INTRODUCTION

The latest genomic routine international evaluation for **udder traits** took place as scheduled at the Interbull Centre. Data from 26 countries were included in this evaluation.

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

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

mas: BEL, CAN, DEU, ESP, FRA, DFS,   , ITA, NLD, POL
scs: BEL, CAN, DEU, ESP, FRA, DFS, GBR, ITA, NLD, POL

CHANGES IN NATIONAL PROCEDURES

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

BEL HOL   MACE breeding values are now integrated as external information in the genomic evaluation. Small modifications in data editing

FRA HOL   New base and Inclusion of FRR population in HOLFRA

DEU HOL   New base

INTERBULL CHANGES COMPARED TO THE DECEMBER ROUTINE RUN

The Parameter-space approach (Sullivan, 2016) was used for this GMACE run:

- New residual correlations were derived to account for different heritabilities among country-traits
- Parameter space restrictions were used to bound GMACE results on the scale of each country
- The use of Predicted National Reliabilities (the MP.5 approach) is no longer used for the GMACE genetic evaluations. For reliability approximations, MP.5 is no longer used for reliabilities that have a defined parameter space, but MP.5 continues to be used to improve reliability predictions in countries where a bull does not have a national GEBV (i.e. where a parameter space is not defined)
- Information about bull controlling country (file 734) and genotyped animals (file 733) is now extracted directly from IDEA

Sullivan, P.G. 2016. Defining a Parameter Space for GMACE. Interbull Bulletin 50, p 85-93.

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.

The parameter-space approach is used for the GMACE genetic evaluations (Sullivan, 2016)

SCIENTIFIC LITERATURE

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

Sullivan, P.G. 2016. Defining a Parameter Space for GMACE. Interbull Bulletin 50, p 85-93.

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

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PUBLICATION OF INTERBULL ROUTINE RUN
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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.

Table 1.  National evaluation dates in GMACE run April 2017
------------------------------------------------------------
Country  Date
------------------------------------------------------------
CAN       20170401
DEU       20170404
DFS       20170306
FRA       20170405
GBR       20170304
NLD       20170401
ITA       20170306
BEL       20170401
ESP       20170307
POL       20170215
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Table 2.
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Number of bulls in reference population for        scs
------------------------------------------------------------
CAN 34267.0
DEU   2486.0 34376.0
DFS   2297.0 32063.0 33330.0
FRA   2668.0 30912.0 30902.0 33312.0
GBR 27475.0   2231.0   1998.0   2307.0 27860.0
NLD   2618.0 32648.0 32535.0 31452.0   2289.0 34776.0
ITA 27783.0   1851.0   1551.0   1856.0 26298.0   1842.0 28258.0
BEL   1323.0    962.0    868.0   1017.0    849.0    986.0  1146.0   2641.0
ESP   2337.0 32420.0 32574.0 31392.0   2042.0 33023.0  1582.0    924.0 33591.0
POL   2700.0 27796.0 27907.0 27059.0   2039.0 28407.0  1890.0   1441.0 28312.0 29990.0


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Number of bulls in reference population for        mas
------------------------------------------------------------
CAN 30733.0
DEU   2459.0 33246.0
DFS   2262.0 30964.0 32174.0
FRA   2617.0 29796.0 29756.0 31920.0
NLD   2564.0 31569.0 31424.0 30335.0 33631.0
ITA 24771.0   1828.0   1541.0   1836.0   1813.0 25226.0
BEL   1317.0    961.0    865.0   1010.0    983.0  1143.0   2630.0
ESP   2299.0 31314.0 31427.0 30239.0 31909.0  1571.0    920.0 32431.0
POL   2677.0 26723.0 26815.0 25965.0 27328.0  1880.0   1439.0 27217.0 28895.0
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