

## INTRODUCTION

The latest routine international evaluation for calving traits took place as scheduled at the Interbull Centre. Data from twenty-one (21) 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, New Zealand, Norway, Japan, Spain, Switzerland, the United Kingdom, Slovak Republic, Poland 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:

JPN (HOL)	Some changes in proofs caused by additional records and in EDCs caused by modification of pedigree.
FRA (HOL)	Several missing bulls in current submission. Those bulls don't appear anymore among the publication files provided by the partner in charge of proofs publication. Bulls affected concern « old » bulls, 98% of them being born before 1995. Moreover, pedigree updates have also been carried out.
AUS (HOL)	Drops in information due to data clean-up such as pedigree changes, status change of a bull which leads to a good number of bulls no longer being qualifying.
DEA (BSW)	Base change
CAN (ALL)	Base change
DEU (ALL)	Base change
CHE (ALL)	Base change
IRL (HOL, RDC)	Some drops in information due to continuous parentage update
ISR (HOL)	Base change, few drops in information due to data edits
ITA (HOL)	Base change, drop of one year of phenotypic data.
POL (HOL)	New organisation, CGen, replacing NIAP. New model and estimated new genetic parameters as part of a single step evaluation. New base change to be aligned with production traits. Only bulls with a minimum number of 10 herds were submitted. A new data editing pipeline has been implemented including stricter filters on herd size, contemporary group size, outliers identification, and the cows' breed causing a reduction in the number of daughters and herds for almost all the bulls in the evaluation. Applied the mtedc software for EDC calculation. Change of Type Of Proof from 12 to 11 caused by a new procedure for setting type of proof: The previous procedure counted daughters based on milk yield and used this information to set the bulls type of proof for all traits. Currently, the Type Of Proof is based on each trait-specific daughter count. Changed of scale from four points to binary for DCE and MCE. Pedigree clean-up and verification. Some animals appear to be missing in this evaluation because they were either identified as duplicate of another animal during pedigree clean-up or dropped in the numbers of daughters or herds below publication criteria or there were breed inconsistency of bulls which actually were not HOL
NLD (HOL, RDC)	Base change, for HOL also finetuned of the EDC calculation causing drop in information.
NZL (HOL, RDC)	Some drops in information, especially EDC, added a filter for which if a daughters breed didn't match a bulls breed the daughter got dropped from a bulls proof, this has affected the national herd because of the number of cross bred animals present.
HUN (HOL)	DSB-MSB: Used to participate with very old data now removed from the evaluation. DCE: Changes in the type of proof for some bulls makes them no longer meeting the minimum requirements for inclusion.

## INTERBULL CHANGES COMPARED TO THE PREVIOUS ROUTINE RUN

A new document called confdoc\_DEFINITION{runid}.itb has been introduced reporting all the trait definitions applied by countries as reported in the PREP.

During 2023-2024, Interbull Centre and the Interbull Technical Committee (ITC) have worked on developing a new procedures for adjusting of the international correlations after a given test run in case countries would decide NOT TO implement the changes tested in the next routine run. Until now, the relative difference between the previous routine's and test run's correlations, for each pair of countries, was assessed and the average value of the two was used whenever such difference did exceed a threshold of 0.01. Otherwise, correlations from the latest test run were used. However, in some cases, the difference in correlations between routine/test runs were way above a 1% difference so that by using the average value the newly derived correlations would still be greatly affected by the changes tested but not implemented. This remark has been made in few occasions by some participating countries. A new approach proposed by Peter Sullivan, was developed and extensively tested. The new approach is based on first identifying the relative impact of the changes tested by a country during the test run (but not implemented in a routine run) and then correcting the whole correlation matrix detracting such estimated impact. This new approach would assure that the new correlations would be free from any effect from any changes tested but not implemented. The new procedure has been fully developed during 2023 and extensively tested during 2024 and introduced officially in the April 2025 routine evaluation.

## 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>.

From this year an extra MACE test run has been scheduled in May, data submissions' deadline and target for distribution of results are all reported in the above link.

#### 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.

^LTable 1. National evaluation data considered in the Interbull evaluation for calving (April Routine Evaluation 2025).  
Number of records for direct calving ease by breed

Country	BSW	GUE	HOL	JER	RDC	SIM
AUS			6894			
BEL			1361			
CAN	175		13888		549	
CHE	1774		2384			
CZE						
DEA	3791					
DEU			21228		318	
DFS			11578		6769	
ESP			2528			
EST						
FRA	427		13634			
FRM						
GBR			3451			
HUN			1745			
IRL			1165		24	
ISR			671			
ITA			8783			
JPN			4862			
KOR						
LTU						
LVA						
NLD	206		16131		90	
NOR					4071	
NZL			610		33	
POL			7738			
PRT						
SVK			754			
SVN						
URY						
USA	580		38560			
ZAF						
HRV						
CAM						
=====						
No. Records	6953		157965		11854	
Pub. Proofs	7220	0	133669	0	12222	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	9.28					
NLD	0.82	5.50				
USA	0.63	0.84	0.13			
CHE	0.84	0.92	0.79	10.68		
CAN	0.78	0.94	0.90	0.91	7.84	
FRA	0.63	0.74	0.74	0.72	0.78	0.51

