

Interbull Centre Activity Report



2013/2014

INTERBULL CENTRE ACTIVITY REPORT 2013/2014¹

Contents

INTRODUCTION	3
BUDGETS AND FINANCES	3
PERSONNEL	3
Visitors.....	4
SERVICE AND OPERATIONS	5
Validation of National EBVs and GEBVs	5
MACE Evaluations.....	6
Intergenomics.....	8
GMACE.....	8
IDEA - Interbull Data Exchange Area	9
Quality assurance	10
Interbull Bulletin.....	10
Interbeef activities.....	10
Interbull webpage	10
Meetings.....	11
Information activities	12
RESEARCH AND DEVELOPMENT	12
MACE robust to bias in trends.....	12
Cooperation with the World Guernsey Cattle Federation.....	12
R&D Funding.....	12
PUBLICATIONS	13
Interbull publications	13
Publications Interbull Centre staff as authors or co-authors.....	13
WORKPLANS	13
Services.....	13
Meetings.....	14
Planned Publications	14
Appendix I.....	15
INTERBULL CENTRE FINANCES AND BUDGETS, May 2014.....	15

¹ Presented at the 2014 Interbull Meeting, Berlin, Germany, May 18-21, 2014

Appendix II.....	17
Interbull Centre (Interbull + Interbeef) overall Finances and Budgets (€), May 2014.....	17
Appendix III.....	18
Interbull specific Finances and Budgets (€), May 2014.....	18
Appendix IV	19
Interbeef specific Finances and Budgets (€), May 2014.....	19

INTERBULL CENTRE

Department of Animal Breeding and Genetics

Swedish University of Agricultural Sciences - SLU

Gerda Nilssons väg 2, PO Box 7023, 750 07 Uppsala, Sweden

Phone: +46(0)18-67 20 98, Fax: +46(0)18-67 28 48

www.interbull.org

The Interbull Centre is the operational unit of the ICAR permanent sub-committee Interbull, and also holds the status of European Union Reference Laboratory (EURL) for Zootechnics (Bovine Breeding).

INTRODUCTION

The Interbull Centre is a section of the Department of Animal Breeding and Genetics of the Swedish University of Agricultural Sciences (SLU), and acts as the operational unit for Interbull and Interbeef, a permanent subcommittee and a working group of the International Committee for Animal Recording (ICAR), respectively. Additionally, the Interbull Centre holds the status of the European Union Reference Laboratory for Zootechnics. A significant increase in the workload of the center has taken place during the past years, both by the expansion of the international genetic evaluations to include new populations and new traits and by the addition of new items to the service portfolio. The new scale of activities and responsibilities required a severe reorganization of the operation in order to respond to the new demands and be able to deliver world class services. Investments were made to streamline operations and to implement a quality assurance system, besides developing the new services demanded by customers. The transition is still undergoing, not only due to its permanent nature, but also because it requires a cultural change among staff members, stakeholders and customers. Nevertheless, significant achievements in the right direction have been made and this stimulates the Interbull Centre to continue pursuing its goal: providing genetic information services and applied research for improvement of livestock to a worldwide network and fulfilling its mandate as a reference laboratory for the European Union.

This document describes the activities at the Interbull Centre since the last annual meeting of Interbull (Nantes, France, August 23-25, 2013). Work plans, budgets and future activities are also presented.

BUDGETS AND FINANCES

A complete financial report and budgets can be found in Appendices I-III. The report includes both Interbull and Interbeef activities. Although both Interbull and Interbeef are ICAR activities, they are managed separately, with distinct governances, work plans and budgets, and therefore specific clarifications are provided separately.

The Interbull Centre budgets and financial report for Interbull will be official pending approval by the Interbull Steering Committee after review by the 2014 Interbull business meeting in Berlin.

PERSONNEL

The Interbull Centre staff is employed by the Department of Animal Breeding and Genetics of the Swedish University of Agricultural Sciences (SLU) even though the work plans and budgets for the Centre and the Interbull Secretariat require the approval of the Interbull Steering Committee, the Interbeef working group and the European Commission.

The staff employed at the Interbull Centre during the period reported herein consisted of:

- Erling Strandberg (PhD) - Interbull Secretary
- João Dürr (PhD) - Director
- Hossein Jorjani (PhD)- Senior Geneticist, Service Manager
- Mohammad Nilforooshan (PhD) - Geneticist
- Eva Hjerpe (MSc) - Geneticist
- Valentina Palucci (MSc) - Geneticist

- Carl Wasserman – Information Technology Manager
- Petri Pennanen – Programmer and System Administrator
- Dan Englund, System Administrator (part time)
- Gerald Jansen (PhD) – consultant
- Anne Loberg (MSc) - PhD student
- Jette Jakobsen (PhD) - Senior Geneticist

Erling Strandberg has ended his second term as the head of the Department of Animal Breeding and Genetics (HGEN) on December 31, 2013, and Hossein Jorjani has been elected for the position starting on January 1st, 2014. We thank Erling for his support to the Interbull Centre on the past 6 years and wish Hossein a lot of success in his new challenging position. Hossein has now 50% dedication to the Interbull Centre and serves as the Centre Service Manager.

