

## 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  
ml: 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:

AUS (HOL) Some bulls have had genotypes updated without an increment of daughters or herds. Some bulls have been affected by relatives adding data to the reference set.  
Some bulls are missing because they changed breed from HOL.  
DFS (HOL) Started a new system for handling genotypes. As consequence few bulls with genotypes have been deleted from the system  
HUN (HOL) New GEBV provided since 2022, in a transition period from previous service owner to the new Herd-Book Society.  
NLD (HOL) SNP effects and DGTV are estimated with single step genomic system. GEBV are published from the pseudo-record system using DGV from the single step system

## 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 December 2023

Country	Date
CAN	20231201
DEU	20231205
DFS	20231107
FRA	20231206
ITA	20231107
NLD	20231201
GBR	20231110
AUS	20201207
BEL	20201201
ESP	20231115
CZE	20231120
HUN	20231117
POL	20231030

Table 2.

Number of bulls in reference population for		mil	
CAN	45149.0		
DEU	11429.0	47724.0	
DFS	5889.0	39946.0	40962.0
FRA	4185.0	35023.0	34735.0 36805.0
ITA	38723.0	11058.0	5379.0 3400.0 40041.0
NLD	4266.0	36923.0	36551.0 34490.0 3602.0 38800.0
GBR	38062.0	12290.0	6665.0 4227.0 38006.0 4600.0 40822.0
AUS	1499.0	949.0	777.0 760.0 1321.0 811.0 1356.0 4584.0
BEL	729.0	728.0	650.0 710.0 722.0 741.0 687.0 291.0 1718.0
ESP	7441.0	41487.0	40119.0 35121.0 6876.0 36880.0 8268.0 855.0 704.0 42705.0
CZE	1946.0	2462.0	1873.0 1695.0 1891.0 1732.0 1879.0 414.0 845.0 2273.0 3838.0
HUN	2291.0	8279.0	7849.0 7297.0 2271.0 7827.0 2510.0 766.0 549.0 8093.0 1428.0 9112.0
POL	5012.0	34180.0	34158.0 30537.0 4485.0 32033.0 5465.0 695.0 994.0 34369.0 2554.0 7642.0 35760.0

Number of bulls in reference population for fat

CAN	45149.0
DEU	11429.0 47722.0

