



BPA Conservation Plan 2022

Welsh Survey Results and Effective Population Size



The overall number of sows within the breed has decreased by 22 throughout 2021; after the significant decrease from 2019 to 2020 (↓:131), there is cause for concern for the Welsh breed and more needs to be done to protect genetically distinct individuals and breed/distribute accordingly before any disease challenge. The percentage of sows with Birth Notified (BN) progeny has increased by a single percent, which can mean one of two things: a majority of the sows lost weren't producing pedigree litters or the breed has seen an increase in the values of pedigree breeding. 63% is one of the highest percentages for sows with BN progeny across all breeds.

Maintaining 26 Lines with only 50 breeders is always going to be an uphill struggle, however, there hasn't been a significant drop in numbers of any one particular line to cause major concern – the 22 sow decrease has been shared among many lines.

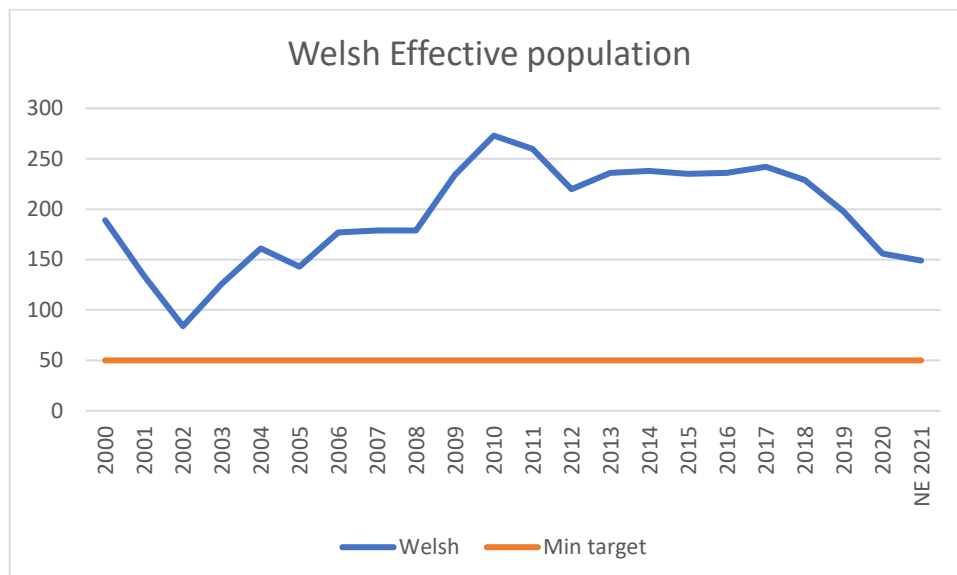
Members keeping this line					Line Name	Total Sows				
2021	2020	2019	2018	2004		2021	2020	2019	2018	2004
4	3	2	2	1	Aconite	12	15	18	12	6
6	6	5	4	1	Cornflower	14	12	10	9	2
9	7	8	9	4	Daffodil	22	24	36	29	11
8	8	10	10	3	Dainty Girl	28	36	41	38	4
5	7	7	6	2	Elenora	13	14	19	19	5
3	2	4	3	1	Emma	6	6	7	6	1
3	5	5	7	2	Empress	10	14	16	25	6
4	4	5	4	7	Flora	6	7	8	10	12
4	2	3	3	1	Glamorous	8	5	5	7	3
2	1	1	1	0	Goldilocks	3	2	1	1	0
11	10	8	10	1	Impish	15	18	16	19	5
8	5	4	3	2	Jean	16	10	17	14	4
11	9	8	7	1	Julia	29	32	33	28	1
5	6	6	5	3	Lioness	15	17	17	17	12
7	7	9	10	13	Lucky Girl	26	30	37	50	50
7	7	5	5	3	Marigold	9	9	13	15	8
7	9	14	13	2	Model	24	22	35	32	4
7	9	12	15	2	Nina	24	26	48	56	42
10	13	15	11	1	Rose	28	29	42	39	4
8	7	7	4	2	Sally	35	33	32	19	3
5	3	6	4	3	Tessa	7	4	10	12	10
14	13	16	16	5	Theresa	51	54	87	84	27
2	3	2	5	2	Waitress	9	13	14	18	7
3	4	3	2	1	Wakeful	7	10	12	11	1
2	3	4	5	1	Willing	10	9	10	16	1
3	2	2	2	2	Winchat	8	6	4	4	7
					Total	435	457	588	590	236
Percentage of sows with purebred litters						63%	62%	64%	63%	68%

