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)   First time with real mas data
            Base change
CAN (HOL)   Base change
ITA (HOL)   Base change
GBR (HOL)   Base change
FRA (HOL)   Base change
NLD (HOL)   Base change
POL (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 2020

Country Date

Country	Date
CAN	20200401
DEU	20200407
DFS	20200302
FRA	20200408
GBR	20200225
NLD	20200401
ITA	20200309
HUN	20200323
BEL	20190901
ESP	20200317
POL	20200102

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Table 2.

Number of bulls in reference population for   scs

CAN 40134.0										
DEU	6124.0	40533.0								
DFS	3930.0	36248.0	37148.0							
FRA	4010.0	34437.0	33975.0	36516.0						
GBR	33581.0	6184.0	3957.0	3996.0	35478.0					
NLD	3996.0	35922.0	35461.0	34220.0	4080.0	38116.0				
ITA	32458.0	4849.0	2989.0	3003.0	31169.0	2934.0	33013.0			
HUN	1749.0	7331.0	6953.0	6939.0	1767.0	7184.0	1553.0	7912.0		
BEL	1791.0	1323.0	1102.0	1286.0	1365.0	1237.0	1633.0	781.0	3248.0	
ESP	4320.0	36908.0	36410.0	34537.0	4346.0	35983.0	3280.0	7194.0	1252.0	37792.0
POL	4198.0	31815.0	31675.0	30246.0	3901.0	31432.0	3136.0	7041.0	1737.0	32071.0	33857.0

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Number of bulls in reference population for      mas
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CAN 22204.0
DEU  4713.0 29768.0
DFS  3281.0 27245.0 28007.0
FRA  3355.0 26250.0 25953.0 28009.0
NLD  3231.0 26931.0 26657.0 26067.0 28628.0
ITA 17122.0  3950.0  2610.0  2654.0  2499.0 17359.0
HUN  1631.0  7219.0  6885.0  6867.0  7091.0  1495.0  7732.0
BEL  1328.0  1249.0  1061.0  1238.0  1184.0  1208.0   773.0  2746.0
ESP  3592.0 27744.0 27442.0 26318.0 26992.0  2870.0  7113.0  1199.0 28511.0
POL  3298.0 22757.0 22752.0 22092.0 22470.0  2530.0  6973.0  1614.0 23017.0 24425.0
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