

**Short Communication****Investigating the effects of wheat bran as substitute on performance of Moghani lambs**

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<b>Article history</b> Received: 26 Jan, 2015 Revised: 3 March, 2015 Accepted: 5 March, 2015	<b>Abstract</b> This investigation was carried out to study different levels of wheat bran on performance of Moghani fattening lambs. Twenty-four male Moghani lambs with mean body weight of $30.42 \pm 0.525$ kg were used in completely randomized design with four treatments each containing six animals for a total of 84 days feeding trial. Experimental treatments included a diet without wheat bran (control), and treatments consisting of 10, 20 and 30% wheat bran. The results of experiment showed that using different levels of wheat bran had no significant influence on dry matter intake. Use of 20% wheat bran caused a significant improvement in weight gain and feed conversion ratio (FCR) in experimental lambs. The result indicated that wheat bran at the rate of 20% proved to be a good substitution of other valuable grains. <b>Keywords:</b> Moghani lamb; wheat bran; dry matter intake; performance
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**Introduction**

Cereal grains are the staple food of human being in the developing countries. Due to the growing population of the human being especially in the developing countries, it is not desirable and logical to feed grain to the animals. Recently it has been reported that there is declining trend in the production of cereal grains (Singh et al., 1999; Garg et al., 2002; Garg et al., 2004). Moreover, the grains are costly and their inclusion in the animal diet further increase animal production cost (Garg et al., 2002). In the past, efforts have been made to minimize the use of grains in the diet of animals by replacing with different substitutes (Singh et al., 1999). Wheat bran is one of major by-products of the milling of wheat for flour production (Bashtany, 1999). Due to limitations in poultry feed, it is mainly utilized in the ruminant nutrition. Wheat bran has higher amount of protein, minerals (especially phosphor) and vitamins of group B (especially niacin)

compared to wheat flour (Bartnik and Jakubczyk, 1989). The objective of the present work was to investigate the effect of wheat bran as a substitute on the performance of Moghani lambs.

**Materials and Methods**

To perform this experiment, 24 Moghani male lambs with an average initial weight of  $30.42 \pm 0.52$  kg were used. Experimental lambs were divided into four groups and meal treatments were assigned by lucky draw to each of groups.

**Preparation of diets**

Experimental diets were prepared by UFFDA software. Meal requirements of experimental lambs were extracted from the recommendation of NRC (1985). Metabolizable energy and raw protein of all groups were equally set (Table 1& 2). Wheat bran was used at the rate of 0, 10, 20 and 30%. Lambs were

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**Table 1: Feed ingredients of the experimental groups (dry matter basis)**

Name of feed matter (%)	Composition of feed (dry matter percentage)			
	Control	10% wheat bran	20% wheat bran	30% wheat bran
Dry alfalfa	14	20	20	20
Wheat straw	21	10	10	10
Soybean meal	11.2	18.6	18.1	17.6
Corn bean	26.5	19	14	9
Barley bean	23.5	19	14	9
Wheat bran	0	10	20	30
Mineral-vitamins supplement	1.3	1	1	1
Salt	0.5	0.5	0.5	0.5
Calcium carbonate	2	1.9	2.4	2.9

**Table 2: chemical component of experimental diets**

Chemical component kind	Diet 1	Diet 2	Diet 3	Diet 4
Metabolizable energy (Mcal/kg)	2.5	2.48	2.42	2.35
Crude protein (%)	14.7	14.4	14.6	14.35
Calcium (%)	1.56	1.15	1.39	1.59
Phosphor (%)	0.59	0.54	0.67	0.74
ADF <sup>1</sup> (%)	21.2	20.5	20.8	21.5
NDF <sup>2</sup> (%)	31.2	29.36	30.12	31.8

<sup>1</sup>ADF: Acid detergent fibre; <sup>2</sup>NDF: Neutral detergent fibre

**Table 3: Daily weight gain dry matter intake and feed conversion ratio in Moghani lambs**

Traits	Control	10% wheat bran	20% wheat bran	30% wheat bran	SEM	CV (%)
Body weight gain/day (kg)	0.02 <sup>b</sup>	0.204 <sup>b</sup>	0.222 <sup>a</sup>	0.203 <sup>b</sup>	0.191	2.49
Dry matter intake/day (kg)	1.355 <sup>a</sup>	1.358 <sup>a</sup>	1.356 <sup>a</sup>	1.357 <sup>a</sup>	0.182	1.92
Feed conversion ratio	6.707 <sup>a</sup>	6.656 <sup>a</sup>	6.10 <sup>b</sup>	6.684 <sup>a</sup>	0.171	3.42

<sup>a,b</sup>Different superscripts in a row differ significantly (P<0.05).

acclimatized for 14 days. During the experiment, lambs were fed three times a day (morning, midday and afternoon). The remainder food waste of each repetition before the next day meal was collected and weighed. During the experiment, water was freely available to the lambs. The experiment lasted for 70 days.

### Statistical analysis

Data was analyzed with statistical software SAS Institute, 2004. Means were compared by Duncan's multiple range test (Duncan, 1955). P value less than 0.05 was statistically considered significant.

### Results and Discussion

According to results of this study, average difference in daily gain and feed conversion ratio between 20% wheat bran with other treatments is significant, but a percentage of dry matter intake (DMI) between tested treatments in this study was not significantly different. Significantly high (P<0.05) weight gain was found in animals fed with 20% wheat bran compared to the control. Similarly, FCR was also improved (P<0.05) in the same treatment.

The use of wheat bran in livestock rations is recommended due to higher energy contents than forages. In comparison with forage, wheat barns neutral detergent fibre (NDF) is fermentable and more than 62% of rumen micro-organisms are accessible, this can

effectively replace in dairy and fattening livestock diet as a part of forage or grains (Oba et al., 1999). Due to the high digestibility of starch present in the wheat bran inside the rumen under the effect of microbial fermentation, more propionic acids are produced which act as an energy source for animals and may cause improved body weight (Hess et al., 1996).

### Conclusion

From the present study, it was concluded that 20% wheat bran could be successfully substituted for other grains in growing Moghani lambs.

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