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, HUN submitted GEBVs.

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

CHANGES IN NATIONAL PROCEDURES

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

DEU HOL   -Introduced a mixed genomic reference population for German Holstein routine genomic evaluation
            -Base change

CAN HOL   -Base change

FRA HOL   -Base change

ITA HOL   -Base change

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.

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

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 2019

Country Date

Country	Date
CAN	20190401
DEU	20190402
DFS	20190305
FRA	20190403
GBR	20190305
NLD	20190401
ITA	20190311
HUN	20190314
BEL	20181201
ESP	20190318
POL	20190228

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Table 2.

Number of bulls in reference population for   scs

CAN	38263.0									
DEU	4268.0	38133.0								
DFS	3442.0	35207.0	36499.0							
FRA	3573.0	33534.0	33505.0	35867.0						
GBR	31887.0	4292.0	3505.0	3598.0	33513.0					
NLD	3480.0	34894.0	34847.0	33524.0	3558.0	37169.0				
ITA	31451.0	3621.0	2667.0	2803.0	30142.0	2718.0	32041.0			
HUN	1382.0	6679.0	6442.0	6472.0	1376.0	6666.0	1264.0	7255.0		
BEL	1617.0	1175.0	1003.0	1189.0	1188.0	1138.0	1506.0	619.0	3034.0	
ESP	3683.0	35684.0	35777.0	34021.0	3749.0	35322.0	2860.0	6655.0	1136.0	36965.0
POL	3751.0	30875.0	31119.0	29615.0	3454.0	30686.0	2969.0	6580.0	1638.0	31469.0	33097.0

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Number of bulls in reference population for        mas
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CAN 20466.0
DEU  3670.0 36360.0
DFS  3100.0 33860.0 34973.0
FRA  3321.0 32206.0 32197.0 34236.0
NLD  3162.0 33594.0 33578.0 32237.0 35449.0
ITA 15767.0  3144.0  2455.0  2641.0  2486.0 15986.0
HUN  1284.0  6636.0  6421.0  6447.0  6636.0  1200.0  7148.0
BEL  1179.0  1140.0   992.0  1171.0  1123.0  1094.0   615.0  2589.0
ESP  3342.0 34288.0 34380.0 32656.0 34020.0  2652.0  6622.0  1113.0 35412.0
POL  3260.0 29589.0 29824.0 28346.0 29450.0  2562.0  6562.0  1549.0 30144.0 31490.0
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