



SHEEP CANADA

MAGAZINE

D. Shafto, Editor

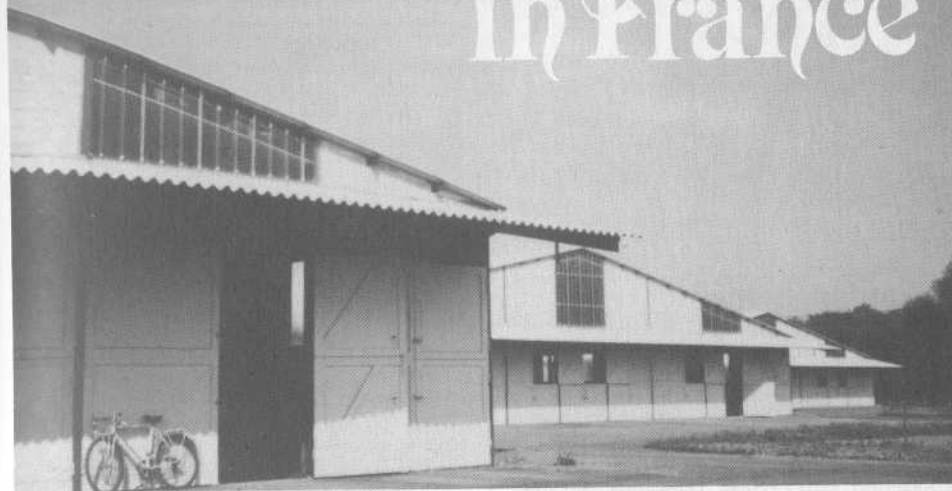
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Sheep Improvement in France



Ile-de-France testing station.

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In 1974 the author was invited by a French Organization to study the sheep production industry in France. The study started with visits to the headquarters of the National Federation of sheep and goat breeders, Technical Institute of sheep and goat breeding (ITOVIC), continued with visits to sheep breeders and establishments in Southern, Central and Eastern France, and concluded with a visit to the Ile-de-France test station in Northeastern France. The author was really impressed with the organization of the sheep industry, the involvement of the sheep breeders and the important role played by the government to improve the genetic stock in France. This role is summarized briefly in the following article.

Sheep in French Agriculture

Sheep production represents only 2% of gross agricultural production, involves 170,000 breeders and is the only possible agricultural production in some mountainous regions.

Nevertheless with nearly 8 million ewes and a gross production valued at over \$400 million, sheep production is one of

the most important in Europe.

Meat production represents about 84% of the turnover of producers and consists almost entirely of lambs slaughtered relatively young (100-130 days) and producing carcasses of about 18 Kg.

Ewes milk used in cheese production (Roquefort being the most famous brand) constitutes the second type of sheep production (8% of turnover) even though it concerns only about 10% of the sheep-stock, mainly in the south and in Corsica.

The French sheep selection by way of official record of efficiency

For several decades selection was based on morphological characteristics. However the recent development of scientific knowledge has progressively led the breeders towards more objective judging. Selection of sires and dams has been more and more influenced by economic traits.

Doubtless, one of the most remarkable features of French sheep selection is the existence of official records of efficiency, offered to the organisations for selection to satisfy the aims of each breed.

The methodology of efficiency recording has been improved several times since its first applications in 1959, and nowadays it ensures a really "tailored" service.

recording of reproductive traits

The procedure is based on individual identification and systematic recording of lambing performance in all registered flocks which allows the analysis of individual ewe data over the following set of traits:

1. age at first lambing, an indication of early sexual maturity
2. prolificacy (average number of lambs born per lambing)
3. lamb viability
4. average number of yearly lambings
5. ability for out of season lambing by contemporary comparison
6. ewe longevity.

At national level, gross results are printed to serve the interests of breeders and institutions responsible for selection. Each of the above traits is presented as a score of genetical index after correction, if applicable, for the principal causes of variation (for example: prolificacy index is corrected for the effects of age, season of lambing and flock).

Rams indexes based on their daughters' reproductive traits are calculated when ewes ancestries are sufficiently known.

