

INTRODUCTION

The latest routine international evaluation for calving traits took place as scheduled at the Interbull Centre. Data from seventeen (17) 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, Spain, Switzerland, the United Kingdom, Slovak Republic 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:

ESP (HOL)	Removal of an edit deleting data from calvings that produced very short lactations, as an effect some additional information have been added even for old bulls
AUS (ALL)	Wrongly allocated parents or genetic groups have been corrected, causing some bulls to be no longer included in the evaluation as their daughters' count has fell under the minimum treshold of 10 daughters. Correction of a bug in the program generating type of proof.
CHE (ALL)	Manual data edits and removal of data errors cause decrease in information. In BSW changes in of herd-year-season assignment causes small decrease in EDC.
USA (ALL)	Seasonal trend causing some decrease in information

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 calving (August Routine Evaluation 2019).
Number of records for direct calving ease by breed

Country	BSW	GUE	HOL	JER	RDC	SIM
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AUS		6118	
BEL		1030	
CAN	157	12395	485
CHE	1891	2240	
CZE			
DEA	5290		
DEU		18627	253
DFS		10189	6335
ESP		2109	
EST			
FRA	335	12183	
FRM			
GBR		2663	
HUN		1728	
IRL		1829	48
ISR		448	
ITA		9673	
JPN			
KOR			
LTU			
LVA			
NLD	132	14459	63
NOR			3832
NZL		7262	1086
POL			
PRT			
SVK		656	
SVN			
URY			
USA	548	35870	
ZAF			
HRV			
MEX			
CAM			

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No. Records      8353                139479                12102
Pub. Proofs      8700                125606                12665                0
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^LAPPENDIX I. Sire standard deviations in diagonal and genetic correlations below diagonal

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BSW      dce
-----
      DEA      NLD      USA      CHE      CAN      FRA
DEA      9.82
NLD      0.91      5.82
USA      0.78      0.82      0.13
CHE      0.93      0.96      0.79      12.20
CAN      0.86      0.96      0.86      0.95      7.58
FRA      0.80      0.91      0.85      0.86      0.90      0.74
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BSW      mce
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      DEA      NLD      USA      CHE      CAN      FRA
DEA     10.87
NLD      0.73      4.99
USA      0.77      0.76      0.14
CHE      0.88      0.78      0.86      16.01
CAN      0.60      0.80      0.84      0.75      6.36
FRA      0.90      0.80      0.90      0.96      0.84      0.97
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HOL      dce
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	AUS	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	GBR	HUN	DEU	BEL	IRL	NZL	SVK	ESP
AUS	0.04																
CAN	0.77	6.57															
CHE	0.79	0.96	10.35														
DFS	0.77	0.92	0.90	11.74													
FRA	0.80	0.96	0.96	0.91	0.92												
ISR	0.78	0.91	0.86	0.88	0.87	2.84											
ITA	0.70	0.77	0.77	0.77	0.76	0.78	7.20										
NLD	0.83	0.97	0.94	0.93	0.93	0.90	0.77	6.92									
USA	0.72	0.87	0.87	0.82	0.90	0.82	0.75	0.82	0.13								
GBR	0.72	0.80	0.78	0.77	0.78	0.82	0.76	0.84	0.75	0.07							
HUN	0.70	0.77	0.77	0.76	0.76	0.79	0.76	0.77	0.75	0.76	1.23						
DEU	0.81	0.91	0.89	0.88	0.93	0.84	0.76	0.91	0.81	0.78	0.76	13.01					
BEL	0.70	0.77	0.77	0.76	0.76	0.79	0.76	0.76	0.75	0.76	0.76	0.76	9.95				
IRL	0.76	0.92	0.93	0.89	0.93	0.91	0.77	0.94	0.84	0.77	0.77	0.86	0.77	0.11			
NZL	0.81	0.79	0.80	0.80	0.77	0.78	0.76	0.82	0.76	0.76	0.76	0.77	0.75	0.81	3.02		
SVK	0.71	0.77	0.78	0.78	0.77	0.80	0.77	0.78	0.77	0.78	0.78	0.77	0.78	0.78	0.78	12.66	
ESP	0.70	0.77	0.77	0.77	0.77	0.79	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.78	11.10

