



ICAR WGs, TFs and SCs Report

Date of report	May 2013
SC/WG/TF/ name	Interbull
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	Box 7023, 750 07 Uppsala, Sweden	
Members left	None	
Meeting(s) since June 2012	<u>Last meetings:</u> <ul style="list-style-type: none"> • Cork, Ireland, May 28-Jun 1, 2012 • Conf. call, Jun 29, 2012 • Conf. call, Dec 10, 2012 • Uppsala, Sweden, Jan 8, 2013 • Conf. call, Feb 22, 2013 • Conf. call, Apr 24, 2013 	<u>Next meetings:</u> <ul style="list-style-type: none"> • Conf. call, Jun 4, 2013 • Nantes, France, Aug 23-25, 2013
Participation	Full +: all members attended (one absence – Marj Faust, Apr 24, 2013)	
Key Agenda Issues	<p>June 1, 2012</p> <ol style="list-style-type: none"> 1. Interbull Centre report 2. Nomination of SC members 3. Report from ITC 4. Conformation evaluations 5. Review of Code of Practice 6. Status on Robust GMACE 7. Business plan for genomic data repository 8. Survey on conversion equations 9. Status on IDEA database 10. SAC report 11. Interbull strategic plan follow up 12. Future Events <p>June 29, 2012</p> <ol style="list-style-type: none"> 1. Status on Robust GMACE 2. Data access agreement for GMACE 3. Survey for genomic data repository 4. Business plan for truncated MACE 5. Interbull strategic plan follow up 6. ARC & Stud Book dispute in South Africa 7. SAC request for guidance <p>December 10, 2012</p> <ol style="list-style-type: none"> 1. GMACE 2. 2013 calendar for GEBV test 3. January 7-8 workshop <p>January 8, 2013</p> <ol style="list-style-type: none"> I. Reflections on Strategic Planning Meeting II. Status of actions on action list (from Cork) and reports from WG's III. GMACE IV. Fee structure for genomic services V. Investments for 2013 	

	<p>VI. NAC contract VII. Interbull ToR VIII. Guidelines for International Animal ID in the Interbull framework</p> <p>February 22, 2013</p> <p>IX. January 2013 MACE test run X. Data received for February 2013 GMACE test run XI. New software for GEBV test XII. Proposed actions for the strategic plan XIII. Proposal of post-GMACE test run policy XIV. Publication policy proposal XV. Budget for GMACE XVI. New service agreements</p> <p>April 24, 2013</p> <p>1. GMACE WG recommendations 2. Publication policy proposal 3. Budget for GMACE 4. New service contract 5. GMACE test run policy 6. ICAR guidelines: animal ID 7. Changes in SAC membership 8. SC mandates ending in 2013</p>
Important Decisions made since June 2012	<p>Executive summaries of the Interbull SC main decisions have published and are added as attachments to this report:</p> <p>I. SC Executive Summary – June 2012 II. SC Executive Summary – December 2012 III. SC Executive Summary – January 2013 IV. SC Executive Summary – May 2013</p>
Active cooperation and links to other ICAR SC/WG/TFs and other international bodies such as ISO, EU, IDF, ISAG, world breed organisations, manufacturers etc	<p>The Interbull Centre has been actively involved in EU legislation on breeding animals, given its status of European Union Reference Laboratory for Zootechnics</p>
Issues to be handled by the Board & Deadlines	<p>The SC would like to receive clarification about how ICAR membership policy affects Interbull and its services, see the discussions at the strategic planning session in Jan 2013 with participation of the Ex board of ICAR</p>
Top 3 to 5 Issues for this SC/WG/TF	<p>Key strategic issues from the strategic plan (Jan. 2013):</p> <p>1. World class genomic infrastructure and services for diverse customer needs 2. State-of-the-art classical genetic evaluation services 3. Business operations and image 4. Strategic communications and marketing</p>

