

Health

The average score for health given by 15 places was 2.50. In about half of the places there were problems with pneumonia, while other health problems were specific for different places.

Growth and carcass traits

The average birth weight is about 2.4 kg, but it depends greatly on litter size. The average 150-day weight of recorded lambs in Finland is 30 kg and daily gain ca. 180 g. Litter size affects greatly the gain during the first 6 weeks. The average litter weight at 150 days is 71 kg, but litters of 4 or 5 lambs are more than three times as heavy as singles. Carcass yield of lambs is competitive with other breeds, but carcass quality 5-10 % poorer. Fat is located mainly in body cavities instead of being subcutaneous.

Wool traits

Fleece weights are inferior to most other breeds, being about 2 kg as greasy and 1.5 kg as clean. The wool is rather fine, 25-28 μ . Medullation is rare. The wool is semilustrous, soft and silky.

PERFORMANCES DE REPRODUCTION

ET D'ÉLEVAGE DES BREBIS ROMANOV FINNOISES ET CROISÉES :

PREMIER BILAN DES RÉSULTATS OBTENUS EN FRANCE DANS

LES TROUPEAUX EXPÉRIMENTAUX DE L'INRA ET DANS QUELQUES TROUPEAUX D'ÉTUDE

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En France, la première véritable expérimentation de croisement a commencé en 1963, au Domaine I.N.R.A. de Bourges, avec l'utilisation de béliers *Cotentin*, *Border Leicester* et *Romanov* (RO) sur des brebis *Berrichonnes du Cher* (BC) et la production de croisées 2 et 3 races. La productivité supérieure des croisées RO ainsi que la bonne adaptation des brebis RO à l'élevage en bergerie, ont orienté l'expérimentation vers l'étude plus analytique des performances des brebis parentales BC et RO qui possèdent des aptitudes complémentaires, et de leurs produits de croisement (F1 et F2 et les 2 croisements de retour). Cette étude résume les principaux résultats obtenus par les différentes équipes de recherche de l'I.N.R.A. sur la fertilité, la prolificité et ses composantes — taux d'ovulation et pertes embryonnaires — l'aptitude au désaisonnement (*), les critères endocrinologiques, les aptitudes laitières des mères, la viabilité et les qualités de carcasses des agneaux, ainsi que la productivité de 4 schémas d'utilisation des races prolifiques en croisement. La race *Finnoise* a été introduite en 1966, en fermes. Elle donne des résultats comparables à la RO en ce qui concerne la précocité et la durée de la saison sexuelle, mais ses performances d'élevage — prolificité et aptitude maternelle des mères, viabilité des agneaux — sont inférieures.

THE FERTILITY OF PROLIFIC BREEDS

(FINNSHEEP, ROMANOV SHEEP, EAST FRIESIAN MILKSHEEP)

AND THEIR CROSSES WITH MUTTON MERINO

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Reproduction was studied in various types of crossbreds between the *Mutton Merino* breed (MM) and prolific breeds (*Romanov sheep-R*, *Finnsheep-F*, and *East Friesian Milkshoop-EF*) in the years 1973-1975. From the reproduction traits the following were analysed: fertility, prolificacy, and causes of lamb mortality within 5 and 60 days. Heat to one year of age was established in the $MM \times F$ and $MM \times EF$ crossbreds nearly in 90%. Within the same age, estrus was found in 50% of $MM \times R$, and 37% of MM . Out of the ewes mated to one year of age 80% of $MM \times R$ became pregnant, $MM \times EF$ and $MM \times F$ ranging from 63 to 67%, and 40% of MM . Variance analysis established only significant or highly significant influence

* (Fertilité à contre saison ou en rythme accéléré de reproduction).

of the type of crossing or the breed of dams and the age of sheep, on some prolificacy traits. The influence of sire breeds and years was not proved. In the main trait of prolificacy, i.e. the number of live- and deadborn lambs, the $MM \times R$ (1.73) showed to be the best, followed by $MM \times F$ (1.62), $MM \times EF$ (1.43), and MM (1.23). The prolificacy in the two- and three years old dams higher than in the ewe lambs mated to one year of age. In the prolificacy traits neither maternal components, nor progeny components of the heterosis effect were established. Mortality of lambs from birth to the 5th day of age is approximately identical with all types of dams. Death-losses from 5th to 60th day of age were classified, according to the causes, as losses due to ingestions, pneumonia, and those without specific clinical symptoms.

