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Izlaganje sa znanstvenog skupa
Conference paper

OPTIONS FOR THE PRODUCTION OF LAMB CARCASSES FROM GREEK DAIRY BREEDS OF SHEEP

2. Utilization of sown pasture

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Introduction

This experiment formed the 3rd phase of a wider project previously described. The objectives were defined as:

1. To investigate the use of sown irrigated pasture for the production of heavier than traditional carcasses within a sheep dairy system.
2. To examine the long-term use of a semi-intensive grazing system as an environmentally friendly alternative to high input cropping systems.

Special sown pastures for lamb finishing have not, in the past, been used in Greece. It was recognised that, given the annual climatic conditions, such a pasture would only survive and be productive if it could be adequately supplied by irrigation. The majority of productive land already served by an irrigation system, is used for intensive production of crops such as cotton, sugarbeet or tobacco.

An area of 6 ha, currently used for cotton located in Central Greece, was prepared and the seed mixture was sown in September in order to be ready for grazing in February/March of the following year. The seed mixture was a combination of a tetraploid ryegrass (Lolium perene) and white clover (Trifolium repens) in the ratio of 10:1. The pasture was fenced (with sub-divisions) and a temporary sheep house for feeding and night housing was constructed.

Materials and Methods

Animals:

Lambs of the same breeds and of the same breeding farms as in previous years were transfered at weaning (42 days of age) in mid to late December to the temporary sheep house until turn-out to pasture at 63 days post-weaning. The experimental design is shown in Fig 1.

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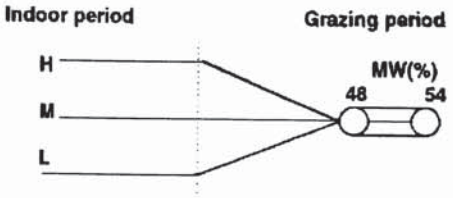
Fig 1. - EXPERIMENTAL DESIGN



During the indoor feeding phase the lambs were group fed at 3 levels of concentrate together with *ad libitum* unchopped alfalfa hay. The initial levels and weekly increments, shown in Table 1 were much lower than in the previous years and were calculated to extend the indoor period and allow for a significant increase in LW on pasture.

At the end of the 63 period all lambs were turned out, as a single group, to the pasture. They were given a short training period (c 7 days), after which they remained on the pasture from 6am to 8pm every day but were housed at night (without feeding) for protection.

Table 1. - INITIAL CONCENTRATE ALLOWANCE AND WEEKLY INCREMENT (G/DAY)

Concentrate level	Boutsko	Serres	Karagouniko
High	100(14)	286(32)	300(36)
Medium	75(10)	168(18)	175(21)
Low	50(6)	50(6)	50(6)

It was decided on the basis of the indoor results of the previous year the set higher proportions of MW as slaughter targets. Lambs were allocated to a target liveweight at slaughter within each breed and nutritional group of 48% (n=5) or 54% (n=5) of breed MW. At slaughter the carcasses were visually assesed for fat class and the RHS of the carcass was used for chemical analysis.

Post experimental treatments

As lambs were removed for slaughter and replacements were needed to maintain sward height, a group of non-experimental lambs was introduced followed when necessary by breeding ewes.

Pasture

Mean sward height was measured weekly and the experimental grazing area was adjusted to maintain a surface height of 6+-2 cm. Estimates of herbage growth rates were obtained at 2-week intervals and changes in species proportions were assesed monthly. The average stocking density was 35 lambs/ha (s.e. 3.4).

Results and Discussion

Indoor period

The liveweight gains (kg) for each breed and concentrate level group are shown in Table 2. It was noted that whilst level of concentrate had some effect on DLWG in the S and K breeds there was little effect in the B breed. As a result there was less difference, within breeds, on the gain required on pasture to meet target weights.

Table 2. - LIVEWEIGHT GAIN (KG) DURING INDOOR PERIOD

Concentrate level	Boutsko	Serres	Karagouniko
High	7.8	13.4	13.7
Medium	7.9	10.1	12.7
Low	7.6	7.0	8.9

The total feed consumption as concentrate or alfalfa hay during this period is shown in Table 3. In general there was a high level of alfalfa consumption at all concentrate levels.

Table 3. - CONSUMPTION OF CONCENTRATE (C) AND ALFALFA (A) (KG) DURING INDOOR PERIOD

Concentrate level	Boutsko		Serres		Karagouniko	
	C	A	C	A	C	A
High	9.8	33.8	26.1	39.6	28.0	39.2
Medium	7.3	36.8	15.4	40.4	16.2	48.5
Low	4.9	37.5	4.9	40.7	4.9	49.8

Together with differences in LWG and in total consumption the feed costs per kg of LWG did not differ significantly amongst breeds or treatment levels (Table 4).

Table 4. - FEED COSTS (DRA/KG LWG) DURING INDOOR PERIOD

Concentrate level	Boutsko	Serres	Karagouniko
High	386	372	376
Medium	372	392	357
Low	361	419	391

Grazing period

Within breeds the differences in mean daily LWG on pasture associated with concentrate level during the indoor phase was not significant. The differences in the time taken to reach target liveweight amongst breed and indoor treatment groups (Table 5) depended largely on the differences in LWG required to meed the targets.

