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.

Changes in national procedures

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

GBR (HOL) Drop in reliability due to a group of 42 bulls that had a MACE proof with a high reliability in December but now have an official domestic proof with a much lower reliability which replaces the MACE proof. These 42 bulls are used in our reference population which would result in lower reliabilities for DGVs and polygenic effects.

DEU (HOL) Some bulls are no longer published as they are no longer AI bulls and some appear now with a new ID.

ESP (HOL) Inclusion of genotypes from young bulls belonging to Eurogenomic countries.

FRA (HOL) The list of QTLs has been updated and enlarged, the residual polygenic effects are now estimated using a genomic matrix instead of a kinship matrix

ITA (HOL) Cut one year of data (1999) and applied the base change

NLD (HOL) Base change

DFS (HOL) participates with angularity

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 April 2015

Country	Date
BEL	20150301
CAN	20150401
DEU	20150408
DFS	20150202
ESP	20150320
FRA	20150410
GBR	20150401
ITA	20150312
NLD	20150401
POL	20150301

Table 2.

Number of bulls in reference population for	sta
BEL	1890.0
CAN	638.0 23828.0
DEU	792.0 1429.0 30915.0
DFS	718.0 1336.0 26578.0 27023.0
ESP	722.0 1229.0 27857.0 25156.0 28360.0
FRA	746.0 1500.0 25755.0 22928.0 25349.0 27145.0
GBR	594.0 22602.0 1279.0 1183.0 1082.0 1327.0 22678.0
ITA	604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD	751.0 1377.0 21327.0 21125.0 20276.0 19316.0 1238.0 1033.0 22518.0
POL	180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for cwi

BEL 1890.0
CAN 638.0 23825.0
DEU 791.0 1429.0 29690.0
DFS 717.0 1336.0 25499.0 25938.0
ESP 721.0 1229.0 26714.0 24114.0 27215.0
FRA 745.0 1500.0 24630.0 21895.0 24233.0 26007.0
GBR 594.0 22600.0 1279.0 1183.0 1082.0 1327.0 22676.0
ITA 604.0 22034.0 1065.0 950.0 889.0 1077.0 21930.0 22251.0
NLD 751.0 1377.0 20143.0 20066.0 19159.0 18212.0 1238.0 1033.0 21333.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for bde

BEL 1873.0
CAN 638.0 23828.0
DEU 792.0 1429.0 30355.0
DFS 718.0 1336.0 26133.0 26576.0
ESP 722.0 1229.0 27362.0 24747.0 27865.0
FRA 746.0 1500.0 25270.0 22524.0 24871.0 26660.0
GBR 594.0 22602.0 1279.0 1183.0 1082.0 1327.0 22678.0
ITA 604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD 751.0 1377.0 20767.0 20680.0 19781.0 18831.0 1238.0 1033.0 21957.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ang

BEL 1842.0
CAN 636.0 23816.0
DEU 785.0 1426.0 27180.0
DFS 713.0 1334.0 23056.0 23494.0
ESP 715.0 1226.0 24605.0 22037.0 25101.0
FRA 739.0 1497.0 22534.0 19830.0 22152.0 23914.0
GBR 593.0 22593.0 1276.0 1181.0 1079.0 1324.0 22669.0
ITA 603.0 22029.0 1062.0 948.0 886.0 1074.0 21925.0 22245.0
NLD 733.0 1372.0 17638.0 17627.0 17050.0 16118.0 1234.0 1029.0 18595.0
POL 178.0 136.0 2495.0 203.0 2618.0 2555.0 132.0 137.0 212.0 2736.0

Number of bulls in reference population for ran

BEL 1891.0
CAN 638.0 23828.0
DEU 792.0 1429.0 30796.0
DFS 718.0 1336.0 26459.0 26902.0
ESP 722.0 1229.0 27749.0 25046.0 28250.0
FRA 746.0 1500.0 25636.0 22809.0 25241.0 27026.0
GBR 594.0 22602.0 1279.0 1183.0 1082.0 1327.0 22678.0
ITA 604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD 751.0 1377.0 21208.0 21006.0 20168.0 19197.0 1238.0 1033.0 22399.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for rwi

BEL 1873.0
CAN 638.0 23828.0
DEU 792.0 1429.0 30860.0
DFS 718.0 1336.0 26526.0 26971.0
ESP 722.0 1229.0 27809.0 25111.0 28312.0
FRA 746.0 1500.0 25701.0 22877.0 25301.0 27091.0
GBR 594.0 22602.0 1279.0 1183.0 1082.0 1327.0 22678.0
ITA 604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD 751.0 1377.0 21272.0 21073.0 20228.0 19262.0 1238.0 1033.0 22463.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for rls