THE RESULTS OF CROSSBREEDING BETWEEN CHIOS AND THE LOCAL FAT-TAIL AWASSI

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A crossbreeding program was started in 1969 between the local fattail *Awassi* and the prolific *Chios*. One objective was to increase meat production by exploiting reproductive efficiency of crossbred sheep. The *Chios* is quite prolific compared to the *Awassi* which is a major breed in the Middle-East.

Based on lambs born per ewe exposed for mating, the respective lambing rates were 1.63, 2.22, 2.07 and 1.90 for the first four parturitions of *Chios* ewes, numbering 79. Corresponding figures were 0.91, 1.05, 1.12 and 1.15 for fat-tail *Awassi* ewes, numbering 1204. The weighted average over the four years was 1.95 and 1.04 for the respective breeds. Both breeds had their initial parturition in 1969-70 at 2 years of age. There were no significant differences for % of ewes lambing between the two breeds, and values during the four years ranged from 89 % to 100 % for *Chios* and 91 % to 97 % for *Awassi*.

F-1 crossbreds were produced from mating selected *Chios* rams (selection based on type of birth, twin, triplet, quadruplet or quintuplet) to *Awassi* ewes. Artificial insemination was used in making this cross. Each ewe was inseminated two times during an estrus period, approximately 12 hours between inseminations. There were no significant differences for either percent of ewes lambing or for percent of multiple births comparing artificial insemination with natural mating.

For each of the three years the lambing rates (no. of lambs born per ewe exposed) were significantly higher for F-1 ewes than for unselected *Awassi* control ewes. All ewes had their initial parturition in 1971-72 at 2-years of age. Respective figures for the first 3 parturitions were 1.26, 1.43 and 1.56 for F-1 and 0.91, 1.08 and 1.10 for *Awassi* control. For *Chios* ewes the figures were 1.70, 1.84 and 1.78. During the three years there were no significant differences for percent of ewes lambing between F-1 and controls. Heterosis was estimated from a comparison of lamb production between contemporary F-1 and F-2 ewes. The estimate suggested F-1 ewes produced 24 additional lambs percent ewes exposed.

F-1 ewes weaned more kilograms of lamb per ewe exposed than *Awassi*. For the University research station 3 year-old F-1 ewes weaned 40 kg compared with 28 kg for *Awassi*. On the Government station contemporary 3 year-old ewes weaned 32 kg vs. 26 kg and 2 years old ewes weaned 22 kg vs. 15 kg per ewe exposed. Lambs weaned at 90 days on both stations. A higher lambing rate was the major factor responsible for F-1 ewes weaning more kg of lamb per ewe exposed.

Ram lambs weighing 40 to 50 kg were slaughtered and chilled carcasses cut into 6 primal cuts. Data for 3 years were consistent for the following:

1. dressing percentage for F-1, F-2 and Backcrosses averaged lower than *Awassi*,
2. calculating the weight of each primal cut as a percent of carcass weight the crossbreds had a higher percentage of weight for hind legs, shoulder plus neck and testicles and a lower percentage of weight of fat-tails and kidney plus kindney fat,
3. carcass and cannon bone lengths were longer for crossbreds,
4. fat thickness and rib-eye area at the 12th rib generally were smaller for crossbreds.

No major differences were noted between *Awassi* and F-1 yearling rams for evaluations made by a trained taste panel committee for subjective scores on tenderness, juiciness and overall eating qualities.

Experimental results for one year from Cyprus suggested only a small advantage for either lambs born alive or lambs weaned per ewe lambing for *Chios* crossbreds which resulted from crossing the local fat-tail breed and the imported *Awassi* with *Chios* rams.