HOL	mce														
	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	GBR	HUN	DEU	BEL	SVK	ESP	
CAN	6.45														
CHE	0.88	13.61													
DFS	0.82	0.70	12.18												
FRA	0.92	0.97	0.76	1.29											
ISR	0.81	0.72	0.80	0.76	2.63										
ITA	0.80	0.86	0.60	0.85	0.72	9.43									
NLD	0.82	0.77	0.85	0.80	0.67	0.57	5.24								
USA	0.88	0.90	0.76	0.95	0.79	0.82	0.78	0.15							
GBR	0.65	0.78	0.57	0.76	0.62	0.64	0.61	0.69	0.04						
HUN	0.55	0.56	0.55	0.55	0.59	0.55	0.56	0.55	0.56	1.25					
DEU	0.82	0.73	0.92	0.78	0.74	0.65	0.84	0.78	0.59	0.55	13.19				
BEL	0.68	0.71	0.73	0.75	0.63	0.62	0.77	0.69	0.58	0.56	0.76	10.86			
SVK	0.56	0.58	0.56	0.56	0.64	0.56	0.56	0.56	0.57	0.56	0.55	0.57	16.05		
ESP	0.72	0.69	0.66	0.73	0.70	0.63	0.68	0.74	0.58	0.56	0.69	0.65	0.57	12.35	

HOL	dsb										
	AUS	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	HUN	DEU
AUS	0.04										
CAN	0.62	7.42									
CHE	0.44	0.57	16.56								
DFS	0.70	0.87	0.53	12.65							
FRA	0.48	0.74	0.61	0.66	0.76						
ISR	0.82	0.75	0.45	0.75	0.53	1.76					
ITA	0.64	0.56	0.36	0.62	0.41	0.65	7.20				
NLD	0.43	0.77	0.72	0.70	0.67	0.56	0.35	4.28			
USA	0.43	0.75	0.63	0.63	0.70	0.45	0.36	0.63	0.07		
HUN	0.62	0.53	0.37	0.53	0.36	0.72	0.53	0.36	0.37	1.10	
DEU	0.46	0.82	0.60	0.81	0.63	0.70	0.43	0.76	0.62	0.40	12.65

HOL	msb						
	CAN	CHE	DFS	FRA	ISR	ITA	NLD
CAN	6.17						
CHE	0.85	20.23					
DFS	0.95	0.82	11.64				
FRA	0.89	0.85	0.87	0.93			
ISR	0.90	0.82	0.86	0.80	1.75		
ITA	0.53	0.60	0.52	0.54	0.66	9.44	
NLD	0.93	0.77	0.94	0.81	0.82	0.52	4.27

USA	0.88	0.82	0.84	0.88	0.81	0.52	0.78	0.13		
HUN	0.54	0.54	0.53	0.53	0.53	0.47	0.53	0.52	1.22	
DEU	0.95	0.85	0.96	0.84	0.89	0.53	0.94	0.82	0.53	13.27

RDC dce

	CAN	DFS	NOR	NLD	DEU	IRL	NZL		
CAN	6.46								
DFS	0.93	11.35							
NOR	0.90	0.96	12.83						
NLD	0.96	0.93	0.93	4.46					
DEU	0.91	0.90	0.95	0.92	13.41				
IRL	0.88	0.85	0.90	0.87	0.81	0.08			
NZL	0.79	0.79	0.79	0.83	0.79	0.82	2.74		

RDC mce

	CAN	DFS	NOR	DEU		
CAN	7.01					
DFS	0.81	12.19				
NOR	0.71	0.92	15.39			
DEU	0.79	0.85	0.74	12.40		

^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	96	185	473	92	188
NLD	85	0	34	60	18	48
USA	136	28	0	196	104	74
CHE	382	58	147	0	87	127
CAN	77	15	92	70	0	52
FRA	133	35	51	87	43	0

BSW

common bulls below diagonal						
common three quarter sib group above diagonal						
	DEA	NLD	USA	CHE	CAN	FRA
DEA	0	89	110	423	33	133
NLD	83	0	30	56	13	40
USA	92	25	0	100	28	47
CHE	320	55	86	0	28	87
CAN	27	10	25	24	0	22
FRA	94	35	41	65	20	0

BSW

BSW

GUE

GUE

GUE

GUE

HOL

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-----
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  SVK  ESP
-----
AUS    0 1143  400  896  963   67 1037 1018 1446  608  427 1153  430  385  888  178  497
CAN 1079    0  636 1132 1273   77 1644 1186 3210  684  673 2021  511  342  658  270  820
CHE  347  522    0  395  478   31  526  524  704   296  240  804  339  215  284  122  329
DFS  566  840  321    0 1244   89 1313 1328 1604  670  508 1786  481  377  679  226  549
FRA  647  884  415  628    0   80 1625 1454 1993  800  635 1949  562  388  676  271  694
ISR   41   53   16   62   43    0   87   97  105   54   50   93   40   46   76   29   57
ITA  709 1279  437  850  884   57    0 1412 2510  886  698 2211  531  402  730  288  836
NLD  742  956  463  790  721   69  887    0 2006  809  528 2334  604  472  912  299  606
USA 1303 3428  594 1008 1044   89 1661 1371    0 1026  821 2880  554  457  955  335  922
GBR  424  512  239  342  373   25  519  443  637    0  360  961  332  327  408  156  409
HUN  262  542  168  327  380   32  488  289  644   206    0  806  264  212  317  169  388
DEU  834 1478  690 1121 1015   74 1338 1775 1924  524  519    0  700  482  787  472  905
BEL  405  496  340  416  564   22  510  616  514   296  204  724    0  250  318  144  371
IRL  339  311  201  301  336   28  335  395  422   285  171  425  247    0  483   94  216
NZL  776  593  241  451  423   57  545  751  900   246  197  615  276  431    0  165  339
SVK   84  190   56  116  171   14  188  183  232    66  108  372   78   41  101    0  157
ESP  384  610  268  432  552   31  641  482  658   301  285  590  365  191  270   78    0
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HOL