BSW mce						
	DEA	NLD	USA	CHE	CAN	FRA
DEA	9.71					
NLD	0.62	4.58				
USA	0.67	0.76	0.15			
CHE	0.70	0.69	0.84	13.16		
CAN	0.32	0.74	0.84	0.70	6.27	
FRA	0.83	0.74	0.78	0.88	0.70	0.78

HOL dce																			
	AUS	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	GBR	HUN	DEU	BEL	IRL	SVK	ESP	POL	JPN	NZL
AUS	0.04																		
CAN	0.74	8.03																	
CHE	0.70	0.92	8.81																
DFS	0.72	0.92	0.84	11.13															
FRA	0.69	0.86	0.83	0.79	0.73														
ISR	0.69	0.82	0.65	0.84	0.70	2.64													
ITA	0.37	0.44	0.50	0.46	0.40	0.47	4.22												
NLD	0.81	0.97	0.89	0.93	0.83	0.82	0.45	7.20											
USA	0.70	0.90	0.88	0.84	0.83	0.80	0.45	0.87	0.12										
GBR	0.68	0.80	0.64	0.71	0.64	0.67	0.27	0.82	0.66	6.15									
HUN	0.44	0.53	0.45	0.38	0.48	0.55	0.21	0.54	0.50	0.47	1.25								
DEU	0.79	0.94	0.89	0.90	0.86	0.79	0.40	0.93	0.86	0.75	0.54	12.33							
BEL	0.54	0.58	0.66	0.63	0.62	0.45	0.32	0.65	0.62	0.38	0.48	0.58	8.75						
IRL	0.58	0.76	0.76	0.75	0.68	0.70	0.39	0.79	0.76	0.48	0.45	0.73	0.51	0.11					
SVK	0.38	0.22	0.20	0.20	0.20	0.24	0.20	0.21	0.20	0.20	0.22	0.20	0.22	0.22	13.05				
ESP	0.60	0.85	0.81	0.73	0.78	0.64	0.41	0.83	0.79	0.56	0.55	0.83	0.58	0.69	0.20	11.64			
POL	0.37	0.39	0.37	0.39	0.36	0.40	0.23	0.43	0.35	0.26	0.19	0.44	0.31	0.26	0.19	0.30	19.13		
JPN	0.70	0.80	0.78	0.80	0.71	0.69	0.43	0.82	0.75	0.62	0.51	0.78	0.58	0.64	0.30	0.67	0.39	2.67	
NZL	0.67	0.65	0.56	0.67	0.64	0.57	0.27	0.72	0.65	0.52	0.35	0.64	0.48	0.80	0.25	0.58	0.28	0.45	4.61

HOL mce																
	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	GBR	HUN	DEU	BEL	SVK	ESP	POL	JPN
CAN	8.08															
CHE	0.83	11.48														
DFS	0.84	0.67	11.48													
FRA	0.76	0.79	0.81	0.99												
ISR	0.85	0.68	0.68	0.80	2.60											
ITA	0.30	0.23	0.40	0.39	0.47	7.16										
NLD	0.78	0.71	0.78	0.77	0.77	0.42	4.76									
USA	0.92	0.89	0.77	0.76	0.86	0.27	0.77	0.15								
GBR	0.43	0.45	0.38	0.58	0.39	0.21	0.46	0.44	5.87							
HUN	0.37	0.30	0.36	0.34	0.45	0.22	0.38	0.36	0.27	1.28						
DEU	0.85	0.70	0.90	0.81	0.79	0.41	0.81	0.80	0.44	0.41	12.17					
BEL	0.64	0.68	0.66	0.69	0.56	0.33	0.76	0.66	0.42	0.42	0.71	9.71				
SVK	0.23	0.27	0.23	0.23	0.36	0.23	0.22	0.23	0.37	0.24	0.22	0.40	15.27			
ESP	0.78	0.63	0.85	0.74	0.77	0.33	0.79	0.71	0.34	0.49	0.87	0.64	0.25	12.23		
POL	0.48	0.43	0.53	0.46	0.61	0.23	0.46	0.47	0.26	0.22	0.57	0.46	0.23	0.51	20.83	
JPN	0.70	0.73	0.68	0.80	0.72	0.43	0.74	0.70	0.53	0.49	0.74	0.70	0.43	0.72	0.33	1.74

HOL dsb												
	AUS	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	DEU	POL	JPN

