



Situation of the Merino breed in Spain

National Association of Merino Breeders



Antonio Granero
Executive Secretary



ASOCIACIÓN NACIONAL CRIADORES GANADO MERINO



GOBIERNO DE ESPAÑA
MINISTERIO DE AGRICULTURA, PESCA Y ALIMENTACIÓN



National Association of Merino Breeders, established in the 1970s and officially recognized by the Ministry of Agriculture of the Government of Spain for:

- ▶ Management of the Merino breed in Spain 
- ▶ Dissemination of the Merino breed through livestock competition and official auctions 
- ▶ Certification of the “Autochthonous Breed” logo, on Merino products 
- ▶ Represent Spain within the World Federation of Merino Breeders 

1. Official management of the Merino breed in Spain through the Official Breeding Programme



Regulation (UE) 2016/1012



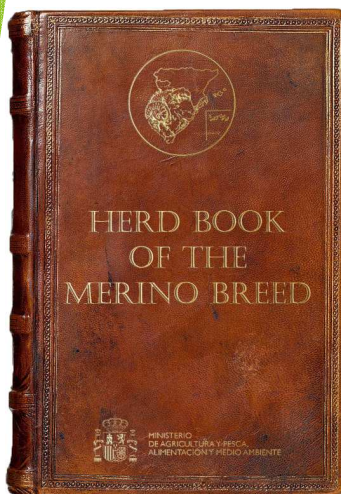
R.D. 45/2019

This programme has 4 phases:

- Herd Book of the Merino breed
- Programme for the Selection and Improvement of the Merino breed
- Conservation Programme for the Merino breed (black variety)
- Transmissible spongiform encephalopathy genotyping program (Scrapie)



Phase 1 - Herd Book of the Merino breed

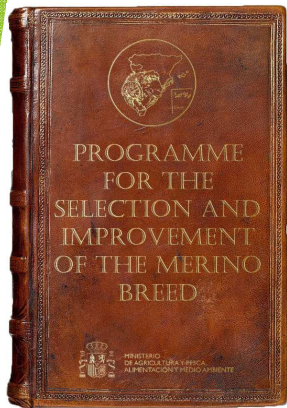


- Established in 1981
- Replaced the old Special Register of Select Merino breed
- In Spain there are 134,255 animals registered in the Herd Book



Phase 2 - Programme for the Selection and Improvement of the Merino breed

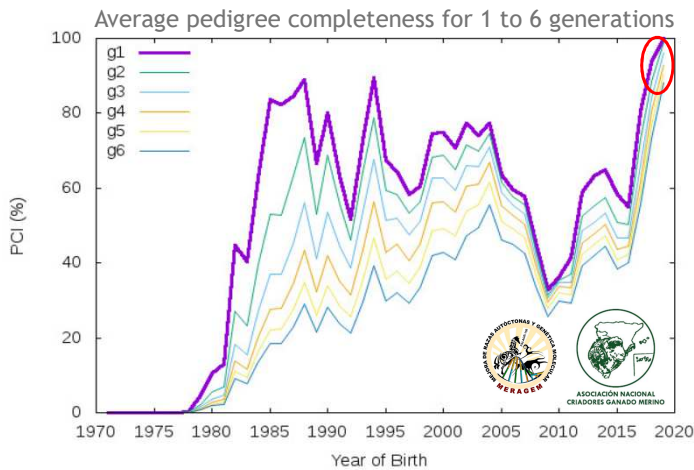
Objectives



- Improvement and standardization of growth potential of Merino lambs
- Improvements in maternal qualities (milk production, fertility and prolificacy)
- Maintenance and improvement, of racial characteristics, including wool production.



Breed with 50 years of genealogical control (1971-2021) and almost 20 controlled generations



In the current generation, it presents more than 96% completeness in the third generation, and more than 90% in the fifth generation.

