INTRODUCTION

This GMACE run includes GEBV data from the following countries:
CAN DEU DFS FRA GBR ITA NLD POL BEL AUS

Changes in national procedures

Changes in the national genetic/genomic evaluation of conformation traits are as follows:

BEL Submitting ofl GEBVs for the first time

CAN Base change.
NZL Changed in herd/dtr numbers due to parentage verification
DEU There is no longer a distinction nationally between 1st and 2nd crop of daughters (as consequence 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 MARCH ROUTINE RUN

No changes in Interbull procedures

SCIENTIFIC LITERATURE

The GMACE procedure is based on the following scientific publications:

GMACE implementation:
- Sullivan, P.G. and VanRaden, P.M. 2010. Interbull Bulletin 41:3-7
- Sullivan, P.G. et al., 2011. Interbull Bulletin 44: 87-94
- Sullivan, P.G. and Jakobsen, J.H. 2012. Interbull Bulletin 45: 3-7.
- VanRaden, P.M. and Sullivan, P.G. 2010. Gen. Sel. Evol. 42: 7
- Sullivan, P.G. 2013. GMACE reliability approximation. Interbull Bulletin 47: 1-4
- Sullivan, P.G. 2013. GMACE variance estimation. Interbull Bulletin 47: 5-9
- Sullivan, P.G. 2013. GMACE weighting factors. Interbull Bulletin 47: 10-14.

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&rev=17

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

According to time schedule in http://www.interbull.org/ib/servicecalendar

NEXT TEST INTERNATIONAL EVALUATION

According to the time schedule on http://www.interbull.org/ib/servicecalendar

PUBLICATION OF INTERBULL GMACE RUN

Rules regarding publication of test evaluations should be observed.

Table 1. National evaluation dates in GMACE run Agust 2014

Country	Date
BEL	20140401
CAN	20140801
DEU	20140812
DFS	20140812
FRA	20140814
GBR	20140801
ITA	20140715
NLD	20140801
POL	20140715

Table 2.

Number of bulls in reference population for sta

BEL	1425.0							
CAN	502.0	22989.0						
DEU	649.0	1233.0	27417.0					
DFS	590.0	1101.0	25187.0	25560.0				
FRA	636.0	1380.0	21928.0	21527.0	23537.0			
GBR	470.0	21473.0	1083.0	962.0	1210.0	21570.0		
ITA	484.0	21191.0	966.0	841.0	1017.0	20838.0	21475.0	
NLD	664.0	1316.0	25147.0	24752.0	21760.0	1155.0	1029.0	26281.0
POL	179.0	136.0	210.0	205.0	264.0	132.0	137.0	215.0

Number of bulls in reference population for cwi

BEL	1423.0							
CAN	502.0	22986.0						
DEU	648.0	1233.0	26185.0					
DFS	589.0	1101.0	24060.0	24429.0				
FRA	635.0	1380.0	20796.0	20451.0	22402.0			
GBR	470.0	21471.0	1083.0	962.0	1210.0	21568.0		
ITA	484.0	21188.0	966.0	841.0	1017.0	20836.0	21472.0	
NLD	663.0	1316.0	23957.0	23644.0	20649.0	1155.0	1029.0	25090.0
POL	179.0	136.0	210.0	205.0	264.0	132.0	137.0	215.0

Number of bulls in reference population for bde

CAN	22989.0						
DEU	1233.0	26856.0					
DFS	1101.0	24674.0	25045.0				
FRA	1380.0	21441.0	21058.0	23050.0			
GBR	21473.0	1083.0	962.0	1210.0	21570.0		
ITA	21191.0	966.0	841.0	1017.0	20838.0	21475.0	
NLD	1316.0	24586.0	24239.0	21273.0	1155.0	1029.0	25719.0
POL	136.0	210.0	205.0	264.0	132.0	137.0	215.0	2740.0

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Number of bulls in reference population for        ang
-----------------------------------------------------
CAN 22967.0
DEU  1230.0 24006.0
DFS  1098.0 21937.0 22305.0
FRA  1377.0 18885.0 18548.0 20489.0
GBR 21464.0  1080.0   959.0  1207.0 21561.0
ITA 21180.0   963.0   838.0  1014.0 20831.0 21464.0
NLD  1310.0 21782.0 21523.0 18739.0  1151.0  1025.0 22671.0
POL   136.0   207.0   202.0   261.0   132.0   137.0   212.0  2737.0

