

## **Collaboration eased semen collection**

**Willing farmer participants and help from AI organisations helped the French HERITAGESHEEP project team to achieve its semen collection target. But considerable organisation and planning was still required on its part.**

French sheep farmers were keen to collaborate with France's HERITAGESHEEP project team. They seem to understand the urgency and the vital nature of what the team was trying to do. This attitude went some way towards helping the French team collect a huge amount of semen from four 'meat' breeds – there's already some semen 'banked' from the country's native and 'local' dairy sheep breeds. But the process still involved a lot of planning, patience and hard work, according to leader Delphine Duclos, from the Institut de l'Elevage.

Heritage sheep breeds (HSBs) are defined as genetically distinct, geographically concentrated and adapted to their environments. Typically, these sheep breeds are 'local' breeds, traditionally farmed for commercial use, and play an important role in the culture and rural economy of the regions in which they are managed.

What is HERITAGESHEEP?

The aim of the HERITAGESHEEP EU project is to establish a European-wide conservation programme of HSB genetic resources for the diversification of production in livestock agriculture and for their central importance in the long-term sustainability of medium- to low-input farming systems. More information can be found on [www.heritagesheep.eu](http://www.heritagesheep.eu).

And it's for this reason that semen from some of the best rams of each breed are being collected and stored for future generations – should they ever be needed. A threat facing all HSBs is the risk of disease entering the region in which the breed is geographically concentrated. Bluetongue and foot-and-mouth disease are just two that are fresh in farmers' minds. The impact of these diseases and from procedures such as culling, taken to prevent disease spread, can be catastrophic. This risk was highlighted during the foot-and-mouth disease epidemic in the UK in 2001, when regional breeds located in the disease centres suffered disproportionate losses to their gene pools.

## CO-OPERATIVE COLLECTION

The French programme involved collecting semen from four different breeds – Rava, Limousine, Bizet and Causses du Lot. Semen was taken from live rams so rams, from these breeds of flock and situated in two different parts of France, had to be transported to two collection centres.

This was made considerably easier due to the exceptionally good co-operation of the sheep farmers involved. “Nothing exists in cryoconservation for their breeds of sheep and they were all too aware that this left them in a vulnerable position should, for example, a serious disease wipe out their flocks. They didn’t have any way of preserving their breed’s genes, but we were offering them a solution – a ‘back up’ plan, if you like,” explains Delphine.

## FOUR ‘LOCAL’ BREEDS

The Rava is an ancient Celtic breed that has acquired plenty of strength and hardiness. The rams are able to live on a meagre diet for part of the year and the fleece protects the breed in severe weather.

The Rava’s characteristics are distinct black, or sometimes russet, patches on their heads and they have no horns. Their legs are covered with fleece.



The Bizet has an ability to breed out of season and this means that a ewe can lamb up to three times in two years. Around 50% of ewes are pure-bred and also have good milk production, making the breed highly valued for crosses with rams for meat production.

The sheep are biscuit and white coloured, with black heads and legs, white nose blazes and white hooves. The male has rolled horns, the female is polled.



The Causses du Lot is well adapted to its environment and is well suited to free-range or 'sheepfold' management systems. The ewe matures early and breeds well out of season. In large flocks there can be two, three or even four lambing times spread throughout the year. Ewes achieve a prolificacy rate of 1.59. The sheep are white with black eye patches. Neither the male nor female is horned.



The Limousine is noted for its early sexual maturity, with some ability for out of season breeding, and for its fertility and good milk quality. The breed is white with horns on both males and females.



All four are 'local' breeds – they come from a specific region of France and were, therefore, also collected from here to be taken to the semen collection centre. The Rava, Bizet and Limousine breeds all come from Auvergne and were collected by, among others, Jerome Gueux. The

Causse du Lot is, not surprisingly, from the Lot department, in the Midi Pyrénées region and one of the people collecting these rams for delivery to the collection centre, as well as their semen, was Hubert Issaly.

## FREEZING SEMEN

In France, we chose the breeds among the meat breeds because semen is already stored for the dairy breeds. Furthermore, we have to choose organisations able to collect and freeze semen.

“We worked closely with the Races de France – Fédération des Organismes de Selection, which already has good contacts with two of the breed organisations we contacted and this certainly helped a lot with some of the logistics of rams and semen collection,” says Delphine.

She explains that ram and semen collection was carried out by two organisations. “The first collected rams and semen from three breeds – Rava, Bizet and Limousine – because all these breeds are situated in the same area and managed by the same structure.”

This AI centre has Limousine and Rava rams that visit on a regular basis, so these made up the majority of our ‘donor’ rams. Bizet rams visited the centre only for the purpose of this project. All rams stayed at the centre for several months – for quarantine, training and collection – which took several weeks.

But the results were well worth the wait. Five Rava rams produced 893 doses of semen, 10 Limousine rams gave 1,783 doses, and three Bizet rams produced 317 doses of semen.

A second centre dealt with the Causses du Lot rams. A few are selected each year for AI, but only for fresh semen collection – it isn’t frozen. “The season for fresh semen begins in the middle of March, so we made sure that the collection for frozen semen happened just before that, at the end of February,” says Delphine.

“We selected 22 rams and the centre collected and ‘trained’ them for several weeks. But to freeze the semen, that particular AI centre had to collaborate with another organisation that was specialised and equipped to freeze sheep semen.

“And that’s why the collection was carried out in just four days!” she adds.

## RESULTS

A record time – with record results to match. A total of 2,771 doses of semen were collected from 22 rams. “The most productive ram gave 150 doses in three collections,” says Delphine. “And the least productive have just 27 does in one collection.”

Individual performances aside, the French team achieved what it set out to do and now, thanks to its hard work and dedication, the gene bank for these four French ‘meat’ breeds is well and truly in the black. Their semen has joined the national collection in France’s cryobank. And producers, breeders and sheep enthusiasts can rest assured that their breeds are now safe for future generations.

Rachael Porter - Journalist