Petri Pennanen started working for the Interbull in May 2014 to work as programmer and Linux system administrator. We welcome Petri into the team and wish he enjoys working with us.

The Interbull Centre has maintained the research agreement with Service ICAR to streamline the service operations and develop analytical software and Dr. Gerald Jansen, from Italy, has been acting as a part time consultant in the project, performing software development and system optimization at the Interbull Centre. Dr. Jansen has worked on streamlining the MACE evaluations and the international correlation estimations, development of the sire-dam pedigree in MACE programs, development of Interbull Data Exchange Area (IDEA) modules and also on developing new software for validation procedures.

The HGEN graduate studies coordination has suggested reorganization on Anne Loberg's supervising committee and now Erling Strandberg is her main supervisor and her salary is fully covered by SLU funds since the beginning of 2014. We wish Anne success in the completion of her program.

After 10 years as a member of the Interbull Centre team, Jette Jakobsen has resigned her position in January 2014 and is now working at the Norwegian Association of Sheep and Goat Farmers (NSG). We thank Jette for her dedication and wish her a fruitful career in her new company. A recruitment process to fill the open position is currently ongoing.

Dan Englund, who has been involved with system administration and data exchange since the Interbull Centre was created, is going to enjoy a rightfully deserved retirement starting in June 2014. We have no words to thank Dan for his contribution and friendship over all these years and wish him happiness on this new phase of his life.

Visitors

A delegation from Korea visited the Interbull Centre in August 2013 to get better acquainted with the IDEA system and GMACE procedures. The presence of Koo Yang-Mo, Min Hongrip, Park Cheoljin and Kwanghyeon Cho in Uppsala was greatly appreciated by the Interbull Centre staff.

Haifa Benhajali, from the Institute de l'Elevage, France, visited the Interbull Centre in February 2014 to work on robust MACE and interact with the Centre team.

SERVICE AND OPERATIONS

Validation of National EBVs and GEBVs

One of the most important roles played by Interbull is to test the national evaluation results for consistency before using them as input for the international evaluations. This is part of the Interbull evaluations quality control measures, but also serves as a public recognition that the national data supplied by Interbull users is reliable. The Interbull Centre offered the validation services regularly during the period and service users are required to perform validation when:

- the national evaluation model or the genetic parameters change,
- a population participates for the first time in a specific Interbull evaluation, or
- it has been more than 2 years since the last validation results were submitted to Interbull.

Results of validation tests are confidentially kept between the Interbull Centre and the service user. The fact that a given population participates in the Interbull evaluation for a given trait implies that it has passed validation. The only exception are the results from the GEBV test for production traits, which are made public to comply with determination of the Directorate of Animal Health and Welfare of the European Commission, who has accepted Interbull/ICAR recommendation to consider genomic evaluations validated by the GEBV test as valid procedures within EU states (official communication).

Methods I, II and III for validation of classic EBVs (based on performance data) follow the official test evaluations calendar. Validation results are submitted at the data submission deadline and they are processed before the end of the test run. The GEBV test results can be submitted by service users to the Interbull Centre at any time. Results will be processed as received.

VALIDATION SOFTWARE

In 2013 the service users begun to apply a set of Python programs for running the GEBV test and preparing the set of files to be submitted to the Interbull Centre (https://wiki.interbull.org/public/GEBVtest_software?action=print). This procedure has standardized the application of the test and greatly increased the efficacy of the process. The experience was so successful that it was decided to follow the same system for the conventional validation methods I, II and III and a new set of Python programs will be officially introduced into service after being presented at the Berlin meeting in May 2014.

MENDELIAN SAMPLING TREND VALIDATION

The collaboration between the Interbull Centre, MTT and NAV has completed the research phase of developing a model validation test for routine use based on Mendelian sampling deviations at the end of 2013 and a pilot study for the application of the method to national data was launched by the Interbull Centre in February 2014 (https://wiki.interbull.org/public/ib4_data%20call?action=print). Results will be presented during the Berlin meeting and reviewed by the ITC prior to a decision by the Steering Committee regarding the routinely adoption of the method. Following the same policy described above, a set of Fortran programs is available for service users to run the validation tests.

MACE Evaluations

Interbull test evaluation runs were performed in September-October 2013 and January-February 2014. Many changes in national and international evaluations have been introduced during this period, and are all described in the service reports published on http://www.interbull.org/ib/maceev_archive after each routine evaluation. Table 1 shows the current number of populations and bulls included in Interbull MACE evaluations.

Routine international genetic evaluations for Brown Swiss, Guernsey, Holstein, Jersey, Red Dairy Cattle and Simmental production traits were computed as scheduled in December 2013 and April 2014. Great Britain joined the evaluation for Simmental in April 2014.

International genetic evaluations for Brown Swiss, Guernsey, Holstein, Jersey and Red Dairy cattle conformation traits were computed according to the same schedule as for production traits. Great Britain joined the evaluation for Brown Swiss in April 2014.

Udder health evaluations for Brown Swiss, Guernsey, Holstein, Jersey, Red Dairy Cattle and Simmental were also computed according to the same schedule as production traits.

