THE INFLUENCE OF TIME OF LAMBING ON THE PERFORMANCE OF FINE WOOL MERINO EWES

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Summary

Observations were carried out at Lismore in western Victoria on the performance of two groups of 250 fine wool Merino ewes mated in spring (November) and autumn (May) respectively.

A greater proportion of ewes lambing in spring lambed within 150-170 days after the introduction of the rams than ewes lambing in autumn. The duration of lambing was shorter in spring. There were no significant differences in the proportion of ewes lambing, in the proportion of twins born or in the proportion of lambs marked between the two groups. Ewes lambing in spring weaned more lambs than ewes lambing in autumn because of a higher lamb survival rate in the spring (spring = 90%, autumn = 81%).

The lambs born in spring were heavier at birth (P < 0.001) and grew faster than the lambs born in autumn. Body weights at 18 months of both groups were variable; at 30 months of age, both groups had body weights of approximately 36 kg (80 lb).

Ewes lambing in spring cut more wool per head (P < 0.001) than ewes lambing in autumn.

I. INTRODUCTION

The majority of Merino ewes in the Western District of Victoria are joined for mating during the spring and early summer. Increased interest in higher stocking rates and more effective utilisation of pasture has recently focused attention on the possibility of autumn mating.

Merino sheep exhibit a trough of sexual activity in spring and early summer and a peak of activity in the autumn and early winter (Kelley 1946; Kelley and Shaw 1943; Stewart and Moir 1943; Watson 1953, 1962; Dun, Ahmed and Morrant 1960). Incidence of twin ovulations also tend to be highest in autumn and prolificacy greatest following autumn mating (Morley 1948; Watson 1953; Radford 1959). However, in some Merino flocks in Victoria, the incidence of twin births may be low at all times of the year (Watson and Radford, personal communication).

Nutrition of ewes in late pregnancy and during lactation, and of lambs during their early growth, also varies with time of mating. This may lead to variation in wool growth of ewes and in the rate of growth of the lambs.

This paper reports the results of a trial which aimed to record differences in reproductive performance, lamb growth rate and wool production from two comparable groups of fine wool Merino ewes which were lambed in the autumn and spring months respectively over three years in Western Victoria.

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II. MATERIALS AND METHODS

(a) Environment

The observations were carried out on a private property in the Western District of Victoria, approximately 100 miles west of Melbourne. The area is typically treeless basalt plains, with a rainfall of 23 inches (59 cm), characterised by cold harsh conditions with little pasture growth during the winter, peak pasture growth in the spring followed by hot, sometimes dry, summers with dry standing feed.

The property, of about 6,500 acres, has subterranean clover established on about 95% of the area, with 5,000 acres sown down to subterranean clover, perennial rye grass and phalaris. Pastures are mainly set stocked at about three sheep per acre.

(b) Animals and experiment design

The animals studied were selected from a flock of fine wool Merinos which had previously had an average adult body weight of about 40.9 kg (90 lb), with wool of average quality count of 70s–74s.

Two groups, each of approximately 250 ewes all born in autumn 1958, were selected at random from the progeny of two different samples of the flock. The two groups were run separately. One group (group-AL) was joined for mating in November 1961, 1962 and 1963, and the other (group-SL) in May 1962, 1963 and 1964. In both groups, the mating period was eight weeks, with 2% of rams, and was preceded by the introduction of 1% of vasectomised rams for 10-14 days. In 1963 and 1964, the same rams were used for both groups.

The ewes of both groups lambed under supervision, with each lamb being identified to its mother at birth, eartagged and weighed. Weighing of lambs was later repeated at regular intervals. As far as practicable the progeny of both groups were run together. Both groups, together with their lambs, were shorn in early September of each year. The spring lambs were weaned on to summer crop and the autumn lambs on to spelled pasture. The supplementary feeding and management of each group is shown in Table 1.

| TABLE 1 |
| Time of joining of ewes, supplementary feed given to ewes and management of weaner groups 1962-1964 |
| Lambing Group | Year | Date of joining* | Period of Supplementary feeding 0.1 kg (½ lb) oats per ewe per day | Management of weaner groups |
| | 1964 | 22. v. 64 | — | Jan. ’65: weaned to rape crop. |

*Length of mating usually eight weeks, preceded by 10-14 days teasing with vasectomised rams.
Fig. 1.—Pattern and frequency of lamb births from ewes lambing in autumn, •—•, and spring, O—O, 1962-64.
Observations on lambing, weight gains of lambs, and wool production were made in relation to the lambing seasons of 1962-64.

III. RESULTS

(a) Course of lambing
In spring, 74.8-90.6% of the ewes lambed between 150 and 170 days after the introduction of the rams, which is equivalent to conception within one oestrus cycle (Figure 1). The proportion of ewes lambing in the same period in autumn was less than 27.5% in 1962 and 1963, and 57.2% in 1964.

(b) Reproductive performance
The same proportion of ewes lambed in each group (Table 2). In both groups, the proportion of twins born was less than 2%, except in 1964, when there were 7.0% of twins born in group-SL. Consequently much the same number of lambs were born in both groups.

Lamb losses prior to marking were slightly, but not significantly, greater in group-AL than in group-SL. In group-SL, the losses between marking and weaning ranged from 1-3%, but in group-AL ranged from 3.5-9.0%. This difference in lamb loss between marking and weaning was significant (P < 0.05).

