



Heritage Gene Bank

The second pillar of the Conservation Breeding programme is ex-situ conservation. This means conservation off farm in the form of genebanking. Unfortunately in pigs we only have the ability to freeze semen from boars. Research is on-going into commercial techniques for storing porcine embryos but for now we have to concentrate on genebanking of boars and let on farm conservation programmes take care of the sows.

Since 2002 we have run a genebanking programme in partnership with the RBST and Deerpark pedigree pigs. This programme was established during the Foot and Mouth outbreak of 2001 to ensure that native breed boars were available for Artificial Insemination as movement of breeding boars was restricted. Since then it has developed into a very successful genebanking programme with over 5000 straws of semen frozen in liquid nitrogen.

What do we want in the Genebank and how do we get there?

The final BPA / RBST target is to have 25 unrelated boars from each breed stored in the genebank. A total of 250 boars. In 2017 we reviewed this target. With 66 boars in the Genebank it was estimated we would need another 30 years to reach this goal. It was agreed that we would set some interim targets that could be achieved within the next few years after which the programme could be reviewed.

Our first target is to have all the named lines in the tank. This is an important consideration for the breeders and the named lines are also an important part of the cultural heritage of our native breeds.

Our second target is to balance the number of boars from each breed. The Saddlebacks have 14 lines, The Welsh have 10 and we have identified 10 lines in the British Landrace and Large White to be prioritised. We agreed to work towards having a minimum of 10 boars from each breed.

As part of the plan we would also need to maintain a boar from each breed in the stud for AI use and turn the boars over quickly enough to stop them getting overused.

The final target is to invest in separating the archive across two locations. Half (35 or 30 straws from each boar) in Northern Ireland and half in GB. This will require investing in additional liquid nitrogen semen storage tanks. We should also invest in additional capacity so that if any of the liquid nitrogen tanks were to fail there would be capacity to transfer the straws of frozen semen into the other tanks. Tanks over 10 years of age should be considered for replacement. A long term plan to finance the storage of the semen archive should be put in place.

What do we have in the genebank ?

For the vast majority of the boars listed we have 70 straws in total. At present these are divided between the BPA and RBST.

There are 10 lines still to be collected. To complete our interim target of collecting all the named lines with a minimum of 10 boars from each breed we need another 22 boars.

Breed	Boars	Total Lines	Lines to Collect	Boars to collect
Total BK	7	7	0	3
Total BL	10	10	1	1
Total BS	14	14	2	2
Total GS	10	4	0	0
Total LB	9	6	0	1
Total LW	9	10	3	3
Total MW	7	5	0	3
Total OSB	6	4	0	4
Total TW	9	8	0	1
Total WE	7	11	4	4
Total Collected	88	79	10	22

The lines still to be collected are

Breed	Line	2019 survey		Breed	Line	2019 survey	
		Boars	Herds			Boars	Herds
British Landrace	Nekton	1	1	Large White	Royal Turk	2	2
British Saddleback	Carl	5	5	Welsh	James	10	8
British Saddleback	Guardsman	8	8	Welsh	Leo	11	8
Large White	McFlannel	4	4	Welsh	Victor	8	7
Large White	Prince	5	4	Welsh	Vulcan	5	4
Total Lines to collect						10	

Selection Protocol

Boars for addition to the tank must meet the health protocol. This includes all the requirements of the current EU directive 90-429 which will become UK law post Brexit. They must also comply with the rules for export of breeding pigs from GB to Northern Ireland EHC 927. In addition to that they must also test negative for PRRS.

Boars will then be selected on a number of other criteria to include:

- Breed Standard
- Level of inbreeding with the boars already in the genebank
- Level of inbreeding with the breed population as a whole
- Level of introgression and inbreeding within the pedigree

In order to secure our initial target of collecting all the named lines we may have to compromise on the levels of inbreeding and introgression.

A detailed list of the boars collected for storage in the Genebank by breed is set out below.

