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FLEECE AND WEIGHT OF ANGORA GOATS AND MERINO SHEEP COMPARED IN SOUTH-EASTERN QUEENSLAND

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SUMMARY

Five Merino sheep and five Angora goats, all approximately 9 months old, were run together on non-irrigated pasture in the Lockyer Valley of south-eastern Queensland. Body-weight and fibre production were recorded for 18 months, when the animals were slaughtered and the carcasses appraised.

Animal growth data indicate that natural pasture resulting from heavy winter rain was of more benefit to the animals than that resulting from summer rain.

The sheep grew more slowly than the goats on poor quality feed, but gained weight more rapidly when conditions improved. They also grew more than twice as much fibre as the goats and, when slaughtered, yielded heavier carcasses which were more acceptable to the local retail market.

These results do not support any change in production from Merino sheep to Angora goats under the conditions of the trial. However, the weight gains by the Angora goats could warrant further investigation under different conditions.

I. INTRODUCTION

Angora goats have been present in Australia since 1856 but they have never generated an economically significant enterprise as they have in South Africa. The most obvious reason for this seems to be the success achieved by the sheep industry in the Australian environment.

During recent times when wool prices fell to a low level, some publicity was given to Angora goats as an alternative source of income. The economics of changing from wool to mohair were reviewed by Ip (1971) who concluded that there was little to recommend such a change. The mohair production figures used in his review were based on South African standards, as very little relevant information of a reliable nature is available on mohair production in Australia.

The present trial was undertaken to compare the production of fibre and meat from Angora goats and Merino sheep under sub-optimal grazing conditions in south-eastern Queensland.

II. MATERIALS AND METHODS

Five Merino wethers and five Angora wethers, all between 7 and 10 months of age, were run together in an area of approximately 2 hectares at Queensland Agricultural College, Lawes. All were drenched at least every 2 months with the laevo isomer of tetramisol hydrochloride to control internal parasites, tactical drenches being given when indicated by weather conditions.

The pasture consisted of blue grasses (*Bothriochloa* and *Dicanthium* spp.) and other grasses of the genera *Eragostis, Eleusine* and *Eriochloa,* with significant invasions of Rhodes grass (*Chloris gayana*) and forbs ranging in type according to the season.

The animals were kept on the pasture throughout the 18-month period of the trial and for 1 month before it began on 21 June 1972.

All the animals were shorn immediately before the start of the trial and at 6-monthly intervals, coinciding with the recording of body-weight. The weight of wool or mohair (hereafter referred to as fibre) from each animal was measured in the greasy state. The weight of clean fibre produced by each animal was then measured after extraction of wax, suint and dirt, and drying to a constant weight at 95°C.

Every 6 months body-weights were recorded after the animals had been shut up without feed or water for 18 hours. Greasy fibre weights measured at shearing were deducted from total animal weight to yield body-weights.

At the end of the trial period all animals were slaughtered and the weight of salable carcass measured. This consisted of the dead animal without hide, head or viscera except the kidneys; the legs were severed at the carpo-metacarpal and tarso-metatarsal joints.

III. RESULTS

Meteorological data recorded during the trial are shown in Table 1, and the body-weight changes and fibre production are shown in Table 2.

TABLE 1

RAINFALL, EVAPORATION AND TEMPERATURE RECORDINGS

Date	Rainfall (mm)	Evaporation (mm)*	Max. Temp. (°C)	Min. Temp. (°C)
Jul 1972	0	138	21	3
Aug 1972 ..	13	158	23	9
Sep 1972	3	162	26	8
Oct 1972	237	190	28	11
Nov 1972 ..	55	184	29	17
Dec 1972	94	301	33	18
Jan 1973	117	208	31	21
Feb 1973	122	156	29	26
Mar 1973 ..	28	183	31	19
Apr 1973	3	156	28	14
May 1973 ..	18	136	28	11
Jun 1973	19	94	23	8
Jul 1973	306	76	21	10
Aug 1973 ..	40	96	23	10
Sep 1973	30	130	25	12
Oct 1973	59	169	27	14
Nov 1973 ..	88	208	30	17
Dec 1973	106	215	31	18

* Recorded by 'A' pan evaporimeter.

