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
DFS (HOL)	Changes in status of bulls
FRA (HOL)	Base change
ITA (HOL)	Cut off one year of data and base change
NLD (HOL)	Sent in Clinical mastitis instead of Udder health index
ESP (HOL)	Exclusion from national genomic evaluation of candidates and culled bulls older than 2 years old. Reduction in reliability due to reduction of parent average's reliability
DEU (HOL)	Base change
GBR (HOL)	Base change
BEL (HOL)	Base change

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 April 2021

Country	Date
CAN	20210401
DEU	20210407
DFS	20210302
FRA	20210407
GBR	20210309
NLD	20210401
ITA	20210311
HUN	20210317
BEL	20201201
ESP	20210319
POL	20210407

Table 2.

Number of bulls in reference population for scs

CAN	41682.0									
DEU	7790.0	42743.0								
DFS	4692.0	37398.0	38437.0							
FRA	4147.0	34890.0	34396.0	36726.0						
GBR	35074.0	8033.0	4903.0	4199.0	37438.0					
NLD	4210.0	36568.0	36057.0	34419.0	4456.0	38606.0				
ITA	34265.0	6758.0	3712.0	3266.0	33132.0	3330.0	35086.0			
HUN	1934.0	7655.0	7231.0	7092.0	1996.0	7393.0	1810.0	8240.0		
BEL	751.0	722.0	630.0	709.0	685.0	743.0	731.0	498.0	1754.0	
ESP	5118.0	38179.0	37379.0	34958.0	5325.0	36563.0	4182.0	7492.0	695.0	39036.0
POL	4542.0	32602.0	32484.0	30489.0	4416.0	31877.0	3521.0	7246.0	1017.0	32789.0 34588.0

Number of bulls in reference population for mas

CAN	23797.0	
DEU	6107.0	28010.0

DFS	3918.0	24705.0	25547.0						
FRA	3504.0	23165.0	22885.0	24729.0					
NLD	3436.0	23877.0	23601.0	22771.0	25350.0				
ITA	18780.0	5435.0	3230.0	2869.0	2808.0	19167.0			
HUN	1790.0	3933.0	3556.0	3520.0	3671.0	1703.0	4368.0		
ESP	4261.0	25241.0	24728.0	23194.0	23862.0	3609.0	3780.0	25938.0	
POL	3587.0	19848.0	19896.0	18822.0	19238.0	2853.0	3552.0	20014.0	21442.0