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

- BEL (HOL) Drop in daughters, herds, EDC and reliabilities due to corrections in pedigree.
- CHE (ALL) Change in number of herds, EDC and reliabilities due to manual data edits and hYS assignment.
- DEU (HOL) Overall base change. From this routine run onwards cow base is adjusted with each routine run, four months (birth month) forwards.
- DFS (HOL, JER, RDC) Drop in EDC mostly cause by rounding effect.
- ESP (HOL) Base changed. Drop in information due to new checks in data editing.
- ITA (HOL) Drop in information due to changes in the input data.
- Increase in the threshold of reliability and daughters per herd meant that many bulls no longer achieved the requirements for submission.
- JPN (HOL) Changes in EDC due to pedigree editing.
- NLD (ALL) Drop in information due to pedigree corrections.
- POL (HOL) Drop in information due to data editing.

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

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.

 $^{ extsf{L}}$ Table 1. National evaluation data considered in the Interbull

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

Country	BSW	GUE	HOL	JER	RDC	SIM
AUS			 6629	1330	571	
BEL						
CAN	220		13526	809	883	
CHE	2989		3087	62		
CZE			2099			
DEA	4572					
DEU			13730		222	
DFS			12551	2079	6893	
ESP			3671			
EST						
FRA	445		18165			
FRM						
GBR			6417			
HUN						
IRL						
ISR						
ITA	2150		7180			
JPN			2403			
KOR						
LTU						
LVA						
NLD	136		14605	51		
NOR					4067	
NZL			6817	4186	524	
POL			9900			
PRT						
SVK						
SVN	259		630			
URY						
USA						
ZAF						
HRV						
CAM					39	
	 10771				 13199	=======
Pub. Proofs	8997	0	101082	7900	12711	0

^LAPPENDIX I. Sire standard deviations in diagonal and genetic correlations below diagonal _____ BSW msp ______ CAN CHE DEA ITA NLD SVN FRA 9.47 CAN CHE 0.94 15.58 DEA 0.90 0.96 11.74 0.93 0.91 17.42 ITA 0.85
 0.92
 0.95
 0.93
 0.85
 5.26

 0.83
 0.88
 0.87
 0.90
 0.82
 30.17
 NLD SVN 0.93 0.95 0.89 0.89 0.95 0.83 0.78 FRA _____ HOL msp ______ CAN CHE DEU DFS FRA NLD AUS GBR SVN NZL ITA JPN ESP 7.63 CHE 0.94 12.46 DEU 0.89 0.96 12.70 0.94 0.95 14.28 0.93 0.94 0.98 0.94 0.95 1.01 0.94 0.98 0.96 0.97 0.97 4.48 0.82 0.83 0.78 0.80 0.83 0.81 0.25



GBR	0.73	0.72	0.73	0.74	0.76	0.74	0.72	0.20							
SVN	0.75	0.85	0.91	0.87	0.84	0.87	0.70	0.65	27.11						
NZL	0.87	0.87	0.79	0.81	0.87	0.84	0.89	0.73	0.73	0.33					
ITA	0.75	0.82	0.79	0.81	0.84	0.82	0.69	0.58	0.76	0.69	6.28				
JPN	0.96	0.93	0.88	0.93	0.97	0.95	0.85	0.78	0.78	0.85	0.81	2.13			
ESP	0.93	0.93	0.89	0.92	0.95	0.94	0.79	0.71	0.79	0.84	0.78	0.93	13.30		
CZE	0.88	0.92	0.92	0.92	0.92	0.92	0.76	0.59	0.81	0.76	0.79	0.86	0.89	18.53	
POL	0.50	0.50	0.50	0.50	0.48	0.49	0.70	0.50	0.51	0.70	0.48	0.50	0.50	0.50	14.88
РОБ	0.50	0.50	0.50	0.50	0.40	0.49	0.30	0.30	0.32	0.54	0.40	0.50	0.50	0.50	14.00
HOL	tem														
	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	NZL	ITA	JPN	POL			
CAN	7.83														
CHE	0.68	10.31													
DEU	0.84	0.75	11.72												
DFS	0.77	0.84	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	5.83									
AUS	0.58	0.64	0.62	0.68	0.67	0.70	0.23								
GBR	0.59	0.80	0.67	0.77	0.83	0.70	0.23	0.16							
NZL	0.59	0.51	0.87	0.77	0.63	0.00	0.81	0.10	0.35						
	0.39	0.09		0.09	0.38		0.72			6.29					
ITA			0.11			0.13		0.09	0.10		2 62				
JPN	0.92	0.80	0.91	0.87	0.86	0.92	0.64	0.74	0.63	0.10	2.62	10 10			
POL	0.24	0.11	0.26	0.16	0.09	0.18	0.19	0.15	0.19	0.08	0.26	19.10			
JER	msp														
	CAN	DFS	NLD	AUS	NZL	CHE									
CAN	7.68														
DFS	0.89	13.77													
NLD	0.93	0.94	4.21												
AUS	0.74	0.75	0.82	0.24											
NZL	0.65	0.73	0.82	0.76	0.30										
CHE	0.92	0.93	0.95	0.78		11.62									
RDC	msp 														
	CAN	DEU	DFS	NOR	AUS	NZL	CAM								
CAN	6.77														
DEU	0.87	11.55													
DFS	0.92	0.91	13.20												
NOR	0.79	0.76	0.95	14.65											
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	0.67	0.67	0.69	0.67	0.59	0.68	7.46								
	 tem														
	CAN	DEU	DFS	NOR	AUS	NZL	CAM								
CAN	6.20														
DEU	0.79	9.99													
DFS	0.66	0.75	11.07												
NOR	0.64	0.55	0.89	16.76											
AUS	0.59	0.44	0.62	0.56	0.25										
NZL	0.48	0.66	0.66	0.52	0.76	0.43									
CAM	0.54	0.49	0.49	0.50	0.42	0.49	7.63								

