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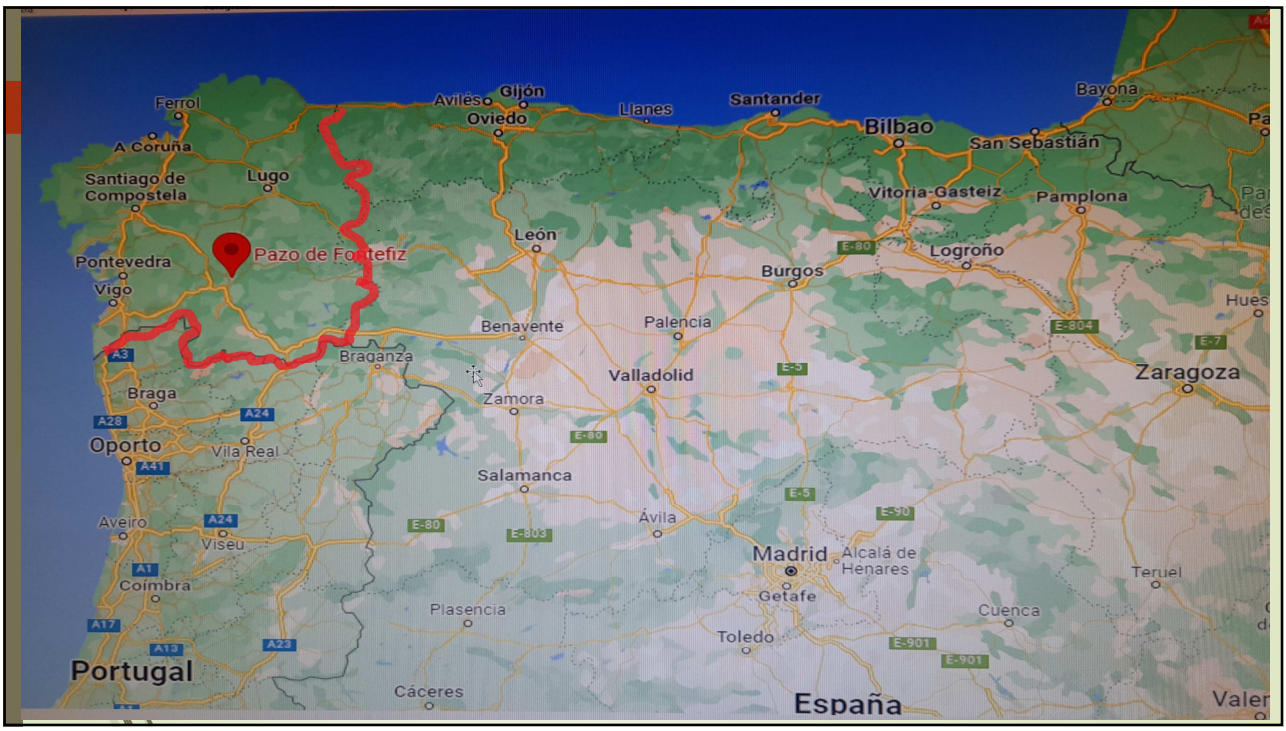


