EFFECT OF MATING PERIOD ON PRODUCTIVITY IN MERINO EWES

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SUMMARY

Four systems of management of medium woolled Merino ewes were compared over three years at Bakers Hill, Western Australia. The objective was to see whether higher annual lambing and lamb weaning percentages could be achieved with increased mating periods and supplementary feeding.

Compared with a normal six week mating, ewes mated over six months produced 17% more lambs born but only 10% more lambs weaned. These ewes needed as much supplementary feed in autumn as ewes mated for 12 months which produced 43% more lambs born and 25% more lambs weaned. The extra productivity stemmed from a reduction in the number of dry ewes, a higher twinning rate and from 30% of ewes lambing twice a year. Ewes mated for 12 months but receiving no supplementary feed had the same levels of lamb production as ewes mated for six weeks.

INTRODUCTION

The conventional pathway to increase lambing rates in Merino sheep is to seek increased twinning by mating at the time of highest ovulation rates, through improved nutrition and through the use of high fertility strains such as the Booroola. However, many farmers dislike a high proportion of twin lambs because they have a higher neo-natal mortality and require better nutrition than single born lambs during their first year of life.

The alternative is to increase frequency of lambing. This is possible in the Merino, and we showed (Arnold and Charlick 1980) that even under harsh conditions about 25% of Peppin ewes in a natural flock lamb twice a year. Management problems could increase, at shearing in particular, with completely uncontrolled lambing which occurs when rams are present year long. This study was done to measure the levels of production achieved with rams present for 6 weeks, 6 months and 12 months, and the extra costs involved in feeding ewes and lambs to achieve normal standards of husbandry.

MATERIALS AND METHODS

The experimental site was on the CSIRO Yalanbee Experiment Station, Bakers Hill, W.A., which normally supports 6 breeding ewes per hectare an annual pastures. Yalanbee is 72 km east of Perth, elevation varies 250-350 m above sea level with a typical Mediterranean climate of cool winters and warm summers, Annual rainfall 575 mm and growing season 5%-6 months (May-October).

The area was divided into four 15 ha paddocks. One hundred Merino ewes were allocated to each paddock in February 1979, having been stratified into ages 2-5 years. Ewes were removed after their fourth lambing and completed their fifth lambing outside the experimental area. Normal drenching and vaccinations were carried out.

There were four treatments. (1) A control lambing from mid-June to late-July on green pasture with no supplementary feeding. (2) Lambing six months of the year beginning mid-March to. Supplementary feeding was commenced three weeks before lambing and continued until pasture growth was adequate. (3)
Rams with ewes throughout the year, and flock supplementary fed when required. (4) Rams with ewes throughout the year but no supplementary feeding. The four treatments were randomly allocated to the four paddocks and rotated each March after shearing.

Lambs were weaned at 25 kg or 140 days which ever was earlier. Ewes were shorn in March, at which time ewes culled for age were removed and younger replacements added.

The experiment is continuing. The first year’s data are considered preliminary, and data for 1980-82 only are reported.

RESULTS

Seasonal conditions were below average in 1981 and 1982 so that ewes on the control treatment needed some supplementary feed prior to lambing.

There were only small differences in the seasonal liveweight patterns of ewes on treatments 1-3; those on treatment 4 were nearly 10 kg lighter during autumn and winter, but made up most of this difference by December in two of the three years. Greasy fleece weights averaged 4.7, 5.0, 4.5 and 3.9 kg respectively on treatments 1-4. However, fleece weight was influenced by number of lambs reared. For example in treatment three dry ewes averaged 5.5 kg, whilst those that lambed averaged 4.0 kg when no lambs were reared, 4.5 kg rearing one lamb, 4.3 kg rearing two lambs and 4.3 kg rearing three lambs in a year.

Fig. 1 Seasonal distribution of lambing in treatments with rams present all year
Distribution of lamblings on treatments 3 and 4 is shown in figure 1. Lambs were born in every month in treatment 3, with twins occurring throughout the year; peak lambing activity varied from year to year. Ewes on treatment 4 had less uniform lambing.

Table 1 shows reproductive performance. Extending lambing to six months only increased the number of lambs born by 17%, but this rose a further 26% for twelve month lambing when supplementary feed was given. The increases came because fewer ewes failed to lamb, a higher percentage of births were twins, and in the twelve months treatment because 30% of ewes lambed twice in a year. Mortality rate of twins was highest with treatment 2 (autumn lambing - fox predation), and treatment 4 where no supplements were fed.

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<thead>
<tr>
<th>TABLE I</th>
<th>Summary of reproductive performance (values are number per 100 ewes)</th>
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<tr>
<td></td>
<td>Ewe deaths</td>
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<td></td>
<td>Rams present</td>
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<tr>
<td>Ewe deaths</td>
<td>80</td>
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<tr>
<td>Twin births</td>
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<td>Dry ewes</td>
<td>80</td>
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<td>Lambs born per ewe</td>
<td>80</td>
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<tr>
<td>Lambs weaned</td>
<td>80</td>
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<tr>
<td>Lambed twice</td>
<td>80</td>
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</table>

Lambs born in June-July (treatment 1) grew faster than lambs born over a wider range of dates on the other treatments. However, as is shown in figure 2 lambs born in treatment 3 between April and October grew at 170 g day\(^{-1}\), or faster, from birth to weaning.

Treatments 2 and 3 required similar amounts of supplementary feed, all of which were given in autumn/winter.
DISCUSSION

The earlier work with Peppin Merinos (Arnold and Charlick 1980) was substantiated i.e., that a proportion of ewes will lamb twice a year. It had been suggested that the "WA" Merino would not respond in the same way as the Peppin because of the low proportion of ewes in oestrus from April to December (Oldham 1978). There was no significant difference in the period studied between the 'natural' Peppins (11% lambed twice a year) and in unsupplemented WA merinos the figure was 12%. This increased to 30% when supplementary food was given.

No distinct seasonal pattern of lambing has occurred when the rams are present for 12 months so that a restricted period of mating cannot be designated that would obtain maximum frequency of lambing. Presence of rams for six months of the year could not be expected to produce multiple lambings. This treatment merely reduced the proportion of dry ewes. The cost in supplementary food of so doing was equal to that for having rams present year long.

Supplementary feed is essential to obtain and rear lambs and maintain the ewe's wool production near normal. We had little problem in growing out lambs born in summer given appropriate protein grain supplements. The economics of exploiting the Merino ewe's reproductive potential will obviously vary with local and yearly costs and prices, but the potential is there.

REFERENCES


Fig. 2 Growth rates of lambs born in different months of the year