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Number of bulls in reference population for        ran
-----------------------------------------------------
BEL  1425.0
CAN   502.0 22989.0
DEU   649.0  1233.0 27366.0
DFS   590.0  1101.0 25136.0 25509.0
FRA   636.0  1380.0 21877.0 21476.0 23486.0
GBR   470.0 21473.0  1083.0   962.0  1210.0 21570.0
ITA   484.0 21191.0   966.0   841.0  1017.0 20838.0 21475.0
NLD   664.0  1316.0 25096.0 24701.0 21709.0  1155.0  1029.0 26230.0
POL   179.0   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0

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Number of bulls in reference population for        rwi
-----------------------------------------------------
BEL  1319.0
CAN   502.0 22989.0
DEU   649.0  1233.0 27356.0
DFS   590.0  1101.0 25126.0 25499.0
FRA   636.0  1380.0 21868.0 21467.0 23477.0
GBR   470.0 21473.0  1083.0   962.0  1210.0 21570.0
ITA   484.0 21191.0   966.0   841.0  1017.0 20838.0 21475.0
NLD   664.0  1316.0 25086.0 24691.0 21700.0  1155.0  1029.0 26220.0
POL   179.0   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0

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Number of bulls in reference population for        rls
-----------------------------------------------------
CAN 22989.0
DEU  1233.0 27417.0
DFS  1101.0 25187.0 25560.0
FRA  1380.0 21928.0 21527.0 23537.0
GBR 21473.0  1083.0   962.0  1210.0 21570.0
ITA 21191.0   966.0   841.0  1017.0 20838.0 21475.0
NLD  1316.0 25147.0 24752.0 21760.0  1155.0  1029.0 26281.0
POL   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0

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Number of bulls in reference population for        rlr
-----------------------------------------------------
CAN 22152.0
DEU  1226.0 25263.0
DFS  1094.0 23196.0 23562.0
FRA  1373.0 19954.0 19632.0 21510.0
GBR 20831.0  1076.0   955.0  1203.0 20927.0
ITA 20362.0   959.0   834.0  1010.0 20200.0 20639.0
NLD  1307.0 23069.0 22790.0 19823.0  1147.0  1021.0 23967.0
POL   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2728.0
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Number of bulls in reference population for        fan
-----------------------------------------------------
BEL  1400.0
CAN   500.0 22984.0
DEU   647.0  1233.0 25170.0
DFS   588.0  1101.0 23318.0 23683.0
FRA   634.0  1380.0 20134.0 19797.0 21741.0
GBR   469.0 21470.0  1083.0   962.0  1210.0 21567.0
ITA   483.0 21190.0   966.0   841.0  1017.0 20837.0 21474.0
NLD   647.0  1314.0 23229.0 22941.0 19979.0  1154.0  1028.0 24125.0
POL   178.0   136.0   209.0   204.0   263.0   132.0   137.0   214.0  2739.0


-----------------------------------------------------
Number of bulls in reference population for        fua
-----------------------------------------------------
BEL  1425.0
CAN   502.0 22988.0
DEU   649.0  1233.0 26594.0
DFS   590.0  1101.0 24452.0 24822.0
FRA   636.0  1380.0 21193.0 20842.0 22802.0
GBR   470.0 21473.0  1083.0   962.0  1210.0 21570.0
ITA   484.0 21190.0   966.0   841.0  1017.0 20838.0 21474.0
NLD   664.0  1316.0 24347.0 24030.0 21038.0  1155.0  1029.0 25480.0
POL   179.0   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0

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Number of bulls in reference population for        ruh
-----------------------------------------------------
BEL  1415.0
CAN   502.0 22988.0
DEU   649.0  1233.0 26018.0
DFS   590.0  1101.0 23875.0 24218.0
FRA   636.0  1380.0 20637.0 20279.0 22244.0
GBR   470.0 21472.0  1083.0   962.0  1210.0 21569.0
ITA   484.0 21191.0   966.0   841.0  1017.0 20838.0 21475.0
NLD   664.0  1316.0 23768.0 23453.0 20475.0  1155.0  1029.0 24900.0
POL   179.0   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0


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Number of bulls in reference population for        usu
-----------------------------------------------------
CAN 22989.0
DEU  1233.0 27413.0
DFS  1101.0 25183.0 25556.0
FRA  1380.0 21925.0 21524.0 23534.0
GBR 21473.0  1083.0   962.0  1210.0 21570.0
ITA 21191.0   966.0   841.0  1017.0 20838.0 21475.0
NLD  1316.0 25143.0 24748.0 21757.0  1155.0  1029.0 26277.0
POL   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0


