INTRODUCTION

The latest genomic international evaluation for dairy production traits took place as scheduled at the Interbull Centre. Data 32 countries were included in this evaluation.

International genetic evaluations for milk, fat and protein yields of bulls from Australia, Austria-Germany, Belgium, Canada, Czech Republic, Denmark-Finland-Sweden, Estonia, France, Hungary, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Netherlands, New Zealand, Norway, Poland, Republic of South Africa, Slovak Republic, Slovenia, Spain, Switzerland, the United Kingdom, the United States of America, Portugal, Korea, and Uruguay were computed.
Holstein breed data were included in this evaluation.

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

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

CHANGES IN NATIONAL PROCEDURES

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

DFS (HOL) New method of calculating reliabilities

BEL (HOL) Genomic evaluations for production traits have slightly changed and are performed separately for each trait (mil, fat and pro). Evaluations are now based on a single-step GBLUP modified to combine all available information following a Bayesian approach. The respective MACE breeding values for each genomic evaluation are used. Internal parameters of the ssGBLUP changed. The computation of genomic reliability has slightly changed and is now only based on the genetic variance used for the genomic evaluation and the pev obtained from the inverse of the LHS of the ssGBLUP

ESP (HOL) Annual update of the reference population and elimination of high number of duplicate genotypes. Change of base

POL (HOL) GEBVs are now calculated based on the Eurogenomic reference population

INTERBULL CHANGES COMPARED TO THE DECEMBER ROUTINE RUN

No changes in Interbull procedures

DATA AND METHOD OF ANALYSIS

Eleven 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 eleven 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.

SCIENTIFIC LITERATURE

The international genetic evaluation procedure is based on international work described in the following scientific publications:

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 2015

Country	Date
CAN	20151201
DEU	20151201
DFS	20151103
FRA	20151204
ITA	20151104
NLD	20151201
GBR	20151022
AUS	20080407
BEL	20151201
ESP	20151116
POL	20151015

Table 2.

Number of bulls in reference population for mil										
CAN	27080.0									
DEU	1506.0	31412.0								
DFS	1635.0	29589.0	31394.0							
FRA	1888.0	26371.0	27162.0	29138.0						
ITA	24410.0	1127.0	1105.0	1310.0	24847.0					
NLD	1909.0	27294.0	27965.0	24884.0	1344.0	29770.0				
GBR	25495.0	1356.0	1460.0	1673.0	24265.0	1704.0	25634.0			
AUS	508.0	381.0	368.0	374.0	305.0	476.0	482.0	3369.0		
BEL	824.0	850.0	811.0	876.0	679.0	902.0	722.0	227.0	2570.0	
ESP	1497.0	28791.0	29446.0	26943.0	1053.0	27048.0	1326.0	364.0	790.0	30121.0
POL	136.0	2500.0	2623.0	2566.0	137.0	215.0	132.0	107.0	181.0	2622.0	2748.0

Number of bulls in reference population for fat										
CAN	27080.0									
DEU	1506.0	31412.0								
DFS	1635.0	29589.0	31394.0							
FRA	1888.0	26371.0	27162.0	29138.0						
ITA	24410.0	1127.0	1105.0	1310.0	24847.0					
NLD	1909.0	27294.0	27965.0	24884.0	1344.0	29770.0				
GBR	25495.0	1356.0	1460.0	1673.0	24265.0	1704.0	25634.0			
AUS	508.0	381.0	368.0	374.0	305.0	476.0	482.0	3369.0		
BEL	824.0	850.0	811.0	876.0	679.0	902.0	722.0	227.0	2570.0	
ESP	1497.0	28791.0	29446.0	26943.0	1053.0	27048.0	1326.0	364.0	790.0	30121.0
POL	136.0	2500.0	2623.0	2566.0	137.0	215.0	132.0	107.0	181.0	2622.0	2748.0

Number of bulls in reference population for pro										
CAN	27080.0									
DEU	1506.0	31412.0								
DFS	1635.0	29589.0	31394.0							
FRA	1888.0	26371.0	27162.0	29138.0						
ITA	24410.0	1127.0	1105.0	1310.0	24847.0					
NLD	1909.0	27294.0	27965.0	24884.0	1344.0	29770.0				
GBR	25495.0	1356.0	1460.0	1673.0	24265.0	1704.0	25634.0			
AUS	508.0	381.0	368.0	374.0	305.0	476.0	482.0	3369.0		
BEL	824.0	850.0	811.0	876.0	679.0	902.0	722.0	227.0	2570.0	
ESP	1497.0	28791.0	29446.0	26943.0	1053.0	27048.0	1326.0	364.0	790.0	30121.0
POL	136.0	2500.0	2623.0	2566.0	137.0	215.0	132.0	107.0	181.0	2622.0	2748.0