

INTRODUCTION

The latest routine international evaluation for calving traits took place as scheduled at the Interbull Centre. Data from sixteen (16) countries were included in this evaluation.

International genetic evaluations for calving traits of bulls from Australia, Austria-Germany, Belgium, Canada, Denmark-Finland-Sweden, France, Germany, Hungary, Ireland, Israel, Italy, Netherlands, Norway, Switzerland, the United Kingdom, and the United States of America were computed. Brown Swiss, Holstein, and Red Dairy Cattle breed data were included in this evaluation.

CHANGES IN NATIONAL PROCEDURES

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

NOR RDC Bulls are modeled by sire of calf and sire of cow as correlated traits. Results are transformed to direct and maternal effect. The oldest bulls have only sire of cow data and the youngest have only sire of calf data. This create some instability among the oldest bulls and among the youngest bulls. New elite bulls also get a vast amount of 'sire of calf' data before the second batch daughters calves two years later. The magnitude and distribution of low correlation yearclasses and bulls with extreme changes was consistent with what we usually observes. Some of these bulls jumps back to the level they had two evaluations ago.

DEA BSW Corrected a bug causing a couple of cows to be in the data set twice in some cases (coming from different data bases, censored/uncensored, ...). That leads to the slight decrease in number of daughters for several bulls, but with almost no consequences on ebvs.

ITA HOL There are bulls losing info mainly due to pedigree corrections in our data-base.

GBR GUE Due to data changes, very few bulls lost herds /daughters for GUE

CHE BSW Introduced changes in pedigree: Each animal with unverified pedigree got a missing dam, sire or both.

HUN HOL new genetic base

CHE HOL Data from the beef cattle herdbook has been transferred to our database. Since there are also descendants of SIM, MON, RED and HOL bulls in the beef cattle herdbook our estimates for calving traits changed slightly. Change in type of proofs and publication rules

FRA BSW First time participating

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 in the 0lx-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

 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 calving (December Routine Evaluation 2015).
 Number of records for direct calving ease by breed

Country	BSW	GUE	HOL	JER	RDC	SIM
AUS			1698			
BEL			632			
CAN	123		11100		418	
CHE	2426		1840			
CZE						
DEA	5367					
DEU			16945		222	
DFS			11489		6448	
ESP						
EST						
FRA	302		10873			
FRM						
FRR						
GBR			2104			
HUN			1496			
IRL			1730		56	
ISR			324			
ITA			9447			
JPN						
KOR						
LTU						
LVA						
NLD	77		12777		31	
NOR					3512	
NZL			6288		972	
POL						
PRT						
SVK						
SVN						
URY						
USA	452		31844			
ZAF						
HRV						
No. Records	8747		120587		11659	
Pub. Proofs	9238	0	113082	0	11512	0

HOL dsb

	AUS	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	HUN	DEU
AUS	3.18										
CAN	0.50	6.94									
CHE	0.44	0.57	15.94								
DFS	0.79	0.74	0.48	13.67							
FRA	0.42	0.68	0.55	0.62	0.74						
ISR	0.61	0.62	0.53	0.79	0.63	1.59					
ITA	0.77	0.48	0.36	0.77	0.45	0.65	7.22				
NLD	0.38	0.69	0.62	0.62	0.63	0.64	0.43	3.77			
USA	0.38	0.64	0.60	0.61	0.67	0.60	0.43	0.61	0.07		
HUN	0.74	0.49	0.37	0.52	0.41	0.55	0.57	0.41	0.43	1.10	
DEU	0.69	0.69	0.54	0.88	0.59	0.85	0.57	0.61	0.60	0.49	11.56

HOL msb

	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	HUN	DEU
CAN	6.40									
CHE	0.88	20.14								
DFS	0.96	0.87	12.94							
FRA	0.89	0.79	0.87	0.92						
ISR	0.75	0.82	0.77	0.66	2.25					
ITA	0.51	0.54	0.46	0.52	0.69	9.30				
NLD	0.93	0.80	0.94	0.81	0.70	0.44	4.27			
USA	0.79	0.81	0.77	0.80	0.64	0.48	0.74	0.13		
HUN	0.47	0.54	0.47	0.47	0.49	0.51	0.47	0.44	1.22	
DEU	0.95	0.78	0.96	0.84	0.77	0.52	0.90	0.75	0.47	11.92

RDC dce

	CAN	DFS	NOR	NLD	DEU	IRL	NZL
CAN	6.51						
DFS	0.88	9.18					
NOR	0.84	0.94	12.89				
NLD	0.89	0.92	0.89	4.78			
DEU	0.85	0.91	0.89	0.89	11.52		
IRL	0.78	0.82	0.82	0.82	0.75	0.93	
NZL	0.76	0.81	0.77	0.78	0.77	0.80	2.74

RDC mce

	CAN	DFS	NOR	DEU
CAN	5.93			
DFS	0.78	10.77		
NOR	0.75	0.78	13.58	
DEU	0.85	0.83	0.77	9.53

^LAPPENDIX II. Number of common bulls

BSW

common bulls below diagonal
 common three quarter sib group above diagonal

	DEA	NLD	USA	CHE	CAN	FRA
DEA	0	53	152	500	69	177
NLD	40	0	19	36	13	34
USA	104	16	0	174	79	69
CHE	399	31	136	0	73	143
CAN	53	10	68	54	0	49
FRA	133	24	52	108	44	0

