

THE ACCUMULATIVE EFFECT OF FINNSHEEP BREEDING IN CROSSBREEDING SCHEMES: REPRODUCTIVE PERFORMANCE

MOHAMED H. FAHMY and JACQUES J. DUFOUR¹

*Research Station, Agriculture Canada, Lennoxville Quebec, Canada J1M 1Z3.
Contribution no. 207 received 27 July 1987, accepted 27 Oct. 1987.*

FAHMY, M. H. AND DUFOUR, J. J. 1988. The accumulative effect of Finnsheep breeding in crossbreeding schemes: Reproductive performance. *Can. J. Anim. Sci.* **68**: 69-81.

Reproductive performance and body weight were studied on 361 ewes, representing Finnsheep (F), DLS (a population of 1/2 Dorset, 1/4 Leicester, 1/4 Suffolk) and seven combinations ranging from 1/8 to 7/8 Finnsheep breeding. Conception rate in yearlings was 61.5% for DLS compared to 89.0% for F with the crosses being intermediate. Conception rate in older ewes was similar in the different genetic groups (avg. 94%). Ovulation rate and litter size at birth of DLS ewes were 1.72 and 1.44 lambs, which was less than half those of F ewes (3.51 and 2.86 lambs, respectively). Both traits increased progressively with an increase in F breeding in crosses and with advances in age. DLS ewes weaned 1.22 lambs compared to 2.03 lambs for F ewes and 1.84 lambs for 4/8 F ewes. The heaviest litters at weaning (31.7 kg) were raised by 4/8 F ewes, followed by 7/8 F (30.8 kg) while those raised by DLS ewes weighed 23.0 kg and F ewes 29.1 kg. Percentage of ova lost per ewe mated averaged 24% and ranged between 18% (DLS and 1/8 F) and 29% (6/8 F). About 3.6% of lambs were born dead and a further 13.8% died before weaning. Prewaning mortality rate was highest in F (22.9%) and lowest in 3/8 F (9.4%). Average kilograms of lambs weaned per ewe exposed was highest in 4/8 F (27.6 kg) followed by F (26.0 kg), whereas that of DLS was the lowest at 18.1 kg. The 4/8 F cross showed 25% heterosis in kg of lambs weaned per ewe exposed and 52.5% increase over DLS. Significant positive linear regressions were calculated for ovulation rate, litter size and preweaning mortality rate on proportion of Finnsheep breeding in crosses. The relation was quadratic for percent ova lost and lamb mortality at weaning. Yearling DLS females weighted 36 kg compared to 44 kg for F yearlings. However, at 5 yr of age DLS ewes weighed 62 kg, 5 kg heavier than F ewes. The heaviest ewes at all ages were the 4/8 F (45 kg at 1 yr, 65 kg at 5 yr).

Key words: Reproduction, DLS sheep, Finnsheep, crossbreeding, heterosis, repeatabilities

[Effet cumulatif de la race ovine Finnoise dans un programme de croisements: performance de reproduction.]

Titre abrégé: Reproduction des DLS, Finnois et leurs croisements.

Les performances de reproduction et le poids vif ont été étudiés sur 361 brebis de races Finnoise (F), DLS (1/2 Dorset, 1/4 Leicester et 1/4 Suffolk) et sept combinaisons s'échelonnant de 1/8 à 7/8 de sang finnois. Les taux de conception des antenaises DLS et F étaient respectivement de 61,5 et 89,0% celui des antenaises croisées se classant intermédiaire. Chez les brebis adultes, le taux de conception était semblable pour les neuf groupes génétiques (moyenne de 94%). Le taux d'ovulation et la taille de la portée à la naissance étaient de 1,72 et 1,44 agneaux pour les brebis DLS et de 3,51 et 2,86 agneaux pour les brebis F. La valeur de ces deux paramètres a augmenté

¹Present address: (JJD), Department of Animal Science, Laval University, Ste-Foy, Quebec, Canada G1K 7P4.