BEL 1891.0
CAN 638.0 23828.0
DEU 792.0 1429.0 30916.0
DFS 718.0 1336.0 26579.0 27024.0
ESP 722.0 1229.0 27857.0 25156.0 28360.0
FRA 746.0 1500.0 25756.0 22929.0 25349.0 27146.0
GBR 594.0 22602.0 1279.0 1183.0 1082.0 1327.0 22678.0
ITA 604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD 751.0 1377.0 21328.0 21126.0 20276.0 19317.0 1238.0 1033.0 22519.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for rlr

BEL 1863.0
CAN 636.0 22992.0
DEU 787.0 1422.0 28806.0
DFS 714.0 1329.0 24676.0 25111.0
ESP 717.0 1222.0 25895.0 23323.0 26392.0
FRA 741.0 1493.0 23817.0 21112.0 23425.0 25148.0
GBR 593.0 21783.0 1272.0 1176.0 1075.0 1320.0 21858.0
ITA 603.0 21208.0 1058.0 943.0 882.0 1070.0 21118.0 21418.0
NLD 735.0 1368.0 19308.0 19259.0 18374.0 17434.0 1230.0 1025.0 20275.0
POL 180.0 136.0 2487.0 206.0 2609.0 2546.0 132.0 137.0 215.0 2727.0

Number of bulls in reference population for fan

BEL 1870.0
CAN 636.0 23824.0
DEU 790.0 1429.0 28727.0
DFS 718.0 1336.0 24805.0 25235.0
ESP 720.0 1229.0 26062.0 23473.0 26561.0
FRA 744.0 1500.0 24005.0 21280.0 23609.0 25392.0
GBR 593.0 22599.0 1279.0 1183.0 1082.0 1327.0 22675.0
ITA 603.0 22035.0 1065.0 950.0 889.0 1077.0 21930.0 22252.0
NLD 737.0 1375.0 20083.0 20029.0 19126.0 18196.0 1237.0 1032.0 21054.0
POL 179.0 136.0 2497.0 206.0 2620.0 2557.0 132.0 137.0 214.0 2738.0

Number of bulls in reference population for fua

BEL 1891.0
CAN 638.0 23827.0
DEU 792.0 1429.0 30093.0
DFS 718.0 1336.0 25889.0 26330.0
ESP 722.0 1229.0 27099.0 24498.0 27601.0
FRA 746.0 1500.0 25020.0 22284.0 24616.0 26409.0
GBR 594.0 22602.0 1279.0 1183.0 1082.0 1327.0 22678.0
ITA 604.0 22035.0 1065.0 950.0 889.0 1077.0 21931.0 22252.0
NLD 751.0 1377.0 20527.0 20449.0 19536.0 18594.0 1238.0 1033.0 21717.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ruh

BEL 1891.0
CAN 638.0 23827.0
DEU 792.0 1429.0 29769.0
DFS 718.0 1336.0 25557.0 25971.0
ESP 722.0 1229.0 26782.0 24146.0 27255.0
FRA 746.0 1500.0 24699.0 21959.0 24301.0 26088.0
GBR 594.0 22601.0 1279.0 1183.0 1082.0 1327.0 22677.0
ITA 604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD 751.0 1377.0 20193.0 20112.0 19210.0 18266.0 1238.0 1033.0 21382.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for usu

BEL 1891.0
CAN 638.0 23828.0
DEU 792.0 1429.0 30914.0
DFS 718.0 1336.0 26577.0 27022.0
ESP 722.0 1229.0 27855.0 25154.0 28358.0
FRA 746.0 1500.0 25754.0 22927.0 25347.0 27144.0
GBR 594.0 22602.0 1279.0 1183.0 1082.0 1327.0 22678.0
ITA 604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD 751.0 1377.0 21326.0 21124.0 20274.0 19315.0 1238.0 1033.0 22517.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ude

BEL 1874.0
CAN 636.0 23824.0
DEU 792.0 1429.0 30913.0
DFS 718.0 1336.0 26576.0 27021.0
ESP 722.0 1229.0 27854.0 25153.0 28357.0
FRA 746.0 1500.0 25754.0 22927.0 25347.0 27144.0
GBR 593.0 22599.0 1279.0 1183.0 1082.0 1327.0 22675.0
ITA 603.0 22035.0 1065.0 950.0 889.0 1077.0 21930.0 22252.0
NLD 739.0 1375.0 21325.0 21123.0 20273.0 19315.0 1237.0 1032.0 22297.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ftp

BEL 1891.0
CAN 638.0 23828.0
DEU 792.0 1429.0 30868.0
DFS 718.0 1336.0 26531.0 26976.0
ESP 722.0 1229.0 27816.0 25115.0 28319.0
FRA 746.0 1500.0 25708.0 22881.0 25308.0 27098.0
GBR 594.0 22602.0 1279.0 1183.0 1082.0 1327.0 22678.0
ITA 604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD 751.0 1377.0 21280.0 21078.0 20235.0 19269.0 1238.0 1033.0 22471.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ftl

