

## INTRODUCTION

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The latest genomic routine international evaluation for **calving traits** took place as scheduled at the Interbull Centre. Data from 16 countries were included in this evaluation.

International genetic evaluations for calving traits of bulls from Australia, Austria-Germany, Belgium, Canada, Denmark-Finland-Sweden, France, Germany, Hungary, Ireland, Israel, Italy, Netherlands, Norway, Switzerland, the United Kingdom, and the United States of America were computed. Holstein data were included in this evaluation.

BEL, CAN, DEU, DFS, GBR, ITA, NLD submitted GEBVs.

dce: BEL, CAN, DEU, DFS, GBR, ITA, NLD

dsb: CAN, DEU, DFS, , ITA, NLD

mce: CAN, DEU, DFS, GBR, ITA, NLD

msb: CAN, DEU, DFS, , ITA, NLD

## CHANGES IN NATIONAL PROCEDURES

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

FRA (HOL)      New base

DEU (HOL)      New base

BEL (HOL)      MACE breeding values are now integrated as external information in the genomic evaluation  
                  Small modifications in data editing

NLD (HOL)      Changes in conventional evaluation (see MACE doc)

## INTERBULL CHANGES COMPARED TO THE DECEMBER ROUTINE RUN

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The Parameter-space approach (Sullivan, 2016) was used for this GMACE run:

- New residual correlations were derived to account for different heritability among country-traits
- Parameter space restrictions were used to bound GMACE results on the scale of each country
- The use of Predicted National Reliabilities (the MP.5 approach) is no longer used for the GMACE genetic evaluations. For reliability approximations, MP.5 is no longer used for reliabilities that have a defined parameter space, but MP.5 continues to be used to improve reliability predictions in countries where a bull does not have a national GEBV (i.e. where a parameter space is not defined)
- Information about bull controlling country (file 734) and genotyped animals (file 733) is now extracted directly from IDEA

Sullivan, P.G. 2016. Defining a Parameter Space for GMACE. Interbull Bulletin 50, p 85-93.

## DATA AND METHOD OF ANALYSIS

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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.

The parameter-space approach is used for the GMACE genetic evaluations (Sullivan, 2016)

## SCIENTIFIC LITERATURE

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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

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Dates for next routine run can be found on  
<http://www.interbull.org/ib/servicecalendar>

## NEXT TEST INTERNATIONAL EVALUATION

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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 minimizing the need to resort to conversions.

At the same time, all recipients of Interbull results are expected to honor 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 2017

Country	Date
CAN	20170401
DFS	20170306
ITA	20170306
NLD	20170401
GBR	20170304
DEU	20170404
BEL	20170401

Table 2.

Number of bulls in reference population for								dce
CAN	29801.0							
DFS	2181.0	26328.0						
ITA	26951.0	1526.0	27417.0					
NLD	2477.0	25776.0	1815.0	27785.0				
GBR	26671.0	1949.0	25726.0	2233.0	27065.0			
DEU	2382.0	25482.0	1821.0	26083.0	2180.0	27613.0		
BEL	1180.0	855.0	1085.0	956.0	807.0	948.0	2103.0	

Number of bulls in reference population for								mce
CAN	24074.0							
DFS	2117.0	26836.0						
ITA	21976.0	1509.0	22251.0					
NLD	2391.0	26297.0	1768.0	27676.0				
GBR	21204.0	1908.0	20750.0	2171.0	21521.0			
DEU	2289.0	26032.0	1761.0	26532.0	2118.0	28027.0		

Number of bulls in reference population for dsb

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CAN 27397.0  
DFS 2166.0 26035.0  
ITA 24689.0 1517.0 25150.0  
NLD 2446.0 25490.0 1792.0 26907.0  
DEU 2356.0 25198.0 1802.0 25701.0 27184.0

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Number of bulls in reference population for msb

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CAN 22425.0  
DFS 2105.0 27019.0  
ITA 20410.0 1501.0 20682.0  
NLD 2366.0 26481.0 1745.0 27859.0  
DEU 2277.0 26217.0 1752.0 26801.0 28268.0