BSW

 common bulls below diagonal
 common three quarter sib group above diagonal
 DEA NLD USA CHE CAN FRA

DEA	0	55	90	422	28	128
NLD	44	0	22	33	9	32
USA	77	18	0	87	22	46
CHE	318	28	77	0	27	86
CAN	24	6	20	22	0	20
FRA	99	25	41	67	18	0

HOL

 common bulls below diagonal
 common three quarter sib group above diagonal
 AUS CAN CHE DFS FRA ISR ITA NLD USA GBR HUN DEU BEL IRL NZL

AUS	0	506	228	459	456	35	492	395	580	286	236	503	215	279	431
CAN	456	0	485	1057	1032	48	1388	753	2534	495	557	1687	312	364	562
CHE	187	366	0	350	364	20	424	339	537	214	202	648	240	226	228
DFS	342	749	287	0	1191	68	1305	1255	1566	606	474	1812	339	453	648
FRA	355	685	311	568	0	57	1460	1126	1740	671	539	1631	380	439	592
ISR	22	33	11	53	29	0	60	66	66	32	34	62	21	42	59
ITA	361	868	335	758	710	38	0	1128	2245	701	594	1936	356	451	651
NLD	228	351	244	622	362	50	448	0	1493	597	405	1734	341	471	729
USA	486	2454	430	964	843	49	1148	675	0	774	694	2453	340	484	830
GBR	218	303	169	261	263	10	321	192	372	0	305	763	215	320	328
HUN	172	452	147	313	323	24	409	199	544	169	0	699	193	223	275
DEU	402	1070	532	1107	750	47	992	938	1445	327	467	0	446	553	687
BEL	206	299	237	315	387	12	321	302	303	175	155	440	0	238	225
IRL	264	341	217	390	381	28	385	345	444	271	192	510	239	0	494
NZL	390	490	193	445	344	45	455	543	750	166	180	523	196	444	0

HOL

 common bulls below diagonal
 common three quarter sib group above diagonal
 CAN CHE DFS FRA ISR ITA NLD USA GBR HUN DEU BEL

CAN	0	428	828	807	49	1042	631	1689	430	530	1466	203
CHE	308	0	364	337	22	397	391	471	243	215	638	163
DFS	602	302	0	1189	76	1166	1317	1355	501	545	2002	233
FRA	488	289	487	0	68	1284	1198	1537	440	562	1735	257
ISR	31	13	53	32	0	68	76	79	46	48	85	15
ITA	682	311	686	553	41	0	1037	1723	494	606	1770	227
NLD	418	317	789	453	57	538	0	1323	457	500	1956	267
USA	1464	378	853	659	55	966	734	0	555	726	2242	229
GBR	443	233	470	397	30	506	448	595	0	299	567	142
HUN	438	164	370	320	29	438	317	595	283	0	783	133
DEU	841	515	1064	673	59	913	1170	1222	577	527	0	308
BEL	183	144	198	240	8	177	229	186	140	103	254	0

HOL

common bulls below diagonal

common three quarter sib group above diagonal

	AUS	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	HUN	DEU
AUS	0	353	156	328	274	21	342	341	393	134	346
CAN	272	0	482	1029	888	45	1346	1033	2259	486	1673
CHE	114	366	0	360	353	20	423	475	503	185	650
DFS	192	783	299	0	1044	70	1326	1517	1471	447	1854
FRA	178	625	304	533	0	46	1268	1157	1343	469	1534
ISR	9	32	11	54	27	0	60	70	62	33	62
ITA	178	865	335	785	616	38	0	1384	2074	536	1933
NLD	226	879	423	1102	686	58	889	0	1639	460	2157
USA	267	2246	399	958	640	47	1065	1154	0	581	2269
HUN	71	384	131	292	281	24	367	309	434	0	636
DEU	214	1074	534	1162	717	47	993	1603	1337	425	0

HOL

common bulls below diagonal

common three quarter sib group above diagonal

	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	HUN	DEU
CAN	0	425	817	735	48	1024	739	1502	468	1423
CHE	307	0	370	331	22	396	454	435	200	630
DFS	624	305	0	1091	79	1174	1444	1153	510	2020
FRA	464	281	473	0	62	1174	1166	1155	500	1611
ISR	31	13	53	29	0	68	80	71	45	84
ITA	679	310	703	505	41	0	1154	1446	559	1754
NLD	604	398	997	557	61	707	0	1218	503	2118
USA	1376	354	854	543	53	923	854	0	587	1876
HUN	387	151	345	292	27	402	347	512	0	717
DEU	803	503	1077	612	58	889	1428	1100	476	0

RDC

common bulls below diagonal

common three quarter sib group above diagonal

	CAN	DFS	NOR	NLD	DEU	IRL	NZL
CAN	0	112	4	3	10	3	49
DFS	112	0	99	24	54	17	101
NOR	4	72	0	14	20	48	33
NLD	3	24	13	0	11	8	8
DEU	10	48	20	11	0	7	18
IRL	3	14	47	7	7	0	9
NZL	49	83	31	8	17	9	0

RDC

common bulls below diagonal

common three quarter sib group above diagonal

	CAN	DFS	NOR	DEU
CAN	0	73	3	6
DFS	69	0	102	36
NOR	3	79	0	12
DEU	6	29	12	0