Direct Longevity evaluations for Brown Swiss, Guernsey, Holstein, Jersey, Red Dairy Cattle and Simmental were computed according to the same schedule as for production traits. South Africa (HOL) and Ireland (JER) joined the evaluation in December 2013. Ireland (RDC) and Poland (HOL) joined the evaluation in April 2014.

Calving traits evaluations for Brown Swiss, Holstein and Red Dairy cattle were computed according to the same schedule as for production traits. Ireland (RDC) and New Zealand (HOL, RDC) joined the evaluations in April 2014.

Female fertility evaluations for Brown Swiss, Guernsey, Jersey, Holstein, and Red Dairy Cattle were computed according to the same schedule as for production traits. Ireland (JER) and USA (RDC) joined the evaluation in December 2014.

International genetic evaluations for workability for Brown Swiss, Holstein, Jersey and Red Dairy Cattle were computed according to the same schedule as for production traits.

Interbull Centre Activity Report 2013/2014

May 14, 2014

Table 1 - Total number of populations per breed-trait group combination in the most recent (April 2014) routine Interbull genetic evaluation services. The number of traits by trait group is given in parenthesis. Number of bulls with published MACE EBVs for production traits is shown in the last column.

Breed Group	Production (3)	Conformation (23)	Udder Health (2)	Longevity (1)	Calving (4)	Female Fertility (5)	Workability (2)	TOTAL (40)	Increment in the period	Number of publishable proofs (production)
Brown Swiss	10	9	10	10	5	9	6	60	1	9 885
Guernsey	6	4	6	6	0	6	0	28	0	1 060
Holstein	31	25	29	21	16	20	9	151	3	135 646
Jersey	11	9	8	9	0	9	4	50	2	11 055
Red Dairy Cattle	14	9	13	10	7	11	5	69	4	14 388
Simmental	12	0	10	4	0	0	0	26	1	28 251
TOTAL	84	56	76	60	28	55	24	383	11	200 285
Increment in the period	1	1	0	4	3	2	0	11		4 615

CHANGES INTRODUCED TO THE INTERBULL EVALUATIONS

The following changes have been introduced:

- Data submission for pedigree, EBV/PTA, and parameters is possible only through uploading of the data to the Interbull Data Exchange Area (IDEA).
- Interbull Centre has moved to a completely new MACE evaluation software called "Dairy System for International Evaluation (DAISIE)", partly because of the extended use of IDEA for EBV/PTA, and partly because of our continuous efforts to make the system more effective than before.
- All trait groups (including conformation traits) are now evaluated in-house.
- The file containing heritability values now contains more decimal places for heritability, and one extra field for the definition of reference base population.
- The file containing genetic correlations has changed name from rG_columns_all to cor{RUNID}.csv, and also contains one extra field for the number of common bulls.
- The file containing sire genetic standard deviations has changed name from sire_std_columns_all to std{RUNID}.csv.
- Sire-MGS based pedigree files are not distributed anymore.
- Parent averages in the "ipa" format are not distributed anymore.
- An import AI bull (type of proof = 21) with official publication status 'Y' from a given country is included in the distribution file if the bull has a first country proof included from a different country OR a second country proof is included with minimum required number of daughters or EDC (20, 10, 150, 20, 20, and 80) and herds (20, 10, 50, 20, 20, and 20) for different breeds (BSW, GUE, HOL, JER, RDC and SIM), respectively.

- Bulls with some missing pedigree information (sires and/or dam and/or birthdate) are excluded from evaluations.
- Standardization factors are not used anymore.
- Post-processing of genetic correlation are now applied to all trait groups.

Intergenomics

International genomic evaluation of Brown Swiss populations follows the same timetable as the conventional MACE for submission of data and the distribution of results. Besides the original participants (AUT-DEU, CHE, FRA, ITA, SVN, and USA), Canada has joined the services in 2014. A new cooperation agreement has been signed by the organizations involved modifying the grounds of the collaboration in some key aspects: sharing of all genotypes available among the participating organizations, including young bulls, adoption of the genomic evaluations run at the national centers as "Intergenomics results" for those countries opting not to publish the genomic evaluations run at the Interbull Centre, and establishment of quality control procedures to assure same standards for all participating scales. These changes were announced by the chairman of the Intergenomics management committee already in the Nantes meeting (August 2013) and formalized in April 2014.

The number of genotyped animals has increased to more than 14,000. The number of country-trait combinations in the latest evaluation (April 2014) was 177. Fine-tuning of the genomic evaluation system is an on-going activity. The latest activity in this area includes testing of different levels of polygenic effects. To achieve this, genomics evaluation using full MACE and truncated MACE data (data from 2009) for 152 country-trait combinations with different levels of polygenic effects was performed. The fraction of polygenic levels (11 levels) that were tested were from 0.01, .10, .20, ..., .90, to .99. The resulting full and reduced genomic results were used as input to the Interbull GEBV test and the polygenic effect level showing the best results in a trait-country basis were proposed to be adopted in the evaluations, pending recommendation from the Intergenomics technical committee.