	5. Network for research collaboration, quality assurance and best practice methods
How does this SC/WG fit into ICAR strategy?	Active part in supporting ICAR as setting worldwide Standards for genetic evaluation
In the chair's opinion how can the Secretariat give greater assistance to the working of the SC/WG?	<ul style="list-style-type: none"> • The support in general is good • Improvement can be made in providing of numbers of cattle from ICAR members that are customers of Interbull

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2012 INTERBULL MEETING

Cork, Ireland

May 28 to June 1, 2012

EXECUTIVE SUMMARY

A total of 174 representatives from 35 countries gathered at the Rochestown Park Hotel in Cork, Ireland, for the Interbull annual meeting in connection with the ICAR 2012 Conference. The proposal in 2012 was to have a program fully integrated with the ICAR conference and therefore it took a different format from previous years: the business meetings were shorter and the Open Meeting was only one day, but two additional sessions were organized jointly with ICAR/Interbeef. The overall experience was considered very positive by the Steering Committee (SC), with the only reservation being that longer business meetings would be desirable to stimulate more interaction with and among Interbull customers and collaborators. Several important issues were debated and key decisions were made. This executive summary aims to inform the Interbull community of these developments.

Before we go on, however, **we would like to express our sincere gratitude to the Irish organizers, in particular the Irish Cattle Breeding Federation (ICBF), for a perfect organization and for the extremely friendly environment we all enjoyed very much!**

INTERNATIONAL GENOMIC EVALUATIONS OF YOUNG BULLS (R-GMACE)

- Working group: Jette Jakobsen, Pete Sullivan, Paul Van Raden, Gerben de Jong, Zengting Liu
- Planned test run in September 2012
- Most questions from the Verona workshop were resolved, remaining issues are being addressed by working group
- Interbull Centre will contact participating countries early August to confirm test run
- Participating countries need to validate national GEBVs
 - Same rules as for conventional MACE validation will apply for participation in R-GMACE, i.e. All traits included in MACE, with the exception of conformation, in which the mandatory traits are stature, udder support and if 10 years of data is available, body condition score and locomotion
 - Alternatively, validate milk, fat and protein yields, somatic cell score, direct longevity, stature and cow conception rate (CC1) in July 16, 2012, and the other traits in October. Traits that have been validated during the past two years do not have to be submitted for validation again
- Decision timeline
 - September: R-GMACE test run will start 2 weeks after normal test run
 - October/November 2012: ITC + participating countries evaluate test run results
 - December 2012: Decision by SC
 - January 2013: 2nd test run
 - April 2013: 1st routine run (goal)

VALIDATION OF NATIONAL GEBVS

- GEBV validation results for non-production traits were analyzed by the ITC and no concerns were raised
- New rule:
 - Validation should only be noted as failed if regression coefficients are significantly lower than the expected value (=over evaluation of young bulls)

MENDELIAN SAMPLING VALIDATION

- The latest results of the joint project between MTT, NAV and Interbull Centre about the MS validation methodology were presented during the Open meeting
- The next steps in the project are to:
 - Examine how the methodology behaves with low heritability traits
 - Study how sensitive the method is to detect genomic pre-selection
 - Apply reviewed method to the data sets used to test MS validation in the past
 - The Interbull Centre will investigate if variances of national EBVs generated by the verify program and/or REML estimates of sire variances can provide auxiliary information to detect unexpected MS trends

NEW RULE FOR MACE RESULTS DISTRIBUTIONS

- Currently, only MACE evaluations from bulls where the country of first proof has sent data are distributed
- Decision:
 - MACE evaluations should be distributed either if country of 1st evaluation sends data for a given bull-trait combination OR if at least one other country, with 2nd crop evaluations for a given bull-trait combination based on at least 150 daughters in 50 herds sends data.

OVERALL CONFORMATION TRAITS

- Interbull plans a separate test run following the traditional test run in September 2012 for estimation of Overall conformation from linear type traits and composite traits based on the method proposed by Miglior et al. (2007).
 - Countries that submit overall conformation EBVs for MACE that are different from the ones published nationally will be requested to send the latter for the test run. Further instructions will be sent to all national evaluation centers in due time before the September 2012 test run.

