INTRODUCTION

The latest genomic test international evaluation for udder traits took place as scheduled at the Interbull Centre. Data from 21 countries were included in this evaluation.

International genetic evaluations for udder health traits of bulls were computed from:
AUS BEL CAN CHE CZE DEU DFS ESP FRA GBR HUN IRL ISR ITA NLD NZL POL SVN USA ZAF JPN
Holstein data were included in this evaluation.

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

mas: , CAN, DEU, ESP, FRA, DFS, , ITA, NLD, POL,
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:

GBR (HOL) Loss of about 300 bulls in this run compared to previous run. Due to improved QA with such that all clones are removed, removal of animals failing parentage check, removal of some invalid genotypes, some identities have been updated from Herd book numbers to eartags between the runs
HUN (HOL) Changes due to updated pedigrees for some bulls. This affects animals that have a USA or 840 sire.

INTERBULL CHANGES COMPARED TO THE DECEMBER ROUTINE RUN

No changes in Interbull procedures

DATA AND METHOD OF ANALYSIS

Thirteen 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 thirteen 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

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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 December 2021

Country	Date
CAN	20211201
DEU	20211207
DFS	20211102
FRA	20211208
GBR	20211105
NLD	20211201
ITA	20211104
HUN	20211122
BEL	20201201
ESP	20211115
POL	20211207

Table 2.

Number of bulls in reference population for scs

CAN	42329.0										
DEU	8816.0	44162.0									
DFS	5061.0	38047.0	39096.0								
FRA	4164.0	34960.0	34441.0	36761.0							
GBR	35477.0	9063.0	5156.0	4217.0	37911.0						
NLD	4253.0	36819.0	36190.0	34472.0	4528.0	38790.0					
ITA	33954.0	6935.0	3799.0	3274.0	33030.0	3336.0	34867.0				
HUN	2042.0	7960.0	7440.0	7239.0	2164.0	7611.0	1880.0	8530.0			
BEL	727.0	728.0	637.0	710.0	687.0	743.0	706.0	513.0	1730.0		
ESP	5918.0	39172.0	38262.0	35055.0	6028.0	36827.0	4353.0	7816.0	703.0	40340.0	
POL	4592.0	33084.0	32890.0	30516.0	4635.0	32031.0	3327.0	7470.0	996.0	33460.0	34857.0

Number of bulls in reference population for mas

CAN	24870.0										
DEU	6982.0	29201.0									
DFS	4241.0	25264.0	26105.0								
FRA	3557.0	23275.0	22968.0	24828.0							
NLD	3508.0	24102.0	23733.0	22860.0	25534.0						
ITA	19242.0	5807.0	3350.0	2903.0	2843.0	19627.0					
HUN	1907.0	4215.0	3745.0	3648.0	3866.0	1786.0	4649.0				
ESP	4859.0	26069.0	25433.0	23335.0	24117.0	3841.0	4070.0	26937.0			
POL	3781.0	20288.0	20263.0	18901.0	19394.0	2881.0	3755.0	20597.0	21864.0		