AUS	0.04												
CAN	0.61	8.62											
CHE	0.23	0.68	17.62										
DFS	0.64	0.88	0.67	11.10									
FRA	0.27	0.61	0.54	0.56	0.61								
ISR	0.77	0.70	0.32	0.67	0.33	1.60							
ITA	0.42	0.55	0.48	0.50	0.38	0.49	6.67						
NLD	0.34	0.80	0.75	0.73	0.58	0.42	0.49	4.56					
USA	0.35	0.73	0.64	0.63	0.59	0.39	0.40	0.62	0.07				
DEU	0.52	0.92	0.77	0.86	0.56	0.59	0.55	0.83	0.68	12.03			
POL	0.36	0.63	0.64	0.68	0.43	0.18	0.47	0.63	0.51	0.69	9.66		
JPN	0.37	0.69	0.69	0.64	0.55	0.44	0.49	0.65	0.62	0.69	0.51	1.55	

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HOL      msb  
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	CAN	CHE	DFS	FRA	ISR	ITA	NLD	USA	DEU	POL	JPN		
CAN	6.64												
CHE	0.80	16.38											
DFS	0.95	0.76	10.45										
FRA	0.81	0.75	0.84	0.79									
ISR	0.90	0.73	0.86	0.69	1.70								
ITA	0.66	0.49	0.69	0.62	0.64	6.54							
NLD	0.94	0.75	0.95	0.79	0.86	0.71	4.37						
USA	0.88	0.82	0.85	0.77	0.83	0.54	0.77	0.12					
DEU	0.95	0.79	0.97	0.81	0.87	0.72	0.95	0.82	12.46				
POL	0.82	0.75	0.79	0.75	0.78	0.59	0.76	0.75	0.78	14.65			
JPN	0.79	0.79	0.78	0.80	0.78	0.63	0.75	0.77	0.79	0.75	2.36		

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RDC      dce  
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	CAN	DFS	NOR	NLD	DEU	IRL	NZL						
CAN	7.04												
DFS	0.88	10.78											
NOR	0.74	0.90	11.72										
NLD	0.95	0.90	0.87	4.79									
DEU	0.93	0.88	0.83	0.92	13.33								
IRL	0.74	0.72	0.76	0.78	0.72	0.12							
NZL	0.64	0.66	0.64	0.69	0.63	0.76	4.27						

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RDC      mce  
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	CAN	DFS	NOR	DEU									
CAN	7.18												
DFS	0.73	11.51											
NOR	0.57	0.77	13.40										
DEU	0.83	0.87	0.65	11.63									

^LAPPENDIX II. Number of common bulls

BSW

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common bulls below diagonal  
common three quarter sib group above diagonal

	DEA	NLD	USA	CHE	CAN	FRA							
DEA	0	129	192	461	101	209							
NLD	119	0	50	88	22	63							
USA	149	45	0	160	112	76							
CHE	391	80	127	0	90	131							
CAN	88	20	103	76	0	60							
FRA	161	51	60	98	52	0							

BSW

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common bulls below diagonal

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

DEA	0	132	112	518	37	171
NLD	117	0	40	91	17	57
USA	102	37	0	107	32	52
CHE	422	87	93	0	34	117
CAN	33	14	30	29	0	24
FRA	133	50	46	88	21	0

