

# Conservation and improvement of native livestock breeds in Portugal

L.T. Gama<sup>1</sup>, F.P. Afonso<sup>2</sup> and N. Carolino<sup>1</sup>

Session\_01

<sup>1</sup> Instituto Nacional de Recursos Biológicos, Fonte Boa, 2005-048 Vale de Santarém, PORTUGAL  
Direcção Geral de Veterinária, Av. António Serpa, 26, 1º, 1050-027 Lisboa, PORTUGAL

ltgama1@yahoo.com

## Native AnGR in Portugal

	No. breeds	
	Recognized	At risk
Cattle	15	12
Sheep	15	12
Goats	5	4
Pigs	3	3
Chicken	3	3
Horses	3	3
Donkeys	1	1

45 breeds recognized  
38 breeds at risk



## National policy

- Strategic importance of native breeds has been recognized
  - Support measures in place since the 1990's
- Established goal in 2008
  - All breeds must have in place a genetic evaluation or a conservation program by 2010
- Emphasis on:
  - Valorization of products
  - Characterization of native AnGR
  - Conservation programs (*Ex situ* and *In situ*)
  - Selection programs

## Valorization of products

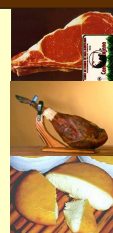
Certified  
products in  
Portugal

Type	No.
Beef, pork, lamb, kid	27
Cheese	13
Sausage	36



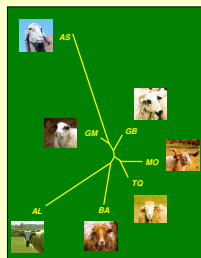
~5% of total  
consumption

20-50%  
added value



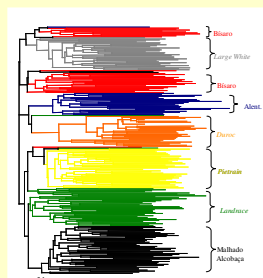
## Characterization of AnGR

### Sheep breeds



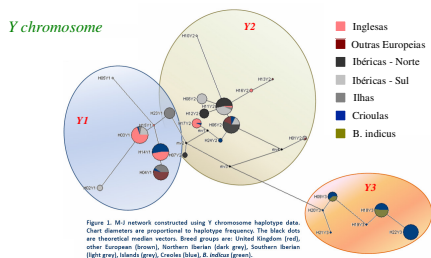
Santos-Silva et al., 2008

### Pig breeds



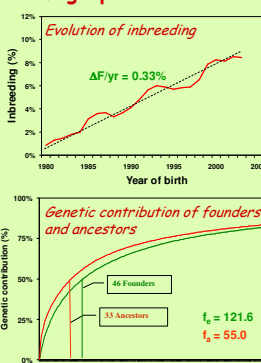
Vicente et al., 2008

### Cattle breeds from Iberoamerica



Ginja et al., 2009

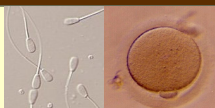
### Demographic characterization - Alentejana



L=6.5 years  
 $\Delta F/\text{generation}=2.15\%$   
 $N_e=23.3$   
 $H_s=26.9$   
Relationship ( $a_{ij}$ )  
– Same herd: 32.8%  
– Different herds: 2.2%

Carolino & Gama, 2008

## Conservation programs



### • Ex situ conservation - National Animal Germplasm Bank

	Semen		Embryos	
	No. breeds	No. sires	No. breeds	No. dams
Cattle	10	178	-	-
Sheep	10	59	3	32
Goats	5	36	3	7

### • In situ conservation

Support to breeds at risk (EU reg. 1698/2005, 1974/2006)

Status	Maximum number (*1000)					Support €/std head
	Cattle	Sheep Goats	Pigs	Horse	Chicken	
Rare	0.5	3	1	0.5	2	200
Highly threatened	2.5	5	5	2	10	170
Threatened	6	8	12	4	20	110
At risk	7.5	10	15	5	25	90
Breeds supported	12	16	3	4	3	38
Total no. breeds	15	20	3	4	3	45

## Selection programs



- General objectives
  - Selection for production and adaptation traits
  - Maintenance of genetic diversity
- Selection programs managed by Breed Associations
  - Program approved and partially financed by Min. Agriculture
  - Scientific support by research institutions/universities
- Support to breed Associations (example of cattle)

	Support (€)	Per
Registration in Herdbook	9	Animal
Parentage testing	18.5	Animal
Genetic characterization	20	Animal
Demographic characterization	3500	Breed
Ex situ conservation	800	Year
Artificial insemination	3000	Year
Carcass and meat quality traits	800	Year
Performance recording	12	Animal
Breed promotion	3250	Year
Genetic evaluation	3500	Year
Milk recording (sheep)	12	Animal

Examples  
of genetic  
evaluations



Mertolenga

6 traits  
125729 records  
122 bulls



Alentejana

13 traits  
100562 records  
192 bulls