

PERFORMANCES OF FATTENING LAMBS FED ON MIXED FEEDS CONTAINING TWO DIFFERENT LEVELS OF ALMOND HULLS

G. Vonghia, B. Ciruzzi, A. Vicenti and F. Pinto

University of Bari, Via G. Amendola, 165/A, 70126 Bari, Italy

Introduction

The epicarp and mesocarp of *Prunus amygdalus* fruit (almond hull) could be a very important by-product among the vegetable bio-mass.

In fact in the mediterranean countries the almond yield reaches 555,390 metric tons (FAO, 1986), which leads to 944,163 metric tons yield of almond hulls, estimated according to Alibes method (1983).

The chemical composition and nutritive value of almond hulls have been investigated by a lot of researchers (Saura Calixto et al., 1982; Alibes et al., 1983; Sanz Sampelayo et al., 1985; Pinto et al., 1989). The hull is a by-product resulting in low protein, high N-free extract and reasonable energy content; the improvement of its nutritional characteristics to utilize in ruminant nutrition needs integration by high protein content feeds.

This investigation aims to study the utilization of two different levels of almond hull in feeding fattening lambs.

Materials and Methods

The trial was carried out on 30 "Gentile di Puglia" lambs ageing 60 days and fattened up to 102 days. The lambs were divided into 3 groups

(each one composed by 5 males and 5 females) and fed "ad libitum".

The 3 groups were fed respectively on a fattening mixed feed (test), on a 15% almond hull diet (group A) and on a 30% almond hull diet (group B), being the 3 diets isoproteic.

Each lamb was weekly weighed and food intake was daily recorded for each group. Dressing percentage was evaluated on empty body weight.

Statistical significances were determined using T-Student procedure for data analysis.

Results and Discussion

Lambs fed on 15% almond hull diet (group A) resulted in higher final liveweights (kg 20.98) than group B and test lambs (kg 20.12 and 19.95 respectively), but no difference was statistically significant (table 2).

Lambs of groups A and B showed higher average daily gains than test ones (table 2).

Highest dry matter and meat food units conversion indexes were showed by group B and group A lambs respectively (table 2).

Moreover no significant differences were found in dressing percentages among lambs of 3 groups (table 2).

In conclusion almond hulls, even if poor in

TABLE 1. CHEMICAL COMPOSITION ON % D.M. AND NUTRITIVE CHARACTERISTICS

	Almond hull	Diet A	Diet B	Fattening mixed feed
Dry matter	95.60	89.10	89.70	89.00
Crude protein (Nx6.25)	5.78	16.31	16.39	16.37
Ether extract	3.01	3.40	3.57	3.46
Ash	11.50	8.72	9.73	8.60
Crude Fibre	18.53	14.07	13.97	11.04
N-free extract	61.18	57.50	56.34	60.53
M.E. (MJ/Kg d.m.)	5.39	11.924	11.954	12.498
Meat F.U./q.d.m.	30.06	85.41	86.11	91.91

TABLE 2. PERFORMANCES AND DRESSING DATA (\pm S.E.)

	Group A	Group B	Test
Initial live weight (kg)	12.68 \pm 0.70 ^{Aa}	12.78 \pm 0.70 ^{Aa}	12.53 \pm 0.71 ^{Aa}
Final live weight (kg)	20.98 \pm 0.48 ^{Aa}	20.12 \pm 0.48 ^{Aa}	19.95 \pm 0.49 ^{Aa}
Daily gain (g)	197.04 \pm 11.53 ^{Aa}	176.48 \pm 11.53 ^{Aa}	172.45 \pm 11.78 ^{Aa}
Daily intake of d.m. (kg)	0.863	0.880	0.765
Daily intake of Meat F.U.	0.736	0.758	0.703
D.M. conversion index	4.38	4.99	4.44
Meat F.U. conversion index	4.74	4.30	4.08
Dressing on e.b.w. (%)	61.97 \pm 0.76 ^{Aa}	61.59 0.76	60.95 \pm 0.76 ^{Aa}

*Different capital or small letters on the same line denote respectively differences for $P < 0.01$ and $P < 0.05$.

crude protein content, may be utilized in sheep feeding, nevertheless it need suitable proteic supplement; in fact mixed feeds containing 30% of this by-product may be successfully used in fattening lambs ageing 102 days at slaughtering, as showed by our results.

(Key Words: Almond Hulls, Sheep Feeding, Fattening Lambs)

Literature Cited

- Alibes, X., M.R. Maestre, F. Munor, J. Cambellas and J. Rodriguez. 1983. Nutritive value of almond hulls for sheep. *Animal feed and Technology* 8:63-67.
- Pinto, F., G. Vonghia, B. Ciruzzi, O. Montemurro and G. Marsico. 1989. "In vivo" digestibility and nutritive value of undecorticated soflower oilseed meal, hydraulic extracted, of two mixtures made up of almond hulls, olive twigs and soflower oilseed meal. *Second International Sofflower Conference*. Hyderabad, India.
- Sanz Sampelayo, R., V. Escandan and J. Fanolla. 1985. Use of agro-industrial byproducts in the feeding of herbivorous animals. 3. Almond hulls (pericarp and mesocarp of *Amygdalus prunus*). *Advances en Alimentacion y Mejora Animal*. 26:251-257.
- Saura Calixto, F. and J. Canellas. 1982. Chemical composition of hulls of the sweet almond (*Prunus amygdamus*). *J. Sci. Food Agric.* 33: 336-339.
- FAO. 1986. *Production year book*. 40:177. Roma.