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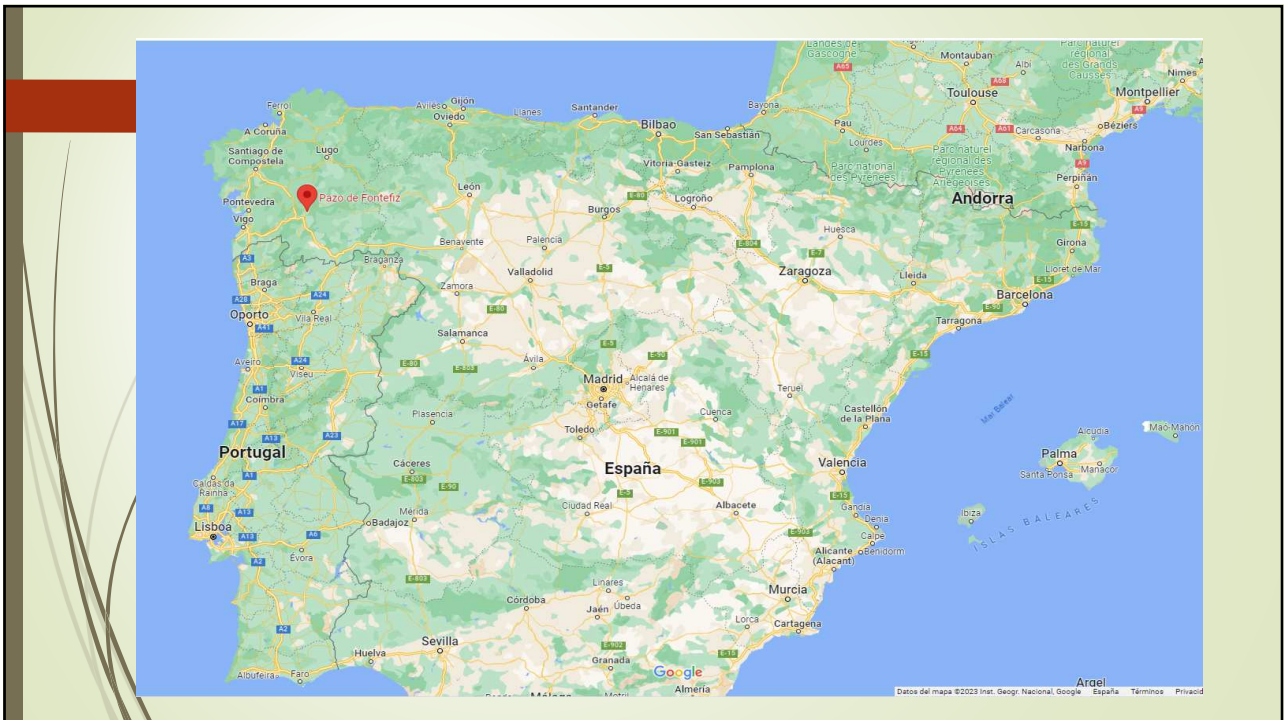
FOUNDING

- The **CENTRO DE RECURSOS ZOOXENÉTICOS DE GALICIA (CRZG)-Fontefiz (GALICIAN ZOOGENETICS RESOURCES CENTER)** is a Center located in the **Pazo de Fontefiz**, (country palace) dependent on the general direction of agriculture, livestock and agri-food policy of the Consellería do Medio Rural., of the XUNTA DE GALICIA
- It is a Pazo with an agricultural property of about 75 Hectares
- The Pazo de Fontefiz is located in the municipality of Coles, 15 km from the city of Ourense, in the autonomous community of Galicia, in the north-west of Spain, and just north of Portugal. Due to its geographical location, it is under the influence of an Atlantic climate, with not very extreme temperatures in winter, but with summer temperatures that sometimes reach 35, 36 °C.

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6

1.- HISTORY

- This Centre owes its creation to the Ministry of Agriculture. In 1944
- it was decided to apply a contribution of 1 million pesetas (6,000 Euros today) and dedicate them to the improvement of the cattle breeds of Galicia, which is a traditional cattle and fishing region,
- Thus in January 1946 **Centro de Selección de Ganado Bovino (Beef Cattle Selection Centre)** the activity of improvement begins in Fontefiz with 18 cows and 2 stallions bulls of **Rubia Gallega "Galician Blond** ("Gallega colorada") and 9 cows and 2 stallions of breed Caldelá ("**Gallega Negra**"**Galician Black**).
- in 1953, **(Primary Livestock Artificial Insemination Centre)** was created and studies began to obtain bovine **semen**, first in fresh and later in frozen semen, becoming dependent on CENSYRA de Lugo as a **Semen Collection Centre**

7

Fontefiz in the 50's



8

1.HISTORY

- In 1976, the Centre began to obtain frozen semen doses from bovine specimens of what were then called "**RAZAS MORENAS DEL NOROESTE**" (**NORTHWESTERN MORENO(BROWN) BREEDS**).
- Without this action it would not have been possible to recover any of these breeds, but when they began to look for specimens of these breeds, no pure-breed males could be found due to the success of the Artificial Insemination that had been used with these breeds for cross-breeding with selected breeds.

