Introduction

The latest routine international evaluation for workability traits took place as scheduled at the Interbull Centre. Data from eighteen (18) countries were included in this evaluation.

International genetic evaluations for workability traits of bulls from Austria-Germany, Canada, Denmark-Finland-Sweden, France, Great Britain, Italy, Netherlands, Norway, New Zealand, Slovenia, Japan, Switzerland, Poland, Czech Republic and Spain were computed. Brown Swiss, Holstein, Jersey and Red Dairy Cattle breed data were included in this evaluation.

Changes in national procedures

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

NLD (HOL, JER)	Reduction in information due to pedigree verification.
CHE (BSW, HOL)	Reduction in information is due to data edits.Reduction in information is due to data edits.
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.
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.
ESP (HOL)	Reduction in daughters due to pedigree verification.
POL (HOL)	Reduction in information due to 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 previoulsy 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

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

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 ROUTINE RUN

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 Workability (December Routine Evaluation 2024).
Number of records for milking speed by breed

Country	BSW	GUE	HOL	JER	RDC	SIM
AUS			6638	1333	573	
BEL						
CAN	220		13613	815	885	
CHE	2996		3104	62		
CZE			2115			
DEA	4594					
DEU			13826		222	
DFS			12557	2081	6896	
ESP			3715			
EST						
FRA	448		18180			
FRM						
GBR			6467			
HUN						
IRL						
ISR						
ITA	2153		7272			
JPN			2472			
KOR						
LTU						
LVA						
NLD	143		14710	58		
NOR					4085	
NZL			6980	4246	526	
POL			10001			
PRT						
SVK						
SVN	262		638			
URY						
USA						
ZAF						
HRV						
CAM					39	
No.Records	10816		122288	8595	13226	
Pub. Proofs	9023	0	101614	7973	12740	0

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

BSW msp

	CAN	CHE	DEA	ITA	NLD	SVN	FRA
CAN	9.48						
CHE	0.94	15.58					
DEA	0.90	0.96	11.75				
ITA	0.85	0.93	0.91	17.40			
NLD	0.92	0.95	0.92	0.85	5.31		
SVN	0.83	0.89	0.87	0.90	0.82	29.99	
FRA	0.93	0.95	0.89	0.89	0.95	0.84	0.78

HOL msp

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	SVN	NZL	ITA	JPN	ESP	CZE	POL
CAN	7.64														
CHE	0.94	12.48													
DEU	0.89	0.96	12.72												
DFS	0.93	0.94	0.95	14.28											
FRA	0.94	0.98	0.94	0.95	1.01										
NLD	0.94	0.98	0.96	0.97	0.97	4.48									

AUS	0.82	0.82	0.78	0.79	0.83	0.81	0.25								
GBR	0.72	0.71	0.72	0.73	0.75	0.73	0.71	0.20							
SVN	0.75	0.85	0.91	0.87	0.84	0.88	0.71	0.64	26.87						
NZL	0.87	0.87	0.79	0.81	0.87	0.84	0.89	0.73	0.73	0.33					
ITA	0.76	0.82	0.80	0.81	0.84	0.83	0.69	0.57	0.76	0.68	6.25				
JPN	0.96	0.93	0.88	0.93	0.97	0.95	0.85	0.77	0.78	0.86	0.82	2.13			
ESP	0.93	0.93	0.89	0.92	0.95	0.94	0.79	0.70	0.79	0.84	0.78	0.93	13.26		
CZE	0.88	0.92	0.92	0.92	0.92	0.92	0.76	0.58	0.81	0.75	0.81	0.87	0.89	18.62	
POL	0.49	0.49	0.49	0.49	0.48	0.49	0.49	0.49	0.51	0.51	0.48	0.49	0.49	0.49	14.93

HOL tem

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	NZL	ITA	JPN	POL
CAN	7.85											
CHE	0.68	10.29										
DEU	0.84	0.76	11.70									
DFS	0.76	0.85	0.86	13.05								
FRA	0.70	0.91	0.79	0.91	0.89							
NLD	0.85	0.77	0.89	0.85	0.81	5.81						
AUS	0.58	0.64	0.61	0.68	0.68	0.70	0.23					
GBR	0.58	0.80	0.67	0.77	0.83	0.68	0.60	0.16				
NZL	0.60	0.52	0.72	0.59	0.58	0.70	0.72	0.50	0.35			
ITA	0.10	0.09	0.11	0.09	0.08	0.13	0.09	0.09	0.10	6.25		
JPN	0.92	0.81	0.91	0.87	0.86	0.93	0.64	0.73	0.63	0.10	2.61	
POL	0.20	0.10	0.23	0.13	0.09	0.17	0.16	0.13	0.16	0.08	0.21	18.99

JER msp

	CAN	DFS	NLD	AUS	NZL	CHE
CAN	7.78					
DFS	0.88	13.78				
NLD	0.93	0.94	4.01			
AUS	0.74	0.75	0.82	0.24		
NZL	0.64	0.73	0.82	0.76	0.30	
CHE	0.92	0.93	0.95	0.78	0.74	11.62