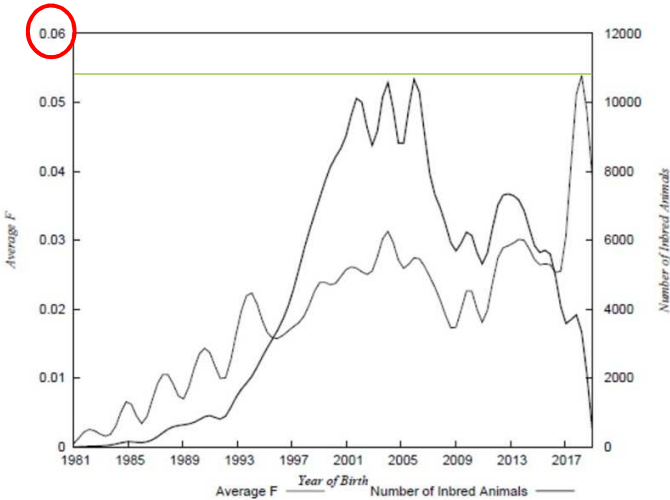
Inbreeding coefficients (F) of animals born in the last 10 years

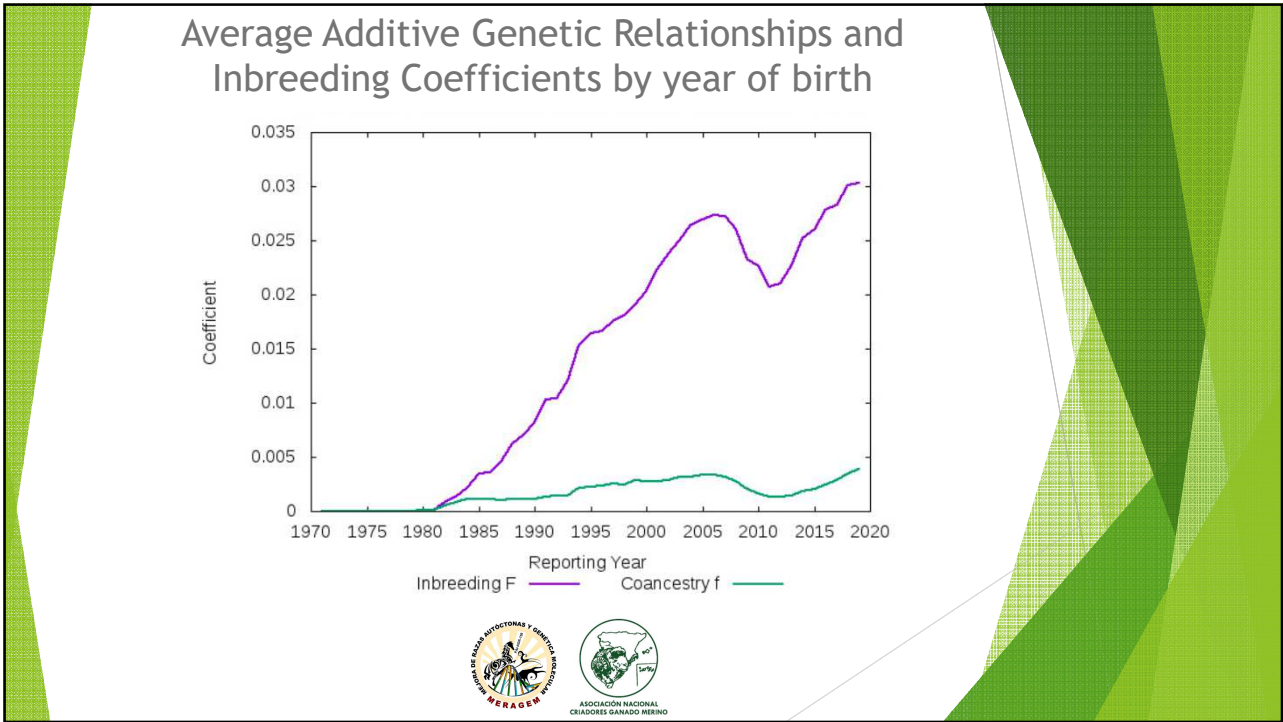
Year	Animal			Sires			Dams		
	Tot No	Inbred No	Avg F	Tot No	Inbred No	Avg F	Tot No	Inbred No	Avg F
2010	20398	6256	0.0231	235	180	0.0432	6409	4868	0.0491
2011	20941	5314	0.0181	278	190	0.0496	7655	4619	0.0375
2012	19417	6900	0.0268	348	220	0.0464	10490	5493	0.0348
2013	19386	7325	0.0293	385	258	0.0469	11098	6025	0.0361
2014	18041	6869	0.0300	436	283	0.0451	10211	5334	0.0352
2015	17087	5675	0.0266	505	320	0.0517	8659	4151	0.0373
2016	15069	5523	0.0263	559	353	0.0513	6569	3756	0.0404
2017	8208	3628	0.0290	438	331	0.0556	5392	2456	0.0338
2018	5600	3740	0.0534	404	299	0.0704	4670	3019	0.0633
2019	655	531	0.039	26	23	0.075	505	344	0.036