CONVERSION EQUATIONS

- A survey on conversion equations was conducted during the Spring 2012 with the aim to investigate the size of the problem of converting proofs on non-published scales. The result of the survey indicated that the problem is minor and it was decided to include a code in the parameter file indicating if the country-breed-trait combination submitted to Interbull is on the published scale. The retained information will be included in the file with conversion equations sent back to countries. Further instructions will be sent to all national evaluation centers in due time before the September test run.

BUDGETS & FINANCES

- A significant negative balance shown in the 2011 financial report caused concern among customers and collaborators
 - Negative results were already expected in Stavanger, and they were the basis for readjusting the service fees in 2012
 - Additionally, the Interbull Centre is making a series of investments to cope with the new scale of services as well as the development of new services related to genomics

- 2011 also had a lower income from SLU grants and due to the delay on the Interbeef agreement, as well as higher costs for personnel, partly due to hiring a new data base administrator
- Finances are in balance for 2012 and 2013, but the 2013 budget may change depending on potential new services to be provided

INTERNATIONAL REPOSITORY OF GENOTYPES

- Following the demands from previous meetings options for housing of genotype data was evaluated by the Interbull Centre:
 - In house development (GenoSwap)
 - Commercial software (BC|SNPmax platform)
 - Use of an available system from collaborators (e.g. IGenoP)
- Given that the investment is significant, the SC wants to clearly define the potential demands and then make a decision. To achieve this aim a questionnaire will be send out soon to potential customers of the service.
- This is a proposal that might lose its appeal over time and therefore it will be examined with urgency by the SC

SC WORKING GROUPS

- Interbull key documentation needs to be reviewed and the SC has a number of working groups to carry out the task
 - Code of Practice
 - Publication rules
 - Data access
 - Interbull Guidelines
- Interbull Terms of Reference will also be reviewed as part of the strategic planning of the SC

OTHER ISSUES

- The ITC has created a working group to evaluate the post-processing of genetic correlations used in MACE
- The Interbull Centre has presented the latest developments on the Interbull Data Exchange Area (IDEA), which include
 - A new version of the pedigree module to be tested during the Summer and implemented into service after the August 2012 run with improved performance and functionalities
 - GenoList: a module for exchange of genotyped animal lists, which is expected to be put into production before the end of 2012
 - AnimInfo: a simple proposal to handle additional animal information, which is also planned to be released before the end of 2012
- Other important issues reported and discussed in Cork can be found in the 2012 Interbull Centre Report at http://www.interbull.org/index.php?option=com_content&view=article&id=28&Itemid=62



December 12, 2012.

EXECUTIVE SUMMARY

The Interbull Steering Committee (SC) has reviewed the current state of development of the international evaluation of genomic breeding values (GMACE) in a conference call on December 10, 2012. The main discussion points and decisions are summarized in this document.

ITC Recommendations

Most of the technical issues from the Cork meeting were addressed by the GMACE working group and the recommendations from the ITC that have been endorsed by the SC are:

- a. The GMACE implementation tested in the September 2012 test run is considered technically sound and should be adopted in the following test run aiming for implementation in 2013.
- b. Results from the next test run should be available to the countries as early as possible to allow a good communication with the national industries.
- c. Progeny of genomically proven sires (without a MACE EBV) should be included in GMACE for GEBV prediction.
- d. A working group to develop a standard genomic reliability estimation procedure should be formed in the January 2013 SC meeting.

Other GMACE-related issues

- **GEBV test** - The Interbull Centre (ITBC) will present a report on the current status of the GEBV test among trait-populations participating in GMACE to the ITC and SC in order to establish a clear policy for participation in the GMACE runs. The trait-populations pending validation will also be communicated by the ITBC.
- **Distribution and publications policies** - In the September 2012 GMACE test run only the national GEBVs from young bulls holding an official national publication status in at least one country were included in the GMACE breeding value prediction. This policy is under discussion and involves two aspects: distribution of GMACE results of young bulls holding unofficial national publication status is necessary to allow the national genetic evaluation centers to evaluate the quality of the results, in addition to the need of establishing a clear publication policy for GMACE results that preserves the national autonomy regarding publication criteria. The SC will define both distribution and publication policies in the next SC meeting (January 8, 2013).
- **Test-run policy after GMACE** - After implementation of GMACE, countries testing changes in the national genetic or genomic evaluations during Interbull test runs will be required to send both the conventional EBVs from the modified model and the GEBVs from the equivalent genomic model to the ITBC. Regulating data submission for test runs is needed to guarantee synchronization between the national EBVs and national GEBVs to be included in simultaneous MACE and GMACE runs, so that both come from the same round of evaluation,

