

TIME OF BIRTH AND GROWTH TO 18 MONTHS IN FINEWOL MERINO EWES

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Summary

On each of five properties in the Yass district of New South Wales, finewool Merino lambs born in weeks 1, 5 and 6, and 10 to 14 of lambing during the late winter and early spring were grazed together.

At weaning in early summer, the earliest born lambs were significantly heavier ($P < 0.05$) than those born later. By 12 months of age, there were still some significant differences in liveweight but not at 18 months. Some consequences of mating ewes at 18 months are considered.

I. INTRODUCTION

In 1957, a survey of properties in the Yass Valley district of New South Wales showed that most sheep flocks had a poor reproductive performance (Dickinson 1962). In part, this was due to the short reproductive life of the ewes; the average number of matings per ewe per lifetime was approximately 4.3, and 70% of landholders did not mate ewes until 30 months of age. Most landholders were reluctant to mate ewes earlier because they considered the ewes would be too small and thought that their lifetime production would be adversely affected (Dickinson 1962; Stevenson, unpublished data).

At Hamilton in Western Victoria, McLaughlin (1966) showed that the body-weight of Corriedale ewes at 18 months of age was affected by their time of birth in spring. The climate at Yass, with an average rainfall of 59.5 cm (23.4 inches) per annum and average growing season from mid-April to mid-November, is similar to that of Hamilton. Thus, it is possible that the small size of many ewes in the Yass Valley at 18 months of age is related to their time of birth.

A number of observations on the effect of time of birth on the growth of finewool Merino ewes to 18 months are reported in this paper. The reproductive performance of similar ewes mated at this age is also given.

II. MATERIALS AND METHODS

The study was made on finewool Merino sheep on five properties, two in the Yass Valley and three in the surrounding district. Their pastures had received more than 630 kg/ha (5 cwt/ac) of superphosphate and consisted of subterranean clover and a mixture of sown perennial and volunteer annual grasses. On these properties, lambing started at different times between July 8 and September 23, 1965. Lambs born in the 1st (Early), 5th and 6th (Late), and 10th to 14th (Backstop) weeks of lambing grazed together throughout the trial.

Weaning took place between mid-December and mid-January, a period corresponding approximately to the time of pasture maturation. On each property all groups were weaned on the same date. Groups were weighed at weaning and again

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in September 1966 and April 1967. There were Early and Late groups on five properties until September 1966 and on three thereafter. There were Backstop groups on two properties throughout the trial period. The data were examined using analysis of variance for unweighted sub-class means.

In 1965, mating and lambing data were collected from ewes mated at 18 months of age on all properties except Goulburn. On each property, these sheep grazed as part of a flock of ewes of various ages and were joined for 6 to 8 weeks with 1.5 to 2 rams per 100 ewes.

III. RESULTS

Neither the sex of the lambs nor the age of their dams had any effect on growth rate. Wethers were included only in the observations at weaning when Early lambs were significantly heavier ($P < 0.05$) than either Late or Backstop lambs (Table 1).

By 12 months of age, the differences in liveweight were reduced and were only significant for the comparison of Early and Backstop groups. By 18 months of age, numbers were depleted owing to the cessation of experiments on two properties, and differences in liveweight between the remaining groups were small and not significant.

For groups of 18 months old ewes mated in 1965, the liveweights at mating and the proportion of ewes bearing lambs on Yass One were 38.0 kg and 92% respectively, on Yass Two 37.8 kg and 92%, on Gunning 32.3 kg and 83%, and on Bowning 30.4 kg and 82%.

IV. DISCUSSION

These results indicate that date of birth within the period of lambing was not an important factor in determining the liveweight of ewes at 18 months of age, a result not in agreement with that of McLaughlin (1966). Whereas McLaughlin

TABLE 1
Number of lambs, ages at weaning and weights at weaning and approximately 12 and 18 months of age

Property	Group	Numbers		Age at weaning (days)	Liveweights (kg)		
		Weaning	12 and 18 months		Weaning	Approx. 12 months	Approx. 18 months
Yass One	Early	21	11	191	22.4	28.7	34.5
	Late	10	7	156	20.7	28.1	36.5
	Backstop	7	4	115	18.0	27.5	36.0
Yass Two	Early	35	13	140	23.5	33.7	42.2
	Late	33	14	107	20.1	34.6	41.9
	Backstop	7	3	63	12.7	29.1	38.0
Gunning	Early	34	13	130	19.6	23.6	
	Late	17	9	101	16.0	21.7	
Bowning	Early	38	21	114	18.7	25.4	37.6
	Late	17	8	86	14.0	22.6	34.9
Goulburn	Early	86	44	82	14.5	24.6	
	Late	19	6	53	11.1	24.1	

observed differences in 18 month liveweight of 12 and 13 % between groups born 6 and 8 weeks apart, the greatest differences for ewes born 5 and 12 weeks apart in this study were only 7 and 9% respectively. On one property, Late and Back-stop groups were heavier than the Early group at 18 months.

The variability of results observed in this study probably arose from differences between properties in time of lambing, and in general management and nutrition. Small numbers probably exaggerated the influence of random variation and on one property, Bowning, the dams of Early lambs averaged 2.5 kg heavier before joining than the dams of Late lambs, a difference that may have contributed to the relatively large differences at weaning, and in weight at 18 months.

The liveweights at mating and reproductive performance of ewes mated for the first time at 18 months of age on these properties are representative of a number of other properties in the district (Stevenson, unpublished data). Although no long-term studies were made, it is evident that if ewes first mated at 30 months of age are to produce more lambs over their lifetime than ewes mated first at 18 months of age then either their reproductive performance must be considerably higher at each subsequent lambing or they must remain longer in the flock before being culled.

Lewis (1959) has reviewed the effects of first mating at 7-10 months compared with first mating at 18 months on lifetime reproductive performance. Although these treatments are more severe than those being considered here, in each case the reproductive performance of those first mated at 7-10 months was superior on a lifetime basis. Unfortunately, all the studies reviewed were made overseas with breeds other than the Merino, and more evidence is required before definite recommendations can be made on the best age at which to mate finewool Merino ewes for the first time.

V. ACKNOWLEDGMENTS

The author would like to thank Messrs N. McAuliffe, R. Lawrence, K. Clancy, J. Winterflood and J. Watson on whose properties these experiments were conducted. This work forms part of a project financed by the Wool Research Trust Fund.

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