Values >0.12 it would be a problem



Comparison between the average inbreeding coefficients (F) and number of inbred animals





Anual genetic evaluations for Growth

Data: 307,243 pre-weaning and post-weaning weight from more than 80,000 lambs

Pedigree: 136,678 animals

Genotyping for parentage: 47,747 animals in the last 5 years

20
Catálogo de Seminales de la Raza Merina

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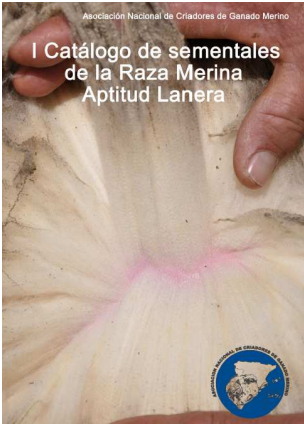
Annual genetic evaluations for Wool fitness

First evaluation:
Data: woold quality control (11 parameters) from 1176 breeding animals

Pedigree:
6875 breeding animals

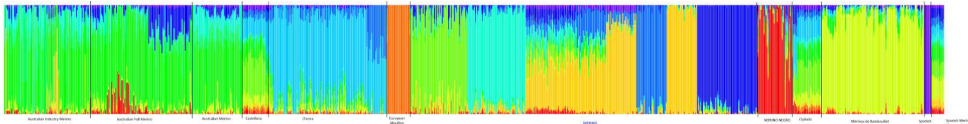
Next Evaluation:
6244 phenotyped breeding animals

Metodología de Valoración			BLUP modelo animal multicaracter									
			Efectos fijos					Efectos aleatorios				
Modelo			Variable= Ganadería nacimiento + año esquila + sexo animal + tipo (adulto / borro) edad (Cov. lineal - cuadrática)					Efecto animal				
Parámetros genéticos			Obtenidos en la misma población									
Long cab / ved	Long Fibra	Ratto lavado	Y (brightness)	Y-Z (yellowness)	L	s	b	Diametro Fib	Coef Var	Indice confort		
0.132	-0.083	0.602	0.084	0.129	0.042	0.098	0.212	-0.197	-0.524	0.996		
0.147	0.375	-0.366	0.571	-0.307	0.391	0.550	0.141	0.159	-0.123			
	0.094	-0.327	0.632	-0.330	0.491	0.670	0.165	-0.046	-0.023			
		0.357	-0.322	0.976	-0.413	-0.505	-0.170	-0.332	0.027			
			0.172	-0.245	0.328	0.941	-0.213	0.012	0.061			
				0.348	-0.397	-0.418	-0.148	-0.333	-0.054			
					0.211	0.592	-0.011	0.549	-0.102			
						0.189	-0.141	0.109	0.013			
							0.282	0.489	-0.873			
								0.217	-0.661			
									0.711			
Animales en matriz parentesco			6875		1873 machos (1299 moruecos) 5002 hembras (4835 ovejas)							



