The effect of different levels of rapeseed meals on broiler chick performance

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Abstract

In order the evaluation of different levels of rapeseed meals on broiler chick performance, the experiment was arranged in a randomized completely design with a factorial arrangement (4*2) and three replications. Four levels of rapeseed meals replacing to soybean meals including 0, 40, 60 and 80 percent (factor A) and two strains of broiler chick were including Arian and Ross (factor B). Broilers were growing to 56 days of age. The characteristics under investigation were average daily gain, feed conversion ration, moisture fecal (21, 42, and 56 days of age) and T3 and T4 Thyroids hormones (40 and 56 days of age) in each pen two males and females. At the end of trail one male and female of each pen were selected. The samples killed and dressing percentage heart, pancreas, liver, spleen, proventriculus, gizzard, gall bladder and intestinal weights were determined. The results indicated that 60 % rapeseed meals replacing to soybean meals for the feed conversion ratio and average daily gain were better than the other groups. The best body weight and dressing percentage related to group which had to 40 % rapeseed meal.

Key words: Rape seed meal, Soy bean meal, Broiler, performance, Thyroids hormones

Introduction

Canola is a plant which produces groups of yellow, four-petal led flowers. Canola is grown mostly in western Canada. It is the number one oilseed crop in Canada. Canola is Saskatchewan's second most important crop, after wheat. The word *canola* stands for "Canadian" and "oil" word production of rape seed meal/canola totaled 33.86 million tones or 13% of oilseed production (ERC 2001). The canola seed has following composition: whole canola seed contains high levels of lipid (approximately 55%) Ackman, 1990). For canola meal Sibbald (1997) indicated AME values ranging from 8.89 to 9.36 kcal/g. The goal of this research is to considering the effect of replacing different levels of rapeseed meals to soybean meals as a protein source.

Table 1: Composition of starter, grower and finisher diets (%).

6-8WKD	3-6WKD	0-3WKD	6-8WKC	3-6WKC	0-3WKC	6-8WKB	3-6WKB	0-3WKB	6-8WK[A]	3-6WK[A]	0-3WK[A]	Ingredient and composition(%)
63.56	62.30	51.08	65.6	64.41	56.48	67.64	66.46	58.95	70.81	70.46	63.86	Corn
10.56	10.85	13.38	13.28	13.87	16.77	16	16.50	20.17	21.42	22.18	26.97	Soybean Meal
17.14	17.74	21.32	12.86	13.31	15.99	8.57	7.87	10.66	0	0	0	Rapeseed meal
3	5	6.5	3	5	6.5	3	5	6.5	3	5	6.5	Fish meal
0.4	0.29	0.43	0.43	0.32	0.46	0.45	0.41	0.48	0.42	0.65	0.56	Dicalcium phosphate
0.98	0.93	0.77	1.02	0.92	0.83	1.06	0.97	0.88	1.18	094	0.97	Oyster shell
-	.	.	-	.	0.02	-	.	0.05	0.02	0.02	0.11	DL-methionine
0.5	0.5	0.5	0.5	0.5	0.5	0. 5	0.5	0.5	0.5	0.5	0.5	Vitamin-mineral premix
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	Salt(sodium choloride)
3.66	2.19	2.92	3.12	1.63	2.26	2.58	1.09	1.61	1.46	0.05	0.32	Fat
												Total
												Chemical Analysis
3084.9	3000	2950	3084.9	3000	2950	3084.9	3000	2950	3084.9	3000	2950	ME (kcal/kg)
17.35	18.75	21.2	17.35	18.75	21.2	17.35	18.75	21.2	17.35	18.75	21.2	Crude protein (%)
0.77	0.84	0.92	0.77	0.84	0.92	0.77	0.84	0.92	0.77	0.84	0.92	Ca (%)
0.28	0.38	0.41	0.28	0.38	0.41	0.28	0.38	0.41	0.28	0.38	0.41	P (%)

