

## Introduction

The latest routine international evaluation for longevity trait took place as scheduled at the Interbull Centre. Data from twenty two (22) populations were included in this evaluation.

International genetic evaluations for direct longevity trait of bulls from Australia, Belgium, Canada, Switzerland, Germany, Denmark-Finland-Sweden Spain, France, The United Kingdom, Ireland, Israel, Italy, New Zealand, The Netherlands, The United States of America Hungary, Norway, Slovenia, Czech Republic and Japan were computed. Brown Swiss, Guernsey, Holstein, Jersey, Red Dairy Cattle and Simmental breed data were included in this evaluation.

## Changes in national procedures

Changes in the national genetic evaluation of longevity traits are as follows:

ITA (HOL)	The decrease in information is due to strict editing criteria.
NLD (HOL, JER)	Reduction in information due to pedigree verification.
ISR (HOL)	Reduction in information due to data edits.
CHE (BSW, HOL)	Reduction in information is due to data edits.
BEL (HOL)	The observed decreases in information is attributed to the existence of breeds alias or errors/corrections in the pedigree.
DEU (HOL)	Reduction in information due to routine data editing/selection procedures.
AUS (HOL, JER)	Reduction in information is a result of data clean-up and pedigree verification.
DEA (BSW)	Base change.
JPN (HOL)	Reduction in information due to pedigree verification.
USA (ALL)	Drops in information due to pedigree varification and data edits.
GBR (ALL)	Drops in information due to data changes and edits.
NZL (ALL)	Pedigree verification due to genomic information, causing change in information for many animals.
HUN (HOL)	First data submission since 2021. Revision of scope of data used in breeding value estimation, data editing cut-off changed cows having their first lactation from 2000 onwards.
ESP (HOL)	Reduction in daughters due to pedigree verification.
POL (HOL)	The decrease in information is caused by data edits.

## INTERBULL CHANGES COMPARED TO THE PREVIOUS ROUTINE RUN

In 2020 new post-processing windowsâ\200\231 correlations for all breeds and traits have been applied: the upper bounds have been set to 0.99 as these were judged to have very little effect on evaluations while the lower values have been reduced to the 10th percentile. This reduction would provide post-processed correlations to be closer to the real estimated ones. The previously lower value adopted (based on the 25th percentile) had been found too high causing estimated and post-processed correlations to differ significantly from each other. It is a recommendation from the Interbull Technical Committee to review such windows every 5 years. The weight assigned to the magnitude of the changes tested by each country has also been revised. The new weight will allow post-processed correlations to take more in consideration the value of the new estimated ones even when no changes are applied by the countries. More information can be read on [https://interbull.org/ib/rg\\_procedure](https://interbull.org/ib/rg_procedure)

Since 2021 a new trait group has been added to the MACE evaluation, called stcm (SNP Training for clinical mastitis) evaluating the trait cma (pure clinical mastitis). New trait group codes have been issued as follows: 041 for international ebv files (.itb), 071 for parent average (ipr).

## DATA AND METHOD OF ANALYSIS

Data were national genetic evaluations of AI sampled bulls with at least 10 daughters or 10 EDC (for clinical mastitis and maternal calving traits at least 50 daughters or 50 EDC, and for direct calving traits at least 50 calvings or 50 EDC) in at least 10 herds. Table 1 presents the amount of data included in this Interbull evaluation for all breeds.

National proofs were first de-regressed within country and then analysed jointly with a linear model including the effects of evaluation country, genetic group of bull and bull merit. Heritability estimates used in both the de-regression and international evaluation were as in each country's national evaluation.

Table 2 presents the date of evaluation as supplied by each country

Estimated genetic parameters and sire standard deviations are shown in APPENDIX I and the corresponding number of common bulls are listed in APPENDIX II.