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common bulls below diagonal
common three quarter sib group above diagonal
  CAN  CHE  DFS  FRA  ISR  ITA  NLD  USA  GBR  HUN  DEU  BEL  SVK  ESP
-----
CAN    0  538 1019 1019   69 1249  944 2132  629  635 1756  443  233  764
CHE  415    0  445  440   33  469  539  594  342  255  760  340  113  304
DFS  836  384    0 1356   96 1294 1583 1592  669  618 2234  513  220  588
FRA  678  379  646    0   82 1401 1430 1770  603  656 2029  557  229  678
ISR   43   16   65   41    0   85   99  109   66   59  107   43   23   59
ITA  946  386  878  707   51    0 1257 1987  679  699 1973  510  237  765
NLD  852  483 1225  783   77  894    0 1642  682  616 2343  642  263  606
USA 2047  488 1144  867   89 1324 1222    0   793  848 2679  509  283  890
GBR  685  324  660  559   47  706  733  903    0  387  787  361  145  412
HUN  530  190  422  387   37  522  407  709  353    0  882  281  164  415
DEU 1189  637 1396  911   81 1145 1812 1685  831  590    0  680  348  913
BEL  440  332  477  560   23  469  681  464  411  226  700    0  125  341
SVK  158   50  111  119    8  156  162  195   86  111  252   64    0  142
ESP  465  237  416  453   26  517  460  524  379  289  488  315   60    0
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HOL

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-----
common bulls below diagonal
common three quarter sib group above diagonal
  AUS  CAN  CHE  DFS  FRA  ISR  ITA  NLD  USA  HUN  DEU
-----
AUS    0 1095  398  900  826   67 1035 1135 1339  315 1152
CAN 1067    0  633 1091 1130   73 1617 1329 2925  487 2013
CHE  345  522    0  396  466   31  525  594  666  189  808
DFS  570  842  321    0 1106   91 1318 1441 1488  408 1801
FRA  585  824  407  582    0   69 1470 1405 1595  472 1855
ISR   41   52   16   62   41    0   87   98  101   35   93
ITA  708 1276  437  855  802   57    0 1573 2378  533 2208
NLD  945 1225  553 1008  907   77 1174    0 1997  462 2563
USA 1214 3206  559  964  842   87 1585 1576    0  585 2705
HUN  196  382  136  256  282   26  368  311  437    0  632
DEU  837 1487  693 1127  981   74 1338 2117 1822  414    0
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HOL

common bulls below diagonal

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common three quarter sib group above diagonal
  CAN  CHE  DFS  FRA  ISR  ITA  NLD  USA  HUN  DEU
-----
CAN    0  535 1005  947   68 1233  952 1940  468 1716
CHE   414    0  451  432   33  467  554  560  210  750
DFS   853  392    0 1256   96 1298 1669 1385  510 2244
FRA   653  369  635    0   77 1322 1388 1390  505 1907
ISR    43   16   65   39    0   85  100  101   45  106
ITA   944  385  895  666   51    0 1299 1742  551 1947
NLD   862  499 1300  765   75  921    0 1513  511 2401
USA  1951  464 1138  746   87 1283 1201    0  588 2329
HUN   387  154  346  296   27  402  357  514    0  710
DEU  1150  619 1409  846   80 1114 1802 1558  469    0
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JER

JER

JER

JER

RDC

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common bulls below diagonal
common three quarter sib group above diagonal
  CAN  DFS  NOR  NLD  DEU  IRL  NZL
-----
CAN    0  152   5   4   11   3   58
DFS   154    0  117  44   62  14  123
NOR    4   92   0   35   21  44   37
NLD    4   42  34   0   21  11   20
DEU   11   55  20   20   0   5   18
IRL    3   11  43  11   5   0   9
NZL   59  105  36  20  18   9   0
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RDC

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common bulls below diagonal
common three quarter sib group above diagonal
  CAN  DFS  NOR  DEU
-----
CAN    0   92   4   9
DFS   92    0  125  40
NOR    4   98   0  13
DEU    9   32  13   0
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RDC

RDC

SIM

SIM

SIM

SIM