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A STUDY ON THE BREEDING PERFORMANCE
OF ROMNEY AND BORDER LEICESTER CROSS ROMNEY
EWE HOGGETS AND TWO-YEAR-OLD EWES

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of the requirements for the degree of
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ABSTRACT

The objectives of the investigation were to examine the natural breeding and productivity of ewe hoggets in comparison with non-bred hoggets and then to determine their production as 2-year-old ewes under grazing conditions. Observations were made on the occurrence of oestrus and conception and especially on events associated with parturition, the lactation period and nursing of the offspring, and the females' rebreeding performance.

Four hundred and nineteen ewe hoggets born in either August-September 1979 (210) or 1980 (209) from the same flock were studied. They comprised 178 Romney and 241 Border Leicester first cross Romney (BLX) animals.

The mean liveweights of the Romney and BLX hoggets at the time of joining were 34.9 and 38.5 kg and for the 2-year-old ewes 44.7 and 50.2 kg, respectively. The ewes which lambed at 1 year of age compared to the non-bred animals were about 2 kg lighter, but this difference was gradually reduced over the subsequent year.

The mating periods with entire rams of 28 days and 42 days resulted in 83% of the hoggets and 99% of the ewes being marked respectively. Hoggets which weaned a lamb came into oestrus in the following year almost at the same time as those not previously pregnant. Marked variation in the onset of oestrus in the ewes between years was probably due to the presence of "teaser" rams before the joining period.

Conception rate for all services per ewe joined, lambing percentage, and weaning percentages were higher for BLX than for Romney at both ages, but the differences between primi- and multi-parturient ewes were not significant.

A number of behavioural traits of the ewe were recorded before and after parturition as were observations on the lambs until successful sucking occurred. A general pattern of behaviour of the ewe close to lambing was established, but the occurrence of different traits did not allow accurate prediction of the time for parturition. Behaviour traits at both ages were not affected by breed, lamb rank or year of study, and among the 2-year-olds, whether they were primi- or multi-parturient.

The mean lengths of labour were 42 min and 69 min for hoggets and 2-year-old ewes, respectively. Differences in labour between breeds were not significant at both ages and the difference between primi- and multi-parturient ewes was not significant.

During the post-lambing period similar patterns of maternal behaviour were shown by hoggets and ewes. The majority of animals were on their feet in about 5 min after lambing. Exceptions to this were mainly associated with dystocia.

The mean interval from delivery of the lamb until it stood on its feet was about 16 min for both the progeny of hoggets and 2-year-old ewes. Lambs from hoggets took longer to start sucking the udder after getting to their feet than did the lambs from ewes (35 v 18 min). In general hoggets had a low incidence of lambing difficulty and were good mothers; losses among lambs due to poor maternal behaviour were negligible for both ages of dam.

The birth weights of the lambs from the Romney hoggets were slightly heavier than those of BLX hoggets (3.80 v 3.44 kg), but this was associated with the unequal distribution of twins, there being fewer from Romneys. Among the 2-year-old ewes the breed did not cause a significant difference in birth weights (4.26 v 4.53 kg) nor was the birth weight influenced by the ewe having previously lambled as a hogget.

The daily growth rates of the offspring of BLX were superior to those of Romneys (201 g v 183 g and 271 g v 249 g) for both hoggets and 2-year-old ewes respectively. The growth rates of lambs from 2-year-old ewes were generally higher than those for the progeny of hoggets and single lambs reared by hoggets were comparable at least with those of twins reared by animals one year older. Multi-parturient and primi-parturient ewes weaned lambs almost similar in weight.

The total lamb mortality between birth and weaning was 20% and 16% for hoggets and 2-year-old ewes respectively.

Milk production of 52 hoggets and 61 ewes, each rearing a single lamb, was recorded at 3-weekly intervals using an oxytocin injection - hand-milking method. Among both the hoggets and ewes the BLX produced more milk than did the Romneys. Lactation curves were of similar shape

for Romney and BLX groups at both ages. Milk production peaked approximately 3 weeks post partum and then decreased until weaning at the 9th and 12th weeks for hoggets and ewes, respectively.

The percentage of milk protein changed significantly between different stages of lactation at both ages. The change in milk fat percentage was not significant for the hoggets, but more variation was apparent in the milk of the ewes.

Sex of the lamb did not influence the milk yield, the milk protein or the milk fat percentages in both ages of dam. The primi- and multi-parturient ewes had similar milk yields, protein and fat percentages, respectively.

Milk yield and daily growth rate were significantly correlated at 4-6 weeks of lactation in hoggets but not in the ewes. The protein and fat percentages were not significantly related to lamb growth rates.

The wool production for the BLX animals was higher than that for the Romneys at September shearing (yearling) and at the following February and December shearings. Yearling fleece weights did not vary significantly between groups of hoggets classified for their reproductive history (Acyclic, Mated by teaser rams, Lambled, Mated but not lambled). Fleece weights in February for those which had lambled as a hogget were about 0.16 kg lighter than the other groups. There was no carry-over effect of hogget lambing on fleece weight at the following December shear.

Under the conditions of the trial it was evident that good levels of performance were achieved in the hoggets and in the following year. This has required sound management and good feeding levels so as to regain liveweight that is lost after lambing and especially during lactation. Reduction in the length of the lactation period as well as provision of sufficient feed prior to next mating appear important factors if successful breeding of hoggets is to be part of the farming system. Nevertheless breeding as a hogget will usually result in a transient slight decrease in fleece weight.

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