INTRODUCTION

The latest genomic routine international evaluation for conformation traits took place as scheduled at the Interbull Centre. Data from twenty (22) countries were included in this evaluation.

International genetic evaluations for calving traits of bulls from Australia, Belgium, Canada, Switzerland, Czech Republic, Germany, Denmark-Finland-Sweden, Spain, France, United Kingdom, Hungary, Ireland, Italy, Japan, Korea, The Netherlands, Norway, New Zealand, Poland, South Africa, Estonia, Slovenia, Portugal and the United States of America were computed.
Holstein data were included in this evaluation.

BEL, CAN, DEU, ESP, FRA, AUS, DFS, GBR, ITA, NLD, POL submitted GEBVs.

ang:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
bcs:	,	CAN,	DEU,	,	FRA,	,	,	GBR,	ITA,	NLD,
bde:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
cwi:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
fan:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
ftl:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
ftp:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
fua:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
loc:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD,
ocs:	BEL,	CAN,	DEU,	ESP,	FRA,	AUS,	,	GBR,	ITA,	NLD, POL
ofl:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
ous:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
ran:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
rlr:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
rls:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
rtp:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
ruh:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
rwi:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
sta:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
ude:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL
usu:	BEL,	CAN,	DEU,	ESP,	FRA,	,	DFS,	GBR,	ITA,	NLD, POL

CHANGES IN NATIONAL PROCEDURES

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

DFS (HOL) Adjusted their regression procedure.

INTERBULL CHANGES COMPARED TO THE DECEMBER ROUTINE RUN

No changes in Interbull procedures

DATA AND METHOD OF ANALYSIS

Eleven Holstein populations sent GEBV data for up to 38 traits, while classical EBVs for the same traits were used in the analyses. Young bull GEBVs from the GEBV providers have been converted to the scales of all countries participating in classical MACE. A bull will get a MACE EBV or a GMACE EBV but not both.
From those eleven countries, National GEBVs of bulls less than seven years of age and with no classical MACE proofs were included for the breeding value prediction with a further requirement of either a MACE-PA or a GMACE-PA (for young genomic bulls with young genomic sires) being available.

SCIENTIFIC LITERATURE

The international genetic evaluation procedure is based on international work described in the following scientific publications:

VanRaden, P.M. and Sullivan, P.G. 2010. International genomic evaluation methods for dairy cattle. Gen. Sel. Evol. 42:7

Sullivan, P.G. and Jakobsen, J.H. 2012. Robust GMACE for young bulls methodology. Interbull Bulletin 45, Article 1.

Sullivan, P.G. 2012a. GMACE reliability approximation. Report to the GMACE working group of Interbull. GMACE_rels 2013

Sullivan, P.G. 2012b. GMACE variance estimation. Report to the GMACE working group of Interbull. GMACE_vce 2013

Sullivan, P.G. 2012c. GMACE Weighting Factors. Report to the GMACE working group of Interbull. GMACE_gedcs 2013

Jakobsen, J.H. and Sullivan, P.G. 2013. Trait specific computation of shared reference population. Reference sharing Nov 2013

NEXT ROUTINE INTERNATIONAL EVALUATION

Dates for next routine run can be found on http://www.interbull.org/ib/servicecalendar

NEXT TEST INTERNATIONAL EVALUATION

Dates for next routine run can be found on http://www.interbull.org/ib/servicecalendar

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 minimising the need to resort to conversions.

At the same time, all recipients of Interbull results are expected to honour 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.

Table 1. National evaluation dates in GMACE run August 2015

Country	Date
BEL	20150401
CAN	20150801
DEU	20150811
DFS	20150812
ESP	20150723
FRA	20150814
GBR	20150801
ITA	20150707
NLD	20150801
POL	20150701

Table 2.

