

# Farmers' breeding goals and requirements for PDO products : The Nustrale pig breed in Corsica

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**Session 47: "Impact of market requirements and production conditions on pig breeding goals: mainstream and niche"**

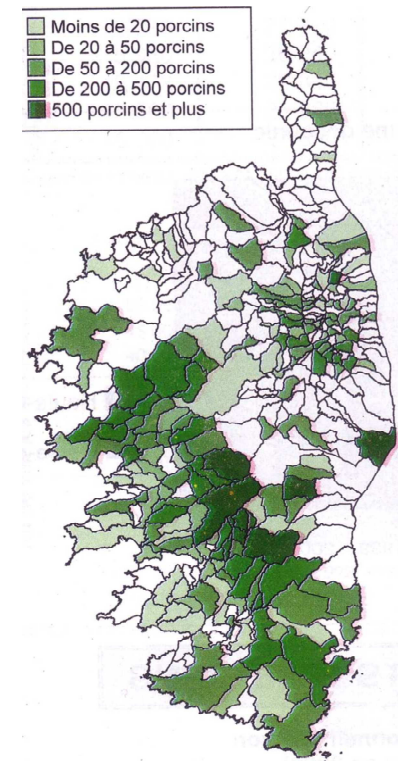
# Recovery of the breed

- Ancient population in Corsica island, since 3000 B.C. (replacing feral wild boars introduced before)
- Pigs into every rural family unit, processed in dry cured product for conservation (meat and fat) in Christmas time
- 70's : crossbreeding with Large White
- 80's : crossbreeding with Duroc
- 90's : breed is considered as endangered
- On 250 farmers, half are still using the local breed for a total production of 50 000 pigs slaughtered / year.



# Nustrale pig breed recognition

- 94 : Creation of an Association for the Corsican pig breed / Conception of the breed standard
- 2000 : Opening of the Herdbook with animals known by 3 generations. 10 boar lines and 56 sow lines
- 2006 : Official recognition of the breed by the French Ministry, under the name of *Nustrale* (“ours” in Corsican language).
- Involving 32 breeders, in 2011: 77 boars and 1509 sows in the data base



Effectifs porcins présents en Corse par canton (RGA 2000)

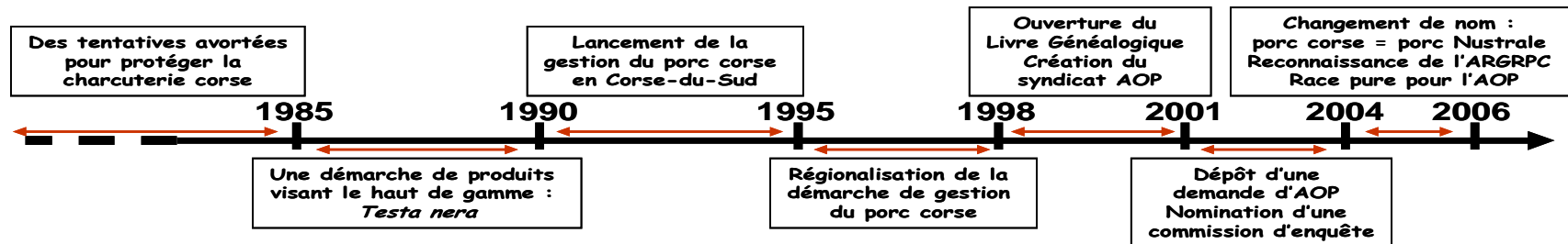
# Link breed - product

- The maintenance of the breed seems mainly due to the livestock farming system : pigs are bred in a **syvo-pastoral system** close to the Mediterranean tradition / Extremadura and Andalucía, Alentejo, Sicily, Sardinia, ... Finishing period / during autumn, pigs are fed with chestnuts and acorns before slaughter in winter.
- All situations are dedicated to **dry cured products of high quality and reputation**. Spanish "*Pata negra*" cured ham is the most famous of them.

Corsican specialty products are part of these traditions.



