FRENCH OVINE GENETICS,
QUALITY AND DIVERSITY

KEY FIGURES:

262,000

French meat-breed ewes in official performance recording

30 years of experience
serving the genetic progress

With a flock of high genetic potential of more than 4.1 million ewes, France is one of the European leaders in ovine breeding and genetics. A key feature of this flock is the diversity and quality of the participating breeds.

More than 10 specialized meat breeds (Ile de France, Charollais, Berrichon du Cher, Rouge de l'Ouest, Vendéen...) are used in pure breed or cross breed schemes. **Hardy meat breeds** (Causse du Lot, Blanche du Massif Central, Lacaune meat line...) complement this availability in order to make good use of harsh environments.

For more than 30 years all these breeds have benefited from large-scaled selection programmes integrating every technological innovation (electronic identification, genotyping...) and offering breeding stock with outstanding health and safety guarantees.

The national genetic improvement programme of these breeds is piloted by France Génétique Elevage, which brings together all the professionals involved in French selection programmes.

1
Comprehensive selection programmes

The selection programmes concern as much the specialized meat breeds as the hardy meat breeds. They combine **electronic identification, choice based on pedigree and planned matings, genotyping for scrapie resistance, on-farm performance recording and then on-station performance recording of young rams.**

The best rams of the specialized meat breeds and of some hardy meat breeds are used for animal insemination only after **being progeny tested.**

In the interest of coherence and accuracy, the technical protocols of each of these stages are identical for all breeds. The protocols are defined at national level by the Institut de l'Elevage, in charge of supervision and technical assistance to the selection programmes.

2
Efficient on-farm performance recording

Almost 262,000 ewes in 1,100 farms are submitted to the official on-farm performance control. The controls and recordings concern reproduction (ancestry recording, mating recording, prolificity), milking ability (milking value estimated from live weight at 30 days) and growth (live weight at 70 days).

Parentage checking, carried out by genotyping samples of the population, reinforces these controls which are performed by accredited agents. Continued integration of technological innovation ensures an efficient and methodical collection of zootechnical data, a guarantee for the reliability of the genetic evaluations.

3
Rigorous selection in test stations

Following on-farm performance controls, the 3,500 best young rams of the 15 main ovine breeds enter the test stations. They originate from genotyped and planned matings, between rams that have already been evaluated positively in progeny testing and the 20% best females of the selection base (« ram dams»).

For 2 months, these young rams are submitted to rigorous individual controls (growth rate, weight at reference age, conformation...).

For specialized meat breeds, the controls are supplemented with live scan measurements of muscle development by ultrasound.

After eliminating the 20% lowest-performers, the young rams are qualified as « Recommended » and are diffused for natural mating.

PROGRAMMES THAT INTEGRATE PROGRESS IN GENOMIC SELECTION

The National Plan for Genetic Improvement for Scrapie Resistance in all French ovine breeds constitutes a unique example of very large-scaled selection of a major gene, the PrP gene, which confers varying degrees of resistance to scrapie disease.

Owing to the genotyping of more than 670,000 ewes, this genomic selection enabled not only the exclusion of reproductive animals that were carriers of susceptibility alleles (VRQ and AHQ) of this gene but also the diffusion of carriers of the resistance allele (ARR).

The results are convincing. Since 2008, no active rams in the selection base farms of the ovine meat breeds possess the VRQ allele of hypersensitivity to scrapie. Approximately 95% of rams are resistant (genotype ARR/ARR).
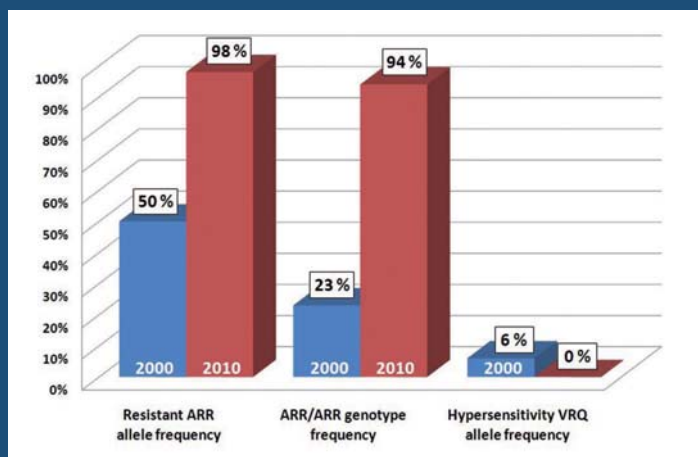
Source : PNAGRT / Institut de l'Elevage 2011

4
Progeny testing
of the best rams

Each year, the top 200-250 rams of specialized meat breeds and some hardy meat breeds (Blanche du Massif Central, Lacaune meat line) from the test stations are progeny tested, in order to evaluate precisely their beefing and maternal aptitudes.

Progeny testing evaluations of the meat aptitudes are based on the on-farm and finisher recordings of more than 7,500 lambs.

After slaughter, the evaluation criteria on carcasses concern weight, width, length, conformation and yield, as well as the degree of internal and external fat.

For all the breeds, only the 100 best progeny tested rams are listed as « Meat Elite » (AMBO -Améliorateurs Boucherie) and retained for artificial insemination distribution.

