Introduction

The latest routine international evaluation for workability traits took place as scheduled at the Interbull Centre. Data from fourtheen (14) 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 and Switzerland 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:

NOR (RDC) The rolling definition of hys is causing the daughters to distribute somewhat differently over hys-classes at each evaluation. Therefore some bulls occasionally may loose EDC although the number of daughters stay the same. Reliability changes is a function of the EDC changes.

AUS (ALL) A small cohort of animals changed proof type from 12 previous (second crop daughters) back to 11 (only first crop daughters).The determination of a first and second crop proof type is based on the proportion of daughters born within 5 years of the bulls birth date (first crop) and those born after 5 years (second crop).The pedigree has been recently updated and completed so that a number of older daughters have been entering proofs and this has tripped the threshold from proof type causing the reversion from second to first crop daughter proof.

ITA (HOL) Decrease in information due to editing system applied.

CHE (ALL) Base change. Decrease in information due to the continuous work on the raw data by herd-book organizations and in the fact that data have been merged from two data bases (for HOL-CHE and SIM-CHE).

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 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 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 (August Routine Evaluation 2018).
Number of records for milking speed by breed

Country	BSW	GUE	HOL	JER	RDC	SIM
AUS			6189	1187	485	
BEL						
CAN	170		11725	638	789	
CHE	2580		2957	51		
CZE						
DEA	3989					
DEU			18080		252	
DFS			11515	1905	6451	
ESP						
EST						
FRA	331		16387			
FRM						
GBR			5376			
HUN						
IRL						
ISR						
ITA	1918		6524			
JPN						
KOR						
LTU						
LVA						
NLD	104		13011	25		
NOR					3768	
NZL			5654	3636	558	
POL						
PRT						
SVK						
SVN	273		436			
URY						
USA						
ZAF						
HRV						
MEX						
CAM					31	
No.Records	9365		97854	7442	12334	
Pub. Proofs	7954	0	85686	6906	11837	0

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

BSW msp

	CAN	CHE	DEA	ITA	NLD	SVN	FRA
CAN	7.49						
CHE	0.93	15.70					
DEA	0.89	0.96	11.70				
ITA	0.90	0.95	0.93	17.89			
NLD	0.93	0.95	0.93	0.92	6.42		
SVN	0.87	0.90	0.91	0.94	0.87	24.06	
FRA	0.94	0.93	0.86	0.90	0.95	0.86	0.86

HOL msp

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	SVN	NZL	ITA
CAN	7.63										
CHE	0.88	12.29									
DEU	0.90	0.97	11.52								
DFS	0.94	0.94	0.97	14.35							
FRA	0.94	0.97	0.96	0.96	1.08						

NLD	0.95	0.97	0.96	0.97	0.98	5.58					
AUS	0.89	0.88	0.87	0.89	0.91	0.91	3.54				
GBR	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.14			
SVN	0.86	0.86	0.86	0.85	0.85	0.85	0.86	0.86	23.24		
NZL	0.91	0.90	0.87	0.87	0.93	0.92	0.94	0.85	0.86	0.37	
ITA	0.94	0.93	0.93	0.95	0.96	0.95	0.92	0.85	0.85	0.92	7.15

HOL tem

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	NZL	ITA
CAN	6.94									
CHE	0.70	10.87								
DEU	0.85	0.77	12.02							
DFS	0.79	0.82	0.87	13.22						
FRA	0.71	0.90	0.81	0.92	0.98					
NLD	0.85	0.73	0.87	0.87	0.81	4.99				
AUS	0.70	0.70	0.70	0.73	0.72	0.74	3.07			
GBR	0.70	0.78	0.71	0.80	0.86	0.71	0.70	0.14		
NZL	0.70	0.70	0.71	0.70	0.70	0.70	0.74	0.70	0.34	
ITA	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	7.26

