COMPARISON OF VARIOUS OILSEED CAKES AS A SOURCE OF PROTEIN IN FATTENING LAMBS

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An experiment was planned to evaluate 6 different oilseed cakes, as a source of protein in fattening lambs. Eighteen young *lohi* lambs were randomly distributed into 6 groups of 3 animals each. They were fed for 91 days 6 different experimental rations containing various oilseed cakes, *viz.*, cotton seed cake, linseed cake, *toria* cake, *taramaria* cake, *sarson* cake and *til* cake. On the basis of feed efficiency and weight gain there was no significant difference among various oilseed cakes as protein supplements. However, *toria* cake proved to be more economical protein source for fattening rations.

INTRODUCTION

The fattening of sheep is not practised in Pakistan on a commercial basis. The enterprise could be made profitable if cheap but efficient fattening rations could be evolved. Protein is one of the important components of fattening rations. Protein supplements fed to livestock in Pakistan are usually derived from various oilseeds processed differently. The comparative nutritive value of such feeds needs to be investigated. An experiment was planned to achieve the following objectives : (1) To compare different oilseed cakes as a source of protein in sheep fattening ration, (2) To find out whether these cakes have any growth depressing factor, and (3) To determine the most economical oilseed cakes for fattening sheep in Pakistan.

REVIEW OF LITERATURE

Ahmad *et al.* (1962) in a young ram fattening experiment fed one group of animals on undecorticated cotton seed cakes while the other animals received rapeseed (*toria*) oil cake as a protein supplement. The animals supplemented with undecorticated cotton seed cake gained more weight than those fed rapeseed oil cake. The difference in weight gain was observed to be statistically significant indicating the superiority of cotton seed cake over rapeseed oil cake as protein supplement. Lander (1949) reported the results of feeding trials conducted at Kansas and Montana. Mustard seed oil cake proved to be a satisfactory substitute for cottonseed cake as well as for soybean oil cake for growing stock. Bell and Weir (1952) observed that rapeseed and mustard

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seed oil meals appeared to be less palatable than linseed oil meal in sheep rations. Branford and Sewell (1922) undertook comparative feeding experiment on growing stock at the Government Cattle Farm, Hissar. Gram was compared with mustard cake and *til* cake. The average gain in body weight of animals fed the three protein supplements during a period of 52 days was 50 59, 52.5 seers respectively.

MATERIAL AND METHODS

An experiment involving 18 young *Lohi* lambs was laid out to study the comparative nutritive value of different oilseed cakes, *viz.*, cottonseed cake, linseed cake, *toria* cake, *taramira* cake, *sarson* cake and *til* cake. The animals were divided randomly into 6 groups of 3 animals each. The basal ration consisted of wheat *bhoosa* and molasses. The experimental rations were fed to the lambs *ad lib.* Fresh and clean water was available at all times. One pound of green feed was fed daily to each animal to provide the carotene requirement. The experimental animals were weighed initially at the start of the experiment and thereafter each week till the end of the study. At the end of the experiment one lamb from each group was slaughtered to collect the slaughter data. The experiment lasted for 91 days and the records on feed offered, feed refused, feed consumed and weekly weight gain were maintained. The composition of various experimental rations is given in Table 1.

TABLE 1. *Composition of Experimental Rations*

Ingredients	Composition of rations in pounds					
	I	II	III	IV	V	VI
Cotton seed cake (undecorticated),	40	..	..	..	..	..
Linseed cake ..	..	32	..	..	..	..
Toria cake ..	..	..	24	..	..	..
Taramira cake ..	..	..	..	25	..	..
Sarson cake ..	..	..	..	..	28	..
Til cake ..	..	..	..	..	..	19
Molasses ..	30	35	40	40	35	40
Wheat *bhoosa* ..	30	33	36	35	37	41
Salt ..	0.2	0.2	0.2	0.2	0.2	0.2
Total ..	100.2	100.2	100.2	100.2	100.2	100.2
Digestible protein ..	7.20	7.30	7.20	7.23	7.20	7.27
Total digestible nutrients	60.70	61.00	56.40	62.83	58.94	58.66

RESULTS AND DISCUSSION

The average daily gain in body weight in various groups fed different experimental rations ranged from 0.16 to 0.28 pound during the test period (Table 2). Statistically there was non-significant difference in weight gain. The finding of this study are in close agreement with those reported by Burkitt *et al.* (1954) who stated that rapeseed oil cake and linseed oil cake were approximately of equal value as protein supplement for growing stock. Branford and Sewell (1922) also compared mustard cake with *til* cake and found no statistically significant difference in weight gain in growing stock fed either supplement. The average amount of feed required per pound of body weight gain in different groups varied from 12.6 to 7.9 pounds (Table 2). Statistical analysis of feed efficiency data did not show any difference among various

TABLE 2. *Summary of the Results*

Particulars	GROUPS					
	A	B	C	D	E	F
	RATIONS					
	I	II	III	IV	V	VI
Number of lambs ..	3	3	3	3	3	3
Days on experiment ..	91	91	91	91	91	91
Average initial weight (lbs.)	41.0	37.3	38.0	38.3	37.7	36.3
Average final weight (lbs.)	65.0	62.3	52.7	53.7	57.3	56.0
Total weight gain (Lbs.)	24.0	25.0	14.7	15.4	19.6	19.7
Average daily gain (lbs.)	0.27	0.28	0.16	0.17	0.22	0.22
Average amount of feed consumed/lb. of weight gain (lbs.).	10.7	8.0	12.6	10.1	9.5	7.9
Total average feed consumed (lbs.)	251.8	201.8	139.5	151.3	184.2	154.6
Average daily feed consumed (lbs.)	2.8	2.0	1.5	1.7	2.0	1.7
Total cost of feeding (Rs.)	20.87	25.49	8.85	11.99	13.91	15.26
Cost/lb. gain (Rs.) ..	0.87	1.02	0.60	0.78	0.71	0.77
Dressing percentage ..	52.1	48.5	46.4	46.3	43.2	50.9

groups. The average daily feed consumption ranged from 1.5 to 2.8 pounds in different groups of animals (Table 2). The lambs fed ration containing *toria* and *taramira* oil cake showed the lowest consumption. The results of the study are in close agreement with Lander (1949) who stated that *toria* and *taramira* oil cake have a very disagreeable taste, on account of which livestock do not like to eat it in large quantities. The cost of ration per pound of gain by animals fed different experimental rations ranged from Rs. 0.60 to Rs. 1.02 (Table 2). The dressing percentage ranged from 43.2 to 52.1 in different groups of animals.

The lambs fed ration containing cottonseed cake or linseed cake showed average daily gain of 0.27 and 0.28 pound respectively and the gains appear to be satisfactory. The animals fed rations supplemented with *toria taramira* and *sarson* oilcake exhibited relatively poor growth rate as compared to the lambs fed cottonseed cake or linseed cake, thus indicating a slight depressing effect of the former source of protein supplement.

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