with same trait definition, same genetic base and same scale. This policy has as consequence that implementing changes tested in either MACE or GMACE test runs must be made for both national conventional and genomic evaluations at the same time.

- **Turnaround time for official routine runs** - Given that GMACE evaluations are to be performed simultaneously to MACE evaluations during routine runs, the SC is evaluating if keeping a two-week turnaround time for routine runs is still realistic, and a decision is to be made soon.
- **Plans for implementation** – After evaluating the working days left until the January 2013 test run and the April 2013 routine run and considering the need to provide proper time for national centers to communicate about GMACE results with the breeding industry, the SC decided to implement GMACE evaluations at the August 2013 routine run.
 - A new data call for the next GMACE test run will be sent to participating countries on December 13, 2012.
 - Data submission deadlines:
 - ***January 15 (MACE test run):***
 - pedigrees,
 - national EBVs for MACE,
 - Intergenomics genotypes and
 - conventional validation files
 - ***February 19 (GMACE test run):***
 - national GEBVs for GMACE and
 - GEBV test validation files.
 - GMACE test run results will be distributed in March 2013 to allow plenty of time for checking and discussion with the industry.
 - Countries not sending GEBVs for GMACE will also receive results from the February 2013 GMACE test run.
 - There will be no additional test run for GMACE before implementation in August 2013. Populations willing to join need to participate in February 2013.
 - After GMACE is implemented for Holstein the procedure will be extended to the other breed groups according to the existing demand.

Strategic planning workshop

The Strategic planning meeting will involve the members of the SC, SAC and ICAR board and will take place in Uppsala, Monday January 7 and Tuesday January 8. Dr. Jarmo Juga, from University of Helsinki, will act as the facilitator.



January 24, 2013.

EXECUTIVE SUMMARY FROM INTERBULL STEERING COMMITTEE

The Interbull Steering Committee met in Uppsala in January 8, 2013, following a two day strategic meeting in which also participated members of the Interbull Scientific Advisory Committee (SAC) and of the ICAR Executive Board. Main discussion points and decisions are summarized below.

Strategic Planning Meeting

The strategic planning session was very comprehensive and yielded a structured framework to guide Interbull for the next three years. Jarmo Juga acted as facilitator and his contribution is greatly appreciated. Detailed information about the outcomes from the meeting will be made public as soon as possible in a specific communication.

Robust GMACE

Input data and distribution of GMACE results

- All bulls 2-5 years of age and passing initial edits are included in the GMACE processes for variance estimation
- All bulls passing the initial edits (less than 7 years of age and no conventional proof) are included in the GEBV prediction (as opposed to the November 2012 test run, when only official national GEBVs were included for GEBV prediction).
- IN TEST RUNS, all bulls older than 2 years and official bulls younger than 2 years of age and included in GMACE will be distributed back to countries for checking results, when by default nobody is allowed to publish or utilize Interbull results at the national level.
- Only bulls that have official publication status in at least one population will be distributed during ROUTINE RUNS.
- The Interbull Centre will distribute additional statistics during routine runs to allow countries to further verify the quality of results.
- The SC will further discuss how to assign official publication status in GMACE routine runs in a conference call to be scheduled within two months and provide details to users.

GEBV test

- Only population-traits passing the GEBV test will be included in the February 2013 GMACE test run for which results are expected to be circulated to all countries in March 2013.
- Consequently, the GEBV test will be applied to submitted data right after the deadline (February 19) and before starting the GMACE test run.
- Only population-traits included in the February GMACE test run can participate in the first GMACE routine run (August 2013), following the historical Interbull test run policy.