9

1.HISTORY TRANSFER OF COMPETENCES

- In 1986, it was transferred to the Xunta de Galicia (*Centro de Escolma y Reproducción Animal de Fontefiz*),
- In 1990 was used exclusively as (*Centro de Conservación de Razas Autóctonas de Galicia en peligro de extinción*) (**Galician endangered breeds Center**). A the facilities are dedicated to the **Germplasm Bank of endangered breeds** and the formation of a herd of cows of the so-called "Morenas del Noroeste"..... With animals purchased from farmers located in the areas of origin and with others that were already owned in various farms of the Department, the **Foundational Herd of Cattle of the Galician native endangered breeds** was founded.

10

1.HISTORY TRANSFER OF COMPETENCES

- ▶ In 2002, under the current name of **Centro de Recursos Zootenéticos de Galicia**, the **Galiña de Mos Recovery Unit** was set up. "Mos hen"

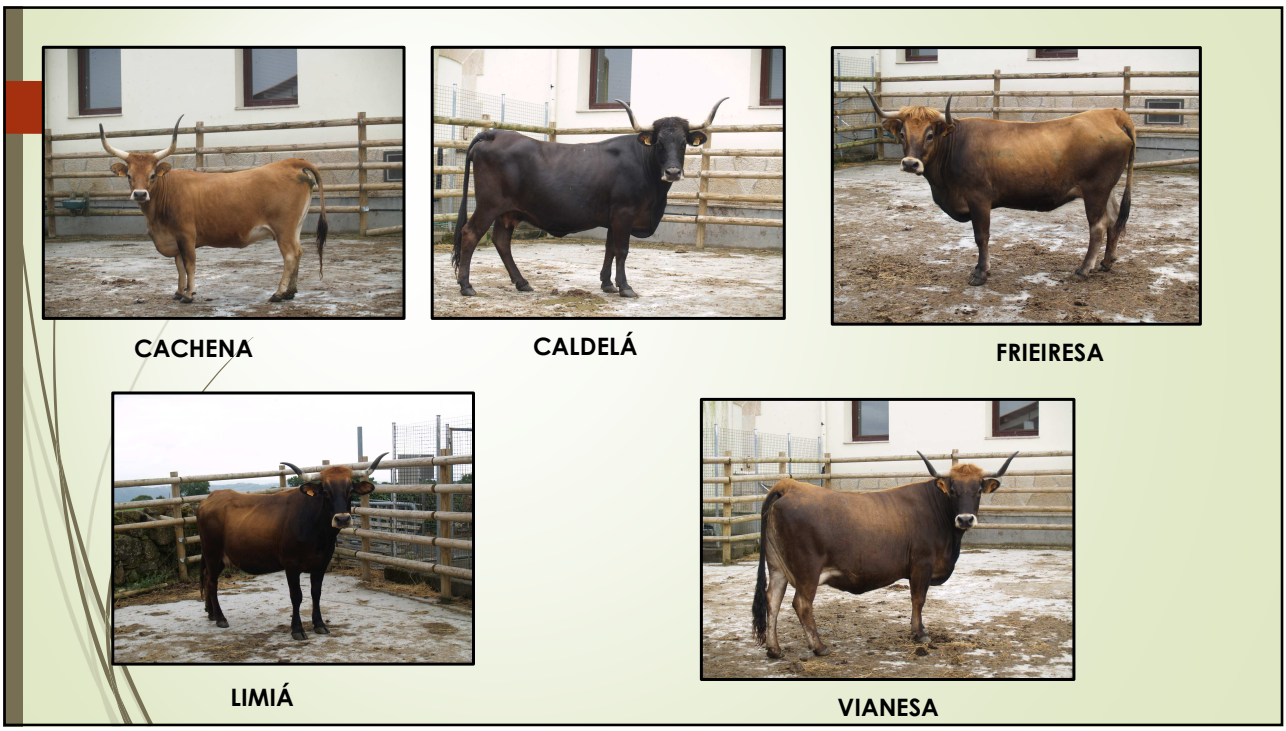
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2. MAIN ACTIVITIES AND FUNCTIONS OF THE CENTRE

