

TEN YEARS OF EMBRYO TRANSFER APPLIED TO A SELECTION PROGRAM FOR PROLIFICACY IN SHEEP

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- Rasa Aragonesa breed is semi-extensively exploited in flocks from 100 to 4000 heads, to produce lambs sacrificed at 3 months old.
- As prolificacy determines the farm economic viability in this breed, since 1998 a selection program for prolificacy is being developed.
- Within this program, the males to be tested are obtained by superovulation and embryo transfer of the ewes having higher genetic values (GV) in the recorded flocks (N=150.000 ewes).

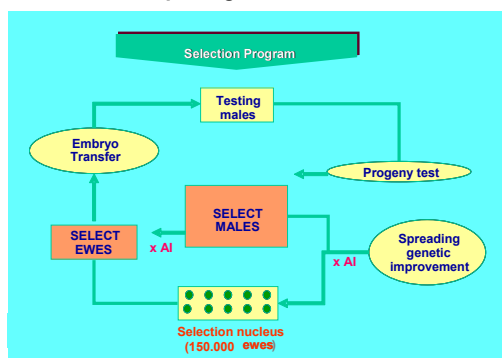
JUSTIFICATION

- The GV for prolificacy can be reliably estimated only after several lambing records, when ewes are old.
- Embryo transfer from these aged females is the best way to getting the necessary number of descendants to be tested.
- Embryo transfer is the best tool to guarantee sanitary conditions of the sires.
- Embryo transfer allows to quickly increase the number of descendants per select ewe.

MATERIALS AND METHODS

A total of 308 donors were purchased to the farmers after being checked for:

- Higher GV for prolificacy.
- Health status: free of Brucellosis, Maedi-Visna, Paratuberculosis and Agalactia.
- Adequate Genotype for scrapie resistance.
- Accordance with the morphological breed standard.



Several treatments have been tried. In 134 donors, superovulation was performed by the following standard treatment of 8.8 mg of oFSH (Ovagen) in 8 decreasing doses:

Day	Donors (n=134)
0	FGA sponge inserted
7	FGA sponge replaced
10	1 st inj.: 1.32 mg oFSH + cloprostenol
11	2 nd inj.: 1.32 mg oFSH 3 rd inj.: 1.1 mg oFSH
12	4 th inj. 5 th : 2 x 1.1 mg oFSH
13	6 th inj.: 1.1 mg oFSH + sponge removal 7 th inj.: 0.88 mg oFSH
14	8 th inj.: 0.88 mg oFSH
	+ 51 h after sponge removal: Uterine AI
	+ 7.5 d after sponge removal: Embryo Recovery + Transfer

RESULTS

- Reproductive problems, such as metritis, regressed corpora lutea or no response to superovulation, occurred in 21.6% of donors. The number of lambs obtained from these donors (LB/Donor) was very low (0.1 ± 0.1 ; n=29).
- In the remainder 105 healthy donors, results increased along time due to the improvement of the technique:

	Period	
	1998-2001 (n=70)	2002-2007 (n=35)
Embryo recovery rate	$72.2 \pm 3.2\%$	$82.8 \pm 3.9\%$
LB/Donor	3.6 ± 0.5	4.9 ± 0.8

- When embryo recovery was repeated in suitable donors, LB/Donor decreased after the 2nd time:

	TIME			
	1 st (n=105)	2 nd (n=36)	3 rd (n=11)	4 th (n=5)
LB/Donor	4.0 ± 0.4	4.3 ± 0.7	1.2 ± 0.5	2.5 ± 1.9

- Since 2007, embryos are sexed and checked for scrapie genotype before being transferred to increase the suitable male production, resulting in 34.0% (n=97) LB/transferred embryo compared to 55.8% (n=52) in the non-sexed group.

CONCLUSION

In spite of reproductive problems associated to the age found in 21.6% of donors, embryo transfer is a useful tool to get an adequate number of males to be tested in our Selection Program.