- After February 19th, the GEBV-test deadlines for 2013 are July 1st and November 4th. Passing the GEBV-tests in July and November will allow participation in the September 2013 and January 2014 test runs, respectively.

Working Group for standardization of genomic reliability computations

The SC decided to invite a group of accomplished scientists to form a working group to recommend principles for standardization of genomic reliability computations with the purpose of improving international comparisons of genomic values. As a SC member, Bevin Harris will act as the WG convener and the other members are in the process of being invited.

Service Agreements

The SC is working on a service agreement for participating in and the publication of GMACE results at the national level and the Interbull Centre will propose new service contracts to all users to include both MACE and GMACE services. Therefore, all participants in Interbull services will be requested to sign new service contracts in the near future, prior to the August 2013 routine run.

Fee structure for genomic services

Currently, there are two service fees related to genomic services: Intergenomics fees and a fee for participation in the GEBV test. Implementation of GMACE will demand extra resources and therefore require a service fee to be added. After deliberation, the SC decided:

- The GEBV test fee should be maintained, since it is independent of GMACE (countries participating in Intergenomics as well as countries that are willing to conform to EU regulations also participate in the GEBV test).
- The Interbull Centre should present to the SC before the next conference call an activity-based budget with the GMACE-specific dedicated resources in order to quantify the amount of fees needed.
- Concomitant to the budget, the Interbull Centre should present also a GMACE fee structure proposal, and a decision must be made by the SC and communicated to users within two months.
- Only countries submitting GEBV data to GMACE will be charged with GMACE fees, although all countries participating in MACE runs will also receive GMACE results on their respective scale.

Turnaround time for official runs

The SC has decided to increase the turnaround time for the August 2013 official routine run from the current 14 days to 21 days. The main arguments favoring this increase in the turnaround time are:

- GMACE runs represent a completely new activity to be added to a quite tight existing schedule of activities to be performed between data reception and pre-release dates.
- Both national evaluation centers and the Interbull Centre will require significant additional resources for data preparation and checking on top of what is already involved in the MACE runs.
- Any detection of problems in the MACE results after the pre-release date will imply MACE re-runs and consequent GMACE re-runs, with almost no time opportunity for result checking.
- The complexity of MACE runs already require a big effort for countries to check results between pre-release and official release dates, and adding checks for GMACE at national and international levels doubles the number of HOL files to check – therefore the main goal with the proposal is to

increase the time between pre-release and official release dates and allow countries to perform more checks.

At the time of the next Interbull Business Meeting scheduled for August 2013, the SC will seek feedback from participating countries regarding the likely need to allow a 21-day turnaround time for all Interbull routine runs after the August 2013 release.

Therefore, the work plan for the August 2013 routine run is:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		Jul 23	Jul 24	Jul 25	Jul 26	Jul 27
		Data submission deadline (EBVs, GEBVs, pedigrees, Intergenomics genotypes)				
Jul 28	Jul 29	Jul 30	Jul 31	Aug 1	Aug 2	Aug 3
	MACE pedigree release			MACE results pre- release		
Aug 4	Aug 5	Aug 6	Aug 7	Aug 8	Aug 9	Aug 10
	GMACE pedigree release	GMACE results pre-release Message to countries about likelihood for publication of MACE results on Aug 13			Message to countries about likelihood for publication of GMACE results on Aug 13	
Aug 11	Aug 12	Aug 13				
		Official release of Intergenomics, MACE and GMACE results				

Genomic data repository and exchange platform

One clear outcome from the strategic plan was the urgency of Interbull establishing a data base for genomic data. A business model based on results of the survey conducted among Interbull collaborators in August and September 2012 was discussed by the SC and the relevant points were:

- Services involving parentage SNPs (either ISAG approved or subset of approximately 400 SNPs from the 50K panel) should not compete with the national authorities for parentage verification.
- Target a broader portfolio of breeds than the ones currently included in the Interbull international comparisons.
- Consider subcontracting the database services from a well-established organization in the field as an option to speed up implementation of the first types of services. It was made clear, that this can only be an interim solution before the system is hosted at Interbull.
- Seek the technical advice of an expert group regarding the potential options to structure such service in an optimized way.
- Given the urgency of responding to the expectations, the business plan should be finalized and be ready for implementation within the next three months.