GMACE

Interbull carried out a pilot GMACE study in December 2013 to define which reliabilities should be used for GMACE in practice. The objectives of the pilot study were:

- Develop prediction equations to regress national reliabilities toward a globally standardized set of expectations.
- Study the merits of predicted (fully regressed) reliabilities, partially regressed reliabilities, or the provided (not regressed) reliabilities in GMACE.
- Investigate the option of a GMACE model that does not include variance estimation.
- Carry out cross-validation tests to compare the different approaches.

Considering the input from participating countries and the Interbull Technical Committee (ITC), the SC decided to adopt the methodology which does not include a genomic variance estimation step and estimate the genomic reliabilities as a combination of predicted reliabilities and the national reliabilities provided by the users. This option is referred to as MP.5, and was adopted as the official method in the February 2014 GMACE test run, as well as in the April 2014 run.

In order to allow service users to analyze both results from the September 2013 GMACE test run and the above mentioned GMACE pilot run, the implementation of a truncated MACE evaluation scheduled for January 2014 was postponed.

The December 2013 and April 2014 evaluations were still considered as implementation runs for GMACE in order to allow more time for both national and international technical improvements and political developments (accommodation of GMACE into national business models). The SC also decided that the August 2014 GMACE run will be the first GMACE routine run, unless major technical impediments happen to occur.

BULL CONTROLLING COUNTRY

The SC decided to request additional information from the service users regarding which bulls are controlled by companies/stud within the area of influence of each country participating in Interbull international comparisons and the information was used on the GMACE publication rules in April 2014. More details on the bull controlling country list can be found at <https://wiki.interbull.org/public/file734?action=print>. The SC will discuss more details on this topic during the 2014 Interbull meeting, in Berlin.

Table 2 present the number of populations sending national GEBVs included in the April 2014 GMACE run and the total number of publishable young bulls after considering the publication status in the bull controlling country.

Table 2 - Total number of populations per breed-trait group combination in the most recent (April 2014) implementation GMACE evaluation. The number of traits by trait group is given in parenthesis. Number of bulls with publishable international GEBVs for production traits is shown in the last column.

Breed Group	Production (3)	Conformation (23)	Udder Health (2)	Longevity (1)	Calving (4)	Female Fertility (5)	Workability (2)	TOTAL (40)	Number of publishable proofs (production)
Holstein	10	10	9	7	6	3	5	50	7149

IDEA - Interbull Data Exchange Area

As anticipated during the Interbull meeting in Nantes, the IDEA EBV module has been implemented and successfully introduced during the January 2014 test run. The test run received quite a high level of participation with many countries providing data even if they were not going to test any new changes in their national evaluation system but just to get acquainted with the new EBV module and file formats changes. No major difficulties have been encountered by the service users whom actually were happy about the new features available. The Interbull Centre would like to thank all countries participating to the January test run for their effort.

Quality assurance

The Interbull Centre has fully implemented an internal electronic documentation system using the concept of Wiki pages for multiple users with automatic version control. The system was simple to implement and has been a valuable improvement for the Interbull Centre operations. The latest documents released to the Interbull customers are already print views of the respective Wiki pages, whose access is made public. The system has attracted the attention of some collaborators who are interested in implementing similar systems in their organizations. More details can be obtained from Valentina Palucci.

Interbull Bulletin

During the period comprehended by this report one issue of the Interbull Bulletin has been published (No 47) with the proceedings of the 2013 Interbull meeting in Nantes.

Interbeef activities

Two new countries, Switzerland and Germany, have joined the Interbeef evaluation for adjusted weaning weight in the January 2014 test run. Variance components were estimated by ICBF in IRL using DMU and breeding values were estimated by ITBC using Mix99. The results were discussed during the Interbeef technical meeting in Uppsala in April 2014.

During the Technical meeting, preliminary results were also presented by the Czech Moravian Breeders' Corporation's colleagues on the international evaluation for calving traits for the Limousin breed. Results seem already very promising; during the meeting it was decided to start applying the same methodology tested on Limousin also on Charolais data before exploiting new possible methodologies.

The research on estimating breed composition based on pedigree information has also shown very good results by allowing the reporting of the breed for founder animals. During the last year, two surveys were performed for describing the national procedures for genetic evaluation of fertility and carcass traits. Development of international evaluations for beef fertility traits is under the responsibility of vit (DEU) and for carcass traits under the responsibility of SRUC (GBR).

More information on Interbeef can be found at

http://www.icar.org/pages/working_groups/wg_interbeef.htm.

Interbull webpage

The Interbull webpage (www.interbull.org) has been fully restructured in March 2014, migrating from a Joomla platform to a Web2Py based framework. The new platform is fully compatible with the IDEA interface and also with the Interbull Centre wiki pages, used for internal documentation version control. The Interbull community is welcome to check the new page and provide us feedback that will be used to improve it.

NEW DISCUSSION FORUM

Along with the changes in the webpage, the Interbull discussion forum has moved into a new platform (<https://forum.interbull.org/>). The old implementation served us well during many more years than recommended and it has therefore moved into a more adequate and safer functionality using the phpBB platform.