Number of bulls in reference population for sta

BEL	1976.0								
CAN	669.0	24727.0							
DEU	820.0	1492.0	31147.0						
DFS	745.0	1387.0	26754.0	27250.0					
ESP	775.0	1400.0	28554.0	25805.0	29392.0				
FRA	790.0	1696.0	26110.0	23291.0	26393.0	28203.0			
GBR	622.0	23209.0	1312.0	1207.0	1221.0	1435.0	23342.0		
ITA	626.0	22599.0	1112.0	987.0	992.0	1180.0	22412.0	22925.0	
NLD	833.0	1729.0	26838.0	26622.0	26357.0	24097.0	1497.0	1222.0	28689.0
POL	180.0	136.0	2493.0	206.0	2628.0	2558.0	132.0	137.0	215.0	2739.0

Number of bulls in reference population for cwi

BEL	1976.0								
CAN	669.0	24723.0							
DEU	819.0	1492.0	29942.0						
DFS	744.0	1387.0	25682.0	26166.0					
ESP	774.0	1400.0	27433.0	24775.0	28259.0				
FRA	789.0	1696.0	24992.0	22259.0	25289.0	27073.0			
GBR	622.0	23206.0	1312.0	1207.0	1221.0	1435.0	23339.0		
ITA	626.0	22596.0	1112.0	987.0	992.0	1180.0	22410.0	22922.0	
NLD	832.0	1729.0	25660.0	25561.0	25249.0	22991.0	1497.0	1222.0	27502.0
POL	180.0	136.0	2493.0	206.0	2628.0	2558.0	132.0	137.0	215.0	2739.0

Number of bulls in reference population for bde

BEL	1959.0								
CAN	669.0	24727.0							
DEU	820.0	1492.0	30595.0						
DFS	745.0	1387.0	26315.0	26803.0					
ESP	775.0	1400.0	28078.0	25407.0	28908.0				
FRA	790.0	1696.0	25631.0	22887.0	25926.0	27718.0			
GBR	622.0	23209.0	1312.0	1207.0	1221.0	1435.0	23342.0		
ITA	626.0	22599.0	1112.0	987.0	992.0	1180.0	22412.0	22925.0	
NLD	833.0	1729.0	26286.0	26177.0	25873.0	23612.0	1497.0	1222.0	28128.0
POL	180.0	136.0	2493.0	206.0	2628.0	2558.0	132.0	137.0	215.0	2739.0

Number of bulls in reference population for ang

BEL	1928.0								
CAN	667.0	24714.0							
DEU	812.0	1489.0	27435.0						
DFS	739.0	1385.0	23242.0	23723.0					
ESP	767.0	1397.0	25271.0	22648.0	26090.0				
FRA	782.0	1693.0	22848.0	20149.0	23155.0	24924.0			
GBR	621.0	23199.0	1309.0	1205.0	1218.0	1432.0	23332.0		
ITA	625.0	22591.0	1109.0	985.0	989.0	1177.0	22405.0	22916.0	
NLD	813.0	1724.0	23159.0	23124.0	23086.0	20849.0	1493.0	1218.0	24691.0
POL	178.0	136.0	2490.0	203.0	2625.0	2555.0	132.0	137.0	212.0	2736.0

Number of bulls in reference population for ran

BEL	1977.0								
CAN	669.0	24727.0							
DEU	820.0	1492.0	31028.0						
DFS	745.0	1387.0	26635.0	27129.0					
ESP	775.0	1400.0	28457.0	25706.0	29293.0				
FRA	790.0	1696.0	25991.0	23172.0	26296.0	28084.0			
GBR	622.0	23209.0	1312.0	1207.0	1221.0	1435.0	23342.0		
ITA	626.0	22599.0	1112.0	987.0	992.0	1180.0	22412.0	22925.0	
NLD	833.0	1729.0	26719.0	26503.0	26260.0	23978.0	1497.0	1222.0	28570.0
POL	180.0	136.0	2493.0	206.0	2628.0	2558.0	132.0	137.0	215.0	2739.0

