

Using different levels of sorghum in finishing *Ghezel*×*Arkhar-Merino* crossbred lambs diets and its effects on their performances

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INTRODUCTION

Reducing of animal production costs is the main goal of farmers, therefore using of some alternative feedstuff such as sorghum can help them to reach this purpose. In many cases a problem in utilization of these alternative feeds is the presence of anti-nutritional factors such as tannins found in them. Dietary tannin can restrict intake and reduce overall weight gains by livestock. The aim of the this study was to investigate the effects of replacing dietary barely with different levels of sorghum on lamb performances.

MATERIAL AND METHODS

16 *Ghezel*×*Arkhar-merino* crossbred male lambs with live weights (46 ± 5.8) kg were used. Animals were kept at Research Farm of University of Tabriz. Each pen was including four animals that were randomly assigned to one of the four dietary treatments in a completely randomized design assignment (Table1). Experimental treatments didn't balance for the initial weight at the beginning of the study, so we used initial weight of lambs as a covariate. Feed intake, weight gain data, ruminal metabolites were analyzed using the general linear model of the Statistical Analysis Systems (SAS, 1999).

Table 1 experimental rations compositions (% of total diet)

Treatments	A	B	C	D
Alfalfa hay	20	20	20	20
Barley grain	80	20	10	0
Sorghum grain	0	60	70	80
Crude protein	12.27	12.33	12.34	12.35
Dietary TEPH ¹	0	1.04	1.64	1.87
Dietary TET ²	0	0.59	0.69	0.78

¹ Dietary total extractable phenol

² Dietary total extractable tannin

A: Without sorghum, B: 60% sorghum, C: 70 % sorghum, D: 80% sorghum

RESULTS

The results of experiment indicated that there was significant difference in final weight between A and B treatments, but when we used initial weight as covariate, didn't find any significant effect of dietary treatments on dry mater intake, average daily gain and feed conversion ratio (Table 2).

Experimental treatments had no effect on ruminal measurements such as total VFA, N-NH₃ and pH as well (Table 3).

Table 2 Effect of dietary treatments on dry matter intake, weight gain and FCR

Treatments	A	B	C	D
Dry matter intake (kg/day)	3.1 ± 0.2	3.4 ± 0.3	3.3 ± 0.3	2.8 ± 0.2
Final weight(kg)	58.1 ± 1.4^a	62.7 ± 1.1^b	59.7 ± 1.1^{ab}	58.4 ± 1.4^{ab}
Total weight gain (kg)	11.1 ± 1.1	15.4 ± 1.3	14.2 ± 1.4	12.5 ± 1
Average daily gain (kg)	0.19 ± 0.02	0.24 ± 0.02	0.22 ± 0.02	0.2 ± 0.02
Feed conversion ratio	13.3 ± 1.9	11.8 ± 1.6	13.4 ± 1.5	14.1 ± 2

Mean values with different superscripts (a and b) within a row differ significantly ($P < 0.05$).

Table 3 Effect of dietary treatments on total VFA, N-NH₃ and ruminal pH

Treatments	A	B	C	D	SE
Total VFA(<i>mmol/dl</i>)	9.25	12.10	15.33	13.18	1.9
N-NH ₃ (<i>mg/dl</i>)	1.38	1.20	1.30	0.88	0.2
Rumen pH	6.85	6.55	6.42	6.58	0.1

Conclusion

The results of present study showed that using of different levels of sorghum in finishing lamb's diets can not affect their performances, and ruminal and fecal measurements.



EAAP 2010

**61st Annual Meeting of the European Association
for Animal Production**

AUGUST 23rd-27th, 2010 - HERAKLION, CRETE ISLAND, GREECE

