The effect canola meal (hula) on the performance of broiler chicks

M. F. Harighi[1], F. Kheiri[2], [1]Islamic Azad University of Krmanshah, Iran, [2]Islamic Azad University of Shahrekord, Iran

Abstract

Canola meal is one of the most widely used protein sources in animal feeds. Hula is a new variety of canola meal. In order to study the effect of replacing different levels of canola meals to soybean meals (0, 5, 10, 15 and 20 percent) on broilers performance with 3 replicates a randomized complete design were used. Average daily gain, feed conversion were measured. At the end of the trail one male and one female of each pen were selected killed and dressing percentage, abdominal fat, intestine, liver, gall bladder and pancreas weights were determined. Data from this experiment showed feed conversion and average daily gain of the group used 5 percent canola meal were better than the other groups. The best body weight related to group which's percent canola meal. The highest levels of abdominal fat related to groups 15 and 20 percent canola meal used.

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.

Material and methods

240 1-d-old commercial broiler chick (Ross) were weighted, distributed randomly to 5 treatments with 3 replicates. , the experiment was arranged in a randomized completely design. Four levels of rapeseed meals replacing to soybean meals including 0, 5, 10, 15 and 20 percent. 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 24 pens 1*1. 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) 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 15% and 20% 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 exchange in anion-cation balancing at the ration.

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

Ingredient and composition (%)	0-3 WK A	3-6 WK A	6-8 WK A	0-3 WK B	3-6 WK B	6-8 WK B	0-3 WK C	3-6 WK C	6-8 WK C	0-3 WK D	3-6 WK D	6-8 WK D	0-3 WK E	3-6 WK E	6-8 WK E
Corn	63.86	70.46	70.81	58.95	66.46	67.64	56.48	64.41	65.6	51.08	62.30	63.56	52.03	53.88	65.89
Soybean Meal	26.97	22.18	21.42	20.17	16.50	16	16.77	13.87	13.28	13.38	10.85	10.56	16.65	16.5	7.86
Rapeseed meal	0	0	0	10.66	7.87	8.57	15.99	13.31	12.86	21.32	17.74	17.14	20	20	20
Fish meal	6.5	5	3	6.5	5	3	6.5	5	3	6.5	5	3	6.5	5	3
Dicalcium phosphate	0.56	0.65	0.42	0.48	0.41	0.45	0.46	0.32	0.43	0.43	0.29	0.4	0.40	0.3	0.4
Oyster shell	0.97	094	1.18	0.88	0.97	1.06	0.83	0.92	1.02	0.77	0.93	0.98	0.7	0.92	0.95
DL-methionine	0.11	0.02	0.02	0.05	.	-	0.02	.	-	.	.	-	0.00	0.00	0.00
Vitamin-mineral premix	0.5	0.5	0.5	0.5	0.5	0. 5	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.25	0.25
Salt(sodium chloride)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Fat	0.32	0.05	1.46	1.61	1.09	2.58	2.26	1.63	3.12	2.92	2.19	3.66	3.02	2.7	4.2
Total															
Chemical Analysis															
ME (kcal/kg)	2950	3000	3084.9	2950	3000	3084.9	2950	3000	3084.9	2950	3000	3084.9	2950	3000	3084.9
Crude protein (%)	21.2	18.75	17.35	21.2	18.75	17.35	21.2	18.75	17.35	21.2	18.75	17.35	21.2	18.75	17.35
Ca (%)	0.92	0.84	0.77	0.92	0.84	0.77	0.92	0.84	0.77	0.92	0.84	0.77	0.92	0.84	0.77
P (%)	0.41	0.38	0.28	0.41	0.38	0.28	0.41	0.38	0.28	0.41	0.38	0.28	0.41	0.33	0.29

A=Control group B=5% Rapeseed meal C=10% Rapeseed meal D= 15% Rapeseed meal E= 20% Rapeseed meal

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

Treatment	8-21 Day	21-42 Day	42-56 Day	8-56 Day
Control Group	1.93 [a]	2.04 [a]	2.51 [a]	2.07 [a]
Replacing of 5% soybean meals by Rapeseed meals	1.94 [a]	2.01 [a]	2.38 [a]	2.05 [a]
Replacing of 10% soybean meals by Rapeseed meals	2.04 [a]	2.30 [b]	2.55 [a]	2.12 [a]
Replacing of 15% soybean meals by Rapeseed meals	2.08 [a]	2.19 [b]	2.70 [b]	2.32 [b]
Replacing of 20% soybean meals by Rapeseed meals	2.12 [a]	2.23 [b]	2.85 [b]	2.45 [b]

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

Table 3: The effect of rapeseed meals on body weight of different weeks.

Treatment	8-21 Day	21-42 Day	42-56 Day	8-56 Day
Control Group	27.36 [a]	53.43 [a]	80.05 [a]	52.1 [a]
Replacing of 5% soybean meals by Rapeseed meals	27.02 [a]	50.02 [b]	85.04 [b]	56.01 [a]
Replacing of 10% soybean meals by Rapeseed meals	27.23 [a]	54.50 [a]	83.01 [ab]	53.2 [a]
Replacing of 15% soybean meals by Rapeseed meals	26.90 [a]	53.03 [ab]	78.01 [a]	44.02 [b]
Replacing of 20% soybean meals by Rapeseed meals	24.2 [b]	48.02 [b]	72.05 [c]	42.05 [b]

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

Body weight: The results are presented in Table 3. There is no significant difference ($P>0.05$) from level 5% to level 15% 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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