



MINUTES INTERBULL BUSINESS MEETINGS

SATURDAY 26 AUGUST 2017: 13:30 – 15:30;

SUNDAY 27 AUGUST 2017: 13:00 – 14:30.

VENUE: HOTELL EUROOPA; PAADI TN 5, TALLINN, HARJU MAAKOND, 10151 ESTONIA

AGENDA:

1. Opening
2. Adoption of agenda
3. Interbull Centre report
 - a. Activities
 - b. Work plans
 - c. Financial accounts and budgets
4. Interbull Technical Committee report
5. Interbeef working group report
6. Updates on services (incl Requests and Suggestions from Interbull Users)
 - a. InterGenomics-Holstein
 - b. Genotype Exchange (PSE and GDE)
 - c. ICAR Parentage Analysis Accreditation of DNA Data Interpretation Centres
 - d. Refinement of ID information in Interbull files
 - e. Use of AnimInfo for exchange of information on genetic traits
 - f. Organisation of Open Meetings
7. Governance
 - a. Report on Interbull-ICAR Operations Task Force
 - b. Nominations of Steering Committee members
8. Strategic Developments.
 - a. International R&D on feasibility study to Combine SNP solutions across countries; “SNPMACE”
9. Calendar for future events
10. Other matters

MINUTES BUSINESS MEETING 1

SATURDAY 26 AUGUST 2017

1. Opening (Reinhard Reents)

Reinhard Reents, Chairman of the Interbull Steering Committee, welcomed everybody to the 2017 Interbull Business Meeting. He acknowledged the support of the Estonian Ministry, and the staff at Hotell Euroopa and EAAP in organising the meeting. Reinhard also introduced the new president of ICAR, Jay Mattison, and gave an introduction of Interbull.

2. Adoption of Agenda (Reinhard Reents)

The Business Meeting will, as usual, be held over two days; 26 and 27 August 2017. During the present meeting, items 1 to 6 will be addressed. The rest of the items will be addressed during the second business meeting.

The agenda was adopted in all its parts; no other matters were raised.

3. Interbull Centre Annual Report

Toine Roozen, Interbull Centre Director, briefly introduced the Interbull Centre, emphasising that its status as European Union Reference Centre has been confirmed, also after the introduction of the new EU Animal Breeding law on 1 November 2018. He presented the Interbull Centre personnel and reminded that the Interbull Centre achieved ISO certification in 2016.

3a Interbull Centre Activity Report (Hossein Jorjani)

Activities: Hossein Jorjani, Service Manager at the Interbull Centre, presented the past evaluations and validation procedures. A tool to better determine if a country-breed-trait combination will need to provide validation results is currently under investigation by the Interbull Technical Committee.

A new validation method, Mendelian Sampling trend validation, has been approved by the Steering Committee and introduced for production traits for the September test run. Results from the Mendelian Sampling trend validation alone will not be used to reject/accept any data, but together with the results from the conventional validation tests will provide a better understanding of what happens to evaluations/trends at national levels.

The operation size for MACE, GMACE, InterGenomics and Interbeef were presented. MACE has reached around 1900 country-breed-trait combinations. The number of genotyped animals for InterGenomics is increasing over the years: the reference population contains now around 7000 BSW bulls. Simmental beef has recently been added to the evaluation of adjusted weaning weight for Interbeef.

Hossein also presented an overview of the latest research and development activities. InterGenomics 2.0 is taking further steps of implementation: InterGenomics 2.0 regards quality assurance procedures for InterGenomics - both at national and international level.

The latest results for **Robust MACE** have been discussed within the Interbull Technical Committee; an issue on the high value of **reliabilities for GMACE mastitis** has been addressed by Pete Sullivan and resolved with the introduction of a new method for calculating reliabilities. This method has been used in the Interbull evaluation since January 2017. No further concerns about higher values of reliability for mastitis have been reported by countries since.

Hossein emphasised that continuous improvements of IDEA and workflows are taking place at the Interbull Centre. **IDEA AnimInfo** was introduced in January 2016 as a common repository for any additional information a country would like to provide to an animal stored in IDEA pedigree. The functionality has found several applications: storing information on percentage of red Holstein breed in Simmental animals, providing additional information for GMACE evaluation (file 733 and 734) and in 2017 it has been tested for uploading genetic traits for the Holstein breed.