#### SCIENTIFIC LITERATURE

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The international genetic evaluation procedure is based on international work described in the following scientific publications:

International genetic evaluation computation:  
Schaeffer. 1994. J. Dairy Sci. 77:2671-2678  
Klei, 1998. Interbull Bulletin 17:3-7

Verification and Genetic trend validation:  
Klei et al., 2002. Interbull Bulletin 29:178-182.  
Boichard et al., 1995. J. Dairy Sci. 78:431-437

Weighting factors:  
Fikse and Banos, 2001. J. Dairy Sci. 84:1759-1767

De-regression:  
Sigurdsson and G. Banos. 1995. Acta Agric. Scand. 45:207-219  
Jairath et al. 1998. J. Dairy Sci. Vol. 81:550-562

Genetic parameter estimation:  
Klei and Weigel, 1998, Interbull Bulletin 17:8-14  
Sullivan, 1999. Interbull Bulletin 22:146-148

Post-processing of estimated genetic correlations:  
Mark et al., 2003, Interbull Bulletin 30:126-135  
Jorjani et al., 2003. J. Dairy Sci. 86:677-679  
<https://wiki.interbull.org/public/rG%20procedure?action=print>

Time edits  
Weigel and Banos. 1997. J. Dairy Sci. 80:3425-3430

International reliability estimation  
Harris and Johnson. 1998. Interbull Bulletin 17:31-36

#### NEXT ROUTINE INTERNATIONAL EVALUATION

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Dates for the next routine evaluation can be found on  
<http://www.interbull.org/ib/servicecalendar>.

#### NEXT TEST INTERNATIONAL EVALUATION

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Dates for the next test run can be found on  
<http://www.interbull.org/ib/servicecalendar>.

#### PUBLICATION OF INTERBULL ROUTINE RUN

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Results were distributed by the Interbull Centre to designated representatives in each country. The international evaluation file comprised international proofs expressed on the base and unit of each country included in the analysis. Such records readily provide more information on bull performance in various countries, thereby minimizing the need to resort to conversions.

At the same time, all recipients of Interbull results are expected to honor the agreed code of practice, decided by the Interbull Steering Committee, and only publish international evaluations on their own country scale. Evaluations expressed on another country scale are confidential and may only be used internally for research and review purposes.

PUBLICATION OF INTERBULL TEST RUN

Test evaluation results are meant for review purposes only and should not be published.

^LTable 1. National evaluation data considered in the Interbull evaluation for Longevity (December Routine Evaluation 2024).  
Number of records for direct longevity by breed

Country	BSW	GUE	HOL	JER	RDC	SIM
AUS		146	8698	1840	793	
BEL			1943			
CAN	272	113	13774	881	925	
CHE	3269		3407			
CZE			5411			
DEA	5267					
DEU			24454		311	
DFS			15211	2750	9606	
ESP			4667			
EST						
FRA	506		18659			
FRM						5141
GBR	155	340	8730	942	656	107
HUN			3546			
IRL			3505	263	80	
ISR			1833			
ITA	2399		9200	69		
JPN			7291			
KOR						
LTU						
LVA						
NLD	240		16763	267	94	450
NOR					4032	
NZL			8333	4818	1072	
POL			12776			
PRT						
SVK						
SVN	315		703			534
URY						
USA	1238	834	42756	5472	820	117
ZAF			1262	725	134	
HRV						
CAM					45	
No.Records	13661	1433	212922	18027	18568	6349
Pub. Proofs	10802	1170	157735	14391	16561	5907

^LAPPENDIX I. Sire standard deviations in diagonal and genetic correlations below diagonal

BSW	dlo								
	CAN	CHE	DEA	NLD	USA	ITA	FRA	GBR	SVN
CAN	9.22								
CHE	0.71	10.73							
DEA	0.88	0.84	12.24						
NLD	0.67	0.74	0.71	325.05					
USA	0.91	0.64	0.85	0.74	2.66				
ITA	0.79	0.72	0.86	0.62	0.71	15.76			
FRA	0.64	0.81	0.77	0.69	0.68	0.54	0.97		
GBR	0.85	0.59	0.63	0.61	0.84	0.65	0.61	0.32	
SVN	0.68	0.68	0.82	0.72	0.72	0.73	0.68	0.58	23.23