Besides the usual forums restricted to the members of the Interbull committees, it was decided to create the “**Evaluation Centers Meeting Point**”, a forum dedicated to service related issues, in which all those involved with national or international genetic evaluations can participate. The main objectives of the ECMP are:

- a. Becoming the official communication tool between the Interbull Centre and the national genetic evaluation units for general messages, such as data calls, results releases and pre-releases and methodological changes. All communications will be then in a single place, accessible to all users at all times (specific discussions with individual organizations should continue to happen via email, of course).
- b. Hosting discussions of general interest between the collaborators. These exchanges many times happen only between a limited number of people when it is done via personal emails and using forum for this purpose can certainly benefit more colleagues and receive a richer set of contributions.
- c. Stimulating a broader number of colleagues to provide their views and suggestions, as well as to share their questions and difficulties. Sometimes it is easier and more convenient to start a discussion in an open forum than try to identify the right individual to contact.
- d. Allowing each individual to maintain her/his personal contact up-to-date and consequently avoiding that important information doesn't reach the target because of outdated mailing lists.

All the users registered in the old forum need to register again when accessing the new tool. This is a very simple operation and will allow us to update the information about the users.

Meetings

2013 Interbull Meeting - Nantes, France, August 23-25, 2013

The 2013 Interbull meeting took place from August 23 to 25, 2013, at the La Cité Nantes Events Center, in Nantes, France. A total of 250 participants from 41 countries set the historical record for Interbull meetings. The open meeting comprised 44 technical reports distributed in six sessions: “Advances in genomic selection”, “National and international genetic evaluations” (2), “Breeding strategies and new traits”, “Functional traits” and “Maternal traits & genetic variability”. As a pioneer initiative in Interbull Meetings, a technical tour to the Evolution heifer's station in Suce sur Erdre was offered to the participants on August 25. Following the Interbull activities, once again Interbull was invited by the EAAP to jointly organize two scientific sessions on August 26, in which 20 invited speakers and spontaneous contributions provided their views on “Genomic selection: impact on the organization of the breeding sector” and “How can farmers benefit from genomic information”. The joint sessions were highly appreciated by over 400 attendants.

The 2013 Interbull meeting was particularly special because of Interbull's 30th anniversary celebration, which was masterfully prepared by the French organizing committee. Our sincere gratitude to France Génétique Elevage and the Institut de l'Elevage for the impeccable organization, as well as to our sponsors, France AgriMer, EuroGenomics, Evolution, Brune génétique Services, Midatest, Umotest, Illumina and Prim'Holstein.

Interbeef Working Group Meetings

The Interbeef working group met in one occasion during the period covered by this report:

- November 20-21, at Hotel Pyramida, in Prague, Czech Republic.

The Interbeef Technical Committee met one time:

- April 10, 2014, at SLU, in Uppsala, Sweden.

Information activities

The Interbull Centre director, João Dürr, participated as invited speaker in the following events:

Event	Host	Place	Time	Title
Buffalo Genetic Improvement Workshop	Philippines Carabao Center (PCC)	Manila, Philippines	November 2013	Interbull: role, system and other requirements for genetic improvement
Technical workshop on Innovation in the Brazilian dairy breeding sector: an agenda for development	Embrapa Gado de Leite	Uberaba, Brazil	May 2014	The value of Interbull for the Dairy Cattle Breeding Industry

RESEARCH AND DEVELOPMENT

The following is a brief summary of research and development activities conducted at the Interbull Centre or with the involvement of the Interbull Centre staff since August 2013.

MACE robust to bias in trends

Research collaboration between INRA, Institute de l'Élevage and Interbull Centre has been studying the impact on international breeding values of using a MACE model robust to bias in trends of national genetic evaluations. The colleague Haifa Benhajali, from the Institute de l'Élevage, France, visited the Interbull Centre in February 2014 to work on the project and results will be presented in the Berlin meeting.

Cooperation with the World Guernsey Cattle Federation

Continuing a long partnership, the WGCF has requested the development of an inbreeding monitoring service for the breed as a whole. An initial study was carried out with the existing pedigrees in IDEA and results are under analysis by the WGCF. During the WGCF conference in July 2013, a broader request for an international information portal for the breed was designed and a formal proposal is currently under analysis.

R&D Funding

In addition to funds raised from service fees, research and development activities at the Interbull Centre are financed by grants from the Swedish University of Agricultural Sciences (SLU), the European Union, and the World Guernsey Cattle Federation (WGCF).

Contributions of the above organizations to the future development of Interbull services are gratefully acknowledged. Contributions made to R&D activities from participating organizations leading to improved or expanded Interbull services are also much acknowledged.

PUBLICATIONS

Interbull publications

Interbull Bulletin No. 47. Proceedings from the 2013 Interbull meeting, Nantes, France, August 23-25, 2013.

