INTRODUCTION

The latest genomic test international evaluation for calving traits took place as scheduled at the Interbull Centre. Data from 18 countries were included in this evaluation.

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

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

dce:	CAN,	DEU,	DFS,	GBR,	ITA,	NLD,	HUN, ESP,	POL
dsb:	CAN,	DEU,	DFS,	,	ITA,	NLD,		POL
mce:	CAN,	DEU,	DFS,	GBR,	ITA,	NLD,	HUN,	POL
msb:	CAN,	DEU,	DFS,	,	ITA,	NLD,		POL

CHANGES IN NATIONAL PROCEDURES

Changes in the national genetic evaluation of calving 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

NEXT TEST INTERNATIONAL EVALUATION

Dates for next routine 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 2021

Country	Date
CAN	20211201
DFS	20211102
ITA	20211104
NLD	20211201
GBR	20211105
HUN	20211122
DEU	20211207
BEL	20201201
ESP	20211115
POL	20211017

Table 2.

Number of bulls in reference population for dce

CAN	37529.0								
DFS	4908.0	34419.0							
ITA	32967.0	3731.0	33836.0						
NLD	4088.0	31683.0	3268.0	34098.0					
GBR	34362.0	5034.0	32208.0	4407.0	36653.0				
HUN	2029.0	7384.0	1874.0	7555.0	2155.0	8457.0			
DEU	8564.0	33577.0	6797.0	32400.0	8828.0	7897.0	39430.0		
BEL	686.0	630.0	675.0	733.0	665.0	513.0	720.0	1430.0	
ESP	5732.0	33640.0	4265.0	32294.0	5866.0	7757.0	34641.0	695.0	35595.0
POL	4297.0	29245.0	3192.0	28422.0	4446.0	7417.0	29579.0	826.0	29809.0 30549.0

Number of bulls in reference population for mce

CAN	29935.0								
DFS	4678.0	35785.0							
ITA	26891.0	3622.0	27612.0						
NLD	3891.0	33189.0	3149.0	34880.0					
GBR	27152.0	4844.0	25986.0	4154.0	28335.0				
HUN	1987.0	7029.0	1845.0	7199.0	2115.0	8074.0			
DEU	7565.0	34967.0	6143.0	33853.0	7847.0	7531.0	39964.0		
POL	4174.0	30024.0	3143.0	29235.0	4331.0	7066.0	30330.0	31324.0	

Number of bulls in reference population for dsb

CAN	34292.0					
DFS	4717.0	32805.0				
ITA	30160.0	3604.0	30982.0			
NLD	3868.0	30141.0	3114.0	31870.0		
DEU	8197.0	32039.0	6539.0	30873.0	37640.0	
POL	4112.0	27291.0	3068.0	26511.0	27668.0	28546.0

Number of bulls in reference population for msb

CAN	27615.0					
DFS	4485.0	34226.0				
ITA	24853.0	3484.0	25538.0			
NLD	3698.0	31736.0	3003.0	33307.0		
DEU	7172.0	33485.0	5851.0	32423.0	38185.0	
POL	3989.0	28269.0	3010.0	27549.0	28608.0	29511.0