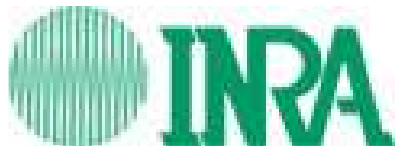
# Historical linkage: a reciprocal strengthening



- The perspective of valorization for the product is based upon the ability of the breed to live in such an ecosystem (chestnut trees and oak trees).
- The name of the PDO includes "*Corsica*", so the breed name changed (in 2004) from Corsican to *Nustrale*.
- The progress in managing the breed gives new reasons to protect the product. And the perspective of product protection reinforces the need to manage the breed.

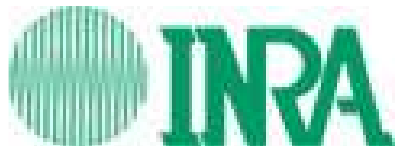
# Targeted market : a micro-niche with very high prices

- In this system, dry cured products are the most valuable issue from the production units.
- Breeders are mainly also processors of their pigs. They produce dry cured hams (*prisuttu*), loins (*lonzu*) and necks (*coppa*), already protected under PDO, with other specialty products (sausage, liver sausage named *ficatellu*) not yet protected.
- Mean price of a full ham = 35 € / Kg  
Some producers sell at 120 € / Kg long aged hams (2 years old), and at end consumer level some sliced hams can reach 15 € / 100 g.
- Great problems of frauds and misuses using “*Corsica*” for any kind of products (made with imported raw material) / need for protection of the geographical name in a touristic region.



# Research questions

- The PDO is giving the right to an exclusive use of “*Corsica*” on the labels for the 3 protected products (*prisuttu*, *lonzu* and *coppa*).
- **How breed managers and individual breeders are dealing with the requirements of the PDO?**
- **Do the PDO requirements orient the breeding goals at collective (breed management) and individual (breeder) levels ?**



# Material and methods

- PDO specification and the requirements for animals : ways of rearing, age and weight at slaughter and characteristics of meat (intramuscular fat) and backfat.
- Breed management and PDO requirements: several meetings for analyzing the way managers are making decisions in terms of breeding goals.
- And 27 interviews with breeders on their individual practices and representations on the animals fitting their expectations.





# R1 - Requirements of PDO specification as obligations of means

- *Nustrale* pure breed / herd book inscription
- Weaning at 2 months, only suckling milk.
- Stocking rate on pasturelands < 5 pigs / ha
- Stocking rate on finishing pasture < 8 pigs / ha
- No maize since 45 days before finishing
- Finishing period : more than 45 days – during 30 days only chestnuts and/or acorns
- Age at slaughter : 12 to 36 months (November – March)
- Carcass weight at slaughter : 85 to 140 Kg

**Extensive system with a great part of feeding from the territory.**

**Animals able to circulate in a large area.**

**Little format corresponding to slow growing.**



# R1 - Requirements of PDO specification as obligation of results on raw material (ham values)

- pH from 5.4 to 5.9 (*Semi-Membranosus*)
- Fresh weight from 8 to 14 Kg
- Fat from 2.5 to 5.5 cm (according to the weight)
- Dry matter in the meat from 45 to 55%
- Intramuscular fat > 6 %
- Oleic acid in the backfat > 45 %
- Ageing > 12 months

**Minimum of 8 kg as fresh weight, of 6% IMF are very original values. The *Nustrale* breed is known to reach such values. Accumulation of oleic acid is linked to the finishing period.**



# R2 - Collective management of the Nustrale breed (1)

- Maintenance of **diversity** within the breed. In particular, make sure that the lines are OK. More boars circulating than sows.
- Verification of the **standard** on every litter.
- Verification of the **locomotion** ability / sylvo-pastoral system requires such ability (not only PDO).
- Size of the animals, format of adults, growing speed, as **slow growing** is considered as a main trait of the breed.

**The major breeding goals are due to the conservation requirements.  
Other traits are more linked to the production system.  
Slow growing have something to do with the minimum for PDO.**



## R2 - Collective management of the Nustrale breed (2)

- How to maintain some **rusticity** for animals supposed to be placed in extensive systems?
- Insure both the level of adiposity and the age at slaughter supposes a slow growing and the expression of a **compensatory growth** during the finishing period.
- So, some boars have been placed in a control station : **elimination of the higher growing speed boars** / more than 90 Kg at 8 months. Huge debate among breeders.