Publications Interbull Centre staff as authors or co-authors

- Benhajali, H., Jakobsen, J., Mattalia, S. & Ducrocq, V. 2013. Illustration of an international genetic evaluation robust to inconsistencies of genetic trends in national evaluations. *Interbull Bulletin* 47, 82-89.
- Dürr, J.W. 2013. Impact of genomics on international cooperation for dairy genetics. *64rd Annual Meeting of the EAAP*, Nantes, France, August 26-30, 2013. *Book of Abstracts*, p. 98. ISSN 1382-6077. e-ISBN:978-90-8686-278-3
- Jakobsen, J. H. & Sullivan, P. G. 2013. International genomic evaluation of young Holstein bulls. *ADSA-ASAS joint annual meeting*, Indianapolis, Indiana, July 8-12, 2013. *J. Anim. Sci.* Vol. 91, E-Suppl. 2/J. Dairy Sci. Vol. 96, E-Suppl. 1, p. 618.
- Loberg, A., Crooks, L., Fikse, W.F., Dürr, J. & Jorjani, H. 2013. Comparison of genetically and genomically estimated variance. *64rd Annual Meeting of the EAAP*, Nantes, France, August 26-30, 2013. *Book of Abstracts*, p. 455. ISSN 1382-6077. e-ISBN:978-90-8686-278-3
- Nilforooshan, M.A., Jakobsen, J.H., Fikse, W.F., Berglund, B. & Jorjani, H. 2014. Multiple-trait multiple country genetic evaluation of Holstein bulls for female fertility traits. *Animal*. Accepted
- Patry, C., Jorjani, H. & Ducrocq, V. 2013. Effects of national genomic preselection on the international genetic evaluations. *J. Dairy Sci.* 96, 3272-3284. <http://dx.doi.org/10.3168/jds.2011-4987>.
- Strandberg, E. 2013. Sustainable Food Production. *In: Animal Genetic in Environment Interaction*, 117-126. Christou, P., Savin, R., Costa-Pierce, B., Misztal, I., and Whitelaw, B. (Eds.). Springer.
- Strandberg, E. 2013. Encyclopedia of Sustainability Science and Technology. *In: Animal Genetic in Environment Interaction*. Meyers, Robert A. (Ed). Springer.
- Strandberg, E., Felleki, M., Fikse, W.F., Franzen, J., Mulder, H.A., Rönnegård, L., Urioste, J.I. & Windig, J.J. 2013. Statistical tools to select for robustness and milk quality. *Advances in Animal Biosciences* 4:3, 606-611.
- Tyrisevä, A.-M., Mäntysaari, E.A., Jakobsen, J., Aamand, G.P., Dürr, J., Fikse, W.F. & Lidauer, M.H. 2013. Detection of genomic pre-selection with Mendelian sampling variance test. *Interbull Bulletin* 47, 197-202.
- Worede, G.M., Forabosco, F., Zumbach, B., Palucci, V. & Jorjani, H. 2013. Evaluation of genetic variation in the international Brown Swiss population. *Animal* 7:7, 1060-1066 & The Animal Consortium 2013. doi:10.1017/S1751731113000281

WORKPLANS

Services

Routine evaluations for production, conformation, udder health, longevity, calving, female fertility and workability traits are scheduled with the following release dates:

- | | |
|------|------------|
| 2014 | August 12 |
| | December 2 |
| 2015 | April 7 |
| | August 11 |
| | December 1 |

Test evaluation runs for production, conformation, udder health, longevity, calving, female fertility and workability traits take place as follows:

2014 September
2015 January
 September

Meetings

The 2014 Interbull Meeting, in conjunction with the 39th ICAR Session and the IDF/ISO Analytical Week. Berlin, Germany, May 20 to 21, 2014.

The 2015 Interbull meeting will precede the 2015 ADSA®-ASAS Joint Annual Meeting. Orlando, Florida, USA, July 9 to 12, 2015.

Planned Publications

Interbull Bulletin No. 48. Proceedings of the Interbull Open Meeting, Berlin, Germany, May 20-21, 2014.

Appendix I

INTERBULL CENTRE FINANCES AND BUDGETS, May 2014

Comments to accounts and budgets

The financial situation of the Interbull Centre is presented in Appendices II (complete budget), III (specific for Interbull activities) and IV (specific for Interbeef activities). The budgets and financial reports follow exactly the same format adopted in previous years. The accounts have been audited within the normal procedures for the Swedish University of Agricultural Sciences (SLU). All figures are given in Euros. The table includes the final accounts for 2013 in comparison with the accounts for 2012 and the budget for 2014. A prognosis for 2015 is made according to the expectations as of May 2014.

Accounts for 2013

The result for 2013 was significantly better than budgeted, causing in a final balance of € 60,243 (item 20) instead of a projected deficit of € 33439. The main reasons for the difference were:

- lower “other personnel expenses” (line 9),
- lower “office rentals” in 2013 (line 10) due to the fact that the Interbull Centre was allocated in provisional installations before moving to the new facilities in June 2014, and
- over budgeting of computer costs (line 11) because the investments in the infrastructure to establish a genomic database were not realized.

