PRE-NATAL LOSSES IN SHEEP IN WESTERN VICTORIA

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Summary

In observations on 10,000 sheep aged 2-3 years or 4-9 years in eight flocks in the Western District of Victoria, 0-12% of ewes failed to mate, there were 9-30% returns to service at intervals greater than 13 days, and 3-30% of ewes that mated failed to lamb. At least 15-44% of potentially fertilisable ova were not represented by a birth at full term.

I. INTRODUCTION

Whilst some information is available on the level of post-natal wastage in sheep in Australia (Watson 1957; Moule 1954; Alexander, McCance and Watson 1955; Alexander and Peterson 1961), there is little on the level of pre-natal reproductive wastage in sheep.

Results are presented in this paper of observations on incidence of failure to mate, returns to service, failure to lamb after having mated, and wastage of potentially fertilisable ova in eight flocks in Western Victoria.

II. MATERIAL AND METHODS

The type and strain of sheep and the location of the individual flocks have been described by Mullaney and Hyland (1966). The flocks were joined for mating in November-December of each year, except Cl which was joined in February. Vasectomised rams (1%) were run with the ewes for 10-14 days, before they were joined with entire rams (2%) for eight weeks. The rams were fitted with Sire-Sine harnesses and crayons (Radford, Watson and Wood 1960) and the colour of the crayons was changed every 14 days. The ewes were yarded and examined every 7 days for crayon marks. Ewes were classified as having returned to service if they were marked at intervals greater than 13 days.

During lambing the ewes on all properties were inspected at least once daily and the mothers of all lambs were identified.

III. RESULTS

The results are set out in Tables 1 and 2. Of the ewes aged four to nine years, almost all in each flock mated. Almost all maiden ewes also mated, but generally the proportion was slightly lower than that among the older ewes. There were 9-30% returns to service. Of the ewes that mated, 3-16% failed to lamb except in one flock of 1½ year old Polwarth ewes in which the percentage was 33.

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TABLE 1

Incidence of failure to mate, returns to service, failure to lamb and wastage of potentially fertilisable ova in ewes 4-9 years old

Flock	Year	Ewes in Flock	Mated* %	Returns to Service† % (R)	Failed to Lamb‡ % (L)	Minimum Wastage of Ova %
Merino						
M1	1959	428	98	25.8	16.0	33.2
	1960	412	98	18.9	7.4	22.1
	1961	296	100	23.9	9.8	27.1
M2	1959	490	99	19.8	3.3	19.3
	1960	471	99	16.6	5.4	18.9
	1961	332	98	16.6	4.3	17.9
M3	1960	426	96	18.0	9.8	23.6
	1961	297	97	23.9	9.7	27.1
M4	1959	461	95	20.7	14.4	29.1
	1960	445	98	20.9	8.9	24.6
Corriedale						
C1	1959	486	100	25.6	5.0	24.4
	1960	371	99	16.9	9.3	22.4
C2	1959	472	97	12.5	9.2	19.3
	1960	357	99	15.5	5.9	18.5
C3	1960	425	96	20.0	8.3	23.6
	1961	328	98	18.8	6.9	21.6
Polwarth						
P1	1959	456	98	19.8	7.4	22.7
	1960	351	98	23.0	9.6	26.5
Range for all properties over years			95-100	12.5-25.8	3.3-16.0	17.9-33.2
Mean value for all properties			98.0	19.9	8.2	23.3

* Percentages calculated relative to number of ewes joined in each flock.

† Percentages calculated relative to number of ewes that mated in each flock.

‡ Percentages minimum wastage of ova calculated as $\frac{100\ (R + L)}{(100 + R)}$. It represents the percentage of oestrus periods accompanied by copulation which did not result in a birth at full term.

The minimum wastage of ova was calculated assuming a minimum ovulation rate of 1.0. As reflected in both returns to service and failure to lamb, the minimum wastage of ova varied from 15-44% of all ova shed. In-so-far as the ovulation rate was constant throughout the mating period, this also represents the proportion of ova that did not appear as viable lambs since the same ovulation rate would apply to both the numeration and denomination of the ratio.

There were no constant trends of any of these features between maiden ewes and aged ewes or between breeds.

TABLE 2

Incidence of failure to mate, returns to service, failure to lamb and wastage of potentially fertilisable ova in maiden ewes 2-3 years old

Flock	Year	Ewes in Flock	Mated* %	Returns to Service† % (R)	Failed to Lamb‡ % (L)	Minimum Wastage of Ova %
Merino						
M1§	1961	276	97	30.3	16.5	35.9
M2§	1961	326	94	20.5	7.8	23.5
M3§	1961	263	90	17.8	8.5	22.3
M4§	1961	294	94	9.9	6.9	15.3
Corriedale						
C1‖	1960	343	99	12.4	8.8	18.9
C2‖	1960	317	88	10.4	12.9	21.1
C3§	1961	300	97	17.9	8.2	22.1
Polwarth						
P1‖	1960	332	89	18.2	33.3	43.6
Ranges for all properties over years			88-99	9.9-30.3	6.9-33.3	15.3-43.6
Mean value for all properties over years			93.5	17.2	12.9	25.3

*, †, and ‡—See corresponding footnotes Table 1.
§-Ewes mated as maidens at 2% years.
‖—Ewes mated as maidens at 1½ years.

IV. DISCUSSION

A high incidence of mating was also observed by Watson (1953, 1957) in similar flocks under similar conditions. The incidence of returns to service was somewhat lower than that recorded by Watson (1957), but in some of the flocks the proportion of ewes that failed to lamb after mating, 3.3-33.3%, was substantially higher than that observed by Watson, 5-10%.

The wastage of ova, at least 12-44%, covers the range of results of other workers. The data of Watson (1953) indicate ova wastage of 22-43% in similar sheep under similar conditions. In examination of ovaries and uteri of slaughtered ewes, Hammond (1921), Clark (1934), Henning (1939), Brambell (1948), El Sheikh ***et al.*** (1955), and Bellows ***et al.*** (1963) found at varying stages of pregnancy that 8-40% of corpora lutea were not represented by foetuses.

Including both returns to service and corpora lutea not represented by viable foetuses. Watson and Radford (personal communication) observed wastage in one flock of ewes with some rams as low at 13 % of all ova shed and as high as 33% with other rams.

A variety of factors no doubt contributes to wastage of this nature. The present observations merely define the magnitude of the wastage. They do not provide any evidence as to the factors that contribute to it.

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