EXECUTIVE SUMMARY FROM THE INTERBULL STEERING COMMITTEE

An Interbull Steering Committee (SC) web and conference call occurred on April 22, 2013. Main discussion points and decisions are summarized below.

GMACE Implementation

As previously advertised, GMACE regular services will start being offered in conjunction with the August 2013 routine run and more details about this important implementation are given here:

- Service calendar: a detailed proposal will be presented by the SC at the 2013 Interbull business meeting in Nantes, France (August 23-25, 2013), in order to consider the feedback from the Interbull community.
- The August 2013 run will be considered as a routine run. In Nantes there will be a review of this first routine run. Since it is a completely new service the Interbull SC will decide on the feedback, from when on national genetic evaluation centers will be obliged to make all the results from MACE and GMACE routinely available. The current plan is to require this for the December 2013 routine run.
- Distribution files in GMACE runs will include all bulls that have an official/publishable genomic evaluation in at least one country and be known to have semen available for A.I.
- Interbull will start offering Truncated MACE services in 2014 to support national genomic programs.
 - Truncated MACE will use as input national EBVs obtained from the current national model but removing the 4 most recent years of phenotypic data, and its main purpose is to supply data for national genomic validations.
 - This is particularly important for groups of countries sharing the same reference population for genomic predictions.

Publication Policy Proposal

The “Guidelines for minimum requirements for advertising genetic merit of dairy animals” was reviewed to include publication of GMACE results and it is available at <https://wiki.interbull.org/public/CoPAppendixV?action=print&rev=7>.

Budget for GMACE

Adding GMACE to the service portfolio significantly increases the workload at the Interbull Centre. Therefore, the Steering Committee approved a modification to the service fees in order to cover the associated costs. The adopted fees are expressed in Table 1.

Table 1. Fee per service category expressed as a proportion of the fee for MACE - production traits.

MACE							GEBV test + Truncated MACE	GMACE
Production	Conformation	Udder Health	Longevity	Calving	Female Fertility	Workability		
1.00	0.30	0.15	0.15	0.15	0.20	0.05	0.15	0.35

Additional information:

- As for the other service categories, only organizations submitting data (national GEBVs) to the GMACE evaluations will be required to pay the associated fees.
- The GEBV validation test fee will decrease from 20 to 15% of the MACE - production traits fee and, effective 2014, will also cover the costs of an annual Truncated MACE run.
- A new fee, equivalent to 35% of the MACE - production traits fee, will be added to cover costs of GMACE runs for all traits.
- For 2013, fees related to GMACE services will be equivalent to 2/3 of the total fee (~23% of the MACE - production traits fee), since there will be only 2 out of 3 routine runs (i.e.: August and December 2013).
- For 2014, fees for GMACE will be charged for a complete year.
- The fees for GMACE and GEBV-test should be re-evaluated during the Interbull business meeting in 2014.

New Service Contract

As new items are added to the Interbull service portfolio, a new service contract template was approved by the SC to replace the current contracts and agreements between the service users and the Interbull Centre. The proposed text aims to:

- clearly define all actors involved in Interbull services and their respective roles;
- having a single legal instrument to regulate the commercial relationship between the above mentioned actors, instead of service category-specific agreements as it is currently;
- include the new services to be offered by Interbull in the near and more distant future (GMACE, for instance); and
- refer to the Interbull Code of Practice (CoP) for any detailed description of the services and the collective agreement underlying Interbull cooperation.

The new service contract is meant to replace all the current contracts and agreements which will be considered no longer valid after November 30, 2013. The template for the new contract can be found at <https://wiki.interbull.org/public/New%20Service%20Contract%202013?action=print>.