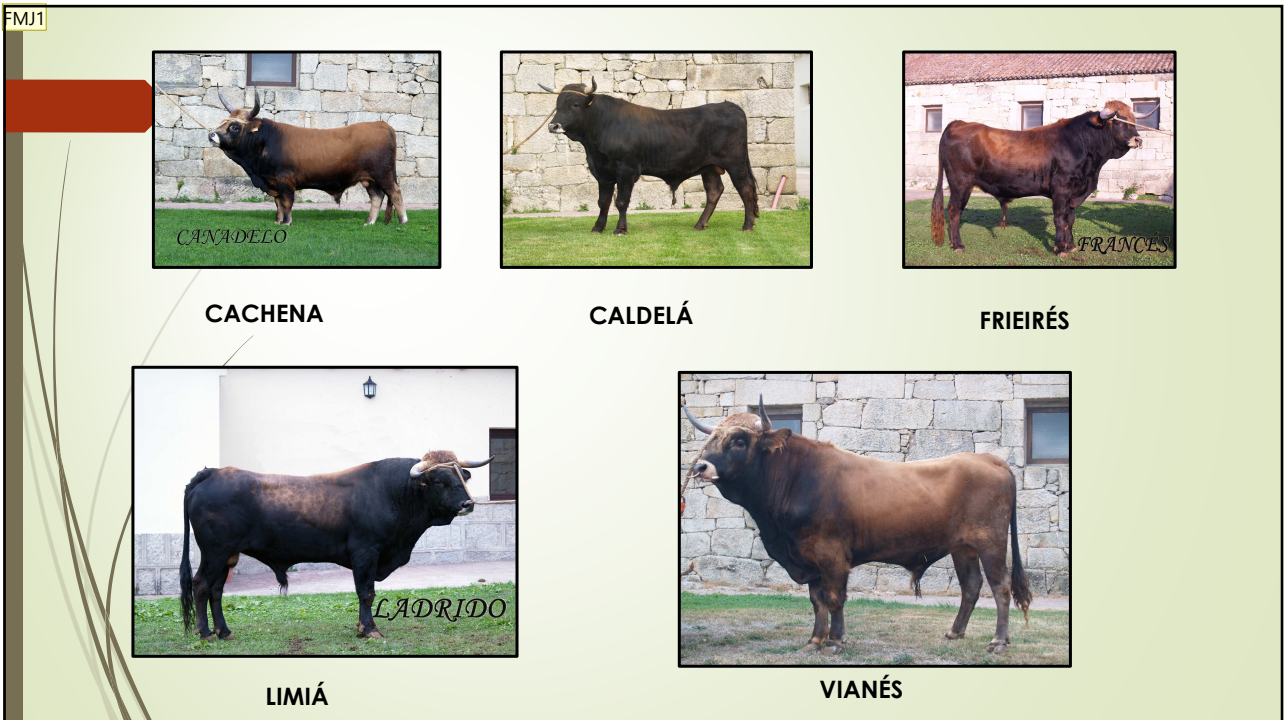
The main activities of the CRZG at present are:

- ▶ 1. Maintenance of the **Foundational Herd of the 5 cattle breeds in danger of extinction** (Cachena, Caldelá, Frieiresa, Limiá e Vianesa). Composed of **133** breeding cows and almost **76** cattle under 2 years old, (**36** heifers and calves) as well as **35 bulls** for the production of frozen semen. The animals, once they fulfil the breeding programme, i.e. they provide a male and a female to the offspring, together with the born males that will not be destined to the breeding farm to obtain semen, will be sold as soon as possible to the collaborating stockbreeders.

12



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14

Diapositive 14

FMJ1 Feijóo Mera, Julio; 04/05/2023

2. MAIN ACTIVITIES AND FUNCTIONS OF THE CENTRE

- ▶ 2. Management of the **Recovery Unit of “Galiña de Mos”(Mos Hen breed)**, composed of 7 different breeding batches, with a total of almost 200 hens and almost 40 roosters of the Mos breed. Every week day-old chicks are born and sold to the collaborating breeders under the coordination of the AVIMOS Association
- ▶ 3. CRZG is responsible for **supervising the correct development of the recovery, conservation and promotion programmes of all the autochthonous zoogenetic resources of Galicia** in danger of extinction, following their evolution