Berkshire

Reg	Line	DOB	Ear No	In Breeding
HAL/16	Freight Train	12/08/1998	HAL/16	0.0122
R000682BK	Nama Abel	02/06/2005	NAE/142	0.0169
R001566BK	Orlando	12/02/2008	BTS/130	0.0178
R001801BK	Peter Lad	15/04/2008	CIM/292A	0.0277
R002609BK	Lassetter	08/09/2009	ASY/707	0.0136
R003217BK	Ambassador	06/11/2011	CIM/463	0.0176
TMM/783	Namatjira	22/03/2002	TMM/783	0.0076
Average inbreeding in the tank				0.0162

British Landrace

HB Reg No	Name	Ear No	DOB	Inbreeding
R006560LA	Hawk	RWB/239	02/01/2013	0.0274
R006698LA	Hamster	ROA/437N	01/01/2014	0.0122
R006762LA	Duke	ARJ/9842	14/06/2013	0.0384
R006821LA	Candidus	ARJ/9958	01/11/2014	0.0539
R006881LA	Royal Eros	ARJ/30B	18/04/2015	0.0436
R007031LA	Rally	ROA/1499N	01/06/2016	0.0313
R007049LA	Dromus	SLZ/3610	04/09/2016	0.0257
R007266LA	Riber	ROA/2179N	19/03/2018	0.024
R007297LA	Esmer	KBB/40	01/09/2018	0.0417
R007381LA	Deerpark Elias 3415N	ROA/3415N	12/04/2019	0.0161
Average inbreeding in the tank				0.0314

British Saddleback

Reg	Line	DOB	Ear No	In Breeding
BUK/157	Edenboro Rajah 6	06/08/1992	BUK/157	0.0086
BZG/218	Bellevue Grand Duke 5	06/10/1999	BZG/218	0.0147
BZG/226	Bellevue Dictator	07/10/1999	BZG/226	0.0298
R001024BS	Victoria Golden Arrow 165	02/02/2005	WMC/165	0.016
R002552BS	Blewett Prefect 86	23/01/2008	SGX/86	0.0104
R002792BS	Forthill Rajah 466	03/10/2007	GJB/466	0.0263
R003062BS	Forthill Dictator 11A	15/05/2008	GJB/11A	0.0319
R005539BS	Forthill Stockbroker 278B	12/05/2010	GJB/278B	0.0099
R005818BS	Chapel General	09/01/2012	BSX/115E	0.0114
R006428BS	Chapel Viscount 6	02/07/2013	BSX/255E	0.0046
R006465BS	Framfield Walter 48	25/07/2013	NMA/48	0.0091
R007629BS	Tudor Dominator 5	09/03/2017	NPR/71	0.0066
R007701BS	Framfield Consort 110	01/08/2017	NMA/110	0.0071
R008089BS	Kalji Earl Simon	01/02/2019	SDU/39A	0.0106
Average inbreeding in the tank				0.0138

Gloucestershire Old Spots

reg_no	name	DOB	tag_no	In breeding
BSM/484	Kilcot Rufus 4	07/01/2002	BSM/484	0.0507
EXE/30	Greenan Sambo	01/12/2000	EXE/30	0.0589
R001153GS	Alsa Gerald 451	01/01/2005	KCE/451	0.0176
R001685GS	Greenan Rufus 4	20/05/2004	EXE/160	0.0461
R003320GS	Windmill Patrick 6	25/01/2007	HCR/1348	0.0254
R004202GS	Deerpark Patrick 2	31/10/2007	ROA/2	0.0244
R009570GS	Donagheragh Sambo 13	15/02/2014	KBB/13	0.0415
R009840GS	Pebblesford Gerald 722	05/07/2014	LHC/722	0.0114
SSG/80	Whinneyhill Sambo 3	06/02/2003	SSG/80	0.0381
R010731GS	Winterwood Patrick 16	16/01/2017	SJA/1491	0.0142
Average inbreeding in the Genebank				0.0328

Large Black

HB Reg No	Name	Ear No	DOB	Inbreeding
CBJ/190	Westerly Majestic 190	CBJ/190	10/03/2002	0.0374
R000455LB	Bilgrm Defender 14	BBL/14	07/07/2005	0.0372
R000907LB	Sock Attempt 15	SOK/3106	05/03/2007	0.0333
R001442LB	Crane Majestic Eagle 3	CRW/439	05/08/2009	0.0365
R001661LB	Sock Super 26th	SOK/3482	02/01/2011	0.0242
R002180LB	Donagheragh Malcolm 61	KBB/61	04/12/2012	0.0388
R002312LB	Donagheragh Super 93	KBB/93	28/10/2013	0.0198
R003103LB	Framfield Majestic 203	NMA/203	01/09/2017	0.0064
R003362LB	Luckygeorge Majestic 2	LGP/33	02/01/2019	0.0134
Average Inbreeding in the Genebank				0.0275