^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

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______
 CAN 0 122 135 119 37 25 83
 CHE 106 0 617 474 68 60 182
 DEA 122 528 0 648 97 75 235
 ITA 105 414 546 0 90 72 204
 NLD 30 66 88 73 0 29 60
 SVN 22 56 69 66 29 0 41
FRA 75 143 186 167 51 40 0
BSW
_____
GUE
_____
GUE
HOL
common bulls below diagonal
common three quarter sib group above diagonal
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CAN CHE DEU DFS FRA NLD AUS GBR SVN NZL ITA JPN ESP CZE POL _____ CAN 0 879 1834 1345 1585 1516 1096 1755 204 328 1655 447 1183 607 1460 CHE 811 0 914 617 695 822 486 731 118 200 635 168 493 239 546 DEU 1264 803 0 1843 1943 2262 922 1630 315 313 1686 397 1137 777 1972 DFS 1048 567 1194 0 1599 1781 940 1389 201 397 1104 265 790 621 1241 FRA 1111 648 1113 884 0 1971 1054 1569 194 445 1298 356 1044 641 1553 NLD 1414 810 1783 1378 1289 0 1090 1711 231 543 1290 318 919 797 1579 AUS 951 409 597 554 658 850 0 1062 114 547 683 207 562 366 595 GBR 1835 728 1151 988 1069 1446 821 0 195 412 1335 322 903 579 1206 SVN 161 87 305 148 152 201 75 149 0 43 223 93 170 117 273 NZL 294 173 218 241 248 488 430 315 33 0 195 68 195 149 159 ITA 1450 571 1069 872 855 1095 519 1151 194 167 0 433 1065 583 1507 JPN 197 97 154 140 140 164 128 153 40 50 175 0 339 191 407 ESP 763 375 642 568 773 730 377 654 120 140 728 135 0 433 967 CZE 337 123 408 274 296 580 141 265 76 59 366 85 230 0 646 POL 1402 455 1756 991 1136 1438 421 1029 242 117 1291 190 681 461 0 ______

HOL

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common bulls below diagonal
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common three quarter sib group above diagonal

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	NZL	ITA	JPN	POL	
CAN	0	796	1684	983	1453	1422	1063	1720	316	1651	447	1435	
CHE	730	0	761	433	632	683	430	678	176	611	168	522	
DEU	998	630	0	1427	1860	2110	898	1504	285	1572	367	1743	
DFS	639	370	711	0	1346	1364	830	1141	374	846	188	899	
FRA	1096	585	1023	672	0	1844	1003	1515	416	1294	354	1525	
NLD	1315	672	1461	858	1233	0	1081	1649	538	1248	310	1509	
AUS	929	375	523	421	657	841	0	1063	546	682	207	589	
GBR	1802	663	962	679	1058	1390	820	0	409	1334	322	1193	
NZL	286	155	193	213	246	482	429	314	0	195	68	158	
ITA	1443	550	939	590	854	1051	518	1152	167	0	433	1479	
JPN	197	97	144	95	140	159	128	153	50	175	0	402	
POL	1396	435	1359	608	1130	1377	421	1029	117	1290	190	0	

JER

common bulls below diagonal

common three quarter sib group above diagonal

CAN DFS NLD AUS NZL CHE

CAN 0 67 13 194 70 31

DFS 52 0 24 87 81 43 NLD 10 20 0 19 17 9 AUS 195 59 19 0 191 32 NZL 70 60 15 176 0 26

CHE 30 43 6 31 25 0

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JER
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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	114	141	48	0	
NOR	6	7	92	0	61	10	0	
AUS	34	22	113	52	0	39	9	
NZL	25	2	47	10	36	0	1	
CAM	0	0	0	0	9	1	0	

RDC

common bulls below diagonal

COMMO	1 DUL	TS DE	erow a.	Lagoi	la1			
commor	n thr	ee qu	arter	sib	group	abov	<i>r</i> e diagonal	
	CAN	DEU	DFS	NOR	AUS	NZL	CAM	

CAN	0	8	136	6	37	27	0
DEU	8	0	50	11	30	4	0
DFS	138	44	0	109	141	48	0
NOR	6	11	87	0	58	9	0
AUS	34	29	113	49	0	39	9
NZL	25	4	47	9	36	0	1
CAM	0	0	0	0	9	1	0

SIM

SIM
