

Introduction

The latest routine international evaluation for longevity trait took place as scheduled at the Interbull Centre. Data from twenty one (21) 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 and Czech Republic 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:

SVN (ALL)	Changes in database related to the pedigree completeness as well as phenotypic data improvement resulting in some animals losing information.
POL (HOL)	Data edits causing decrease in information
AUS (ALL)	Wrongly allocated parents or genetic groups have been corrected, causing some bulls to be no longer included in the evaluation as their daughters' count has fell under the minimum threshold of 10 daughters. Correction of a bug in the program generating type of proof.
CHE (ALL)	Manual data edits and removal of data errors cause decrease in information. In BSW changes in of herd-year-season assignment causes small decrease in EDC.

INTERBULL CHANGES COMPARED TO THE DECEMBER ROUTINE RUN

Subsetting:

As decided by the ITC in Orlando, new subsetting was introduced in the september test run. Sub-setting is necessary for operational purposes and restrictions of time scales. To minimize the effect of subsetting, larger subsets with 10-12 countries and with 4 link providing countries have been applied.

Window:

According to the decision taken by ITC in Orlando, the following changes have been introduced in regards to the windows used for post processing:

The upper bounds have been set to 0.99 as these were judged to have very little effect on evaluations. The lower values have been set to about the 25% percentile value. The largest changes are for the lower values for conformation traits, with the lowest window being 40% for OFL otherwise it is about 50% for all other confirmation traits. It is anticipated that these low values may not have large impact on evaluations since there were very few countries combinations whose estimated correlations fell between the old limit of 0.30 and these new limits.

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

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

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

NEXT TEST INTERNATIONAL EVALUATION

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

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 (August Routine Evaluation 2019).
Number of records for direct longevity by breed

Country BSW GUE HOL JER RDC SIM

AUS		137	7795	1699	696	
BEL			1617			
CAN	216	102	12093	714	839	
CHE	2940		3362			
CZE			4213			3236
DEA	6431					
DEU			24160		311	
DFS			13427	2487	9186	
ESP			3682			
EST						
FRA	389		16757			
FRM						4519
GBR	111	306	7557	793	541	80
HUN			3331			
IRL			2849	181	65	
ISR			1442			
ITA	2115		9444			
JPN						
KOR						
LTU						
LVA						
NLD	177		14952	142	68	347
NOR					3764	
NZL	52	57	7526	4683	1247	
POL			10164			
PRT						
SVK						
SVN	385		554			592
URY						
USA	1094	781	37744	4522	707	48
ZAF			1240	681	133	
HRV						
MEX						
CAM					35	
=====						
No. Records	13910	1383	183909	15902	17592	8822
Pub. Proofs	11470	1103	144335	13025	15807	7855
=====						

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

BSW dlo										
	CAN	CHE	DEA	NLD	NZL	USA	ITA	FRA	GBR	SVN
CAN	8.83									
CHE	0.74	11.04								
DEA	0.80	0.85	14.18							
NLD	0.65	0.77	0.79	331.65						
NZL	0.52	0.52	0.44	0.47	295.35					
USA	0.91	0.68	0.77	0.73	0.54	2.74				
ITA	0.79	0.67	0.79	0.61	0.45	0.68	16.20			
FRA	0.65	0.79	0.78	0.69	0.47	0.67	0.54	0.94		
GBR	0.85	0.60	0.49	0.61	0.57	0.83	0.63	0.53	0.32	
SVN	0.76	0.64	0.79	0.71	0.52	0.73	0.79	0.65	0.59	23.73