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Number of bulls in reference population for        ude
-----------------------------------------------------
BEL  1405.0
CAN   500.0 22985.0
DEU   649.0  1233.0 27412.0
DFS   590.0  1101.0 25182.0 25555.0
FRA   636.0  1380.0 21925.0 21524.0 23534.0
GBR   469.0 21470.0  1083.0   962.0  1210.0 21567.0
ITA   483.0 21190.0   966.0   841.0  1017.0 20837.0 21474.0
NLD   649.0  1314.0 25142.0 24747.0 21757.0  1154.0  1028.0 26043.0
POL   179.0   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0
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Number of bulls in reference population for        ftp
-----------------------------------------------------
BEL  1424.0
CAN   502.0 22989.0
DEU   649.0  1233.0 27362.0
DFS   590.0  1101.0 25132.0 25505.0
FRA   636.0  1380.0 21874.0 21473.0 23483.0
GBR   470.0 21473.0  1083.0   962.0  1210.0 21570.0
ITA   484.0 21191.0   966.0   841.0  1017.0 20838.0 21475.0
NLD   664.0  1316.0 25092.0 24697.0 21706.0  1155.0  1029.0 26226.0
POL   179.0   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0

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Number of bulls in reference population for        ftl
-----------------------------------------------------
CAN 22985.0
DEU  1233.0 27412.0
DFS  1101.0 25182.0 25555.0
FRA  1380.0 21925.0 21524.0 23534.0
GBR 21470.0  1083.0   962.0  1210.0 21567.0
ITA 21190.0   966.0   841.0  1017.0 20837.0 21474.0
NLD  1314.0 25142.0 24747.0 21757.0  1154.0  1028.0 26043.0
POL   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0

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Number of bulls in reference population for        rtp
-----------------------------------------------------
BEL  1394.0
CAN   502.0 21012.0
DEU   646.0  1226.0 25180.0
DFS   587.0  1094.0 23113.0 23452.0
FRA   633.0  1373.0 19974.0 19615.0 21543.0
GBR   470.0 19538.0  1076.0   955.0  1203.0 19632.0
ITA   484.0 19262.0   960.0   835.0  1011.0 18916.0 19514.0
NLD   661.0  1292.0 22955.0 22683.0 19805.0  1131.0  1006.0 23933.0

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Number of bulls in reference population for        ocs
-----------------------------------------------------
AUS  2131.0
BEL   220.0  1403.0
CAN   422.0   502.0 22979.0
DEU   379.0   648.0  1233.0 26689.0
FRA   379.0   635.0  1380.0 21301.0 22907.0
GBR   405.0   470.0 21463.0  1083.0  1210.0 21560.0
ITA   306.0   484.0 21181.0   966.0  1017.0 20828.0 21465.0
NLD   476.0   663.0  1316.0 24507.0 21155.0  1155.0  1029.0 25638.0
POL   107.0   179.0   136.0   210.0   264.0   132.0   137.0   215.0  2740.0

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Number of bulls in reference population for        ous
-----------------------------------------------------
BEL  1400.0
CAN   502.0 22988.0
DEU   649.0  1233.0 27417.0
DFS   590.0  1101.0 25187.0 25560.0
FRA   636.0  1380.0 21928.0 21527.0 23537.0
GBR   470.0 21472.0  1083.0   962.0  1210.0 21569.0
ITA   484.0 21191.0   966.0   841.0  1017.0 20838.0 21475.0
NLD   664.0  1316.0 25147.0 24752.0 21760.0  1155.0  1029.0 26281.0
POL   179.0   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0
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-----------------------------------------------------
Number of bulls in reference population for        ofl
-----------------------------------------------------
BEL  1379.0
CAN   500.0 22860.0
DEU   648.0  1233.0 26724.0
DFS   589.0  1101.0 24558.0 24929.0
FRA   635.0  1380.0 21265.0 20905.0 22871.0
GBR   469.0 21346.0  1083.0   962.0  1210.0 21443.0
ITA   483.0 21068.0   966.0   841.0  1017.0 20715.0 21345.0
NLD   648.0  1314.0 24500.0 24142.0 21118.0  1154.0  1028.0 25377.0
POL   179.0   136.0   210.0   205.0   264.0   132.0   137.0   215.0  2740.0

-----------------------------------------------------
Number of bulls in reference population for        loc
-----------------------------------------------------
CAN 21829.0
DEU  1220.0 23936.0
DFS  1091.0 22165.0 22529.0
FRA  1368.0 19038.0 18735.0 20444.0
GBR 20533.0  1071.0   953.0  1199.0 20629.0
NLD  1301.0 21971.0 21768.0 18893.0  1143.0 22823.0

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Number of bulls in reference population for        bcs
-----------------------------------------------------
DEU 20947.0
FRA 16145.0 17385.0
GBR  1052.0  1180.0 17483.0
ITA   936.0   988.0 16900.0 17226.0
NLD 19077.0 16026.0  1117.0   991.0 19933.0
CAN  1200.0  1348.0 17389.0 16984.0  1274.0 18292.0
```