BEL 1874.0
CAN 636.0 23824.0
DEU 792.0 1429.0 30912.0
DFS 718.0 1336.0 26575.0 27020.0
ESP 722.0 1229.0 27854.0 25153.0 28357.0
FRA 746.0 1500.0 25753.0 22926.0 25347.0 27143.0
GBR 593.0 22599.0 1279.0 1183.0 1082.0 1327.0 22675.0
ITA 603.0 22035.0 1065.0 950.0 889.0 1077.0 21930.0 22252.0
NLD 739.0 1375.0 21324.0 21122.0 20273.0 19314.0 1237.0 1032.0 22296.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for rtp

BEL 1867.0
CAN 638.0 21861.0
DEU 789.0 1422.0 28549.0
DFS 716.0 1330.0 24673.0 25084.0
ESP 719.0 1222.0 25691.0 23331.0 26110.0
FRA 743.0 1493.0 23649.0 21183.0 23196.0 24940.0
GBR 594.0 20667.0 1272.0 1177.0 1075.0 1320.0 20741.0
ITA 604.0 20164.0 1059.0 945.0 883.0 1071.0 20064.0 20349.0
NLD 748.0 1356.0 19258.0 19231.0 18372.0 17473.0 1217.0 1013.0 20298.0
POL 179.0 136.0 2249.0 206.0 2320.0 2258.0 132.0 137.0 215.0 2426.0

Number of bulls in reference population for ocs

AUS 2132.0
BEL 223.0 1872.0
CAN 422.0 638.0 23818.0
DEU 381.0 791.0 1429.0 30274.0
ESP 368.0 721.0 1229.0 27232.0 27733.0
FRA 374.0 745.0 1500.0 25137.0 24734.0 26521.0
GBR 407.0 594.0 22592.0 1279.0 1082.0 1327.0 22668.0
ITA 301.0 604.0 22027.0 1065.0 889.0 1077.0 21922.0 22244.0
NLD 459.0 751.0 1377.0 20727.0 19677.0 18719.0 1238.0 1033.0 21915.0
POL 107.0 180.0 136.0 2498.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ous

BEL 1869.0
CAN 638.0 23827.0
DEU 792.0 1429.0 30916.0
DFS 718.0 1336.0 26579.0 27024.0
ESP 722.0 1229.0 27857.0 25156.0 28360.0
FRA 746.0 1500.0 25756.0 22929.0 25349.0 27146.0
GBR 594.0 22601.0 1279.0 1183.0 1082.0 1327.0 22677.0
ITA 604.0 22036.0 1065.0 950.0 889.0 1077.0 21931.0 22253.0
NLD 751.0 1377.0 21328.0 21126.0 20276.0 19317.0 1238.0 1033.0 22519.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for ofl

BEL 1851.0
CAN 636.0 23700.0
DEU 791.0 1429.0 30268.0
DFS 717.0 1336.0 25956.0 26397.0
ESP 721.0 1229.0 27227.0 24534.0 27728.0
FRA 745.0 1500.0 25132.0 22309.0 24730.0 26500.0
GBR 593.0 22475.0 1279.0 1183.0 1082.0 1327.0 22551.0
ITA 603.0 21924.0 1065.0 950.0 889.0 1077.0 21819.0 22134.0
NLD 739.0 1375.0 20722.0 20523.0 19672.0 18715.0 1237.0 1032.0 21671.0
POL 180.0 136.0 2498.0 206.0 2621.0 2558.0 132.0 137.0 215.0 2739.0

Number of bulls in reference population for loc

BEL 1825.0
CAN 634.0 20945.0
DEU 785.0 1404.0 24858.0
DFS 713.0 1316.0 23587.0 24016.0
ESP 715.0 1209.0 22416.0 22380.0 22765.0
FRA 739.0 1475.0 20349.0 20184.0 19917.0 21473.0
GBR 591.0 19751.0 1254.0 1163.0 1062.0 1302.0 19826.0
ITA 599.0 19325.0 1046.0 932.0 871.0 1059.0 19242.0 19495.0
NLD 732.0 1355.0 18475.0 18477.0 17678.0 16763.0 1217.0 1013.0 19399.0

Number of bulls in reference population for bcs

CAN 19155.0
DEU 1391.0 21976.0
FRA 1463.0 17471.0 18440.0
GBR 18287.0 1242.0 1291.0 18360.0
ITA 17851.0 1033.0 1047.0 17772.0 18003.0
NLD 1336.0 15625.0 13901.0 1199.0 995.0 16553.0