GUE dlo					
	AUS	CAN	NZL	USA	GBR
AUS	0.07				
CAN	0.73	7.44			
NZL	0.72	0.54	337.69		
USA	0.71	0.91	0.53	2.86	

GBR 0.74 0.91 0.60 0.87 0.37

HOL dlo

	AUS	BEL	CAN	CHE	DEU	DFS	ESP	FRA	GBR	IRL	ISR	ITA	NLD	NZL	USA	HUN	CZE	SVN	ZAF	POL
AUS	0.05																			
BEL	0.72	0.38																		
CAN	0.74	0.85	6.04																	
CHE	0.81	0.79	0.85	12.29																
DEU	0.77	0.85	0.89	0.86	12.65															
DFS	0.79	0.85	0.86	0.82	0.92	12.36														
ESP	0.60	0.77	0.87	0.76	0.83	0.75	12.04													
FRA	0.68	0.62	0.59	0.76	0.64	0.71	0.56	0.99												
GBR	0.75	0.88	0.90	0.79	0.87	0.83	0.87	0.56	0.31											
IRL	0.61	0.80	0.79	0.65	0.73	0.68	0.76	0.44	0.80	2.05										
ISR	0.67	0.59	0.57	0.61	0.63	0.70	0.52	0.68	0.54	0.49	103.78									
ITA	0.54	0.63	0.75	0.70	0.74	0.65	0.87	0.60	0.74	0.61	0.51	6.00								
NLD	0.61	0.69	0.65	0.73	0.74	0.75	0.62	0.67	0.64	0.48	0.64	0.54	282.65							
NZL	0.68	0.69	0.55	0.61	0.66	0.65	0.49	0.47	0.60	0.60	0.44	0.44	0.48	210.75						
USA	0.71	0.85	0.90	0.78	0.88	0.88	0.87	0.63	0.86	0.74	0.67	0.74	0.74	0.57	2.27					
HUN	0.45	0.54	0.64	0.50	0.57	0.51	0.74	0.45	0.65	0.49	0.43	0.68	0.48	0.44	0.71	1.26				
CZE	0.45	0.51	0.63	0.58	0.61	0.49	0.71	0.44	0.59	0.58	0.42	0.69	0.45	0.44	0.61	0.53	12.77			
SVN	0.51	0.80	0.72	0.64	0.74	0.69	0.70	0.51	0.71	0.67	0.61	0.54	0.65	0.64	0.79	0.54	0.44	25.03		
ZAF	0.82	0.85	0.88	0.77	0.89	0.86	0.85	0.62	0.90	0.86	0.57	0.71	0.61	0.69	0.89	0.62	0.61	0.70	23.98	
POL	0.45	0.45	0.52	0.60	0.62	0.54	0.62	0.44	0.54	0.46	0.42	0.62	0.45	0.44	0.53	0.44	0.50	0.48	0.55	13.30

JER dlo

	AUS	CAN	DFS	NLD	NZL	USA	GBR	ZAF	IRL
AUS	0.05								
CAN	0.53	6.93							
DFS	0.73	0.66	12.17						
NLD	0.65	0.60	0.79	341.73					
NZL	0.64	0.47	0.68	0.51	193.45				
USA	0.69	0.81	0.79	0.76	0.55	2.40			
GBR	0.60	0.84	0.74	0.65	0.48	0.79	0.29		
ZAF	0.52	0.58	0.68	0.55	0.47	0.68	0.77	28.28	
IRL	0.53	0.70	0.57	0.47	0.49	0.59	0.68	0.59	1.53

RDC dlo

	AUS	CAN	DEU	DFS	NZL	USA	GBR	NLD	ZAF	IRL	NOR	CAM
AUS	0.06											
CAN	0.68	6.76										
DEU	0.69	0.86	12.82									
DFS	0.74	0.73	0.89	12.96								
NZL	0.66	0.49	0.59	0.50	234.38							
USA	0.66	0.87	0.86	0.83	0.50	2.52						
GBR	0.70	0.89	0.82	0.73	0.51	0.80	0.31					
NLD	0.61	0.66	0.75	0.77	0.47	0.78	0.62	337.10				
ZAF	0.61	0.85	0.83	0.61	0.53	0.85	0.78	0.62	29.75			
IRL	0.57	0.75	0.72	0.62	0.58	0.65	0.74	0.49	0.80	1.49		
NOR	0.66	0.68	0.67	0.82	0.45	0.78	0.66	0.71	0.52	0.49	41.45	
CAM	0.49	0.51	0.59	0.58	0.44	0.56	0.50	0.63	0.45	0.46	0.48	9.29

SIM dlo

	FRM	NLD	CZE	SVN	GBR	USA
FRM	0.98					
NLD	0.58	293.55				
CZE	0.45	0.45	20.20			
SVN	0.71	0.73	0.45	22.60		

GBR	0.52	0.63	0.54	0.71	0.26	
USA	0.74	0.78	0.59	0.79	0.81	2.38

^LAPPENDIX II. Number of common bulls

BSW

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEA	NLD	NZL	USA	ITA	FRA	GBR	SVN
CAN	0	113	127	40	23	157	112	79	56	31
CHE	91	0	564	90	24	309	440	161	66	75
DEA	103	460	0	134	32	324	696	211	67	102
NLD	35	85	124	0	21	67	112	71	32	43
NZL	21	19	25	13	0	29	26	22	17	10
USA	144	287	284	55	24	0	233	119	79	40
ITA	95	379	583	91	22	164	0	187	69	95
FRA	70	122	159	56	19	82	149	0	51	54
GBR	52	50	45	24	14	73	48	43	0	22
SVN	27	71	94	43	8	33	94	54	17	0