Table 5. - SLAUGHTER WEIGHT, DAILY LWG AND TIME TAKEN DURING THE GRAZING PERIOD

Breed	Boutsko		Serres		Karagouniko	
%MW at slaughter	48%	54%	48%	54%	48%	54%
Target slaughter weight (kg)	27.1	30.3	34.0	37.6	38.4	43.1
Liveweight gain (g/day)	127	148	205	207	198	225
Time taken (days) (range over treatment groups)	49-50	57-67	41-56	56-74	55-66	66-92

The mean carcass weights at slaughter and the estimates of fat class, based on chemical analysis and on visual appraisal of the carcasses are shown in Tables 6 and 7, respectively, for the 48% and 54% MW groups.

Table 6. - CARCASS WEIGHT (CW) AND FAT CLASS (FC) FROM LAMBS SLAUGHTERED AT 48% MW

Concentrate level	Boutsko		Serres		Karagouniko	
	CW	FC	CW	FC	CW	FC
High	12.3	2/3L	16.4	2	17.8	2
Medium	12.0	2/3L	16.5	3L	18.1	3L
Low	12.2	2	15.7	2	17.9	2/3L
OVERALL		2/3		2		2/3L

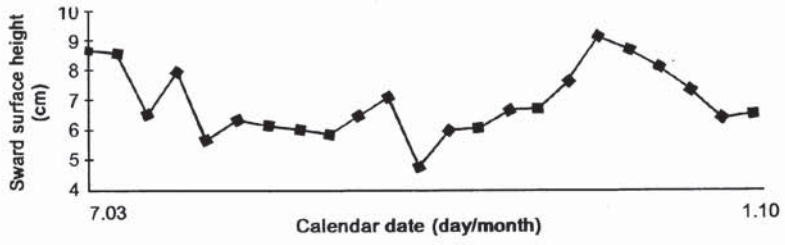
Table 7. - CARCASS WEIGHT (CW) AND FAT CLASS (FC) FROM LAMBS SLAUGHTERED AT 54% MW

Concentrate level	Boutsko		Serres		Karagouniko	
	CW	FC	CW	FC	CW	FC
High	13.8	2	18.1	2	20.9	3L
Medium	13.2	3L	17.9	3L	20.8	3L
Low	13.4	3L	17.3	3L	19.9	3L
OVERALL		3L		2/3L		3L

Pasture

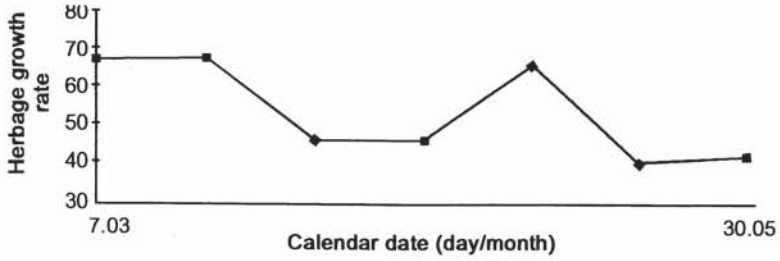
The changes in sward surface height, recorded weekly from early March to end of June and forthnightely there after until October are shown in Fig 2.

Fig 2. - CHANGES IN SWARD SURFACE HEIGHT (CM) FROM MARCH TO OCTOBER



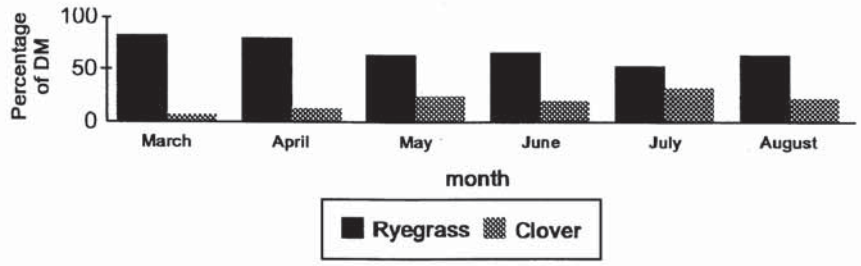
The herbage growth rate estimates, during the period of grazing by the experimental lambs only, are shown in Fig 3. Changes in growth rate appeared to follow fluctuations in ambient temperature, even though soil moisture was held constant by the irrigation programme.

Fig 3. - CHANGES IN HERBAGE GROWTH RATE (kg DM/ha/d) DURING THE GRAZING PHASE OF EXPERIMENTAL LAMBS (MARCH TO JUNE)



As the embient temperature rose through the summer there was a consistant increase in the proportion of clover in the sward (Fig 4.)

Fig 4. - CHANGES IN SWARD COMPOSITON (PERCENTAGE OF RYEGRASS AND CLOVER IN HERBAGE DM



Conclusions

Irrigated pasture can be used within the dairy farm systems to produce heavier than traditional carcasses at times when market supply is low (May to July).

Pasture growth continues satisfactorily until November under a suitable irrigation programme. This allows further lambs to be finished or it could be used for the milking and breeding flock.