INTRODUCTION

The latest genomic test international evaluation for dairy production traits took place as scheduled at the Interbull Centre. Data from 29 countries were included in this evaluation.

International genetic evaluations for milk, fat and protein yields of bulls were computed from:
AUS BEL CAN CHE CZE DEU DFS ESP EST FRA GBR HUN IRL ISR ITA JPN KOR LTU LVA NLD NZL POL PRT SVK SVN URY USA ZAF HRV

Holstein breed data were included in this evaluation.

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

fat: BEL, CAN, DEU, ESP, FRA, AUS, DFS, GBR, ITA, NLD, POL, HUN, CZE
mil: BEL, CAN, DEU, ESP, FRA, AUS, DFS, GBR, ITA, NLD, POL, HUN, CZE
pro: BEL, CAN, DEU, ESP, FRA, AUS, DFS, GBR, ITA, NLD, POL, HUN, CZE

CHANGES IN NATIONAL PROCEDURES

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

FRA (HOL)	Base change
CAN (HOL)	Base change, changes in the genomic reference population affecting the SNP estimates, when many MACE proofs are replaced by domestic EBV that include only local progeny of these international bulls (dropping out the USA progeny data).
AUS (HOL)	Influx of New Zealand genotypes, some with data and links to Australian pedigrees, and these have specifically affected GEBVs for NZL sires
DEU (HOL)	Base change
ITA (HOL)	Base change, cut-off one year of data in line with MACE
POL (HOL)	Changes in pedigrees and in the reference population
NLD (HOL)	Base change
GBR (HOL)	Updates in data and genotypes

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

Dates for next test 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 2024

Country	Date
CAN	20240401
DEU	20240403
DFS	20240206
FRA	20240403
ITA	20240305
NLD	20240101
GBR	20240312
AUS	20201207
BEL	20201201
ESP	20240312
CZE	20240318
HUN	20231117
POL	20240131

Table 2.

Number of bulls in reference population for	mil									
CAN	45427.0									
DEU	11786.0	48243.0								
DFS	6501.0	40465.0	41515.0							
FRA	4187.0	35025.0	34551.0	36807.0						
ITA	38591.0	11226.0	5883.0	3400.0	39892.0					
NLD	4266.0	36926.0	36359.0	34490.0	3602.0	38800.0				
GBR	38314.0	12744.0	7350.0	4225.0	37872.0	4599.0	41189.0			
AUS	1499.0	949.0	780.0	760.0	1321.0	811.0	1338.0	4584.0		
BEL	729.0	728.0	652.0	710.0	722.0	741.0	686.0	291.0	1718.0	
ESP	7452.0	41699.0	40036.0	35121.0	6876.0	36880.0	8305.0	855.0	704.0	42705.0
CZE	1951.0	2470.0	1887.0	1695.0	1891.0	1732.0	1871.0	414.0	845.0	2273.0	3838.0
HUN	2291.0	8280.0	7792.0	7297.0	2271.0	7827.0	2510.0	766.0	549.0	8093.0	1428.0	9112.0

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POL  5013.0 34192.0 33958.0 30538.0  4485.0 32033.0  5457.0   695.0   994.0 34369.0  2554.0  7642.0 35761.0

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Number of bulls in reference population for        fat
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CAN 45427.0
DEU 11786.0 48241.0
DFS  6501.0 40465.0 41514.0
FRA  4187.0 35025.0 34551.0 36807.0
ITA 38591.0 11225.0  5883.0  3400.0 39887.0
NLD  4266.0 36926.0 36359.0 34490.0  3602.0 38800.0
GBR 38314.0 12744.0  7350.0  4225.0 37872.0  4599.0 41189.0
AUS  1499.0   949.0   780.0   760.0  1321.0   811.0  1338.0  4584.0
BEL   729.0   728.0   652.0   710.0   722.0   741.0   686.0   291.0  1718.0
ESP  7452.0 41699.0 40035.0 35121.0  6876.0 36880.0  8305.0   855.0   704.0 42704.0
CZE  1951.0  2470.0  1887.0  1695.0  1891.0  1732.0  1871.0   414.0   845.0  2273.0  3838.0
HUN  2291.0  8280.0  7791.0  7297.0  2271.0  7827.0  2510.0   766.0   549.0  8092.0  1428.0  9111.0
POL  5013.0 34192.0 33958.0 30538.0  4485.0 32033.0  5457.0   695.0   994.0 34369.0  2554.0  7642.0 35761.0

-----------------------------------------------------
Number of bulls in reference population for        pro
-----------------------------------------------------
CAN 45427.0
DEU 11786.0 48240.0
DFS  6501.0 40465.0 41514.0
FRA  4187.0 35025.0 34551.0 36807.0
ITA 38591.0 11225.0  5883.0  3400.0 39887.0
NLD  4266.0 36926.0 36359.0 34490.0  3602.0 38800.0
GBR 38314.0 12744.0  7350.0  4225.0 37872.0  4599.0 41189.0
AUS  1499.0   949.0   780.0   760.0  1321.0   811.0  1338.0  4584.0
BEL   729.0   728.0   652.0   710.0   722.0   741.0   686.0   291.0  1718.0
ESP  7452.0 41699.0 40035.0 35121.0  6876.0 36880.0  8305.0   855.0   704.0 42704.0
CZE  1951.0  2470.0  1887.0  1695.0  1891.0  1732.0  1871.0   414.0   845.0  2273.0  3838.0
HUN  2291.0  8280.0  7791.0  7297.0  2271.0  7827.0  2510.0   766.0   549.0  8092.0  1428.0  9111.0
POL  5013.0 34192.0 33958.0 30538.0  4485.0 32033.0  5457.0   695.0   994.0 34369.0  2554.0  7642.0 35761.0
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