The overall boar number has improved, with an increase of three, but still a significant drop from the 2018-2019 survey figures. The Boar:Sow ratio is approximately 1:5 and with a total number of boars exceeding members keeping registered Welsh, the breed isn't in a terrible position for future conservation although only 70% of members have a boar.

The Imperial line has dropped significantly with only 4 boars remaining. All the boar lines except the Vulcan and Imperial lines have more than 5 boars are in more than 5 herds around the country which is very promising. .

Members keeping this line					Line Name	Registered Boars				
2021	2020	2019	2018	2004		2021	2020	2019	2018	2004
7	6	7	5	1	Arthur	8	8	7	7	2
5	5	5	4	4	Earl	6	5	9	7	9
7	6	8	8	4	Emperor	8	10	11	13	4
4	8	8	11	1	Imperial	4	8	10	16	1
8	2	3	5	3	Ivor	8	2	3	6	3
7	10	8	9	7	James	9	10	10	12	7
7	10	8	8	1	Leo	10	14	11	10	1
8	7	12	12	2	Ted	8	8	16	14	2
10	6	7	7	10	Victor	11	6	8	9	13
4	4	4	4	1	Vulcan	7	5	5	6	2
6	6	8	8	5	Workman	9	9	17	14	5
					Total	88	85	107	114	49
Members keeping registered pigs						50	51	61	69	

Effective population (N_e) size is a measure of the genetic health of the breed. It is calculated as part of the National Inventory of Farm Animal Genetic Resources maintained by Defra based on the annual bloodline survey figures for the UK that we supply. Our 2021 figures will be added in May this year when the inventory is updated. The effective population size of all our native breeds is used in an index as part of the UK monitoring of biodiversity as part of our commitments under the Convention on Biodiversity to which the UK is a signatory. The effective population size is linked to the actual population but there are ways in which we manage this even when sow numbers are falling and this will be our challenge whenever we are faced with difficult times for pedigree breeders.