JER msp

	CAN	DFS	NLD	AUS	NZL	CHE
CAN	8.19					
DFS	0.91	14.47				
NLD	0.94	0.97	4.63			
AUS	0.86	0.87	0.92	3.31		
NZL	0.87	0.86	0.91	0.88	0.33	
CHE	0.91	0.95	0.96	0.88	0.88	12.16

RDC msp

	CAN	DEU	DFS	NOR	AUS	NZL	CAM
CAN	6.66						
DEU	0.90	9.25					
DFS	0.95	0.93	13.46				
NOR	0.91	0.88	0.96	15.07			
AUS	0.88	0.87	0.87	0.86	4.36		
NZL	0.90	0.88	0.89	0.91	0.90	0.40	
CAM	0.90	0.90	0.90	0.90	0.88	0.90	7.77

RDC tem

	CAN	DEU	DFS	NOR	AUS	NZL	CAM
CAN	6.48						
DEU	0.83	9.96					
DFS	0.76	0.81	11.11				
NOR	0.78	0.72	0.92	17.17			
AUS	0.71	0.71	0.71	0.71	3.44		
NZL	0.71	0.72	0.73	0.72	0.79	0.40	
CAM	0.74	0.74	0.74	0.74	0.72	0.74	7.01

^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	93	100	94	34	15	62
CHE	76	0	504	396	55	41	142
DEA	85	422	0	545	79	61	175
ITA	78	338	449	0	72	56	154
NLD	28	53	70	56	0	23	51
SVN	13	40	57	55	22	0	32
FRA	54	108	129	123	41	31	0

BSW

GUE

GUE

HOL

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common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	SVN	NZL	ITA
CAN	0	727	1738	1053	1227	1136	917	1341	145	353	1310
CHE	604	0	849	514	509	683	421	589	98	224	540
DEU	924	650	0	1759	1781	2100	930	1483	216	383	1655
DFS	719	431	870	0	1288	1449	814	1173	166	410	1017
FRA	649	420	667	499	0	1568	885	1262	132	448	1172
NLD	978	645	1320	1003	750	0	963	1380	180	536	1139
AUS	776	341	516	432	476	726	0	910	103	572	652
GBR	1365	566	891	748	664	1082	663	0	160	433	1155
SVN	112	76	202	133	93	159	74	123	0	52	169
NZL	322	191	257	250	219	482	447	339	39	0	283
ITA	1003	477	868	696	548	841	458	908	141	238	0

HOL

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common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	NZL	ITA
CAN	0	633	1492	881	1097	1082	887	1310	343	1243
CHE	516	0	626	410	450	544	366	532	197	489
DEU	735	451	0	1350	1524	1817	824	1309	336	1439
DFS	533	324	567	0	1151	1217	758	1054	395	926
FRA	641	372	580	435	0	1462	832	1211	414	1209
NLD	927	506	1066	713	721	0	952	1367	530	1135
AUS	757	305	432	361	474	715	0	913	571	688
GBR	1342	493	751	594	660	1076	664	0	432	1147
NZL	315	170	223	224	217	474	447	338	0	314
ITA	890	419	718	574	548	798	457	866	252	0

JER

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common bulls below diagonal
common three quarter sib group above diagonal

	CAN	DFS	NLD	AUS	NZL	CHE
CAN	0	59	9	152	64	22
DFS	44	0	11	75	75	39
NLD	7	7	0	14	13	7
AUS	153	48	15	0	181	24
NZL	66	52	12	169	0	22
CHE	20	38	4	23	20	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	9	116	5	34	32	0
DEU	9	0	39	10	22	4	0
DFS	116	30	0	104	106	53	0
NOR	5	10	80	0	50	10	0
AUS	31	22	80	42	0	35	8
NZL	29	4	51	9	32	0	1
CAM	0	0	0	0	8	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	101	5	34	31	0
DEU	8	0	32	10	21	4	0
DFS	100	27	0	97	106	53	0
NOR	5	10	72	0	47	9	0
AUS	31	21	80	39	0	35	8
NZL	29	4	51	8	32	0	1
CAM	0	0	0	0	8	1	0

SIM

SIM