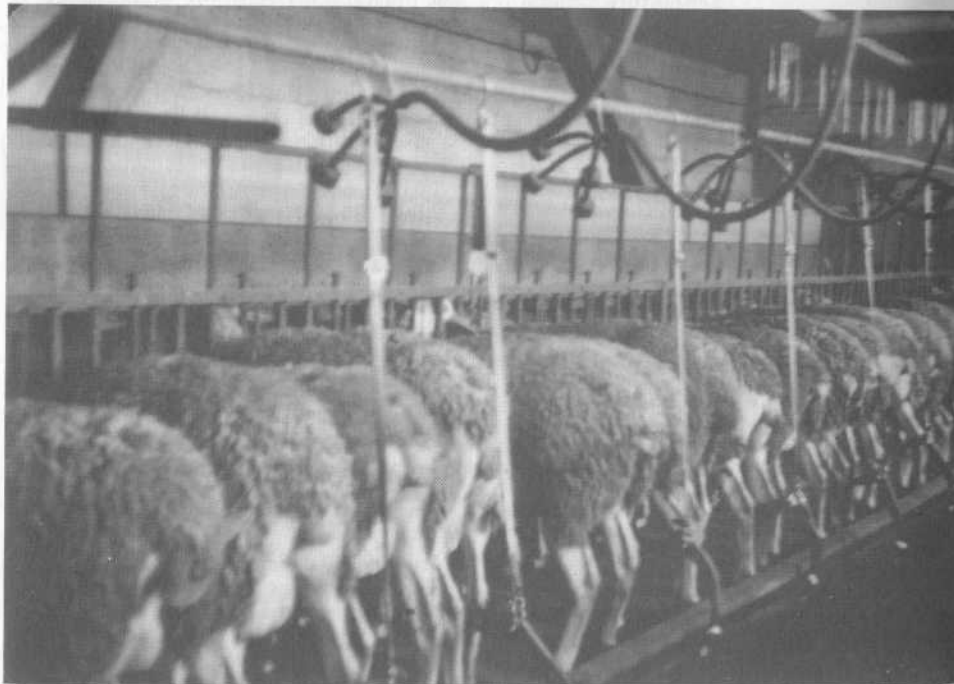
Selection: Means and objectives

Starting from 1966 selection was no longer based on flock books, which only involved the breeders working on selection, but on the "National breed selection and

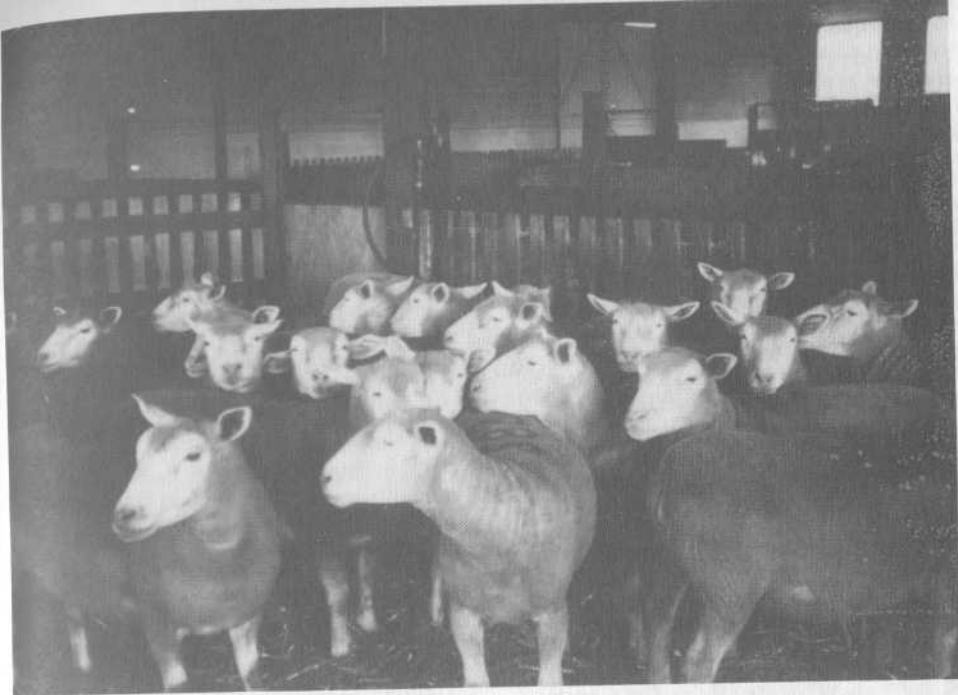
promotion units" (UPRA) which gather together the breeders working on selection, those working on multiplication, the commercial producers and the organisations responsible for artificial insemination programs or testing stations.

Scientific and technical supervision of UPRA selection work is done by a national organisation, "The National Commission of Genetic Improvement" which groups representatives of the ministry of agriculture and of the organisations of research, higher education and breeders.

The selection aims of each breed are defined as are the means by which these objectives can be attained. Therefore, the breeders of early maturing breeds emphasize the selection of crossbreeding qualities, of conformation without fat and of the mutton value of the lambs produced, whether this be purebred or industrial crossing, without neglecting the female reproduction qualities. The selectors should therefore undertake to practice the entire series of control of aptitude and use of the breed's best rams. In the large size grassland breeds, the priority is given to the improvement of prolificacy and milk value, this by improving, growth and conformation. As a result it is the indirect reproduction and milk control which make up the essential elements of the choice of reproductive animals.



