

EFFECTS OF CROSSBREEDING AND CERTAIN ENVIRONMENTAL FACTORS ON MULTIPLE BIRTHS, WOOL PRODUCTION AND GROWTH IN SHEEP

M. H. FAHMY AND C. S. BERNARD

*Canada Department of Agriculture, Research Station,
Lennoxville, Quebec, Canada*

SUMMARY

Multiple birth percentage and wool production were studied on 338 ewes (907 lambing and 873 shearing records) representing two purebreds, Oxford (O) and Suffolk (S), and four crossbreds, O × S, S × O, Cheviot (C) × O and C × S mated to purebred and crossbred rams during 9 years. Oxford ewes had 24-32% ($P < 0.01$) fewer multiple births than ewes of the other groups, while little difference between S and the crossbreds was observed. The heterosis of the OS and SO groups was $14.6 \pm 4.1\%$. Multiple births tended to increase 0.8% for each kg increase in body weight of the dam ($r = 0.13$). The repeatability estimate for multiple births was 0.24. Fleece weight was significantly affected by age and by breed group, with OS and SO crosses producing 17% more wool than their parental breeds. The repeatability of fleece weight was estimated at 0.52 ± 0.15 . Fleece weight was significantly correlated with multiple birth percentage (0.09) and body weight (0.32). Suffolk ewes averaged 9.5 kg heavier than O ewes throughout their reproductive life. The two reciprocal crosses were heavier than both parental breeds. Suffolk ewes reached their maximum body weight at 4 years of age while Oxfords continued to gain weight up to 6 years.

INTRODUCTION

MULTIPLE births are an important factor in sheep production because net profit is largely dependent upon the number of lambs produced and marketed. The importance of multiple births has further increased recently with the intensification of sheep production by early weaning and artificial rearing of lambs.

Factors affecting multiple births can be categorized as genetic and environmental. Reeve and Robertson (1953) showed that many environmental factors including age, type of birth and weight of ewe, and the nutritional status of the flock before the breeding season (whether flushed or not) and during gestation may have an appreciable effect on multiple birth percentages. Studies reviewed by Turner (1969) have shown that response to selection for multiple births is relatively slow because of the low heritability and the many uncontrollable environmental factors influencing this trait, but that crossing of different breeds might be a more rapid way of increasing the frequency of multiple births.

Although wool production from mutton-type sheep is of secondary