The Interbull Centre is currently developing “**IDEA duplicates**” in order to facilitate countries processing duplicate IDs more efficiently.

3b Interbull Centre Work Plans (Toine Roozen)

Toine Roozen presented the **work plans** for dairy and beef evaluations. Toine explained that the 2018 Service Calendar for dairy evaluations was published in March 2017: www.interbull.org/ib/servicecalendar, and re-emphasised that the August 2018 release date will be 7 August (which is the first Tuesday in August). This is not a change of policy on release dates that was set in 2009, but a one-off, and from 2019 onwards, the August release dates will be the second Tuesday in August again.

3c Interbull Centre Financial Report (Toine Roozen)

Toine presented details on the draft Finance Report that had been posted online prior to the Business Meeting. The finances have been split in four different tables: one for each of the three types of service offered by Interbull Centre (dairy evaluations, beef evaluations and genotype exchange), as well as a table with the consolidated information.

Toine explained changes in how EU Reference Laboratory funds are now received: during the time that the grant was annual, the payments were evenly spread over the years. Since the grant has become a two-year grant, the EU's payment system has resulted in fluctuations in the amount that is paid each year. This is also as such reflected in the tables.

Interbull (dairy) account: the forecast for this year's income is lower than budgeted. While the major differences in costs are due to the expected additional consultancy costs for SNP_{Mace}. The balance for budgeted and projected results appears negative, mostly due to the EU funds which are expected to be received in 2019, and because part of such funds has been already allocated to fund the SNP_{Mace} project. Overall, the dairy finances look better than what was budgeted.

Interbeef account: Income of €100 000 is through an ongoing contract with Service-ICAR. For 2017, the expenses are expected to be about 10% over budget due to extra work allocated for inclusion of new traits in 2018. For next year it is expected to get back to normal.

GenoEx-PSE account: the project was first budgeted in 2014 with income expected for 2017. The project required more development than initially expected/planned and has therefore encountered delays. It is now expected to start generating income in 2018. Current income has been based on 60k grants from ICAR and SLU each and 13k from Interbull (dairy) reserves.

In general the overall budgets for 2017 and 2018 are in line with what budgeted. There have been some lower costs in 2017 due to two members of the staff leaving their positions. Overall accumulated balance is +486k.

Brian Van Doormaal commented on the costs for GenoEx-PSE: the project has been a big investment: this is not only a resource to be used by the Interbull Centre, but is a resource for the whole Interbull and ICAR community. He hopes that the community will recognise these efforts and will be ready to join the service when it will be launched.

4. Interbull Technical Committee report (Gert Pedersen Aamand)

Gert Pedersen Aamand, Chairman of the Interbull Technical Committee (ITC), reported on the main issues discussed during the ITC meeting held on 25 August 2017. Preliminary results for Robust Mace do not show significant differences between the models. Next steps will be to investigate further the preliminary results and investigate how the two models deal with genomic pre-selection.

Genomic pre-selection: Esa Mäntysaari had presented the results from his ideas previously presented and discussed in Ljubljana: there is a need to further investigate the discrepancies observed between genetic trends from single step and traditional evaluations.

SNP Mace: it was common opinion from the ITC that there is a need to be clear on what to expect from this feasibility project and its possible applicability

Genomic reliability: The working group has now developed a standard procedure and software for calculating genomic reliability. The software is now ready to be tested by different countries. Next steps include: testing by countries; implementing corrections/fine tuning after testing; implementation.

Reinhard thanked Gert and all the members of the ITC for their dedication.

5. Interbeef Working Group Report (Andrew Cromie)

Andrew Cromie, chairman of the Interbeef Working Group, reported on the latest Interbeef developments. He reminded the audience of how the Interbeef is structured: The Interbull Centre operates the routine services, while the research activities are carried out by Interbeef members with the support of Interbull Centre staff.

The current size of the service operations is based on a total of ten participating countries, sharing both pedigree and phenotypic information, three breeds for a total of four traits, including the ones currently under development, resulting in a total of about 61 million EBVs calculated in the January 2017 run.

Research and development: Czech Republic is currently fine-tuning the research on including calving traits in the beef evaluation. This is expected to be implemented in January 2018.

