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INTRODUCTION
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The latest genomic test 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 were computed from:
AUS CAN CHE DEU DFS FRA GBR NLD SVN NZL ITA JPN ESP CZE POL
Holstein data were included in this evaluation.

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

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


CHANGES IN NATIONAL PROCEDURES
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Changes in the national genetic evaluation of workability traits are as follows:

FRA (HOL)    Changes in proof for some bulls due to changes in their information and consequent change in their status
DFS (HOL)    Drops in reliability, reliabilities provided in April have been found too high
ITA (HOL)    Base change in line with MACE
ESP (HOL)    New GEBVS are calculated with SNPBLUP applying afterwards the f factor described by the Interbull genomic reliability
             method for adjusting genomic reliabilities.


INTERBULL CHANGES COMPARED TO THE DECEMBER ROUTINE RUN
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No changes in Interbull procedures

DATA AND METHOD OF ANALYSIS
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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
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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 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 August 2021
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Country  Date
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CAN      20210801
DEU      20210810
DFS      20210810
FRA      20210811
NLD      20210801
GBR      20210309
ITA      20210714
ESP      20210701
POL      20210810
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Table 2.
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Number of bulls in reference population for       msp
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CAN 22584.0
DEU  5587.0 35987.0
DFS  3994.0 32841.0 33765.0
FRA  3617.0 30793.0 30400.0 32358.0
NLD  3562.0 32105.0 31713.0 30404.0 33512.0
GBR 18979.0  5865.0  4255.0  3728.0  3873.0 21025.0
ITA 18954.0  4607.0  3101.0  2897.0  2828.0 17765.0 19362.0
ESP  4666.0 33688.0 33237.0 30886.0 32228.0  4983.0  3638.0 34686.0
POL  4011.0 28293.0 28200.0 26459.0 27594.0  3986.0  3114.0 28635.0 29838.0

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Number of bulls in reference population for       tem
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DEU 33612.0
DFS 30482.0 31275.0
NLD 29847.0 29353.0 31094.0
GBR  5411.0  3825.0  3517.0 20253.0
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