

THE PRODUCTIVITY AND EFFICIENCY OF *BORDER LEICESTER* × *CHEVIOT*, *FINN* ×
BLACFACE AND *EAST FRIESLAND* × *BLACKFACE* PROLIFIC CROSS-BRED EWES
 FOR LAMB AND CARCASS MEAT PRODUCTION IN ENGLAND

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Experiments have been carried out over 8 years to investigate systems of lamb production designed to make the fullest use of grassland, based on high levels of prolificacy of the ewes and high annual stocking rates per hectare.

The results show that for suckled fat lamb production, both the *Border Leicester*/*Cheviot* and *East Friesland*/*Blackface* crosses possess the necessary attributes of prolificacy and high milk yield, but the smaller size of the latter enables higher output per hectare to be obtained. The *Finn*/*Blackface* cross, despite higher prolificacy and smaller size, are less efficient for suckled fat lamb production, but have merit for producing « store » lambs for subsequent winter fattening.

REPRODUCTION AND ADAPTATION ABILITIES OF *EASTFRIESIAN* SHEEP IN THE ČSR

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During the years 1969-1975 the prolificacy and adaptability of 42 sheep, 14 rams and their offspring of *Eastfriesian* breed were followed. The sheep and rams were from GDR imported where they were kept in small numbers of 1-5 animals. In our country these animals were kept together with other sheep breeds in a herd of 180-450 animals. The individual tupping occurred at an age of 16-19 months from 1 August to 31 October of each year. No synchronisation checks took place. The lambs were kept till to the age of 4 months with their mothers. The daily feed rations for the sheep: 2,470 kg dry matter, 0,155 kg digestible protein and 1,10 kg Ste; for the lambs: 1,824 kg dry matter, 0,158 kg digestible protein and 1,024 kg Ste.

Imported sheep: Average recurrence of oestrus till to the conception (I-V lambing) occurred 2,39 times. 61,7 per cent of sheep became pregnant. The prolificacy of the tupped sheep amounted to 128,1 per cent. Exit of lambs 35,3 per cent.

Sheep born in our country: Average occurrence of oestrus till to the conception (I-V lambing) occurred 1,06 times. 93,75 per cent of sheep became pregnant. The prolificacy amounted to 143,3 per cent and the exit of lambs 2,2 per cent.

The adaptability of the imported *Eastfriesian* sheep to the herd breeding is fairly low, especially in the worse conditions in which case the efficiency and disease-resistance and the state of health are reduced. If the *Eastfriesian* sheep and lambs were born and kept in a herd their adaptation and reproduction abilities and the state of health were considerably better.

The observation of the *Eastfriesian* sheep will continue.

FINNISH LANDRACE × BORDER LEICESTER RAMS AS SIRES OF CROSSBRED EWES

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The use of *Finnish Landrace*/*Border Leicester* rams to produce crossbred ewes, in place of the more traditional ram breeds used for crossbreeding, has resulted in lambing percentages being increased by about 14 per cent and rearing percentages increased by about 16 per cent over four lamb crops. Although individual lamb weights have been reduced by 6 per cent at ten weeks, the weight of lamb produced per ewe mated was 6 per cent greater from the *Finnish Landrace*/*Border Leicester* crosses. These figures for increased lambing percentages and decreased individual lamb weights are about one half of the values found when purebred *Finnish Landrace* rams were used as alternative crossbreeding sires, and hence are not unexpected. The advantage in using *Finnish Landrace*/*Border Leicester* rams instead of pure *Finnish Landrace* rams lies in the easier management of the crossbred ewes and their lambs, because of the more easily handled lambing percentages and relatively heavier lambs.