GUE dlo				
	AUS	CAN	USA	GBR
AUS	0.06			
CAN	0.72	7.83		
USA	0.73	0.90	2.88	
GBR	0.76	0.91	0.87	0.38

HOL dlo																					
	AUS	BEL	CAN	CHE	DEU	DFS	ESP	FRA	GBR	IRL	ISR	ITA	NLD	NZL	USA	HUN	CZE	SVN	ZAF	POL	JPN
AUS	0.04																				
BEL	0.73	0.38																			
CAN	0.71	0.88	6.98																		
CHE	0.78	0.77	0.82	12.26																	
DEU	0.75	0.86	0.86	0.87	12.38																
DFS	0.74	0.84	0.86	0.80	0.91	12.18															
ESP	0.65	0.81	0.87	0.78	0.84	0.76	11.29														
FRA	0.61	0.65	0.66	0.78	0.66	0.69	0.64	0.94													
GBR	0.77	0.90	0.90	0.79	0.86	0.83	0.88	0.62	0.31												
IRL	0.66	0.85	0.78	0.66	0.75	0.69	0.76	0.45	0.81	2.12											
ISR	0.63	0.57	0.50	0.69	0.70	0.71	0.57	0.55	0.59	0.56	108.05										
ITA	0.62	0.70	0.76	0.74	0.75	0.69	0.89	0.71	0.79	0.64	0.57	6.12									
NLD	0.56	0.66	0.66	0.72	0.69	0.75	0.62	0.66	0.63	0.47	0.68	0.54	262.43								
NZL	0.71	0.67	0.68	0.73	0.75	0.69	0.54	0.48	0.68	0.65	0.48	0.50	0.49	2.23							
USA	0.70	0.85	0.89	0.80	0.88	0.88	0.87	0.69	0.84	0.72	0.70	0.77	0.74	0.61	2.20						
HUN	0.49	0.62	0.71	0.63	0.70	0.59	0.83	0.60	0.68	0.54	0.42	0.79	0.51	0.51	0.76	1.27					
CZE	0.45	0.51	0.57	0.56	0.56	0.47	0.69	0.44	0.57	0.57	0.47	0.62	0.44	0.44	0.57	0.56	19.16				
SVN	0.49	0.78	0.71	0.67	0.76	0.69	0.69	0.61	0.73	0.65	0.52	0.62	0.68	0.54	0.75	0.63	0.44	21.90			
ZAF	0.71	0.81	0.89	0.73	0.84	0.75	0.87	0.58	0.86	0.86	0.51	0.72	0.47	0.66	0.85	0.74	0.62	0.65	30.36		
POL	0.44	0.67	0.67	0.64	0.73	0.66	0.75	0.55	0.69	0.61	0.49	0.70	0.57	0.55	0.69	0.60	0.55	0.63	0.66	12.69	
JPN	0.72	0.91	0.93	0.75	0.87	0.86	0.87	0.58	0.90	0.82	0.49	0.71	0.63	0.69	0.87	0.70	0.55	0.76	0.90	0.68	1.54

JER dlo										
	AUS	CAN	DFS	NLD	NZL	USA	GBR	ZAF	IRL	ITA
AUS	0.04									
CAN	0.52	7.37								
DFS	0.76	0.66	11.99							
NLD	0.64	0.62	0.81	316.55						
NZL	0.53	0.53	0.60	0.46	1.98					
USA	0.69	0.82	0.78	0.74	0.56	2.33				
GBR	0.62	0.88	0.71	0.62	0.55	0.80	0.29			
ZAF	0.47	0.60	0.49	0.46	0.46	0.66	0.64	26.49		
IRL	0.53	0.67	0.56	0.46	0.48	0.65	0.68	0.66	1.63	
ITA	0.55	0.69	0.67	0.54	0.47	0.70	0.71	0.54	0.61	7.22