Milking ewes in central France.



Ile-de-France in testing station.

The objectives are similar for the average sized, grassland breeds. However, those who benefit from a large clientele in industrial crossing with their rams give priority to the selection on the rapidity of growth and the conformation.

The hardy breeds, more often used in industrial crossing, are selected essentially for maternal characteristics especially prolificacy, the aptitude to an increased rhythm of lambing and the milk value. As a result the breeders only impose the reproduction control and indirect milk recording. Finally, for the dairy breeds, the essential tool of selection is the direct milk control.

Wool production is no longer a priority for the French breeders. In other breeds than the Merinos type, the wool represents, in effect, less than 8% of the gross sheep income. This is why, in numerous breeds, the qualities of the fleece are not taken into consideration.

Nevertheless in most of the mutton and grazing breeds only the animals having a sufficiently high quality fleece are registered (standard thickness of wool).

The annual financial support of the state given to the genetic improvement works represents the equivalent of about \$1,250,000.

Some examples of selection: The Berichon du Cher breed: selection for lambs carcass quality

The selection will be as follows:

1. Individual selection: 200 lambs produced by the breed's best rams and ewes and having the best growth rates in their own flocks will enter the test of Performance Station where their growth rates will be recorded up to 180 days.
2. Progeny testing: the males with the best performances at this station will be mated to 1,000 crossbred ewes (rustic x prolific breeds) also reared at the station. Rams will be judged by their progeny merits on growth rate between 30 and 70 days and carcass quality measured by carcass weight, conformation and fattening condition.

The best progeny tested rams will be mated with the best ewes from selection-flocks for producing the lambs entering the individual performance station the following year.

Favourably tested rams will be used as widely as possible in selection and reproduction flocks to produce the males for sale, of which the very best will be used in priority with the best females from selection flocks to produce the lambs of

the following generation to be submitted to individual selection and progeny testing.

The Ile-de-France breed: towards an increase in prolificity

Although the breed is an important provider of rams for commercial crossing due to the good growth rate and conformation of these animals, UPRA has decided to make a particular effort to improve reproductive traits of the females. Together with the already acquired ability for out of season production an increased prolificity would make this breed one of the best in the world. Such an ambitious program calling for very considerable resources, has led the breeders to establish a testing station of which the function is schematically as follows:

1. Out of all the flocks in the scheme the 250 best ewes of the breed are chosen considering their reproductive traits over at least three seasons.
2. At 4 to 5 months of age the male progeny of that ewe are assembled and the 60 best males are selected according to development and breed type.
3. These animals are reared and trained for early semen collect at the station
4. At 7 to 8 months of age the 10 best (to which 2 control rams are added) are chosen and mated with the best 1,200 ewes of the breed in a planned way by means of artificial insemination.
5. Females offspring from these matings are grouped and a sample of 30 daughters by each ram is chosen to enter the station.
6. They are subjected to recording for early maturity and judged over two out of season lambings in order to have a very precise estimation of their sires genetic potential for prolificity.

7. Favourably indexed rams are used as widely as possible in selection flocks producing the next generation of males to be tested.

Crossbreeding: 15,000 crossbred females from prolific breeds are in production throughout France

Two crossbreeding projects have been undertaken: the two stage crossbreeding-selection project using the Romanov breed for production of prolific females at Bourges station (INRA) and the "FSL experiment" (Frisonne x Sarde x Lacaune) at Lafage (INRA) for increasing milk production in the local population. 15,000 Romanov crossbred females are already in production throughout France.

Conclusion:

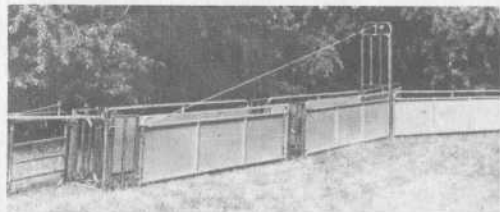
The few examples listed, show the dynamism of French sheep breeding and the willingness of sheep breeders, their national units of breed improvement and their breeders' organisations to continue the selection work using scientific and technical progress. By increasing the efficiency of French breeds, the breeders offer an important variety of animals adapted to the different natural and economic conditions and production systems. The success of many importations of French sheep into different countries (the Ile-de-France was recently imported in Canada and integrated in the ARI sheep program — see Sheep Canada Magazine, number 12) is a testimony to the efficiency of the work undertaken.

Ref.: Bull. l'Elevage Francais, No. 3, 1975.
ITOVIC. Explications des fiches brebis.



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