Interbull Routine Genetic Evaluation for Workability Traits

August 2014

Introduction

The latest routine international evaluation for workability traits took place as scheduled at the Interbull Centre. Data from six (6) countries were included in this evaluation.

International genetic evaluations for workability traits of bulls from Austria-Germany, Canada, Denmark-Finland-Sweden, France, Italy, Netherlands, Norway 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): Rawdata for milking speed have been extracted de novo from the herd recording system. This has helped to fill some periodical gaps that existed in our
previous datafile.
Also, some unneccessary stringent data editing have been relaxed to increase the amount of data by 10%.
CHE (BSW): Reductions in edc are due to slight changes in definition of contemporary groups (herd*3 year period, starting with the most recent year with data).
DEU (HOL): There is no longer a distintion nationally between 1st and 2nd crop of daughters (as conseuencs of genomically proven bulls), thus type of proof is either
11 (German bull) or 21 (foreign bull), there are quite a number of bulls mentioned as "missing", however most of these appear now with another (correct) ID,
these are mostly danish bulls

INTERBULL CHANGES COMPARED TO THE DECEMBER ROUTINE RUN

No changes.

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 in the 01x-proof file.

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

The next routine evaluation of Interbull for production, conformation, udder health, longevity, calving, female fertility and workability traits is scheduled for November 2014. Deadline for sending data to the Interbull Centre is Tuesday November 11, 2014, 17:00 CET; confidential distribution of results is targeted for Thursday 20 Nov, 2014, with earliest possible official release of results on November 2, 2014. Please remark the three week turn around time.

NEXT TEST INTERNATIONAL EVALUATION

The next test run for production, conformation, udder health, longevity, calving, female fertility and workability traits will take place in September 2014.
Countries planning to introduce changes in their national evaluation procedures and wishing to have them included in the routine Interbull evaluation, should have their data examined in this test run. New data and validation results should be sent to the Interbull Centre no later than September 2, 2014, 17:00 CET.

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 2014).
Number of records for milking speed by breed

Country	BSW	GUE	HOL	JER	RDC	SIM
ARG						
AUS			5622	1074	411	
BEL						
CAN	142		10058	493	698	
CHE	2321		1046			
CHR						
CZE						
DEA	3536					
DEU			17860		331	
DFS			10632	1698	5738	
ESP						
EST						
FRA			15014			
FRM						
FRR						
GBR			4455			
HUN						
IRL						
ISR						
ITA	1650					
JPN						
KOR						
LTU						
LVA						
NLD	84		11668	22		
NOR					3297	
NZL						
POL						
PRT						
SVK						
SVN	219		280			
URY						
USA						
ZAF						
No.Records	7952		76635	3287	10475	
Pub. Proofs	6933	0	69345	3045	10197	0

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

BSW msp

	CAN	CHE	DEA	ITA	NLD	SVN
CAN	7.26					
CHE	0.97	15.96				
DEA	0.93	0.96	11.78			
ITA	0.93	0.95	0.92	14.89		
NLD	0.94	0.97	0.96	0.94	6.29	
SVN	0.89	0.91	0.89	0.97	0.90	25.59

HOL msp

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	SVN
CAN	7.56								
CHE	0.96	12.06							
DEU	0.92	0.98	13.71						
DFS	0.95	0.98	0.97	14.89					
FRA	0.93	0.98	0.97	0.97	1.09				
NLD	0.95	0.99	0.96	0.98	0.98	5.48			
AUS	0.89	0.91	0.88	0.91	0.91	0.91	3.58		
GBR	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.15	
SVN	0.86	0.88	0.89	0.87	0.87	0.88	0.86	0.86	23.93

HOL tem

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR
CAN	6.89							
CHE	0.71	10.37						
DEU	0.87	0.81	8.86					
DFS	0.86	0.82	0.91	13.86				
FRA	0.73	0.86	0.81	0.93	1.01			
NLD	0.86	0.73	0.86	0.88	0.82	4.39		
AUS	0.70	0.71	0.70	0.75	0.72	0.75	3.06	
GBR	0.70	0.73	0.72	0.82	0.86	0.71	0.70	0.15

JER msp

	CAN	DFS	NLD	AUS
CAN	8.49			
DFS	0.90	14.51		
NLD	0.94	0.97	4.61	
AUS	0.86	0.88	0.92	3.39

RDC msp

	CAN	DEU	DFS	NOR	AUS
CAN	6.48				
DEU	0.92	9.98			
DFS	0.96	0.96	13.70		
NOR	0.92	0.92	0.95	13.38	
AUS	0.88	0.89	0.93	0.89	4.46

RDC tem

	CAN	DEU	DFS	NOR	AUS
CAN	6.41				
DEU	0.86	4.94			
DFS	0.82	0.86	11.43		
NOR	0.86	0.80	0.95	13.13	
AUS	0.72	0.73	0.74	0.78	3.37

^LAPPENDIX II. Number of common bulls

BSW

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEA	ITA	NLD	SVN
CAN	0	79	84	71	28	13
CHE	65	0	445	291	45	28
DEA	76	367	0	448	63	44
ITA	62	229	360	0	59	42
NLD	23	41	56	45	0	18
SVN	11	27	40	41	15	0

HOL

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR	SVN
CAN	0	382	1532	868	1001	907	784	1066	86
CHE	260	0	410	296	285	314	239	315	40
DEU	608	282	0	1716	1575	1841	848	1262	135
DFS	500	230	626	0	1161	1274	719	1001	119
FRA	471	239	458	370	0	1355	774	1094	84
NLD	715	287	981	787	561	0	859	1160	122
AUS	606	181	394	327	369	604	0	786	74
GBR	1002	290	646	571	511	840	518	0	103
SVN	67	30	113	98	58	104	49	81	0

HOL

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	CHE	DEU	DFS	FRA	NLD	AUS	GBR
CAN	0	377	1246	764	869	860	753	1034
CHE	258	0	360	279	281	314	239	315
DEU	433	226	0	1367	1273	1552	738	1088
DFS	399	212	440	0	1053	1120	682	930
FRA	462	239	377	335	0	1247	721	1039
NLD	676	286	753	580	533	0	852	1151
AUS	585	181	305	273	367	596	0	785
GBR	977	292	499	474	507	840	517	0

JER

common bulls below diagonal
common three quarter sib group above diagonal

	CAN	DFS	NLD	AUS
CAN	0	52	8	127
DFS	37	0	9	67
NLD	6	6	0	13
AUS	127	41	13	0

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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
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  CAN    0    7   77    4   31
  DEU    7    0   36    9   15
  DFS   72   25    0   75   81
  NOR    4    8   59    0   35
  AUS   28   13   61   30    0
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RDC
--------
 common bulls below diagonal
 common three quarter sib group above diagonal
       CAN  DEU  DFS  NOR  AUS
 ------------------------------------------------------------------------
  CAN    0    3   74    4   31
  DEU    3    0   17    6   10
  DFS   69   11    0   76   84
  NOR    4    5   60    0   32
  AUS   28    9   63   27    0
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