The improvement in prolificacy from the *Finnish Landrace*/*Border Leicester* crosses occurred in the 1 year old and 2 year old dams particularly but was less marked in the older ewes. Furthermore, the differences in ewe weights, prior to mating, between the *Finnish Landrace*/*Border*

Leicester cross and native breed crosses widened as the animals became older. A study is under-way at one Ministry of Agriculture, Fisheries and Food, Experimental Husbandry Farm to determine whether improved nutritional levels, from 6 months of age, will maintain the advantage in prolificacy throughout life and arrest the widening of the differences in ewe body weights as the animals get older.

CROISSANCE ET VALEUR BOUCHÈRE DES PRODUITS ISSUS DE CROISEMENT
ENTRE BÉLIERS DE RACES PROLIQUES ET BREBIS LOCALES ESPAGNOLES

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La vitesse de croissance des agneaux *Finois* × *Aragonais* élevés en Aragon (région N.-E.) et *Romanov* × *Mérinos* élevés en Extremadure (région S.-O.) effectuée dans des fermes privées a été comparée à celle des races pures respectives. De même on a fait des comparaisons dans une ferme expérimentale de croisements *Romanov* × *Mérinos*, *Romanov* × *Manchega*, *Romanov* × *Aragonais* avec des races pures en étudiant la croissance et les qualités bouchères des carcasses.

Dans tous les cas traités, les agneaux issus de croisement de races prolifiques et de races locales espagnoles ont montré une vitesse de croissance plus élevée que celle qui correspond aux races locales pures, ce qui doit être attribué à la très petite taille des brebis de races locales. La croissance de ces animaux croisés a été presque égale à celle des agneaux issus du croisement avec *Ile de France*.

La conformation des agneaux croisés *Romanov* a été la même ou légèrement supérieure à celle des animaux de race locale. L'état d'engraissement a été aussi supérieur avec les agneaux croisés.

REPRODUCTIVE EFFICIENCY OF ICELAND SHEEP

II. PROLIFICACY AND REPRODUCTIVE PERFORMANCE OF ADULT EWES

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A brief description is given on the fertility of the *Iceland* sheep. The aim of the breeding the last 20 years has been to increase the fertility. The average number of lambs weaned pr. ewe for the whole population has increased from 1,07 in 1950-54 to 1,42 in 1975. There are given examples of differences between districts.

From the *Sheep Recording Associations* there is taken an example of change in fertility through 20 years, from 1,04 lambs born in 1950-54 to 1,76 lambs born in 1975. Results from 10 *Sheep Recording Associations* for the years 1974 and 1975 are given, showing the average of 0,9 up to 2,3 per cent of all ewes being barren and 1,1 og 3,9 per cent of all ewes having triplets.

Results of investigations on losses of lambs are referred, showing average losses of lambs from birth (including still-born) to weaning of 5,7 per cent.

Investigations on fertility of white and non-white ewes are showing higher fertility of the non-whites.

There are given some estimates of the heritability of fertility in *Icelandic* sheep, showing $h^2 = 0,13 - 0,21$.

REPEATABILITY OF OVULATION RATE AND ITS RELATIONSHIP WITH LITTER SIZE
IN FOUR SHEEP BREEDS

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Data on the ovulation rate of mature ewes of the following breeds were analysed: *Finnish Landrace* (F), *Galway* (G), *Fingalway* (FG) (*Galway* ewes × *Finn* rams) and *High Fertility* (HF). Average ovulation rates were 3,8, 1,6, 2,3 and 2,6, respectively. The repeatability of ovulation rate was 0,66, 0,15, 0,15 and 0,78 for the F, G, FG and HF ewes. The corresponding values for the repeatability of litter size were 0,07, 0,20, 0,06 and 0,13. The correlation between ovulation rate and average litter size at the three previous lambings was 0,00, 0,08, 0,11 and 0,35 for F, G, FG and HF ewes, respectively. Evidence was obtained for a quadratic relationship between ovulation rate and litter size and the data suggested the existence of an optimum ovulation rate. The heritability of ovulation rate was 0,35 for *Finn* ewes and hence selection should be affective.