GUE

common bulls below diagonal
common three quarter sib group above diagonal

	AUS	CAN	NZL	USA	GBR
AUS	0	46	22	62	36
CAN	46	0	13	67	29
NZL	26	11	0	28	15
USA	57	57	26	0	86
GBR	32	24	13	88	0

HOL

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
AUS	0	630	1199	537	1509	1193	794	1146	1341	690	101	1112	1304	1080	1675	676	778	168	459	919
BEL	537	0	643	495	1001	751	570	769	812	460	78	723	989	437	802	474	562	158	295	659
CAN	1123	607	0	784	2190	1282	1173	1291	1562	512	110	1517	1315	647	3011	937	906	187	467	1189
CHE	465	494	617	0	1068	661	513	582	709	380	61	670	814	359	931	413	485	134	254	605
DEU	1061	1016	1475	923	0	2589	1426	2276	2196	871	160	2446	3125	903	3398	1214	1727	302	553	2212
DFS	815	690	1023	573	1788	0	954	1534	1674	740	149	1574	2023	779	1979	888	1188	251	501	1512
ESP	562	546	678	410	891	699	0	1032	1058	486	105	1187	1002	488	1436	730	775	181	431	959
FRA	713	712	746	491	1079	720	697	0	1528	711	125	1630	1785	729	2334	892	1158	190	456	1475
GBR	1180	819	1773	674	1814	1348	898	938	0	1001	142	1633	1853	941	2234	905	1109	227	529	1390
IRL	589	452	457	378	763	611	466	539	1067	0	98	665	871	697	760	443	533	123	326	589
ISR	62	46	70	36	131	115	60	58	112	77	0	141	151	105	176	112	111	47	65	138
ITA	771	672	1098	590	1561	1167	850	793	1346	572	103	0	1620	718	2465	1003	1153	230	487	1484
NLD	1075	1085	1151	769	2747	1744	855	983	1744	812	119	1262	0	946	2291	936	1333	248	489	1631
NZL	1050	353	632	299	678	537	360	391	853	600	85	525	843	0	988	475	586	124	347	597
USA	1581	689	3087	815	2264	1457	911	1124	2118	678	161	1613	1823	923	0	1273	1485	228	619	1869
HUN	498	395	811	329	948	701	572	559	851	391	81	862	757	366	1217	0	856	158	387	906
CZE	479	440	579	352	1312	733	568	675	870	408	83	798	1126	407	1109	784	0	193	406	1157
SVN	119	128	132	99	292	208	139	124	182	95	36	197	210	86	172	122	145	0	98	238
ZAF	386	249	388	205	429	374	367	297	476	283	43	371	394	279	590	304	277	68	0	406
POL	645	585	904	485	1888	1191	647	860	1257	485	106	1099	1445	442	1706	787	897	213	298	0

JER

common bulls below diagonal
common three quarter sib group above diagonal

	AUS	CAN	DFS	NLD	NZL	USA	GBR	ZAF	IRL
AUS	0	221	133	58	397	432	205	211	52
CAN	230	0	94	29	157	384	157	149	11
DFS	103	83	0	85	136	185	166	136	43
NLD	50	23	81	0	62	73	71	62	31
NZL	444	168	111	54	0	325	213	190	108
USA	471	390	161	78	393	0	238	290	45
GBR	219	162	164	70	226	279	0	170	77
ZAF	208	145	116	57	198	304	179	0	38
IRL	49	9	36	30	120	46	80	37	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	89	40	181	118	109	85	21	35	15	56	8
CAN	92	0	14	145	74	202	91	5	70	5	5	0
DEU	39	13	0	62	18	27	20	15	3	7	19	0
DFS	163	147	52	0	152	176	114	43	49	19	121	0
NZL	124	74	17	146	0	100	76	18	35	11	35	7
USA	114	186	27	172	102	0	115	35	61	27	67	17
GBR	83	90	19	110	71	108	0	28	49	23	48	0
NLD	20	5	15	42	17	34	27	0	3	13	37	0
ZAF	37	72	3	48	32	55	42	3	0	3	0	0
IRL	14	5	7	15	11	27	22	13	3	0	53	0
NOR	46	5	18	93	33	69	50	37	0	52	0	0
CAM	9	0	0	0	8	18	0	0	0	0	0	0

SIM

common bulls below diagonal
common three quarter sib group above diagonal

	FRM	NLD	CZE	SVN	GBR	USA
FRM	0	103	161	0	63	32
NLD	125	0	139	44	42	16
CZE	192	132	0	59	43	16
SVN	0	43	57	0	0	0
GBR	80	40	39	0	0	19
USA	47	19	16	0	26	0