

## INTRODUCTION

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The latest genomic routine international evaluation for **workability traits** took place as scheduled at the Interbull Centre. Data from 6 countries were included in this evaluation.

International genetic evaluations for workability traits of bulls from Austria-Germany, Canada, Denmark-Finland-Sweden, France, Italy, Netherlands, Norway and Switzerland were computed.

Holstein data were included in this evaluation.

CAN, DEU, FRA, DFS, GBR, NLD submitted GEBVs.

msp: CAN, DEU, FRA, DFS, GBR, NLD, ITA

tem: , , , DFS, GBR, NLD, DEU

## CHANGES IN NATIONAL PROCEDURES

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

FRA HOL New base and Inclusion of FRR population in HOLFRA

DEU HOL New base. First participation for tem

ITA HOL First participation for msp

## 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 heritabilities 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

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 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

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Country	Date
CAN	20170401
DEU	20170404
DFS	20170306
FRA	20170405
NLD	20170401
GBR	20161201
ITA	20170306

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Table 2.

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Number of bulls in reference population for	msp					
CAN	17402.0					
DEU	1966.0	27474.0				
DFS	1806.0	25676.0	26352.0			
FRA	2128.0	24872.0	24642.0	26495.0		
NLD	2007.0	26168.0	25927.0	25139.0	27367.0	
GBR	14568.0	1804.0	1640.0	1922.0	1820.0	14925.0
ITA	15041.0	1477.0	1237.0	1513.0	1432.0	13742.0 15191.0

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Number of bulls in reference population for	tem			
DEU	25005.0			
DFS	23437.0	24012.0		
NLD	23928.0	23671.0	25052.0	
GBR	1741.0	1578.0	1756.0	14590.0