

MATERNAL PERFORMANCE OF OXFORD AND SUFFOLK BREEDS, OF SHEEP, AND THEIR CROSSES†

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ABSTRACT

The proportion of ewes lambing of those exposed to the ram, litter size and weight at lambing, and at weaning, pre-weaning lamb mortality and changes in ewe weight during suckling, were studied in 326 ewes (931 lambings) representing two pure breeds, Oxford and Suffolk, and four crossbreds, Oxford♂ × Suffolk♀, Suffolk♂ × Oxford♀, North Country Cheviot♂ × Oxford♀ and Cheviot♂ × Suffolk♀, mated to purebred and crossbred rams during 9 years. The proportional fertility in the Oxford and Suffolk ewes (0.82 and 0.85 respectively) was lower than that of Suffolk × Oxford (0.93), Oxford × Suffolk (0.94), Cheviot × Oxford (0.88) and Cheviot × Suffolk (0.88) ewes. Litter sizes of Suffolk ewes at birth and at weaning were 1.6 and 1.3 lambs, 0.3 (0.22) and 0.3 (0.27) lambs larger than those of the Oxford ewes, respectively. The corresponding figures for litter weight were 1.29 kg (0.22) and 11.8 kg (0.36). Oxford ewes lost 0.10 of their weight during nursing compared with 0.14 for the Suffolk and the two reciprocal crosses. The estimates of heterosis in litter size and litter weight at birth were 0.085 and 0.082, and at weaning were 0.13 and 0.18 respectively.

The results showed that Oxford crosses were better in performance than the pure Oxford, whereas the Suffolk crosses were similar in performance to the pure Suffolk, except in the proportion of ewes lambing of those exposed and pre-weaning mortality, in which the crosses were 0.07 and 0.20 superior to the pure Suffolk, respectively.

Breed of sire had a significant effect on litter weight at birth and at weaning, whereas the interaction breed of sire × breed of dam was a significant source of variation on litter size and litter weight at birth and at weaning. Litter performance at birth was significantly lower in 2-year-old ewes and in ewes sired by 3-year-old or older rams than in other age groups.

INTRODUCTION

CROSSBREEDING as a means of improving production from livestock continues to gain popularity among commercial producers, in view of the generally superior performance of the crossbred females in terms of higher fertility and prolificacy in the dam, and lower mortality and faster growth of the progeny (Dickerson, 1969; Nitter, 1978). In sheep breeding, the better performance of the crossbred ewes over the purebreds has been demonstrated by the work of Sidwell and Miller (1971), Vesely and Peters (1974), Land, Russell and Donald (1974), Wiener and Hayter (1975), Levine and Hohenboken (1978) and many others. Despite the relatively abundant information on the effect of crossbreeding as such (reviewed by Rae (1952), and more recently by Turner (1969) and Wiener and Hayter (1975)), predicting the performance of the crossbreds from that of their parental

breeds is not straightforward because any heterosis exhibited by a cross appears to vary with the particular breed combination. The practical merit of any particular cross has to be established by experimentation. In the present paper, the third in a series, the maternal performance of the crosses involving the Oxford (O), the Suffolk (S) and North Country Cheviot (C) breeds are presented, and compared with the performance of the pure O and S breeds. In the other two preceding papers, the growth of the lambs resulting from the crossing (Holtmann and Bernard, 1969), and multiple-birth proportion, fleece weight and body growth (Fahmy and Bernard, 1973), were reported.

MATERIAL AND METHODS

Records for 931 lambings of 326 female sheep (ewes) obtained during 9 years (1956 to 1964) at the Lennoxville Research Station were used. The study involved mating O, S, their reciprocal

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