

## INTRODUCTION

The latest genomic routine international evaluation for workability traits took place as scheduled at the Interbull Centre. Data from 15 countries were included in this evaluation.

International genetic evaluations for workability traits of bulls from Australia, Canada, Czech Republic, Denmark-Finland-Sweden, France, Germany, Italy, Japan, Netherlands, New Zealand, Poland, Slovenia, Spain, the United Kingdom and Switzerland were computed. Holstein data were included in this evaluation.

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

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

## CHANGES IN NATIONAL PROCEDURES

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

DEU (HOL) msp re-included (blocked in 2009t)

## 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.

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 2020

Country	Date
CAN	20201201
DEU	20201201
DFS	20201103
FRA	20201202
NLD	20201201
GBR	20201020
ITA	20201104
ESP	20201110

Table 2.

Number of bulls in reference population for	msp
CAN	22202.0
DEU	5082.0 37521.0
DFS	3762.0 34430.0 35299.0
FRA	3614.0 32556.0 32171.0 34160.0
NLD	3543.0 33966.0 33627.0 32207.0 35413.0
GBR	18618.0 5233.0 3917.0 3680.0 3742.0 20505.0
ITA	18981.0 4423.0 3045.0 2908.0 2848.0 17795.0 19453.0
ESP	4298.0 35157.0 34783.0 32675.0 34137.0 4478.0 3538.0 36070.0

Number of bulls in reference population for	tem
DEU	32870.0
DFS	30042.0 30727.0
NLD	29641.0 29214.0 30904.0
GBR	4804.0 3466.0 3352.0 19679.0