TABLE 2

INITIAL AND FINAL MEAN BODY-WEIGHTS, WEIGHT CHANGES AND FIBRE PRODUCTION

Period of Time	Weight Gain (kg)		Fibre Production (kg)	
	Merino Sheep	Angora Goats	Merino Sheep	Angora Goats
Initial body weight	23·80±0·61	17·61±0·77		
21 Jun 1972—20 Dec 1972 ..	3·23±0·63	†6·10±0·47	†2·30±0·28	0·71±0·13
20 Dec 1972—20 Jun 1973 ..	3·10±0·44	†5·71±0·36	†1·64±0·10	0·80±0·12
20 Jun 1973—19 Dec 1973 ..	*13·91±0·37	10·59±1·02	*2·54±0·51	1·00±0·15
Final body-weight	44·04±1·40	40·01±0·81		

* Significantly greater than the corresponding figure for the other group $P < 0·05$.
† Significantly greater than the corresponding figure for the other group $P < 0·001$.

The dressed carcasses of the sheep weighed 19·76 ± 0·98 kg which was significantly heavier ($P<0·05$) than that of the goats (16·86 ± 0·47 kg). The dressing percentage did not differ significantly being 45·9% for the sheep and 43·0% for the goats. The carcasses were graded by a professional butcher according to local standards. He considered the mutton to be third grade, but acceptable for retail sale, whereas the chevon (goat meat) was considered inferior and graded as manufacturing meat.

IV. DISCUSSION

Body-weight gains and fibre production of all animals were higher in the last half of 1973 than in either of the other two 6-monthly periods. Meteorological data for this period show a high July rainfall followed by low but consistent rainfall in subsequent months. Pasture growth was not measured directly but it is clear that the winter growth of forbs and medics, stimulated by the rain, offered an intake of greater nutritive value than did the grass-dominant pasture growth which followed the summer rain.

The growth rate of the sheep was more severely affected than that of the goats during the first 12 months, probably due to differences in digestible dry matter intake and possibly a lower maintenance requirement by the goats. Malechek and Leinweber (1972) found that Angora goats were able to utilize available vegetation very effectively by both grazing and browsing. Also, Hugo (1968) stated that goats utilize vegetation from a height of 10 to 157 cm, whereas sheep confine themselves to vegetation between 25 and 30 cm. There were no edible trees or bushes available in the present trial. The summer grasses grew to 30 cm and higher and the goats were observed to browse on these more often than the sheep. This may have contributed to a higher intake of dry matter.

The gain in weight which occurred in all the animals during the last 6 months could be classified as compensatory growth (Wilson and Osbourn 1960). This was significantly greater in the sheep, probably because of the bigger setback they had received previously.

Ferguson (1962) found that changes in rate of wool growth and body-weight were related to the level of nutrition, although changes in the wool growth rate occurred more slowly. This is in agreement with the present results where the

low plane of nutrition exerted its maximum effect during the second 6-month period of the trial. The mohair production was less than half the wool production in each period but was apparently less sensitive to changes in the type and quantity of pasture available.

Ip (1971) used South African figures to calculate that fibre production per acre would be 10% less for Angora goats than for Merino sheep. For this to apply to the present results, the stock equivalents would have to be one Angora goat equalling 0·43 Merino sheep, whereas South African figures (Kinghorn 1974) show one Angora goat to be equivalent to 0·8 Merino sheep.

On the basis of output of a presently marketable product, the results do not support any change from Merino sheep to Angora goats, under the conditions prevailing during the trial. American grazing practices (Hobson 1965) suggest that synergism may exist between Angora goats and sheep or cattle, particularly when they are run together on cleared land where regrowth is a problem. This could not be taken into account in the present trial but, in view of the Angora goats' weight gains, it may be worth further investigation.

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