Ireland is working on the inclusion of crossbred animals in the Animal Weaning Weight (AWW) evaluations and Germany is developing a new model for the international evaluation of fertility traits.

Governance: Interbeef WG is working on updating their service agreement and creating a dedicated Code of Practice for Interbeef operations. Interbull Centre is currently working on developing a database for handling of beef pheno- and genotypes as well as adjusting AnimInfo for recording of genetic traits also for Interbeef users.

Future work plans have been discussed and agreed upon during the Interbeef meeting in Edinburgh in June 2017, during which also the following items were discussed:

- Integration of International EBV into national EBV: Ross Evans from ICBF has been appointed as project leader.
- Data harmonisation: Japie van der Westhuizen appointed as project leader.
- Possibility to expand to new phenotypes and sharing of genotypes: project led by Robert Banks.
- Inclusion of new traits, breeds as well as new countries.
- International collaboration: there is a possibility for BREEDPLAN in Australia to join the Interbeef service. Including such a strong research partner would present a very good

opportunity for Interbeef, opening up access to a number of additional countries and breeds (such as Aberdeen Angus and Brahman).

6. Updates on services

6a InterGenomics-Holstein (Hossein Jorjani)

Hossein presented the results of the InterGenomics-Holstein Research Run shown during the open meeting also during this Business Meeting, in order to discuss the project from a business point of view. The background for the project was the increasing desire from small Holstein populations to have a genomic evaluation. Following the experience acquired with InterGenomics-BSW, it was decided to try to adapt the same pipeline to Holstein data.

A total of 11k genotypes have been received, adaption of InterGenomics-BSW was carried out. Results showed that despite the small size of the reference population it was still possible to achieve around 6-7% in reliability, which would go up once more bulls will be added. This addition can come from the current 6 countries, but especially the input from additional countries could have a big positive impact.

Brian Van Doormaal pointed out that countries, which had shown an interest during the first meeting in Ljubljana, would now have to commit on when it would be possible for them to participate. Such commitment is needed also at the Steering Committee level in order to set up correctly a possible fee structure. He was also interested in knowing if there are other countries which would provide reference sires genotypes – i.e. one-time contribution of min 1000 bulls, no fee, no sharing – which could improve the reliability of the genomic prediction for the bulls from such countries. Maria Klopčič, supported by Andrew Cromie, thanked Interbull and addressed the countries that expressed interest but did not provide the data – encouraging them to provide the data, as it is important for the whole community. It was also raised during the meeting that the control of genotypes is not up to the country and thus the negotiation is taking place on another level, complicating/delaying such process.

6b Genotype Exchange (Hossein Jorjani)

Hossein presented the GenoEx-PSE database as part of the International Genotype Exchange Platform in context of Interbull Centre's wider infrastructure: the system developed by the Interbull Centre was more complicated than originally envisaged as it needed to be flexible and scalable, and be adapted for multiple users and/or scopes. The required functionality came with associated increase in costs and time for development. The system has been developed and internally tested by Interbull Centre's staff and it is being tested by the first external users. The service can be launched only after the accreditation of DNA Data Interpretation Centres is in place (in later 2017 or in 2018).

6c ICAR Parentage Analysis Accreditation of DNA Data Interpretation Centres (Brian Van Doormaal)

In order for an organisation to become a GenoEx-PSE service user the organisation must first acquire ICAR accreditation as a DNA Data Interpretation Centre. Brian Van Doormaal, Canadian Dairy Network (CDN) and chairman of the ICAR DNA Working Group, described the process of Accreditation of DNA Data Interpretation Centres, which is envisaged to be an ICAR service provided by the Interbull Centre. A first version of the software to test the DNA data interpretation capabilities of an applicant has been developed by CDN.

The proposed process for acquiring accredited status is: 1) Country initiating the process by filling out a form and paying a fixed fee of 300 euros. 2) Country selecting for which service to be

accredited: Parentage verification, Parent Discovery or both. 3) Data provided by the country will be sent to Interbull Centre who will run the data and issue the outcome of the test (Pass or Fail). At this very stage it is not yet clear what would be the allowed steps if a country fails the test.