Large White

HB Reg No	Name	DOB	Ear No	Inbreeding
R008527LW	Tates Danny 311	17/05/2011	MIS/23397L	0.0212
R008579LW	Tates Field Marshal 924	25/08/2011	MIS/24165L	0.0202
R008627LW	Withersfield Champion Turk 3	02/01/2012	KAE/1433	0.0107
R008724LW	Trepaze Champion Boy 14	29/10/2011	CYU/527	0.0014
R008739LW	Tates Danny 314	05/05/2012	MIS/26222M	0.0224
R009709LW	Bartington King David	01/10/2015	MVX/1	0.0221
R010213LW	Tates Alpine 809	03/12/2016	MIS/27574T	0.0002
R010487LW	Bellaghy Dougal 8743D	10/10/2017	RAB/8743D	0.0123
R010504LW	Donagheragh Danny 47	11/03/2018	KBB/47	0.0140
Average Inbreeding in the tank				0.0131

Middle White

HB Reg No	Name	DOB	Ear No	Inbreeding
CSC/1	Slievenalargy Revival	10/10/1999	CSC/1	0.004
CVM/297	Westham Captain 297	24/02/2002	CVM/297	0.0332
R000472MW	Degiorgio Rajah 15	30/04/2005	MTE/015	0.0297
R000702MW	Westham Mischief 567	20/08/2006	CVM/567	0.032
R000937MW	Lakeview Captain 1	05/11/2005	TBH/1	0.0256
R002187MW	Solitaire Sovereign	06/02/2012	YFA/16	0.018
R003274MW	Tatton Captain	12/08/2018	TDF/17	0.0124
Average inbreeding in Genebank				0.0221

Oxford Sandy and Black

HB Reg No	Name	DOB	Ear No	Inbreeding
R001363OS	Macnean Jack 227	07/08/2009	GGG/227	0.0343
R001469OS	Bissettdown Alistair 11	18/10/2009	RHE/346	0.0494
R003639OS	Hopecottage Clarence 337	02/03/2015	MZJ/337	0.0433
R003866OS	St Piers Alexander 253	26/08/2016	NCY/253	0.0306
R004599OS	Scrubditch Alexander 54	11/08/2018	KLV/54	0.0493
R004693OS	Manorfields Jack 771	18/03/2019	CGH/771	0.0331
Average Inbreeding in the tank				0.04

Tamworth

HB Reg No	Name	DOB	Ear No	Inbreeding
R001611TW	Dream Boy	29/07/2009	HZX/02	0.0162
EXE/10	Glen	03/11/2000	EXE/10	0.0165
R003233TW	Golden Ball	26/05/2014	MLF/546	0.0126
MBW/1	Jasper	07/12/2002	MBW/1	0.0354
R000457TW	Ranger	07/03/2005	FES/107	0.0238
R000560TW	Royal Standard	26/02/2005	HCE/395	0.018
R002444TW	Yorkshireman	29/06/2011	BFZ/37	0.0307
R003786TW	Croxteth Golden Ranger	28/02/2017	MCZ/101	0.0143
R004204TW	Shankend Jasper 4	01/12/2017	RKW/58	0.016
Average Inbreeding in Genebank				



Genebanking Strategy update 2020



Welsh

HB reg no	Name	DOB	Ear Number	Inbreeding
R002204WE	Tates Earl 37	01/08/2009	MIS/62453J	0.033
R000857WE	Birdcombe Emperor 45	14/10/2006	WYR/45	0.0157
R004288WE	Burry Imperial 6466	28/08/2014	ANX/6466	0.0118
R001905WE	Tates Ted 19	02/08/2009	MIS/62469J	0.0231
R000530WE	Churchstone Workman 5	09/05/2005	FFA/95	0.0021
R005085WE	Beechwood Arthur 9	23/02/2017	MLF/957	0.0085
R005407WE	Barlings Ivor 862	01/01/2018	ASY/862	0.0132
Average Inbreeding in Genebank				0.0153