Investigations in progress related to the genomic improvement of wool quality

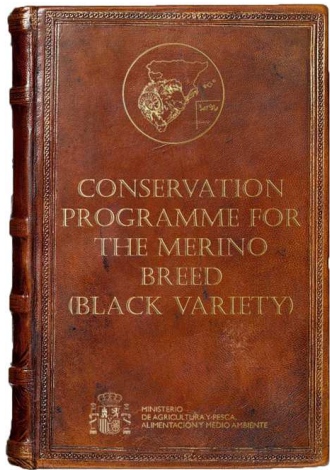
- Search for genetic markers related to wool quality in the Merino breed



- 16 markers related to wool quality have been found (Fiber Diameter, Fiber Diameter coefficient of variation, Fineness Dispersion, Crimp...) and will be validated



Phase 3 - Conservation Programme for the Merino (black variety)

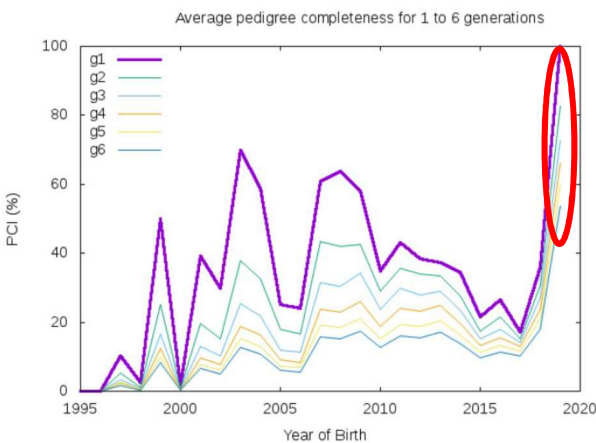


Objective

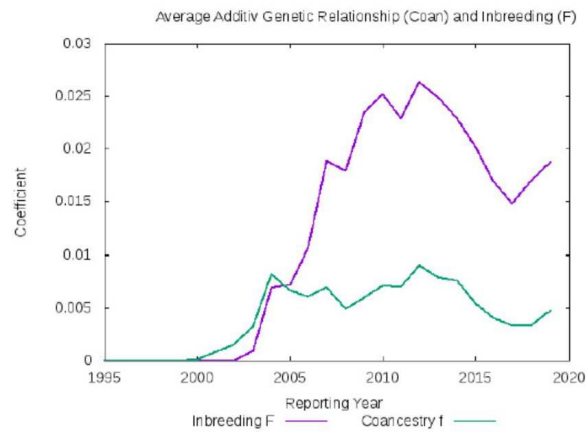
Preservation of the genetic diversity of the variety and its sustainability



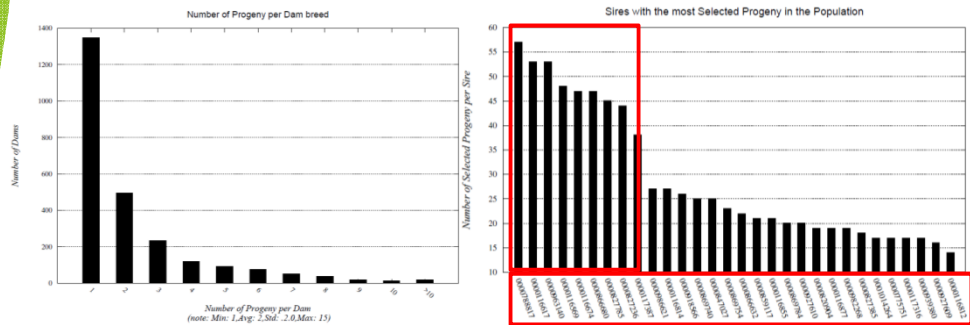
Conservation Programme for the Merino (black variety)



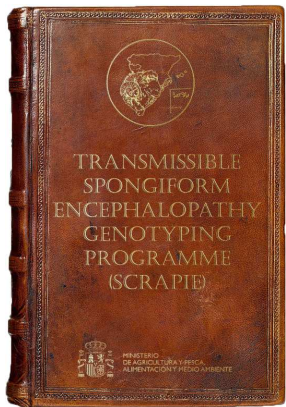
Conservation Programme for the Merino (black variety)