15

2. MAIN ACTIVITIES AND FUNCTIONS OF THE CENTRE

- ▶ **4. Maintenance and increase of the Germplasm Bank**, composed of almost 800 thousand doses of bovine semen, 162 bovine embryos, 4700 doses of ovine semen, 250 doses of goat semen, and almost 2800 doses of Celtic Pig, and of Galician Horse 3035 doses of semen and 10 embryos. The **bovine bank** is fed by bulls born in the foundational herd, which are weaned at 7-8 months of age and are subjected to a testing study until they are 14 months old. They are then subjected to the necessary health tests before entering the breeding farm, which is made up only of bulls dedicated to semen collection. Once an estimated 2,000 doses of semen have been obtained, they are sold to the farms of the breeders who collaborate with the officially recognised Breeders' Associations.
- ▶ *The primary motivation for developing cryopreserved germplasm collections is to have the capacity to maintain and enhance the genetic diversity of in situ populations*

16

3. DEVELOPMENT OF THE BANK, CIRCUMSTANCES IN WHICH WE WORK, DIFFICULTIES

- The largest bank that we own and with which we work most assiduously is with bulls of the bovine species and born in the Center
- The semen donor bulls are all from the founding herd born in the Center descendants of the founding bulls of each lineage according to the mating plan with crosses of minimal consanguinity. From a health and logistical point of view, this makes it much easier for us to incorporate donors into the farm authorized for reproduction.
- One of the biggest problems we are facing right now at the Center is the **difficulty in carrying out a sufficient number of bull riding to obtain and process semen**. The management of these animals requires trained, skilful and courageous personnel. For reasons of a bureaucratic nature, since it is a publicly owned Center, it is very difficult to replace the loss of personnel that have occurred in the last 5 years with personnel who meet these characteristics

17

3. DEVELOPMENT OF THE BANK, CIRCUMSTANCES IN WHICH WE WORK, DIFFICULTIES

- This means that this activity can be carried out on days when, in addition to sufficient personnel, the number of perfectly trained operators for this work is present. In the case of recent years as a result of the COVID-19 pandemic, **during the years 2020 and 2021 the activity was suspended**. This has aggravated the delay in the departure of bulls to collaborating farms.
- In addition, we continue with very few workers in the center. Right now for us it is the biggest problem, and it has a **difficult solution in the short term**, even if we had a budget, **finding trained personnel to be able to work according to administrative regulations will be very difficult**.

18

4.- GENE BANK: MATERIAL CURRENTLY STORED

- Fontefiz is authorised as an Animal Reproduction Centre for the following species: Cattle, Sheep and Goats, and Horses, both for the collection and the commercialisation of semen and embryos. **ES12001**
- However, the main activity is focused on the procurement of frozen bovine semen of the 5 breeds at risk.
- The activity of obtaining ram semen was mainly developed between 2007 and 2015 and the extraction and collection of frozen goat semen was obtained in 2018.
- For the incorporation of semen from the rest of the autochthonous species at risk, a collaboration agreement was designed with the associations of Celtic Pig breeders "ASOPORCEL" and Purebred Galician Horse breeders "PURAGA".
- At the moment we do not have a semen bank of the Galiña de Mos, but we have the firm intention to start this year or next year, and that it will be carried out in the Centre.
- At present the Bank consists, by species, of the following composition

19



20

4 GERMPLASM

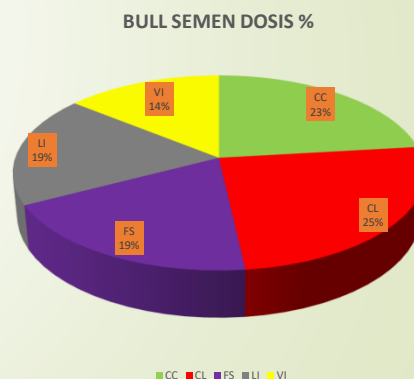
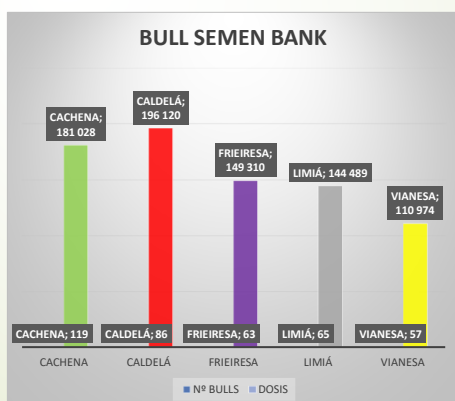
4.1 CATTLE SPECIES.SEMEN