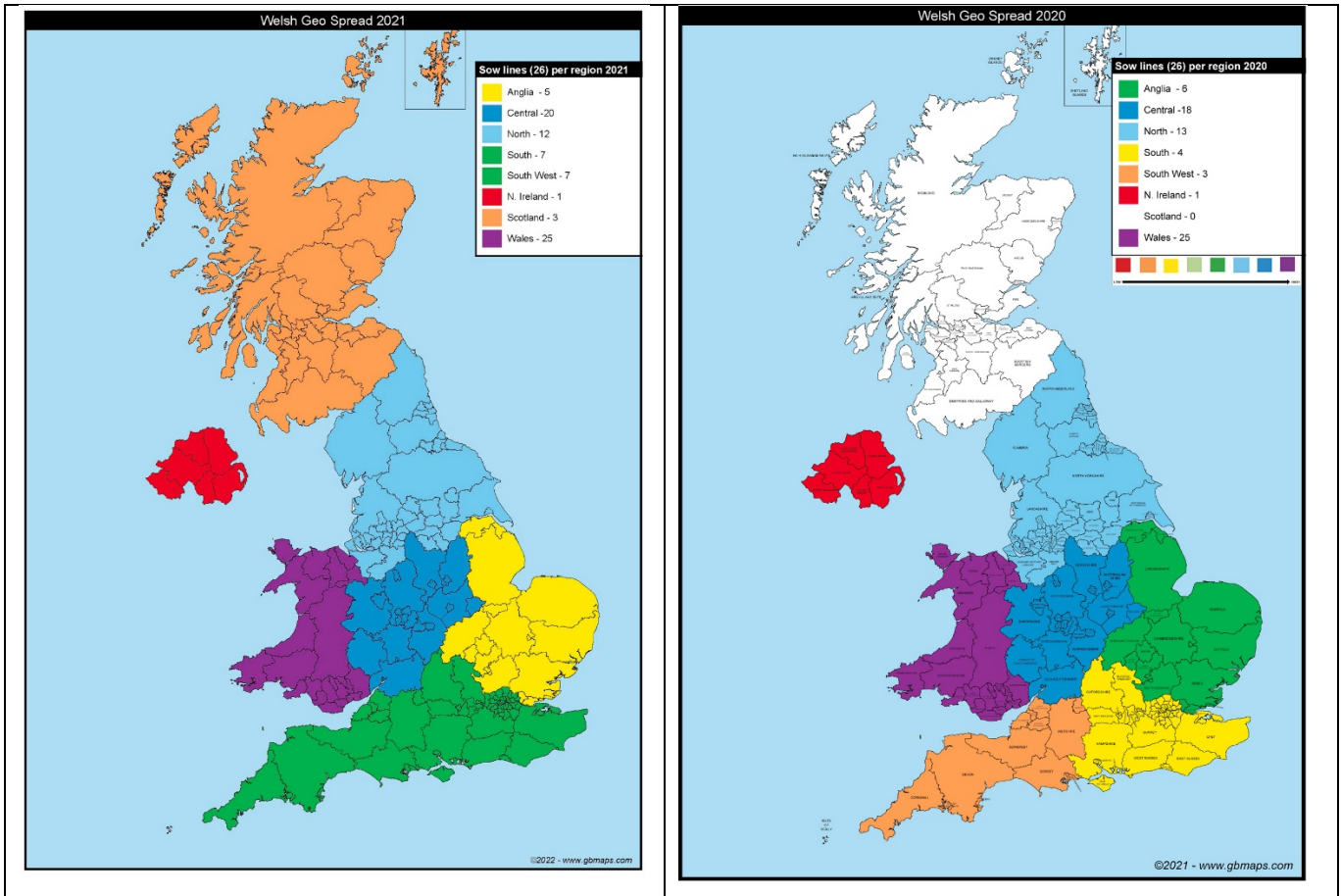


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Welsh Geographical Concentration



These maps use a sliding rainbow scale from red to purple. The colours do not represent specific values as the range of lines between breeds is very wide. What they do show for each breed is where the breed is strongest in terms of lines and where it is weakest



These tables show in more detail the progress being made to establish all the lines in as many regions as possible.

region	Arthur	Earl	Emperor	Imperial	Ivor	James	Leo	Ted	Victor	Vulcan	Workman	Total Boars / region	2021 Boar lines / region	2020 Boar lines / region	2019 Boar lines / region	2021 Breeders /Region	2020 Breeders /Region	2019 Breeders /Region
Anglia	1	0	0	0	0	0	0	1	0	0	1	3	3	3	6	4	3	5
Central	1	0	2	0	0	1	5	0	3	4	0	16	6	8	8	6	11	10
North	3	1	2	1	4	2	1	0	4	0	0	18	8	8	8	5	6	9
South	1	2	0	0	1	0	1	0	0	0	0	5	4	7	7	3	2	4
South West	0	0	1	0	1	0	1	2	0	0	0	5	4	3	5	8	4	8
N. Ireland	0	0	0	0	1	0	0	0	0	1	0	2	2	1	1	1	1	1
Scotland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Wales	2	3	3	3	1	6	2	5	4	2	8	39	11	11	11	22	24	24
2020 Regions with this line	5	3	4	2	5	3	5	3	3	3	2	88				50		
2020 Regions with this line	5	3	4	4	2	4	4	4	4	3	4							
2019 Regions with this line	5	4	5	5	3	3	4	5	4	3	5							