A=Control group B=40% Rapeseed meal C=60% Rapeseed meal D= 80% Rapeseed meal

Material and methods

240 1-d-old commercial broiler chick (Ross and Arian strain) were weighted, distributed randomly to 4 treatments with 3 replicates., the experiment was arranged in a randomized completely design with a factorial arrangement (4*2) and three

replications. Four levels of rapeseed meals replacing to soybean meals including 0, 40, 60 and 80 percent (factor A) and two strains of broiler chick were including Arian and Ross (factor B). Broilers were growing to 56 days of age. Means compared with Duncan's Multiple Range Test at ($p<0.05$). The chicks were reared in deep litter on wood hulls in 1*1 pens. Feed and water were provided *ad libitum.* Body weights and feed conversion. The characteristics under investigation were average daily gain, feed conversion ration, moisture fecal (21, 42, and 56 days of age) and T3 and T4 Thyroids hormones (40 and 56 days of age) in each pen two males and females. At the end of trail one male and female of each pen were selected. The samples killed and dressing percentage heart, pancreas, liver, spleen, proventriculus, gizzard, gall bladder and intestinal weights were determined.

Results and Discussion

Feed Conversion Ratio: The results are presented in Table 2. Feed conversion data showed significant different ($p<0.05$). The results indicated that 60 % rapeseed meals replacing to soybean meals for the feed conversion ratio better than the other groups. The results are in agreement with the result of other researchers (Zeb *et al.,* 1999; Summers *et al.,*1988). Most probably this is due to presence of fishmeal, keeping amino acid moderation and no exchangein anion-cation balancing at the ration.

Table 2: The effect of rapeseed meals on feed conversion of different weeks.

Treatment	8-21 week	21-42 week	42-56 week	8-56 week
Control Group	2.45[a]	2.82[a]	3.09[ab]	2.81[a]
Replacing of 40% soybean meals by Rapeseed meals	2.59[a]	2.82[a]	2.56[a]	2.65[a]
Replacing of 60% soybean meals by Rapeseed meals	2.59[a]	2.83[a]	3.26[ab]	2.89[a]
Replacing of 80% soybean meals by Rapeseed meals	3.08[b]	3.41[b]	3.49[b]	3.33[b]

a,b means in the same column without a common superscript are significantly($p<0.05$).

Body weight: The results are presented in Table 2. There is no significant difference ($P>0.05$) in body weight between experimental groups in the comparison with control. The results are in agreement with the result of other researchers (Zeb *et al.,* 1999; Summers *et al.,* 1988). Most probably this is due to presence of fish meal, keeping amino acid moderation and no exchange in anion-cation balancing at the ration. Roth Maier *et al*. (1988) indicated that use of 5, 10, 15, 20 and 25 percents of full-fat Canola seed in the broiler ration has the negative effect on the chicken growth so that, body weight in experimental groups in comparison with control has showed 6.7-24% reduction. researcher has mentioned the decreasing of feed consumption is the cause of body weight decreasing (Sosulski, 1974; Roth Maier *et al*., 1988). According to Najib and Al-Khateeb (2004) with the exception of protein level, canola seed are very much similar to canola meal. High level oil in Canola seed in comparison to its meal, will cause meal and fish meal in starter diet and low level protein ratio, had adjusted feed consumption in experimental and control groups from 1 to 21 days of study. This issue do not support some results of researchers and with some other has conformity. This is in such a manner hat it has no conformity with the results of researches (Roth Maier *et al*., 1988; Lee *et al.*, 1984 and Nassar and Arscott, 1986). Roth Maier *et al*. (1988) used 5, 10, 15, 20 and 25 full-fat canola seed in the broiler diets, has observed that increasing proportion of Canola seed in the diet reduce continuously performance. No particular cause has been reported for decreasing of feed consumption yet, but the existence of phytic acid in canola seed and meal will cause reduction in calcium ability absorption and consequently, the feed consumption reduction (Semmers *et al.*, 1988). The results of this study supports other studies (Semmers *et al.,* 1988; Semmers *et al.*, 1977; Clark *et al.*, 2001). Zeb *et al.* (1999) reported that due to securing of amino acids in ration, feed consumption will not show any reductionby adding canola meal. Also, Hill (1979) has reported.

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