BSW

BSW

GUE

GUE

GUE

GUE

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	SVK	ESP	POL	JPN	NZL	
AUS	0	1475	455	1095	1117	95	1070	1265	1846	811	440	1446	533	218	204	617	861	637	134
CAN	1423	0	742	1452	1546	134	1950	1629	3995	1020	695	2572	657	205	311	1010	1512	1165	53
CHE	398	655	0	448	524	34	561	616	770	379	196	914	382	118	114	349	479	367	21
DFS	747	1165	386	0	1497	122	1345	1719	1969	867	523	2263	622	210	265	706	1199	697	62
FRA	813	1194	466	903	0	93	1632	1774	2272	957	665	2370	738	183	305	883	1546	881	57
ISR	60	91	17	84	55	0	123	148	202	94	54	133	56	46	38	78	133	85	16
ITA	835	1698	491	1031	1082	81	0	1612	2717	1107	688	2539	672	205	325	1007	1645	1069	42
NLD	984	1442	581	1183	1103	104	1292	0	2472	1119	559	3157	831	277	351	808	1607	860	76
USA	1762	4355	671	1387	1363	188	2248	1887	0	1434	841	3504	705	257	404	1135	2188	1559	75
GBR	621	854	332	520	555	54	817	759	1076	0	379	1322	467	234	186	529	942	601	32
HUN	274	556	131	335	412	34	505	315	658	216	0	832	282	99	173	401	511	426	20
DEU	1133	2098	838	1599	1477	101	1830	2692	2685	871	544	0	940	257	525	1122	2327	1215	53
BEL	497	630	377	550	760	29	672	848	659	415	210	974	0	159	167	457	603	411	23
IRL	203	175	103	175	165	28	181	255	239	214	74	228	147	0	53	121	192	121	65
SVK	98	215	50	141	196	19	221	227	288	82	110	417	96	24	0	180	285	192	12
ESP	486	817	295	588	774	45	824	692	912	396	285	801	454	110	91	0	821	617	31
POL	686	1369	369	938	1113	99	1375	1420	2244	759	360	2028	544	159	186	632	0	889	28
JPN	483	804	278	483	470	43	663	587	1034	387	232	720	324	98	87	410	564	0	27
NZL	114	32	15	33	29	12	27	48	59	16	11	35	17	53	6	19	20	16	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	SVK	ESP	POL	JPN	
CAN	0	683	1370	1280	116	1558	1352	2634	934	653	2197	598	276	779	1300	1170
CHE	586	0	576	575	48	589	707	737	445	243	944	414	123	340	510	398
DFS	1213	527	0	1666	129	1441	2158	2008	926	632	2811	692	264	682	1497	944
FRA	978	516	1010	0	101	1414	1873	1966	805	687	2446	745	265	732	1540	1079
ISR	72	24	88	56	0	120	147	197	105	62	147	59	31	68	131	96
ITA	1325	514	1218	929	80	0	1494	2311	916	646	2224	625	268	768	1521	1087
NLD	1287	675	1830	1254	108	1292	0	2162	1013	663	3279	859	320	696	1676	1019
USA	2676	642	1652	1152	182	1956	1797	0	1200	852	3170	660	335	870	2051	1703
GBR	1017	423	944	816	80	984	1101	1398	0	401	1145	493	176	498	840	609
HUN	548	179	435	426	40	498	452	720	368	0	900	304	175	367	547	525
DEU	1691	856	2034	1396	109	1617	2828	2361	1217	603	0	908	394	902	2352	1386
BEL	587	411	656	767	34	615	925	606	543	240	937	0	156	411	584	418
SVK	191	50	145	150	15	189	213	243	115	119	289	85	0	160	245	200
ESP	618	285	595	618	37	656	631	712	481	285	650	397	83	0	644	562
POL	1134	393	1227	1060	97	1280	1491	2056	869	393	2012	513	175	489	0	932

JPN 744 292 584 480 46 622 609 979 493 290 701 319 85 375 537 0

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	DEU	POL	JPN
AUS	0	1430	445	1100	991	95	1073	1426	1717	1447	804	648
CAN	1413	0	717	1408	1399	130	1964	1903	3670	2560	1409	1193
CHE	391	631	0	440	517	33	553	665	715	894	426	368
DFS	753	1170	380	0	1358	124	1355	1872	1833	2278	1121	711
FRA	762	1131	460	866	0	82	1590	1783	1842	2281	1422	885
ISR	60	90	17	84	52	0	125	149	198	135	126	87
ITA	841	1728	487	1048	1083	85	0	1847	2639	2552	1566	1108
NLD	1238	1888	645	1455	1384	114	1617	0	2589	3521	1588	973
USA	1668	4120	615	1335	1142	185	2224	2298	0	3274	1941	1582
DEU	1139	2106	815	1605	1459	101	1879	3226	2555	0	2114	1249
POL	640	1279	323	859	1017	93	1317	1417	2005	1804	0	854
JPN	493	841	280	497	478	45	694	686	1085	749	553	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	DEU	POL	JPN
CAN	0	682	1376	1211	115	1663	1395	2435	2153	1255	1189
CHE	586	0	588	570	48	629	717	696	925	491	407
DFS	1251	538	0	1574	132	1581	2230	1820	2822	1461	978
FRA	956	514	1006	0	96	1518	1776	1608	2315	1472	1057
ISR	72	24	90	54	0	124	147	192	144	128	98
ITA	1401	548	1319	972	84	0	1701	2380	2490	1583	1180
NLD	1379	690	1951	1258	109	1468	0	1970	3242	1607	1058
USA	2562	610	1663	1050	181	2038	1772	0	2781	1843	1593
DEU	1638	831	2054	1322	106	1738	2824	2179	0	2181	1409
POL	1097	378	1195	1007	94	1303	1448	1873	1838	0	918
JPN	772	302	617	491	48	664	660	1016	727	547	0

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JER

JER

JER

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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	178	6	5	11	2	0
DFS	183	0	163	61	97	9	3
NOR	5	139	0	53	33	24	2
NLD	5	59	52	0	27	7	1
DEU	11	89	31	26	0	3	1
IRL	2	6	23	7	2	0	0
NZL	0	3	2	1	1	0	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	118	5	9
DFS	116	0	148	63

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NOR	4	122	0	20
DEU	9	55	19	0

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