Table -1 Semen stocks in the bovine bank as of 30/04/2023

BREED	DOSES STOCKED TOTAL	N° OF BULLS TOTAL	DONOR LINEAGES	NEWS DONORS 2022/23	OLDEST SEMEN DOSES
CACHENA	180.913	119	15	2	01/07/1983
CALDELÁ	195.925	85	11	1	13/01/1981
FRIEIRESA	149.330	63	11	1	11/02/1976
LIMIÁ	144.944	65	8	1	13/01/1981
VIANESA	110.799	56	8	1	13/08/1976
TOTAL	781.911	388	53	7	

21

BULL SEMEN BANK



22

4 GERMLASM

4.1 CATTLE SPECIES. EMBRYOS

- 4.1.2 Embryo Bank In the Bovine Germplasm Bank there is a total of 174 bovine embryos as reflected in the following table
- Table -2 Existence of embryos in the Bovine Germplasm Bank


	Cachena	Caldelá	Frieresa	Limíá	Vianesa	TOTAL
Nº Embrions	71	29	25	15	34	174

23

4. GERMLASM

4.2 GALICIAN SHEEP GERMLASM BANK

- During the year 2022, the Sheep germplasm Bank was maintained and on 31 December 2022 it held a total of 4.694 doses for 8 RAMS from 5 different breeding groups



DOSES OBTAINED SINCE 2015	Nº DONNOR RAMS	Nº DOSES SEME
TOTAL	8	4.694

24

4. GERMPLASM

4. GALICIAN GOAT GERMPLASM BANK

- During the year 2022, the goat germoplasm bank was maintained and on 31 December 2022 it held a total of 250 doses of 3 seeds of 3 different reproductive groups.



DOSES OBTAINED SINCE 2015	N° DONNOR MALE GOAT	N° DOSES SEME
TOTAL	3	250

25

4. GERMPLASM

4.3 CELTIC PIG GERMPLASM BANK

- In 2012 and as a result of a research project in which the Centre collaborated with Asoporcel and Inorde, together with the Faculty of Veterinary Medicine of Lugo, a small Pig Germplasm Bank was created with a total of 2,791 doses of porcine semen from 5 different boars, which are deposited at the Centre.



DOSES OBTAINED SINCE 2015	N° DONNOR BOAR	N° DOSES SEME
TOTAL	5	2,791

26

edio Rural and the Asociación de Criadores de Cabalo de Pura Raza Galega (Purebred Galician Horse Breeders Association) (PURAGA), gave rise to the creation of the Equine Germplasm Bank.

4. GERMPLASM

4.4 EQUINE GERMPLASM BANK (PRG)

- The signing in 2017 of a collaboration agreement between the Consellería de Medio Rural and the PRG Breeders Association de Cabalo de Pura Raza Galega (PURAGA), gave rise to the creation of the Equine Germplasm Bank. In 2017, we received in the Centre 799 doses from 4 Pura Raza Galega (PRG) horses, which together with previous stocks accumulate a total of 3,035 doses from 13 PRG horses and 10 embryos from the mating of an equine stallion with four mares.
- In 2019, we received in the Centre 1.869 doses from 8 **Pura Raza Galega (PRG)** horses, which together with previous stocks accumulate a total of 3,035 doses from 13 PRG horses and 10 embryos from the mating of an equine stallion with four mares.