BPA Conservation Plan 2022 Welsh Geographical Concentration



region	Aconite	Cornflower	Daffodil	Dainty Girl	Elenora	Emma	Empress	Flora	Glamorous	Goldilocks	Impish	Jean	Julia	Lioness	Lucky Girl	Marigold	Model	Nina	Rose	Sally	Tessa	Theresa	Waitress	Wakeful	Willing	Winchat	Total sows / region	2021 Sow lines / region	2020 Sow lines / region	2019 Sow lines / region
Anglia	0	0	7	12	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	4	0	0	0	0	27	5	6	7
Central	0	4	5	10	0	1	1	0	2	2	3	1	21	1	0	5	10	11	6	3	3	12	0	5	0	4	110	20	18	18
North	11	0	0	3	10	0	8	0	0	0	0	8	0	7	9	0	0	0	13	22	0	1	8	0	9	0	109	12	13	13
South	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	3	0	16	0	0	1	0	25	7	4	6
South West	0	1	0	0	0	0	0	0	1	0	2	0	3	4	0	0	7	0	2	0	0	0	0	0	0	0	20	7	3	7
N. Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1
Scotland	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3	3	0	0
Wales	1	9	9	3	3	5	1	5	5	1	9	5	5	3	17	2	4	13	7	6	2	18	1	2	0	4	140	25	25	25
2020 Regions with this line	2	3	4	4	2	2	3	2	3	2	4	5	3	4	2	3	4	2	4	5	4	5	2	2	2	2	435			
2020 Regions with this line	2	2	3	4	3	1	3	2	2	1	2	3	3	4	2	2	5	2	4	4	3	5	2	2	3	1				
2019 Regions with this line	1	2	3	5	4	3	4	2	3	1	2	2	3	4	3	2	4	2	4	4	5	5	2	2	4	1				

The geographical distribution shows that the strongest regions of the UK are: Wales, Central and Northern England. Anglia, South West and South regions have a comfortable number of sows which would facilitate growth of the breed within these regions. Scotland and Northern Ireland are in need of more support in terms of sows and members keeping the breed, and establishing a foothold for the breed in these regions would better the prognosis for the conservation of the breed in the event of disease outbreak. Sow line distribution has been maintained with only 3 lines and 2 regions worse off than last year. The picture for the boar lines is very similar.

As per the targets of the 2021 conservation plan, a Vulcan boar was admitted into the Genebank, with an Inbreeding Coefficient less than the Genebank average. Three boars are still needed to complete the initial target to have all the boar lines in the Genebank.

The inbreeding co-efficient of the boars in the Genebank is much lower than that of the national herd. The boars in the Genebank go through a very careful selection process to ensure that new boars are unrelated to the each of the boars in the Genebank. We are beginning a programme to encourage breeders with sows that are least related to the national population to keep progeny from those litters and breed them back into the herd. This is a very long and complex process but it is vitally important that we try to develop this type of programme for the future.

reg_no	name	birth_year	tag_no	IB
R000530WE	Churchstone Workman 5	09/05/2005	FFA/95	0.0024
R000857WE	Birdcombe Emperor 45	14/10/2006	WYR/45	0.0174
R002204WE	Tates Earl 37	01/08/2009	MIS/62453J	0.0198
R001905WE	Tates Ted 19	02/08/2009	MIS/62469J	0.0282
R004288WE	Burry Imperial 6466	28/08/2014	ANX/6466	0.0106
R005085WE	Beechwood Arthur 9	23/02/2017	MLF/957	0.0079
R005407WE	Barlings Ivor 862	01/01/2018	ASY/862	0.0119
R006289WE	Leysterspring Vulcan 15	13/07/2020	FFM/1405	0.0061
Average inbreeding of Welsh Boars in the Genebank				0.0130

Mean Inbreeding for the UK Welsh Population: 2021:0.0486 2020: 0.0470, 2019: 0.0490

Welsh Objectives for 2021

- Improve the numbers and distribution of the Emma, Goldilocks, Glamorous, Jean and Tessa lines

There has been a slight increase of sows in the Glamorous, Goldilocks and Tessa lines; a significant increase in the Jean line of 6 sows; with the Emma line remaining low but placed within an extra herd.

- Improve the numbers and distribution of the Ivor and Vulcan lines

The Ivor line is now over the target of 5 herds and is also present in more regions. Vulcan numbers have improved but distribution remains the same

- Identify a Vulcan boar and one other of the three missing lines for the Genebank

A Vulcan boar has been added to the Genebank

Welsh Objectives for 2022

- Further establish herds and sow numbers in Scotland and Northern Ireland
- Improve overall boar distribution, particularly increasing numbers in regions of low numbers
- Identify 2 boars from the James, Leo or Victor lines with low co-efficient of inbreeding for the Genebank