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Number of bulls in reference population for        rwi
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BEL  1959.0
CAN   669.0 24727.0
DEU   820.0  1492.0 31092.0
DFS   745.0  1387.0 26702.0 27198.0
ESP   775.0  1400.0 28517.0 25771.0 29355.0
FRA   790.0  1696.0 26056.0 23240.0 26356.0 28149.0
GBR   622.0 23209.0  1312.0  1207.0  1221.0  1435.0 23342.0
ITA   626.0 22599.0  1112.0   987.0   992.0  1180.0 22412.0 22925.0
NLD   833.0  1729.0 26783.0 26570.0 26320.0 24043.0  1497.0  1222.0 28634.0
POL   180.0   136.0  2493.0   206.0  2628.0  2558.0   132.0   137.0   215.0  2739.0

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Number of bulls in reference population for        rls
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BEL  1977.0
CAN   669.0 24727.0
DEU   820.0  1492.0 31148.0
DFS   745.0  1387.0 26755.0 27251.0
ESP   775.0  1400.0 28554.0 25805.0 29392.0
FRA   790.0  1696.0 26111.0 23292.0 26393.0 28204.0
GBR   622.0 23209.0  1312.0  1207.0  1221.0  1435.0 23342.0
ITA   626.0 22599.0  1112.0   987.0   992.0  1180.0 22412.0 22925.0
NLD   833.0  1729.0 26839.0 26623.0 26357.0 24098.0  1497.0  1222.0 28690.0
POL   180.0   136.0  2493.0   206.0  2628.0  2558.0   132.0   137.0   215.0  2739.0

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Number of bulls in reference population for        rlr
-----------------------------------------------------
BEL  1947.0
CAN   667.0 23888.0
DEU   814.0  1485.0 29061.0
DFS   740.0  1380.0 24859.0 25339.0
ESP   769.0  1393.0 26615.0 23983.0 27435.0
FRA   784.0  1689.0 24179.0 21476.0 24480.0 26207.0
GBR   621.0 22387.0  1305.0  1200.0  1214.0  1428.0 22519.0
ITA   625.0 21768.0  1105.0   980.0   985.0  1173.0 21596.0 22093.0
NLD   815.0  1720.0 24816.0 24745.0 24454.0 22204.0  1489.0  1214.0 26360.0
POL   180.0   136.0  2482.0   206.0  2616.0  2546.0   132.0   137.0   215.0  2727.0

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Number of bulls in reference population for        fan
-----------------------------------------------------
BEL  1957.0
CAN   667.0 24723.0
DEU   818.0  1492.0 28971.0
DFS   745.0  1387.0 24989.0 25463.0
ESP   773.0  1400.0 26779.0 24133.0 27603.0
FRA   788.0  1696.0 24367.0 21643.0 24663.0 26449.0
GBR   621.0 23206.0  1312.0  1207.0  1221.0  1435.0 23339.0
ITA   625.0 22598.0  1112.0   987.0   992.0  1180.0 22411.0 22924.0
NLD   819.0  1727.0 24973.0 24898.0 24590.0 22359.0  1496.0  1221.0 26515.0
POL   179.0   136.0  2492.0   206.0  2627.0  2557.0   132.0   137.0   214.0  2738.0

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Number of bulls in reference population for        fua
-----------------------------------------------------
BEL  1977.0
CAN   669.0 24726.0
DEU   820.0  1492.0 30336.0
DFS   745.0  1387.0 26071.0 26557.0
ESP   775.0  1400.0 27806.0 25147.0 28633.0
FRA   790.0  1696.0 25381.0 22647.0 25660.0 27467.0
GBR   622.0 23209.0  1312.0  1207.0  1221.0  1435.0 23342.0
ITA   626.0 22598.0  1112.0   987.0   992.0  1180.0 22412.0 22924.0
NLD   833.0  1729.0 26045.0 25945.0 25616.0 23374.0  1497.0  1222.0 27887.0
POL   180.0   136.0  2493.0   206.0  2628.0  2558.0   132.0   137.0   215.0  2739.0
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Number of bulls in reference population for ruh