(c) Birth weights of lambs
The mean birth weight of the lambs was significantly higher in group-SL, 4.0 kg (8.9 lb), than in group-AL, 3.8 kg (8.3 lb) (mean difference = 0.3 kg (0.6 lb), P < 0.001).

(d) Fleece weight of ewes
The mean fleece weight of the ewes was significantly higher in group-SL, 3.4 kg (7.5 lb), than in group-AL, 3.3 kg (7.2 lb) mean difference = 0.1 kg (0.3 lb), P <0.001).

(e) Body weight gains of progeny
The gain in body weight of the progeny of both groups showed a similar pattern each year (Figure 2). Within 12-15 months, the progeny of group-SL,

<table>
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<tr>
<th>Reproductive performance of group-AL, and group-SL, 1962-1964</th>
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<tr>
<td><strong>Lambing Group</strong></td>
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<tr>
<td>Group-AL</td>
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<td>Mean for 1962-64</td>
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| Group-SL          | 1962     | 254                    | 91.2             | 1.6            | 92.8           | 81.2           | 80.4            |
|                   | 1963     | 252                    | 92.1             | 2.0            | 94.1           | 89.7           | 86.5            |
|                   | 1964     | 243                    | 90.1             | 7.0            | 97.1           | 87.2           | 86.5            |
| Mean for 1962-64  |          |                        | 91.2             | 3.4            | 94.6           | 86.0           | 84.3            |

*Percentages calculated relative to number of ewes joined each year.
†Mean performance for those ewes with complete lambing history, 1962-64.
in both 1962 and 1963, attained a body weight equivalent to that of the progeny of group-AL, born six months earlier. At 12-18 months of age, the wether progeny of group—SL were consistently 5-6 kg (1 O-l 2 lb) heavier than the ewe progeny of the same group, whilst the difference in group-AL was only 0.5-1.4 kg (1-3 lb).

IV. DISCUSSION

Although in this Merino flock, there was little difference in reproductive performance between the two groups, except perhaps in the duration of the lambing period, there were substantial differences in favour of lambing in the spring between the groups, in lamb losses between marking and weaning, in the growth of weaners and in wool production.

The absence of any increase in fertility and the low incidence of twins following mating in the autumn both differ from the results obtained by Morley (1948), Watson (1953) and Dun, Ahmed and Morrant (1960). However, Watson (1957) obtained similar results to those reported in this paper.

Although the level of fertility was similar in each lambing group, more autumn than spring lambs died before weaning, so that substantially more spring than autumn lambs were weaned. The higher survival rates observed here for spring lambs, (spring = 90%, autumn = 81%) are in contrast to those observed by McLaughlin (personal communication) (spring 66%, autumn 83%) and Dun, Ahmed and Morrant (1960) (spring 87%, autumn 88%). This suggests that the advantage of spring lambing may be variable with both type and strain of sheep, and environment.

The shorter interval in group—SL between the date the rams were introduced and the mean date of lambing suggests that, in many ewes, oestrus occurred sooner after the rams were introduced in autumn than in spring. More immediate occurrence of mating in autumn than in spring has also been observed by Underwood, Shier and Davenport (1944), and Dun, Ahmed and Morrant (1960). The greater concentration of lambing for group—SL is similar to that recorded by Watson (1953) and Allden (1956). It may be an advantage in regard to supervision at lambing.

Heavier birth weights of spring born lambs have also been recorded by Dun, Ahmed and Morrant (1960), Barrett, Reardon and Lambourne (1962) and McLaughlin (1964). Low planes of maternal nutrition have an appreciable adverse effect on lamb birthweights and early growth rates (McClymont and Lambourne 1958; Taplin and Everitt 1964) and the lower birth weights and growth rates of the autumn lambs are probably due to the lower level of nutrition available to autumn lambing ewes both pre- and post-lambing.

Although the 1962 spring ewe lambs were heavier than the autumn ewe lambs at 18 months of age (Figure 2), the position was reversed for the 1963 progeny at the same age. Coop (1962) showed that reproductive performance increases with body weight at mating; the variable and often low body weight of both autumn and spring ewe lambs at 18 months (Figure 2) suggests that mating of both groups may be best delayed until 2½ years when ewes may attain body weights of approximately 36 kg (80 lb).

The advantage in spring lambing of greater wool production has also been observed by McLaughlin (1964 b). Although both groups were shorn together,
Fig. 2.—Mean live weights of lambs born in autumn and spring, 1962-64.

- Wether lambs born in autumn
- O-O Ewe lambs born in autumn
- a—■ Wether lambs born in spring
- [ ] Ewe lambs born in spring
it is unlikely that time of shearing affected fleece weights. Roberts (1961) showed that there was little difference in fleece returns from ewes shorn post-weaning, pre-lambing and post-lambing.

The results presented here indicate that the production of both lambs and wool from a spring lambing of fine wool Merino ewes in Western Victoria is likely to be superior to an autumn lambing. Lambing in spring appears to make supervision at lambing easier and more efficient. Lambs born in spring grow faster than autumn born lambs, however they may not be sufficiently heavy to be mated as maiden ewes at 18 months of age.

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VI. REFERENCES


