



ITALPACA  
Italian Association of Alpaca Breeders  
The first experience of the  
alpaca genetic improvement programme in Europe

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## ALPACAS IN ITALY

- ❖ Alpacas' presence on the Italian market is quite recent. The first imports can be dated at the end of the 1990s (1997/1999).
- ❖ The number of alpacas in Italy at the moment is of 700/800 animals, distributed among approximately 60 alpaca breeders located in different regions of the national territory, from Sicily to Piemonte.

## ITALPACA ASSOCIATION

- ❖ Established in 2001 as an answer to the growing need of the breeders for a professional structure, specifically dedicated to this new sector.
- ❖ 50 breeders are members of ITALPACA representing the whole national territory.

## AIMS

- ❖ To represent breeders in front of public institutions.
- ❖ To promote this new breed.
- ❖ To provide support services and information for and among the breeders.
- ❖ To create and run a National Register of Alpacas.

## ITALPACA REGISTRY OFFICE

- ❖ Was created in 2004.
- ❖ To meet the need of identification of alpacas born and living in Italy.
- ❖ As a mean to encourage the genetic improvement of alpaca population in Italy.

## GENETIC IMPROVEMENT PROGRAM

The aim of the genetic program is the improvement of fibre fineness and fleece extension of the animal.

Our goals are:

- ❖ To increase quality and quantity of the produced fibre.
- ❖ To enhance correct conformation of the animals.

## SELECTION CRITERIA

- ❖ The fleece weight, at the first shearing (1 year old).
- ❖ The fibre fineness at the first shearing.
- ❖ The coefficient of variation of the fibre fineness
- ❖ The morphological evaluation of the animals (characteristics of the fleece, head volume, thorax width, back inclination), measured at 1 year age.

## Phenotypical parameters

- ❖ Quantitative measurements were carried out on 91 Alpaca of Huacaya type.

	Fleece weight (gr.)		Fibre diameter ( $\mu$ )		C.V.*	
	<i>x</i>	<i>S.D.</i>	<i>x</i>	<i>S.D.</i>	<i>x</i>	<i>S.D.</i>
<b>Male (42)</b>	<b>1624.3</b>	596.8	<b>22.7</b>	2.8	<b>25.7</b>	3.4
<b>Female (49)</b>	<b>1749.9</b>	496.7	<b>22.9</b>	<b>3.6</b>	<b>26.8</b>	4.3

\* C.V. Coefficient of variation related to fibre diameter.

*(Note. No evidence of a significant difference between male and female resulted from the ANOVA carried out for the three morphological traits).*

# GENETIC INDICES

- ❖ The following table illustrates the heritability values (on the diagonal), the genetic and the phenotypic correlations (above and under the diagonal, respectively), related to fleece weight, fiber diameter and coefficient of variation, according to Ponzoni (2006). These heritability values were used in estimating the genetic indices\*.

	CFW	FD	FDCV
CFW	<b>0.60</b>	0.30	0.00
FD	0.30	<b>0.60</b>	0.00
FDCV	0.00	0.00	<b>0.70</b>

CFW, clean fleece weight
FD, fibre diameter
FDCV, coefficient of variation of FD

\* Because of the few (91) animals investigated here, we did not feel confident in calculating the heritability values from our data.

Raul W. Ponzoni, 2006. Proposal for the establishment of a breeding nucleus in Australian alpacas. Australian Alpaca, Further Reading.



# SELECTION INDEX

- ❖ After standardization and weighing, genetic indices, estimated according to the *Multiple-Trait* model, were pooled in a single index, named selection index (SI). The weights assigned to the three genetic indices were:

	Fleece weight	Fibre diameter	C.V.
weight	10%	50%	40%

*Animals with positive selection index*

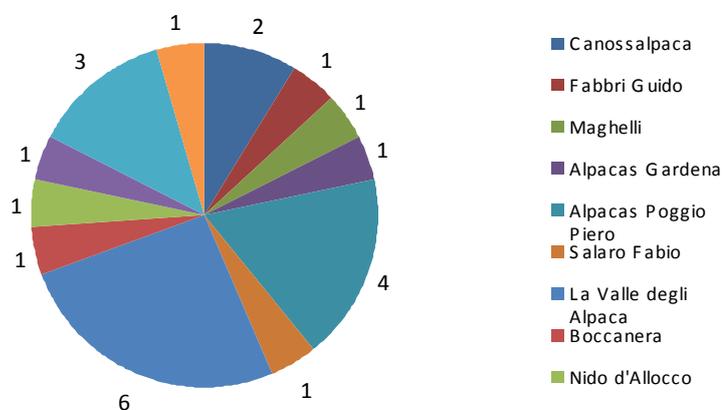
	Male n	(42) %	Female n	(49) %
IS positive	23	54.8	25	51.0

Positive selection indices showed reliability values from **0.60** to **0.80** ( mean = **0.77**; s.d. = 0.05)

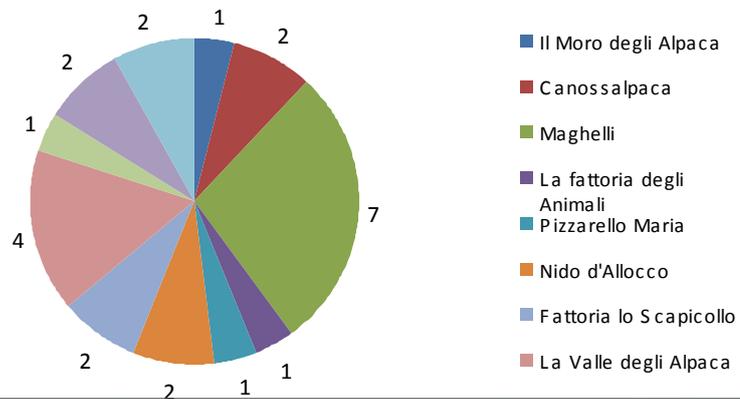
## CONCLUSIONS

- ❖ This investigation allowed us to detect a breeding nucleus consisting of 23 males and 25 females distributed among 17 alpaca breeders located in different regions of the national territory, from Sicily to Piemonte. These animals will be used in breeding program in order to improve quality and quantity of the fibre within the Italpaca population.

## Farmers with males with positive selection index



## Farmers with females with positive selection index



Grazie!