**The PDO requirements are orienting the breed in particular on the question of growing speed. Compensatory growth is necessary in order to obtain high level of adiposity and of IMF.**



# R3 - Individual management of the breeders (1) / Aesthetics

- The great phenotypic heterogeneity / coat patterns, ears, legs, as a way to **distinguish by homogeneizing**.
- Used at **market level** towards clients expectations.



**Market can give value to some patterns  
when farmer build his reputation on that.**



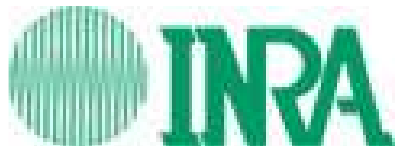
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## R3 - Individual management of the breeders (2) / Behavior

- Behavior of sows knowing the specific pasturelands and able to **teach** their piglets on where to eat, to drink, to sleep.
- Families declared for breed management are based on such knowledge and farmer is maintaining over generations this ability / **learning process from the mother to the daughter.**
- Valorization of the natural resources on the pasturelands, **exploration** of the various parts of this space, consumption of various eatable resources, autonomy in free-range system.

**Pigs need to be autonomous in their behavior.  
The farmer frequently communicates on  
the way of life of his animals when selling the products.**



# R3 - Individual management of the breeders (3) / Processing

- Quantity and quality of the meats and fats to be processed.
- Avoid excess of adiposity, but **fat quality** as a main criterion.



**Archaism of the breed can be seen as a real originality conferring uniqueness to the product**

## R3 - Individual management of the breeders (4)

- In reality, these 3 breeding goals are mixed as no breeder is only with one breeding goal. All possible **combinations** are observed and no pure style in the reality.
- The question of **quantity to process** induces a tension around the growing speed and the production costs (additional feeding before or after the finishing period).
- The lines of boars and sows are **not really integrated** into the breeders' reasoning. Main behavior is to choose another known breeder, showing the same conception of breeding system or with good reputation.





# Discussion 1 : the “right” animal

- Heterogeneity vs homogeneity of the breed.  
Some farmers prefer to have diversity into their herd while other try to produce more recognizable animals.
- Morphology of the boar.  
Long enough with good conformation vs rusticity for using pasturelands.
- Key concept : **Leading sows** able to conduct the herd.
- Milk ability for the piglets / few expectations for litter size (healthy piglets at weaning) and frequently one litter/year.
- Adiposity has at the same time a maximum and a minimum.  
Controversial at farmers level.



# Discussion 2 - breeding goals in the case of conservation breed

- Maintaining the whole diversity through generations as an obligation : **tiny room for manoeuvre**.
- Measuring the growing speed as a way to clear the population from **previous crossbreeding traces** / Not really a selection objective.
- Dedicate the breed to the PDO requirements induces some **new criteria** (for example, thinness of the legs for the *Prisuttu*).



# Discussion 3 : tensions between PDO and breed management

- Producers for PDO are mainly farmers at the same time home-processors. Rules for the PDO seem quite easy to be respected by individual farmers.
- Questions of **growing speed** and **carcass adiposity** are more delicate for the breed management.  
As PDO requirements are based upon the current references of the breed, some breeders consider that the breed management could **improve** production parameters (daily gain and fat deposition).
- In particular farmers giving **complementation** with barley after the finishing period (only chestnuts and acorns) as allowed by the PDO. They hope that the breed management could make evolve the breed for better feed efficiency.



# Conclusion

- Farmers **trade-offs** seem quite easy between
  - individual preferences, their vision of the “right” animal
  - collective requirement for breed management
  - PDO specification.
- Difficult to balance between conservation requirements and production expectations.  
According to breeding goals, PDO is inducing
  - few modifications at farmer level from the usual way to produce
  - more at collective breed management level on the evolution of the breed.
- The “**right**” animal is supposed to fit at the same time
  - the farmer’s particular situation,
  - what should be the local breed,
  - the niche market expectations.