Outsourced activities included computation of MACE for conformation traits by the North-American consortium, Gerald Jansen’s consultancy full time and the research agreement to develop a Mendelian sampling validation procedure with MTT and NAV. ICAR has taken some costs for publication according to earlier commitment, approximately of the same size as the fee to ICAR. Interbull membership fees to ICAR are handled directly by the ICAR office, Rome, Italy, and reported at the official meetings of ICAR. Membership income is used to cover overhead costs for ICAR/Interbull, some travel expenses, publications and information. The Interbull Centre also contributed € 7,011 in 2013 from service fees to cover these costs.

In total 32 countries participated in the Interbull evaluations in 2013 and the service fees per trait group were as follows (with figures for 2012 within parenthesis)²: production € 388,953 (387,389), conformation € 100,226 (92,678), udder health € 55,255 (52,618), longevity € 42,314 (39,722), calving traits € 34,314 (31,415), female fertility € 57,714 (54,494), workability traits € 8,897 (7,044) and GEBV test € 42,143 (49,830), adding up to € 729,816 (715,190).

The increase verified of € 14,626 (2%) is mainly due to the addition of new population by trait combinations into the services (Table 1). The GEBV test fee was reduced from 20% of production traits fee to 15% of the same value.

² These totals are obtained by summing up the nominal values printed in the service invoices, while in the item 1 of Appendix II (Service fees) it is reported the actual sum of payments received in SLU’s official accounts after applying the currency exchange rate SEK:€. This is the explanation for the differences in the totals.

Research grants in 2013, reached the budgeted levels. SLU has maintained its contribution to the Interbull Centre in the historical levels (~ SEK 600,000). The EU commission has continued its support of the Interbull Centre with € 150 000, as well as the World Guernsey Cattle Federation has continue its valuable support with £5000.

Prognosis for 2014

The initial budget for 2014 presented in August 2013 was reviewed by the SC and a new budget, including a fee increase was approved and distributed in December 2013 (https://wiki.interbull.org/public/ExSum2014_01?action=print). The projection in May 2014 indicates a superavit of € 141,220, which is unexpectedly high compared with previous years. One main reason is a temporary reduction in salaries due to the resignation of Jette Jakobsen (not expected to be replaced before August 2014) and the removal of Anne Loberg from the Interbull Centre payroll. This reduction has a cascade effect in the costs, since rents and overheads are directly affected. The addition of Petri Pennanen to the staff compensated the reduction in salaries, but not in the same magnitude. The other main reason is the increase in income due to the adjustment in the service fees approved by the SC in December 2013.

Additional reduction in costs occurred in item 17 due to the end of the outsourced services to the North American consortium for the evaluation of conformation traits, the end of the research agreement with MTT and NAV and the change of the consulting contract with Gerald Jansen from full time to part time.

Service fees per trait group for 2014 will be invoiced in June 2014 as follows: Production traits € 432,692, conformation € 111,774, udder health € 61,496, longevity € 47,272, calving traits € 38,321, female fertility € 64,545, workability traits € 9,937 and the GEBV validation test € 43,522. In total 32 countries participate in the Interbull evaluations during 2014 and the total service fees sum up to € 809,558.

Budget for 2015

For 2015, all incomes are assumed to stay in the same level as in 2014. The level of the EU contribution is expected to continue, as well as the continued support by SLU and WGCF.

The salary costs are higher than for 2015 because of regular salary increases and all other costs are assumed to follow the same pattern as in 2014. The level of salaries will return to the projected levels once a replacement for Jette Jakobsen is hired.

Interbeef

The specific budget for Interbeef is shown on Appendix IV. The Interbeef working group has established a new service/research agreement in 2012, and the Interbull Centre is once again contracted to be the operational unit. Management of the finances will follow a different model than Interbull, being under the responsibility of Service ICAR instead of the Interbull Centre. Service fees are therefore not defined/handled by the Interbull Centre, which instead invoices Service ICAR for the full year for a value agreed on € 100 000 for 2012 and 2013. For this reason, the Interbeef income and costs are included in the overall budget of the Interbull Centre.

Interbull Centre Activity Report 2013/2014

May 14, 2014

Appendix II

Interbull Centre (Interbull + Interbeef) overall Finances and Budgets (€), May 2014

	2012		2013		2014		2015
	Actual Account (Dec 12)	Budget (May 12)	Actual Account (Dec 13)	Budget (Dec 13)	Projected result (May 14)	Proposed budget (May 14)	
Income							
1) Service fees ^a	727 961	715 193	714 642	809 558	809 558	810 000	
2) SLU grants	72 941	66 445	71 588	69 045	69 045	70 000	
3) WGCF grant ^b	9 808	5 750	6 480	5 800	5 800	5 800	
4) Intergenomics	53 552	30 000	28 852	30 000	32 322	32 322	
5) EU grants ^c	150 791	150 000	142 958	150 000	150 000	150 000	
6) Interbeef	93 303	100 000	98 630	100 000	100 000	100 000	
7) Total:	1 108 355	1 067 388	1 063 149	1 164 403	1 166 725	1 168 122	
Costs							
8) Salaries + social costs	555 555	568 332	571 354	630 030	577 097	635 435	
9) Other personnel expenses ^d	27 849	28 417	9 046	31 502	17 313	31 772	
10) Office rent ^e	83 333	85 250	49 932	111 305	101 954	133 441	
11) Computer costs	2 338	55 000	4 626	40 000	40 000	20 000	
12) Travels, conferences, training	36 652	40 000	30 237	40 000	40 000	40 000	
13) Publications	7 855	3 000	0	3 000	3 000	3 000	
14) Phone, fax, post	4 359	5 000	3 800	5 000	5 000	5 000	
15) ICAR	7 483	6 930	7 011	7 000	7 000	7 000	
16) Miscellaneous	36 058	10 000	19 004	10 000	10 000	15 000	
17) Outsourced activities ^f	119 037	111 350	106 780	33 700	33 700	35 000	
18) Overheads ^g	185 555	187 549	201 116	207 910	190 442	209 693	
19) Total:	1 066 075	1 100 827	1 002 907	1 119 447	1 025 505	1 135 341	
20) Balance	42 281	-33 439	60 243	44 956	141 220	32 781	
21) Accum. Balance:	223	-33 216	60 466	24 945	201 686	234 467	
22) Exchange rate (SEK:€)	8.62	8.97	8.94	9.03	8.99	8.99	