Conservation Programme for the Merino (black variety)



Phase 4 - Transmissible Spongiform Encephalopathy Genotyping Programme (Scrapie)



Transmissible Spongiform Encephalopathy Genotyping Programme (Scrapie)

Genotype before (April 20,2006) application TTE Genotyping Programme			Merino	Merino (black variety)	Totals	% Genotype
R1	ARR	ARR	14969	146	15115	15.9597700
	ARR	AHQ	2476	50	2526	2.5729565
R2	AHQ	AHQ	164	8	172	0.1751974
R3	ARR	ARQ	40522	261	40783	41.5411260
	ARR	ARH	1581	12	1593	1.6226127
	ARQ	AHQ	3836	68	3904	3.9765724
	AHQ	ARH	169		169	0.1721416
R4	ARH	ARH	98	1	99	0.1008403
	ARQ	ARH	2107	9	2116	2.1553349
	ARQ	ARQ	30182	171	30353	30.9172400
	ARR	VRQ	460	8	468	0.4766998
R5	AHQ	VRQ	46		46	0.0468551
	ARQ	VRQ	793	2	795	0.8097785
	ARH	VRQ	28		28	0.0285205
R5	VRQ	VRQ	8		8	0.0081487
Totales			97439	736	98175	100



Transmissible Spongiform Encephalopathy
Genotyping Programme (Scrapie)

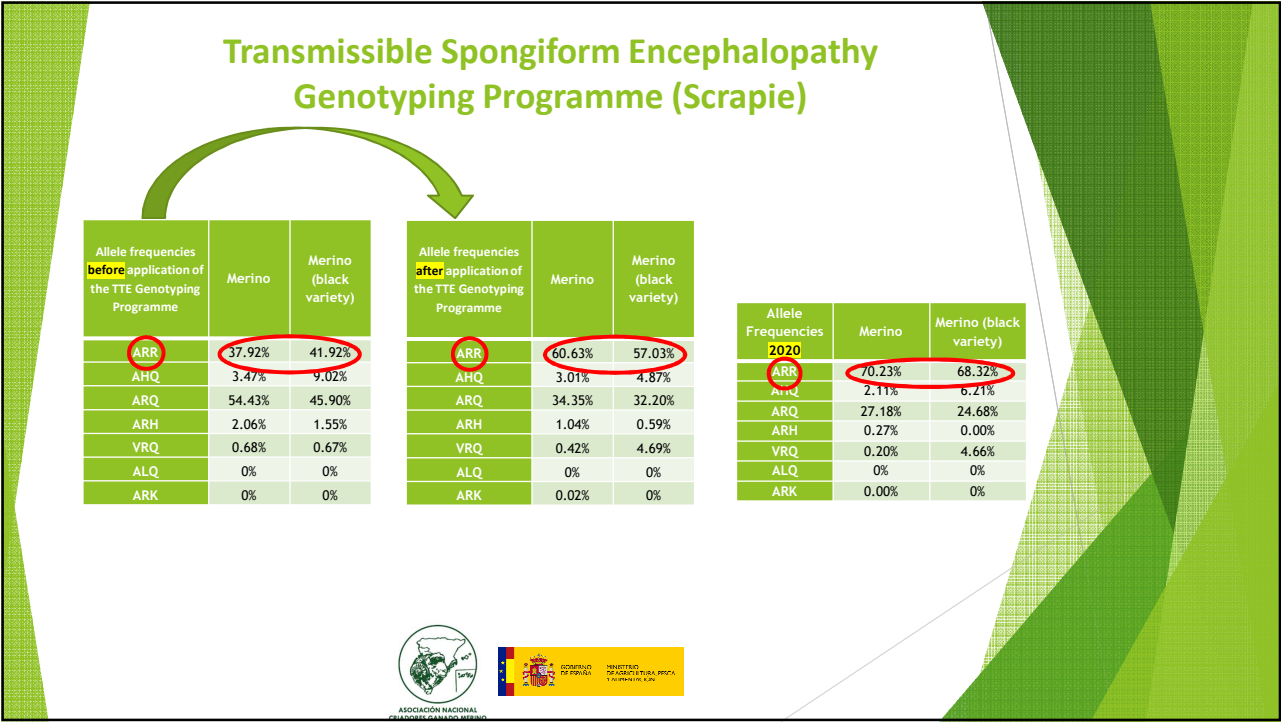
Genotype after (April 20, 2006) application TTE Genotyping Programme			Merino	Merino (black variety)	Totals	% Genotype
R1	ARR	ARR	66881	2781	69662	39,6043094
	ARR	AHQ	5186	362	5548	3,15415447
R2	AHQ	AHQ	293	25	318	0,18078968
	ARR	ARQ	63296	2473	65769	37,3910572
R3	ARR	ARR	2064	46	2110	1,19957929
	ARQ	AHQ	4262	288	4550	2,58677052
	AHQ	ARR	90	1	91	0,05173541
R4	ARR	ARR	50	2	52	0,02956309
	ARQ	ARR	1247	38	1285	0,73054948
	ARQ	ARQ	23376	941	24317	13,824725
	ARR	VRQ	738	327	1065	0,60547486
R5	AHQ	VRQ	40	48	88	0,05002985
	ARQ	VRQ	609	271	880	0,50029847
	ARR	VRQ	29	1	30	0,01705563
	VRQ	VRQ	10	37	47	0,02672049
	ARR	ALQ	4		4	0,00227408
	ARQ	ALQ	7		7	0,00397965
	ARR	ARR	42		42	0,02387788
	ARR	ARQ	27		27	0,01535007
	ARR	AHQ	3		3	0,00170556
	ALQ	AHQ			0	0
Totals			168254	7641	175895	100