The DNA Working Group has proposed to the ICAR board to start as soon as possible with the accreditation of DNA Data Interpretation Centres, though initially this will be only related to exchange and verification (with a realistic launch in early 2018), whereas parentage discovery will be launched later on. Reinhard asked about microsatellite accreditation. Brian responded that, a research team can be formed to investigate this possibility, assuming there will be people interested in such service and such research. Andrew commented that he'd welcome this research starting, and gave general support.

The service will be available to all breeds, many populations across the world.

Closing of Business Meeting 1 (Reinhard Reents)

Reinhard Reents thanked all participants for their contribution to the discussion and closed the meeting.

MINUTES BUSINESS MEETING 2

SUNDAY 27 AUGUST 2017

Reinhard Reents welcomed the participants back to the meeting, and explained that the meeting would continue at item 6d.

6 Update on services (continued)

6d Refinement of ID information in Interbull Files (Toine Roozen)

Improvements are needed for potential duplicate animals and different codes in the animal id (example HOL/RED, USA/840). Toine presented that following discussions between CDCB, ITBC and the current ICAR president, CDCB agreed to look into using only 'USA' (rather than 'USA' and '840') as the country code in the exchange of information with Interbull after the September 2017 run.

Work is in progress at ITBC to solve other cases of potential duplicates.

AnimInfo is a module in IDEA which additional information about animals can be stored. Information about recessive traits has currently been implemented. There is a proposal to collect also color in AnimInfo in order to address the issues arising through use of breed codes "HOL" and "RED" in the Interbull ID.

The following discussion centered around the use and acceptance of both numerical and alphabetic country codes in the Interbull ID, which is one of the key issues creating potential duplicate IDs. Although it was suggested for Interbull Centre automatically link animals IDs with the same parents as potential duplicates and then countries should verify the link between the animals; ITBC is not authorised to make final decisions on this; such authority rests in all cases with the countries, and countries will hence need to confirm correct animal identification.

The problem with country codes '840' and 'USA' is that 'USA' cannot automatically replace '840'. In addition, Brian made the Business Meeting aware that not only in the USA, but also in Canada (and potentially other countries) a numerical country code is in use. A small working group including Toine Roozen, Gerben de Jong, Joao Dürr and Martin Burke had already been formed;

the group should first write a report about the animal identification issues that cause problems for exchange through Interbull, after which each problem can be addressed.

6e Use of AnimInfo for exchange of information on genetic traits (Toine Roozen)

Prior to the Interbull meeting in Chile, Interbull received a request from the World Holstein Friesian Federation (WHFF) to help them with the exchange of information on known genetic traits for Holstein animals. The research, development and implementation (to date) went well, with one key issue to be resolved before wider roll out.

As WHFF already had clear rules for the identification of genetic traits, the WHFF system was used to collect the information in AnimInfo. The system (uploading, downloading) was tested by 3 countries. Experience with initial slow downloading of information has been addressed. The main remaining issue is how conflicting information from two or more organisations needs to be resolved. Once this has been addressed, the service can be rolled out to additional countries. Both Interbeef and Brown Swiss showed interest in exchanging information on genetic traits through AnimInfo.

During the ensuing discussion it was generally agreed that it is WHFF's responsibility to provide the rules for solving conflicts (in a clear way that can be implemented by Interbull Centre and WHFF members), and that it is the responsibility of the WHFF member organisations to solve such conflicts accordingly.

6f Organisation of Interbull Open Meeting (Toine Roozen)

In Chile a concern was raised that not all good quality papers had had the chance of being presented due to the limited amount of time. As a result from the survey on the organisation of the meeting in Chile, the deadline for submission of paper has now been set slightly earlier compared to the previous meetings. The Interbull website now clearly informs authors 1) that the aim is to accept all relevant and good abstracts, 2) that in case of a high number of submitted abstracts authors may be requested to present a poster instead of an oral presentation at the open meeting, and 3) by what date they will be informed whether their abstract has been accepted.

During the discussion a better grouping of the presentation was suggested. In the Tallinn meeting two different papers on longevity were indeed placed in two different sessions, as the sessions had been organised by 'methodology' (genetic/genomic evaluation), rather than 'biology' (production/ longevity/ etc). It is sometimes difficult to group the papers only based on the abstract since the level of information in the abstract varies. For Tallinn, the authors had been asked to allocate their paper to the available themes, and their suggestions had been accepted on most occasion. It was also pointed out that it is sometimes difficult to find a presentation with a perfect fit in a session.

