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The accumulative effect of Finnsheep breeding in crossbreeding schemes

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Abstract. Finnsheep (F) was used in a crossbreeding project to improve overall productivity of the DLS breed. Productive and reproductive traits of seven crossbred combinations ranging from 1/8F to 7/8F breeding were compared to those of the two parental breeds. Suffolk rams were used to mate all ewes (361) for five parturitions (1312 records). Ovulation rate (OR) and litter size (LS) at birth for all the groups increased progressively as F breeding increased. The 4/8F ewes weaned the heaviest litters. Percentage of ova lost per ewe mated ranged from 18 % to 29 %. Preweaning mortality rate was highest in F ewes. Total kg of lambs weaned per ewe exposed was highest in 4/8F followed by F whereas that of DLS was lowest. The 4/8F exhibited 25 % heterosis (H) in kg of lambs weaned per ewe exposed. The linear regressions of OR (b = .24), of LS at birth (b = .14) and at weaning (b = .08) on proportion of F breeding in crosses were significant. The regressions were quadratic for percent ova lost and lamb mortality at weaning. The crosses showed positive H in grease fleece weight (GFW), the highest being expressed by the 4/8F and 5/8F crosses. Significant linear relationships were observed between F breeding and GFW (2nd shearing), fiber thickness and variability in both fiber length and fiber thickness, whereas the relationships of F breeding with GFW (3rd and later shearings), clean wool percentage and fiber length were quadratic. Most of the crosses exhibited positive H particularly in clean wool percentage and in staple and fiber length. H was often highest in the 4/8F cross. Genetic group of dam had a significant effect on age at slaughter, leg, loin and kidney fat as a percent of the carcass, lean, fat and bone percent of the 12th rib and fat thickness over loin-eye muscle. A significant linear relationship existed between most of these carcass measurements and the proportion of F breeding in the lambs' dam.

Index words: Finnsheep, crossbreeding, heterosis, reproduction, wool production, lambs

Introduction

Improving prolificacy in local breeds through crossbreeding is frequently the main reason for importing prolific breeds. When the crossing is to develop a prolific composite, the important question is to determine the proper proportions of the breeds involved which produce the highest returns. Although Finnsheep (F) have been used intensively in crossbreeding programs, only first and backcrosses have been widely investigated (12). No