Transmissible Spongiform Encephalopathy
Genotyping Programme (Scrapie)

Genotype 2020			Merino	Merino (black variety)	Totals	% Genotype
R1	ARR	ARR	6400	386	6786	61,8483412
	ARR	AHQ	303	40	343	3,1261392
R2	AHQ	AHQ	16	3	19	0,1731680
	ARR	ARQ	2711	227	2938	26,7772512
R3	ARR	ARR	59	3	62	0,5650747
	ARQ	AHQ	123	11	134	1,2212905
	AHQ	ARR	5	1	6	0,0546846
R4	ARR	ARR	1		1	0,0091141
	ARQ	ARR	29	4	33	0,3007655
	ARQ	ARQ	556	35	591	5,3864382
	ARR	VRQ	26	20	46	0,4192490
R5	AHQ	VRQ		1	1	0,0091141
	ARQ	VRQ	9	2	11	0,1002552
	VRQ	VRQ			0	0
	ARR	ARR	1		1	0,00911411
	ARR	ARR			0	0
	ARR	ARQ			0	0
Totals			10239	733	10972	100





2. Dissemination of the Merino breed through livestock competition and official auctions



3. Certification of the “Autochthonous Breed” logo, on Merino products



ASOCIACIÓN NACIONAL DE CRIADORES
DE GANADO MERINO



PLIEGO DE CONDICIONES PARA USO DE LOGOTIPO DE RAZA
AUTÓCTONA EN ANIMALES Y PRODUCTOS DERIVADOS DE LA
RAZA MERINA EN PUREZA
SEGÚN REAL DECRETO 505/2013 DE 28 DE JUNIO















4.The Association as a founding member of the World Federation of Merino Breeders



WORLD FEDERATION OF MERINO BREEDERS
Argentina Australia France Hungary Kazakhstan Lesotho New Zealand
Portugal Russian Federation South Africa Spain Uruguay USA

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The World Federation of Merino breeders was founded in Madrid, on April 23, 1986



It was in recognition of Spain for being where the Merino breed originated





Monument to the Merino breed
Zafra, Extremadura, Spain

Spain, the cradle of
the Merino breed



The place where the
Merino breed
was born



ASOCIACIÓN NACIONAL
CRIADORES GANADO M



Thank you for your
attention