

Oak fruits as energy source for growing Awassi lambs

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Barley and wheat bran are the major components of the concentrate mixture used for growing lambs in Jordan. Local production of grain lags behind needs and fluctuates from year to year depending on the rainfall and market. For this reason and because of the high cost of animal feed available locally, lambs are sold and slaughtered after weaning at a very low live weight (16-22 kg). It is obvious that the most important challenge for nutritionists is to reduce feeding cost and encourage sheep holders to practise feedlot fattening using local feed resources such as oak fruits, OF Vallenea (*Quercus aegilops*) and Kermes (*Quercus coccifera*) are the most abundant oak trees in Jordanian forests.

Feeding and digestibility experiments were carried out to assess the nutritional value of OF as a substitute for barley in fattening diets of lambs. Thirty individually penned Awassi lambs (mean body weight, BW 25.3 kg, age 4 mth) were equally divided into three groups. They were fed one of three diets formulated to contain 0, 25 and 50% of ground OF. Twelve other lambs (mean BW, 35.5 kg, age 6 mth) were used for digestibility and nitrogen balance measurements.

Parameters	Control	25% OF	50% OF	F-value
Initial live weight (kg)	25.8 ± 0.50	24.8 ± 0.60	25.2 ± 0.40	
Final live weight (kg)	34.9 ± 0.96	34.1 ± 0.96	32.3 ± 0.96	1.85 NS
Live weight gain (g/d)	186 ^a ± 11	189 ^a ± 11	144 ^b ± 11	5.82 *
Feed efficiency (kg DM intake/kg gain)	4.68 ^a ± 0.66	4.79 ^a ± 0.57	6.01 ^b ± 1.20	7.40 **
Digestibility coefficients %				
DM	78.7 ^a ± 0.4	71.7 ^b ± 0.4	66.0 ^c ± 0.4	543.5 **
NDF	63.1 ^a ± 0.4	45.9 ^b ± 0.5	38.3 ^c ± 0.3	494.9 **
ADF	46.8 ^a ± 0.5	28.7 ^b ± 0.7	9.8 ^c ± 0.7	1018.2 **
CP	74.0 ^a ± 0.6	60.0 ^b ± 0.1	63.3 ^c ± 0.6	192.3 **
GE	80.1 ^a ± 0.6	75.0 ^b ± 0.6	68.6 ^c ± 0.3	123.1 **
Retained N (g/d)	7.06 ^a ± 0.2	6.22 ^b ± 0.2	6.57 ^b ± 0.2	5.6 *
Retained N (% of digested N)	36.13 ± 1.2	35.20 ± 1.2	38.85 ± 1.2	1.9 NS

abc Different letters indicate statistical significance; NS= not significant; *P<0.05; ** P<0.01

Daily weight gain and feed efficiency were lower (P<0.01) for lambs fed the 50% OF diet. Digestibility coefficients of all dietary constituents were reduced (P<0.01) as a result of OF substitution for barley. Retained nitrogen, N (g/d) was also lower (P<0.05) for OF diets, but similar across diets when expressed as % of apparently digested N. The low cost of OF compared with barley suggest that substitution of OF for barley at a maximum level of 25% would be economically advantageous.