RDC dlo												
	AUS	CAN	DEU	DFS	NZL	USA	GBR	NLD	ZAF	IRL	NOR	CAM
AUS	0.05											
CAN	0.64	7.34										
DEU	0.72	0.84	12.39									
DFS	0.70	0.75	0.90	12.99								
NZL	0.70	0.57	0.69	0.54	2.59							
USA	0.64	0.86	0.87	0.86	0.64	2.47						
GBR	0.72	0.89	0.85	0.75	0.62	0.81	0.30					
NLD	0.57	0.66	0.70	0.77	0.51	0.77	0.64	312.11				
ZAF	0.59	0.90	0.79	0.61	0.58	0.81	0.82	0.48	36.12			
IRL	0.63	0.73	0.73	0.65	0.59	0.62	0.71	0.46	0.80	1.55		
NOR	0.58	0.77	0.67	0.80	0.44	0.82	0.73	0.80	0.64	0.49	40.72	
CAM	0.59	0.70	0.78	0.78	0.54	0.84	0.70	0.72	0.62	0.53	0.64	9.04

SIM dlo	

	FRM	NLD	SVN	GBR	USA
FRM	0.94				
NLD	0.61	288.38			
SVN	0.51	0.61	22.35		
GBR	0.73	0.65	0.74	0.27	
USA	0.71	0.75	0.76	0.83	2.06

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^LAPPENDIX II. Number of common bulls  
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BSW

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common bulls below diagonal  
common three quarter sib group above diagonal

	CAN	CHE	DEA	NLD	USA	ITA	FRA	GBR	SVN
CAN	0	147	161	50	188	148	98	67	31
CHE	126	0	648	120	335	539	198	82	77
DEA	140	546	0	174	344	782	259	84	101
NLD	43	112	160	0	91	149	90	39	47
USA	184	313	310	80	0	264	137	98	37
ITA	132	479	690	123	192	0	237	87	96
FRA	89	160	212	75	102	201	0	69	48
GBR	65	63	57	31	94	64	58	0	17
SVN	28	71	93	47	29	89	47	13	0

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GUE

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common bulls below diagonal  
common three quarter sib group above diagonal

	AUS	CAN	USA	GBR
AUS	0	54	69	42
CAN	53	0	77	35
USA	66	68	0	96
GBR	37	30	97	0

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HOL

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common bulls below diagonal  
common three quarter sib group above diagonal