BEL 1977.0
CAN 669.0 24726.0
DEU 820.0 1492.0 30011.0
DFS 745.0 1387.0 25739.0 26198.0
ESP 775.0 1400.0 27499.0 24806.0 28298.0
FRA 790.0 1696.0 25060.0 22322.0 25356.0 27146.0
GBR 622.0 23208.0 1312.0 1207.0 1221.0 1435.0 23341.0
ITA 626.0 22599.0 1112.0 987.0 992.0 1180.0 22412.0 22925.0
NLD 833.0 1729.0 25711.0 25608.0 25301.0 23046.0 1497.0 1222.0 27552.0
POL 180.0 136.0 2493.0 206.0 2628.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for usu

BEL 1977.0
CAN 669.0 24727.0
DEU 820.0 1492.0 31146.0
DFS 745.0 1387.0 26753.0 27249.0
ESP 775.0 1400.0 28552.0 25803.0 29390.0
FRA 790.0 1696.0 26109.0 23290.0 26391.0 28202.0
GBR 622.0 23209.0 1312.0 1207.0 1221.0 1435.0 23342.0
ITA 626.0 22599.0 1112.0 987.0 992.0 1180.0 22412.0 22925.0
NLD 833.0 1729.0 26837.0 26621.0 26355.0 24096.0 1497.0 1222.0 28688.0
POL 180.0 136.0 2493.0 206.0 2628.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ude

BEL 1961.0
CAN 667.0 24723.0
DEU 820.0 1492.0 31145.0
DFS 745.0 1387.0 26752.0 27248.0
ESP 775.0 1400.0 28551.0 25802.0 29389.0
FRA 790.0 1696.0 26109.0 23290.0 26391.0 28202.0
GBR 621.0 23206.0 1312.0 1207.0 1221.0 1435.0 23339.0
ITA 625.0 22598.0 1112.0 987.0 992.0 1180.0 22411.0 22924.0
NLD 821.0 1727.0 26836.0 26620.0 26354.0 24096.0 1496.0 1221.0 28393.0
POL 180.0 136.0 2493.0 206.0 2628.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ftp

BEL 1977.0
CAN 669.0 24727.0
DEU 820.0 1492.0 31100.0
DFS 745.0 1387.0 26707.0 27203.0
ESP 775.0 1400.0 28524.0 25775.0 29362.0
FRA 790.0 1696.0 26063.0 23244.0 26363.0 28156.0
GBR 622.0 23209.0 1312.0 1207.0 1221.0 1435.0 23342.0
ITA 626.0 22599.0 1112.0 987.0 992.0 1180.0 22412.0 22925.0
NLD 833.0 1729.0 26791.0 26575.0 26327.0 24050.0 1497.0 1222.0 28642.0
POL 180.0 136.0 2493.0 206.0 2628.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ftl

BEL 1961.0
CAN 667.0 24723.0
DEU 820.0 1492.0 31144.0
DFS 745.0 1387.0 26751.0 27247.0
ESP 775.0 1400.0 28551.0 25802.0 29389.0
FRA 790.0 1696.0 26108.0 23289.0 26391.0 28201.0
GBR 621.0 23206.0 1312.0 1207.0 1221.0 1435.0 23339.0
ITA 625.0 22598.0 1112.0 987.0 992.0 1180.0 22411.0 22924.0
NLD 821.0 1727.0 26835.0 26619.0 26354.0 24095.0 1496.0 1221.0 28392.0
POL 180.0 136.0 2493.0 206.0 2628.0 2558.0 132.0 137.0 215.0 2739.0