The other point of discussion was whether a panel discussion should be held at the end of a session; In case there are not many abstracts it is more relevant to hold a panel discussion. If the session is coherent it can be done. However, it was also accepted that some people have a preference for panel discussions and others do not.

For future meetings both discussions on grouping (incl looking at 'biology') and the panel discussion will be taken into account.

7. Governance (Reinhard Reents)

7a Report on Interbull-ICAR Operations Task Force

The Task Force has had several meetings since October 2016. The new ICAR president, Jay Mattison, had joined the Task Force since the previous report. The current focus is on finalising the SLU-ICAR agreement with a final report in Auckland 2018.

7b Nomination of steering committee members

Four members in the Interbull Steering Committee had reached the end of their 4-year term. During the Interbull Business Meeting on 27 August 2017, the following 4 candidates were proposed as Interbull Steering Committee members:

- Matthew Shaffer (Australia; SC members since 2016, representing Oceania);
- Marija Klopčič (Slovenia; SC member since 2014, representing East European countries);
- Brian van Doormaal (Canada, SC member since 1996, one of two representatives for North America);
- Gordon Doak (USA, new SC Member, one of two representatives for North America).

The proposed candidates were endorsed by the Interbull Business Meeting, and would be proposed to the ICAR Board for endorsement at its meeting on 29 August 2017.

Marjorie Faust had reached the end of her 8-year membership in the Steering Committee. Reinhard and Toine thanked Marjorie on behalf of the Steering Committee and ICAR for her contributions during this time, highlighting the collaboration with ADSA that Marj instigated. The members of the Technical committee and SAC were presented and thanked for their great work.

8. Strategic development (Toine Roozen)

The Interbull Centre Director introduced the topic of SNP Mace through a recap of the strategic planning activities that were carried out during 2016-2017. This resulted in the ideas for the SNP Mace feasibility study, which is based on access to the Brown Swiss (BSW) data. The BSW member organisations had 4 criteria's for sharing the data:

- 1) The outcomes/results/system should be freely available to the Interbull Community;
- 2) Given the existing agreement between Interbull Centre and IG BSW, access to the raw genotypes should not be allowed outside the Centre;
- 3) The IG BSW Management Committee would expect regular update reports provided at least to the Centre;
- 4) Acknowledgment of the usage of IG BSW data should be made to any possible scientific publication produced by the project.

SNP Mace potentially provides a good way to integrate foreign information into national genomic models. As such SNP Mace could in the long term become part of the Interbull Centre's service portfolio. Further preparations to implement this feasibility study with the use of Brown Swiss data are taking place. It was recognised that this feasibility study is not the only opportunity and other research in maintaining and/or strengthening Interbull services was encouraged.

9. Calendar for future events (Toine Roozen)

Information on future events can be found on the Interbull webpage. A reminder for the joint Interbull-EAAP session on the following Monday was presented as well as the Interbull annual meetings until the year 2021.

Next year's Interbull annual meeting will be held in New Zealand from 10-12 February 2018. The general program for the Interbull activities, as well as the themes and their descriptions for the Open Meetings were presented. This and more detailed information can be found on the Interbull website (http://www.interbull.org/ib/2018_annual_meeting).

10. Other matters

Hossein Jorjani informed the Business Meeting that Larry Schaeffer will be awarded "Doctor Honoris Causa" at the Swedish Agricultural University (SLU) in October 2017. The ceremony will be in Uppsala 5-8 October 2017 and interested Business Meeting participants should contact Hossein, who will be Larry's official host during these days.

Brian Van Doormaal recalled the financing and services at Interbull. GenoEx-PSE has been a large investment. The service is planned to be delivered on a not-for-profit basis; in order to keep the service fees per service user low, the Interbull and ICAR communities are therefore encouraged to make use of this new service once it will be launched.

No other matters or comments.

Close of meeting (Reinhard Reents)

Reinhard Reents thanked all participants for their contribution to the discussion, invited all to attend next year's meeting and closed the meeting.