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:

CAN (HOL) Base change.
DEU (HOL) Base change.
FRA (HOL) Base change. Corrections in pedigree, as a consequence changes were observed in number of daughters and number of herds (bulls are not directly concerned). The several decreases in reliability are due to either a change in the information used to calculate EBVs of their parents (french EBV or MACE) or parents GEBVs or decrease in the reliability of their polygenic information (correction of database). Bulls' change of status due to new publication rules at the national level following the introduction of Single Step.
GBR (HOL) Missing bulls due to genotypes checks or dams failing to pass parentage validation.
ITA (HOL) Base change. Cut off one year. Excluded bulls which are not publishable and do not belong to ITA. In pedigree loading excluded North America Partners bulls <2 years old.

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

NEXT TEST INTERNATIONAL EVALUATION

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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 April 2022

Country	Date
CAN	20220401
DEU	20220405
DFS	20220301
FRA	20220406
GBR	20220304
NLD	20220401
ITA	20220310
HUN	20220127
BEL	20201201
ESP	20220310
POL	20220228

Table 2.

Number of bulls in reference population for scs

CAN	42824.0									
DEU	9248.0	44769.0								
DFS	5215.0	38313.0	39375.0							
FRA	4174.0	34987.0	34462.0	36782.0						
GBR	36350.0	9717.0	5574.0	4235.0	39381.0					
NLD	4267.0	36878.0	36209.0	34493.0	4598.0	38832.0				
ITA	33966.0	6947.0	3841.0	3278.0	33044.0	3340.0	34740.0			
HUN	2118.0	8042.0	7496.0	7246.0	2252.0	7623.0	1889.0	8621.0		
BEL	727.0	728.0	636.0	710.0	687.0	743.0	706.0	513.0	1730.0	
ESP	6150.0	39530.0	38534.0	35082.0	6624.0	36859.0	4368.0	7884.0	703.0	40724.0
POL	4702.0	33309.0	33082.0	30527.0	4964.0	32050.0	3326.0	7513.0	992.0	33693.0 35110.0

Number of bulls in reference population for mas

CAN	25226.0	
DEU	7396.0	29836.0

DFS	4408.0	25587.0	26454.0						
FRA	3590.0	23363.0	23047.0	24919.0					
NLD	3553.0	24228.0	23824.0	22945.0	25657.0				
ITA	19234.0	5890.0	3408.0	2918.0	2865.0	19616.0			
HUN	1974.0	4291.0	3806.0	3660.0	3881.0	1800.0	4732.0		
ESP	5087.0	26469.0	25766.0	23427.0	24226.0	3883.0	4140.0	27380.0	
POL	3903.0	20569.0	20517.0	18979.0	19488.0	2896.0	3800.0	20898.0	22183.0