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Number of bulls in reference population for        rtp
-----------------------------------------------------
BEL  1953.0
CAN   669.0 22835.0
DEU   818.0  1486.0 28790.0
DFS   744.0  1382.0 24856.0 25312.0
ESP   773.0  1394.0 26411.0 23995.0 27157.0
FRA   788.0  1690.0 24011.0 21547.0 24253.0 25994.0
GBR   622.0 21358.0  1306.0  1202.0  1215.0  1429.0 21490.0
ITA   626.0 20805.0  1107.0   983.0   987.0  1175.0 20631.0 21100.0
NLD   831.0  1707.0 24764.0 24716.0 24454.0 22241.0  1474.0  1200.0 26452.0
POL   179.0   136.0  2244.0   206.0  2327.0  2258.0   132.0   137.0   215.0  2426.0

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Number of bulls in reference population for        ocs
-----------------------------------------------------
AUS  2142.0
BEL   226.0  1958.0
CAN   429.0   669.0 24714.0
DEU   381.0   819.0  1492.0 30518.0
ESP   373.0   774.0  1400.0 27932.0 28766.0
FRA   374.0   789.0  1696.0 25493.0 25779.0 27580.0
GBR   413.0   622.0 23196.0  1312.0  1221.0  1435.0 23329.0
ITA   302.0   626.0 22587.0  1112.0   992.0  1180.0 22400.0 22913.0
NLD   477.0   832.0  1729.0 26236.0 25756.0 23498.0  1497.0  1222.0 28083.0
POL   107.0   180.0   136.0  2493.0  2628.0  2558.0   132.0   137.0   215.0  2739.0

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Number of bulls in reference population for        ous
-----------------------------------------------------
BEL  1953.0
CAN   669.0 24726.0
DEU   820.0  1492.0 31148.0
DFS   745.0  1387.0 26755.0 27251.0
ESP   775.0  1400.0 28554.0 25805.0 29392.0
FRA   790.0  1696.0 26111.0 23292.0 26393.0 28204.0
GBR   622.0 23208.0  1312.0  1207.0  1221.0  1435.0 23341.0
ITA   626.0 22599.0  1112.0   987.0   992.0  1180.0 22412.0 22925.0
NLD   833.0  1729.0 26839.0 26623.0 26357.0 24098.0  1497.0  1222.0 28689.0
POL   180.0   136.0  2493.0   206.0  2628.0  2558.0   132.0   137.0   215.0  2739.0

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Number of bulls in reference population for        ofl
-----------------------------------------------------
BEL  1936.0
CAN   667.0 24598.0
DEU   819.0  1492.0 30511.0
DFS   744.0  1387.0 26132.0 26625.0
ESP   774.0  1400.0 27925.0 25183.0 28759.0
FRA   789.0  1696.0 25487.0 22673.0 25773.0 27568.0
GBR   621.0 23081.0  1312.0  1207.0  1221.0  1435.0 23214.0
ITA   625.0 22487.0  1112.0   987.0   992.0  1180.0 22300.0 22812.0
NLD   820.0  1727.0 26231.0 26018.0 25750.0 23494.0  1496.0  1221.0 27763.0
POL   180.0   136.0  2493.0   206.0  2628.0  2558.0   132.0   137.0   215.0  2739.0

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Number of bulls in reference population for        loc
-----------------------------------------------------
BEL  1916.0
CAN   665.0 21889.0
DEU   813.0  1469.0 25103.0
DFS   740.0  1369.0 23778.0 24253.0
ESP   768.0  1378.0 23026.0 23034.0 23656.0
FRA   783.0  1670.0 20691.0 20551.0 20821.0 22425.0
GBR   619.0 20439.0  1292.0  1189.0  1202.0  1415.0 20571.0
ITA   621.0 19967.0  1094.0   970.0   975.0  1163.0 19807.0 20247.0
NLD   813.0  1708.0 23695.0 23680.0 23436.0 21215.0  1477.0  1203.0 25165.0
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Number of bulls in reference population for        bcs
-----------------------------------------------------
DEU 22214.0
FRA 17811.0 19343.0
GBR  1280.0  1402.0 19097.0
ITA  1082.0  1150.0 18330.0 18768.0
NLD 20818.0 18284.0  1457.0  1183.0 22244.0
CAN  1456.0  1656.0 18979.0 18498.0  1687.0 20104.0
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