27

4. GERMPLASM

4.4 EQUINE GERMPLASM BANK



DOSES OBTAINED SINCE 2015	N° DONNOR STALLION	N° DOSES SEME
TOTAL	13	3,035

EMBRYOS OBTAINED SINCE 2017	DONOR		N° HORSE EMBRYOS
	MALE	FEMALE	
TOTAL	1	4	10

28

5 .USE OF STORED MATERIAL

The fundamental purpose of the collected bovine semen is

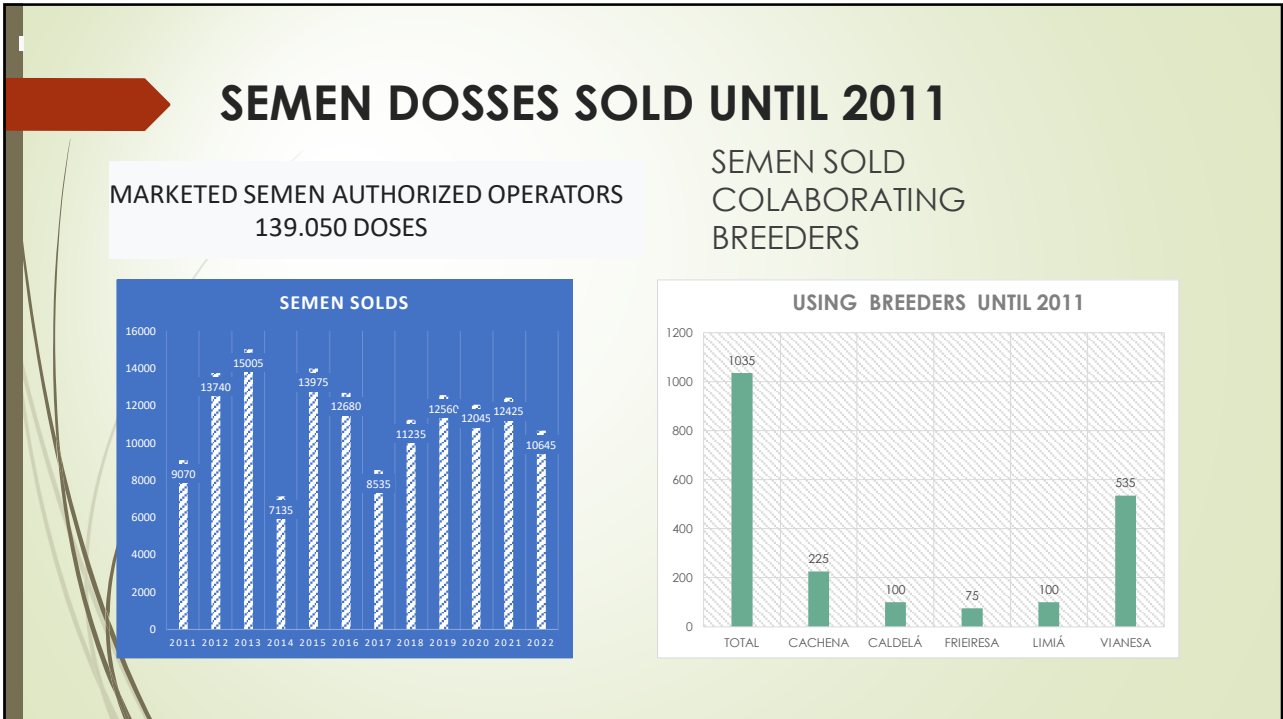
- ▶ 1. **to increase the bank**, on the one hand, with the aim of having semen from as many bulls as possible and that the variability of the stored genes is as high as possible.
- ▶ 2. **the use of semen in the collaborating stud farms** under the supervision of the veterinarians of the Breeders' Associations. The request for semen is made exclusively by the veterinarians of the associations. Those breeders who are more committed use AI on those cows in their herd that have a higher inbreeding rate with the bull of the farm.
- ▶ 3. **The use for artificial insemination(AI) of cows from the foundation herd** . As they are targeted matings (minimum inbreeding crosses), all cows are routinely inseminated

29

5 .USE OF STORED MATERIAL

- ▶ 4. A high percentage of the semen is used **for ordinary marketing**. A larger quantity of semen is extracted from some bulls in order to satisfy a demand that appreciates this semen from our Centre and which is used as a rule
 - a. either in animals with fertility problems
 - b. mainly in first calving heifers in order to have an easy and safe calving due to the smaller size of the newborn calves.
- ▶ The rest of the stored material, both bovine embryos and the rest of the semen of other species, is **exclusively as a bank** to be used only in case of need for future risk, whatever it may be.

30



31

6. FUTURE PROSPECTS

Among the immediate plans for the future are

- 1. Creation of a semen bank of Mos Cook breed, together with the introduction of AI in our specimens of the Mos Hen RECOVERY UNIT . For it we are implied in the collaboration with the association AVIMOS by way of projects of investigation that to us for bureaucratic reasons it is very difficult for us to accede.
- 2. The increase of the MALE goat and RAM semen bank.
- 3. The obtaining of a greater number of embryos, especially of the bovine species which is the one in which we have more experience.
- 4. In a more distant future, to collaborate in obtaining semen from bulls not born in Fontefiz, which are descendants of cow lineages that were not from the founding herd through the maternal lineage, as all of them are from the paternal lineage
- The last one would be to obtain sexed bovine semen

32