RDC msp

	CAN	DEU	DFS	NOR	AUS	NZL	CAM
CAN	6.76						
DEU	0.88	11.55					
DFS	0.92	0.90	13.20				
NOR	0.79	0.76	0.95	14.62			
AUS	0.77	0.71	0.76	0.74	0.27		
NZL	0.85	0.76	0.85	0.80	0.84	0.38	
CAM	0.68	0.68	0.69	0.67	0.59	0.68	7.49

RDC tem

	CAN	DEU	DFS	NOR	AUS	NZL	CAM
CAN	6.23						
DEU	0.79	10.05					
DFS	0.65	0.76	11.07				
NOR	0.64	0.56	0.89	16.77			
AUS	0.59	0.43	0.61	0.56	0.25		
NZL	0.49	0.66	0.67	0.53	0.76	0.43	
CAM	0.51	0.49	0.49	0.50	0.37	0.49	7.61

^LAPPENDIX II. Number of common bulls

BSW

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEA	ITA	NLD	SVN	FRA
CAN	0	122	135	119	37	25	84
CHE	106	0	622	475	73	60	180
DEA	122	533	0	652	100	77	233
ITA	105	416	550	0	93	73	206
NLD	30	71	91	76	0	31	62
SVN	22	56	70	67	31	0	41
FRA	76	146	189	172	53	40	0

BSW

GUE

GUE

HOL

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	SVN	NZL	ITA	JPN	ESP	CZE	POL
CAN	0	890	1853	1346	1594	1541	1102	1773	205	330	1684	454	1203	611	1480
CHE	823	0	925	618	700	831	487	735	118	201	645	172	498	240	553
DEU	1287	814	0	1848	1957	2300	925	1647	317	315	1708	403	1153	783	1998
DFS	1048	568	1199	0	1606	1784	942	1391	202	398	1109	268	792	623	1246
FRA	1120	653	1129	890	0	1984	1057	1580	195	446	1308	359	1051	645	1575
NLD	1442	820	1825	1381	1302	0	1093	1729	234	547	1311	327	935	806	1612
AUS	958	410	600	555	660	853	0	1066	115	548	687	210	569	368	602
GBR	1859	735	1171	992	1081	1470	824	0	196	415	1360	328	910	584	1225
SVN	162	87	307	149	153	203	76	150	0	45	228	94	173	117	278
NZL	295	173	220	242	249	492	431	316	35	0	197	68	196	149	164
ITA	1479	580	1090	877	867	1117	522	1174	199	167	0	441	1080	591	1537
JPN	205	99	162	144	143	174	132	160	41	51	182	0	344	197	415
ESP	781	380	652	570	780	746	380	662	122	141	743	139	0	439	989
CZE	342	123	413	275	300	588	143	269	76	59	373	90	237	0	657
POL	1426	463	1786	999	1157	1475	425	1050	248	121	1333	197	705	474	0

HOL

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	NZL	ITA	JPN	POL
CAN	0	808	1693	983	1462	1436	1069	1738	318	1680	454	1456
CHE	742	0	768	434	638	688	432	683	177	623	172	529
DEU	1006	635	0	1431	1875	2121	898	1514	286	1584	373	1758
DFS	639	370	714	0	1347	1364	830	1141	375	846	189	905
FRA	1105	590	1039	673	0	1857	1006	1526	417	1303	357	1546
NLD	1329	675	1472	858	1247	0	1083	1662	542	1260	319	1529
AUS	936	376	523	421	659	843	0	1067	547	686	210	596
GBR	1828	670	972	680	1070	1405	823	0	412	1359	328	1212
NZL	287	155	194	214	247	486	430	315	0	197	68	163
ITA	1473	561	949	591	866	1064	521	1175	167	0	441	1510
JPN	205	99	150	96	143	169	132	160	51	182	0	409
POL	1421	443	1376	616	1151	1397	425	1050	121	1330	197	0

JER

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	DFS	NLD	AUS	NZL	CHE
CAN	0	67	14	195	70	31
DFS	52	0	29	87	81	43
NLD	11	25	0	20	19	9
AUS	196	59	20	0	192	32
NZL	70	60	17	177	0	26
CHE	30	43	6	31	25	0

JER

RDC

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common bulls below diagonal

common three quarter sib group above diagonal

	CAN	DEU	DFS	NOR	AUS	NZL	CAM
CAN	0	6	162	6	37	28	0
DEU	6	0	28	8	23	2	0
DFS	167	20	0	115	141	50	0
NOR	6	7	93	0	61	10	0
AUS	34	22	113	52	0	40	9
NZL	25	2	49	10	37	0	1
CAM	0	0	0	0	9	1	0

RDC

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common bulls below diagonal

common three quarter sib group above diagonal

	CAN	DEU	DFS	NOR	AUS	NZL	CAM
CAN	0	8	136	6	37	27	0
DEU	8	0	51	11	30	5	0
DFS	138	45	0	110	141	50	0
NOR	6	11	88	0	58	9	0
AUS	34	29	113	49	0	40	9
NZL	25	5	49	9	37	0	1
CAM	0	0	0	0	9	1	0

SIM

SIM