	AUS	BEL	CAN	CHE	DEU	DFS	ESP	FRA	GBR	IRL	ISR	ITA	NLD	NZL	USA	HUN	CZE	SVN	ZAF	POL	JPN
AUS	0	739	1518	656	1748	1478	967	1405	1633	804	136	1165	1563	1135	2101	810	977	164	472	1217	1002
BEL	645	0	799	589	1201	955	714	1006	974	539	98	797	1214	462	978	578	713	163	309	860	577
CAN	1513	764	0	925	2646	1809	1446	1654	1967	631	178	1941	1804	681	4008	1183	1317	221	476	1792	1520
CHE	581	592	820	0	1215	809	609	770	843	452	79	770	993	376	1077	472	580	138	252	768	519
DEU	1345	1230	2071	1144	0	3211	1740	2753	2561	991	215	2758	3789	922	3927	1467	2178	376	544	3132	1599
DFS	1117	908	1618	767	2606	0	1261	1993	2068	889	204	1844	2697	844	2669	1126	1605	285	513	2186	1186
ESP	706	697	953	506	1177	1008	0	1413	1295	570	133	1400	1317	530	1776	903	1031	201	445	1338	1018
FRA	1002	1007	1158	714	1722	1279	1191	0	1891	840	158	1727	2285	785	2760	1095	1515	225	504	2091	1360
GBR	1508	992	2225	838	2225	1801	1114	1427	0	1216	200	1789	2296	1020	2785	1095	1442	239	541	1904	1276
IRL	703	528	573	460	876	753	544	708	1297	0	136	655	1027	782	932	510	642	121	335	746	522
ISR	86	55	109	44	162	144	75	95	160	103	0	187	211	128	306	154	176	52	72	213	151
ITA	943	799	1706	704	2113	1634	1067	1168	1614	584	126	0	1915	589	2850	1215	1424	283	413	2113	1261
NLD	1350	1346	1694	976	3603	2507	1172	1623	2241	973	159	1720	0	1008	2906	1163	1835	292	502	2370	1234
NZL	1098	358	618	310	675	592	388	484	922	677	97	456	892	0	1063	495	646	104	337	670	560
USA	2143	864	4440	1008	3065	2295	1233	1629	2768	858	297	2426	2523	995	0	1616	2051	263	634	2815	2247
HUN	620	489	1075	395	1213	965	745	814	1020	447	103	1120	1000	376	1626	0	1120	176	395	1243	845
CZE	664	568	956	443	1768	1164	783	1055	1184	507	134	1126	1661	465	1713	1036	0	230	432	1702	1023
SVN	111	127	171	98	370	230	143	169	190	91	35	246	254	69	215	130	163	0	66	311	172
ZAF	410	263	399	212	424	389	388	386	493	294	44	334	410	265	609	314	302	47	0	418	437
POL	957	789	1588	661	2962	1941	1017	1542	1839	633	162	1886	2279	507	2889	1160	1472	278	314	0	1207
JPN	616	394	861	378	818	732	546	584	777	366	70	720	748	319	1193	519	536	96	314	726	0

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JER

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common bulls below diagonal  
common three quarter sib group above diagonal

	AUS	CAN	DFS	NLD	NZL	USA	GBR	ZAF	IRL	ITA
AUS	0	274	194	81	412	520	262	249	64	44
CAN	282	0	154	48	171	506	209	167	14	37
DFS	168	150	0	177	174	290	255	177	67	39
NLD	72	41	180	0	83	120	124	78	48	23
NZL	450	181	155	76	0	354	267	196	151	36
USA	562	522	277	124	416	0	308	327	59	49
GBR	273	213	260	123	281	356	0	203	112	46
ZAF	241	163	162	74	205	342	213	0	43	42
IRL	61	13	63	46	170	60	121	43	0	13
ITA	42	35	38	20	35	51	46	41	12	0

RDC

common bulls below diagonal												
common three quarter sib group above diagonal												
	AUS	CAN	DEU	DFS	NZL	USA	GBR	NLD	ZAF	IRL	NOR	CAM
AUS	0	100	44	225	120	143	105	41	36	24	77	11
CAN	103	0	13	198	55	239	118	7	70	7	8	0
DEU	43	12	0	71	16	26	16	21	2	8	16	0
DFS	204	206	62	0	145	230	155	60	49	25	157	0
NZL	120	54	16	139	0	82	69	20	30	13	33	9
USA	145	223	24	228	83	0	153	52	61	34	87	28
GBR	104	118	15	153	67	147	0	46	50	32	80	0
NLD	40	7	20	58	20	51	45	0	2	18	52	0
ZAF	37	72	2	48	26	55	43	2	0	2	0	0
IRL	23	7	8	21	13	34	32	18	2	0	64	0
NOR	66	7	15	131	31	88	83	51	0	62	0	0
CAM	11	0	0	0	9	28	0	0	0	0	0	0

SIM

common bulls below diagonal					
common three quarter sib group above diagonal					
	FRM	NLD	SVN	GBR	USA
FRM	0	127	0	65	93
NLD	148	0	78	44	32
SVN	0	76	0	0	1
GBR	82	42	0	0	20
USA	108	33	1	27	0