the same column, means with different letters are significantly different ($p < 0.05$).

Conclusions FFSS was proven as a good source of CP and ME in broiler diets. The results from the current experiment indicated that substitution of FFSS for corn, soybean meal up to 210 g/kg of diet had positive effect on performance parameters. These results are in accordance with those obtained by Elzubeir and Ibrahim (1991), who reported that unprocessed sunflower seed can be given to broilers at up to 225 g/kg of the diet with no adverse effects on performance. In contrast with these findings, Dagher *et al* (1980) observed that feeding 150 and 250 g/kg-1 FFSS to broilers depressed both body weight gain and feed intake. One possible explanation for this disagreement of results is that different sunflower varieties or cultivars varying in chemical composition were used in the experiments.

References

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