AN INDEPENDENT AND ACCURATE GENETIC EVALUATION

All the recorded and controlled data (genealogy, on-farm and on-station performance recording on farms, progeny testing) of all breeds is transmitted to the French National Institute of Agronomical Research (INRA) for computation of the official genetic evaluations.

The genetic indexes are calculated using the « BLUP animal model» multi-traits method. It combines the most modern statistical methods, taking into account not only the data recorded on each animal and the correction for environmental effects but also the parentage relationship between the animals.

Some hardy meat breeds rams (Blanche du Massif Central, Lacaune meat line, Causse du Lot) and specialized meat breed rams (Ile de France, Vendéen...) are also progeny **tested in order to evaluate the maternal aptitudes (prolificity, milking ability) of their daughters.**

These progeny testing programmes of maternal aptitudes concern 100-120 rams per year. The best of them are listed as « Breeding Elite » (AMEL – Améliorateurs Elevage) or « Meat and Breeding Elite » (ELITE - Améliorateurs Viande et Elevage).

5
Outstanding growth
in lambs

In specialized meat breeds, the average daily weight gain of lambs between 30 and 70 days (single males) varies from 287 to 378g. The live weight of lambs adjusted at 30 days ranges between 11.3 and 14.1kg depending on the breed, whereas the live weight adjusted at 70 days varies from 22.7 to 32.4kg.

During the last 10 years, these weights adjusted at 70 days have progressed from 1.1 to 1.5 kg.
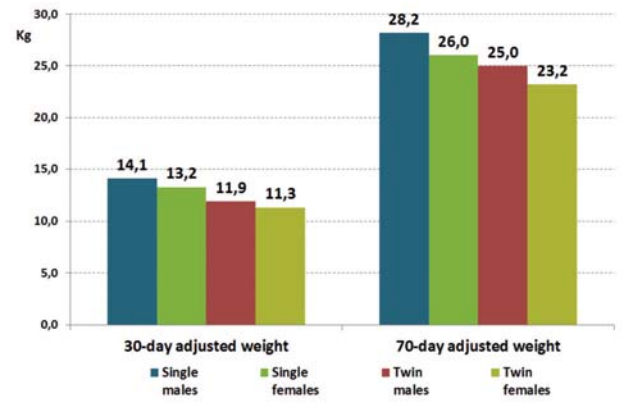
6
For both purebred
and crossbred purposes

The quality of French ovine breeds is internationally recognised. **Breeding animals and semen are exported to more than 20 countries** that have confidence in their productivity and health standards.

This genetic gives outstanding results, in pure breed but also in cross breed schemes.

In harsh farming conditions, local breeds are often indeed well adapted but their level of production (growth, conformation) is often insufficient. Crossing them with specialized meat breeds selected in France is therefore an opportunity for development. The French breeds bring their potential for meat production, whereas the genes of the local breed preserve the indispensable aptitudes for resistance and adaptability to the environment.

The phenomenon of heterosis, induced by the cross-breeding, increases further progeny performance.

Don't hesitate to contact us for further information.
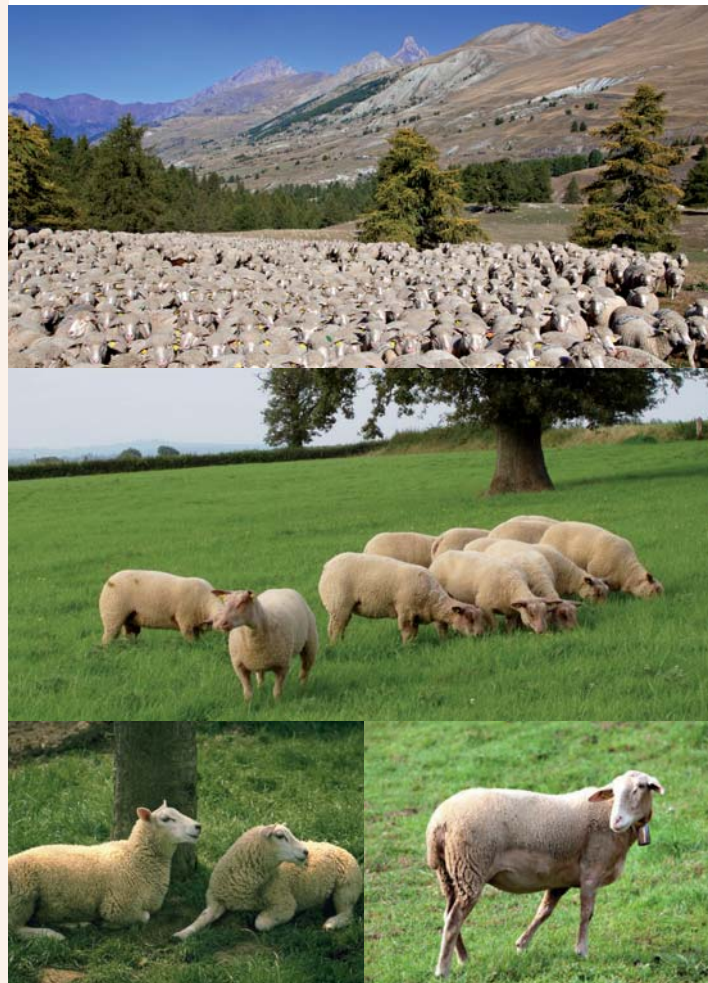
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