a. Updated MACE, GMACE and GEBV test fees approved by the Steering Committee in December 2013

b. £5000

c. The Interbull Centre holds the status of European Union Reference Laboratory for Zootechnics (96/463/EC: Council Decision of 23 July 1996)

d. Other personnel expenses include travel allowances, expenses with people not employed by SLU, medical expenses, etc.

e. In June 2014, the Interbull Centre will move to new facilities and office rents are expected to increase

f. 2014: Gerald Jansen's consultancy (400 h); research agreement with CDN for GMACE development (440 h)

g. 15%, 5% and 13% (multiplied by item 8) for the university, faculty and department levels, respectively

Appendix III

Interbull specific Finances and Budgets (€), May 2014

	2012		2013		2014		2015
	Actual Account	Budget	Actual Account	Budget	Projected result	Proposed budget	
	(Dec 12)	(May 12)	(Dec 13)	(Dec 13)	(May 14)	(May 14)	
Income							
1) Service fees ^a	727 961	715 193	714642	809 558	809558	810000	
2) SLU grants	72 941	66 445	71588	69 045	69045	70000	
3) WGCF grant ^b	9 808	5 750	6480	5 800	5800	5800	
4) Interonomics	53 552	30 000	28852	30 000	32322	32322	
5) EU grants ^c	150 791	150 000	142958	150 000	150000	150000	
7) Total:	1 015 052	967 388	964520	1 064 403	1066725	1068122	
Costs							
8) Salaries + social costs	497 115	507 315	510462	570 300	514644	571777	
9) Other personnel expenses ^d	24 856	25 366	8207	28 515	15439	29862	
10) Office rent ^e	74 567	76 097	76569	102 346	92586	120073	
11) Computer costs	2 141	49 500	4197	36 374	36572	18288	
12) Travels, conferences, training	33 567	36 000	27432	36 374	36572	36576	
13) Publications	7 194	2 700	0	2 728	2743	2743	
14) Phone, fax, post	3 992	4 500	3447	4 547	4571	4572	
15) ICAR	7 483	6 930	7000	7 000	7000	7001	
16) Miscellaneous	33 022	9 000	17241	9 093	9143	13716	
17) Outsourced activities ^f	119 037	111 350	109350	33 700	33700	35000	
18) Overheads ^g	164 048	167 414	168453	188 199	169833	188686	
19) Total:	967 023	996 172	932358	1 019 175	922802	1028294	
20) Balance	48 029	-28 784	32161	45 228	143922	39828	
21) Accum. Balance:	5 972	-22 812	38133	25 217	182056	221884	

Appendix IV

Interbeef specific Finances and Budgets (€), May 2014

These budgets are extracted from the overall budget for the Interbull Centre (Appendix II) to illustrate to the Interbeef service users how the incoming service fees will be spent.

	2012 Actual Account (Dec 12)	2013 Budget (May 12)	2013 Actual Account (Dec 13)	2014 Budget (Dec 13)	2014 Projected result (May 14)	2015 Budget (May 14)
Income						
1) Service fees	93 303	100 000	100000	100 000	100 000	100 000
2) Total:	93 303	100 000	98630	100 000	100 000	100 000
3) (<i>% of total income – Appendix II</i>)	8.4%	10.0%	9.3%	9.1%	8.6%	8.6%
Costs						
4) Salaries + social costs ^a	58 439	61 017	60891	59 730	62452	63658
5) Other personnel expenses ^b	2 922	3 051	839	2 987	1874	1910
6) Rents ^c	8 766	9 152	4632	8 960	9368	13368
7) Computer costs ^d	197	5 500	429	3 626	3428	1712
8) Travels, conferences, training ^d	3 085	4 000	2805	3 626	3428	3424
9) Publications ^d	661	300	0	272	257	257
10) Phone, fax, post ^d	367	500	353	453	429	428
11) Miscellaneous ^d	3 035	1 000	1763	907	857	1284
12) Overheads ^e	19 285	20 135	18658	19 711	20609	21007
13) Total:	96 758	104 655	90370	100 272	102703	107048
14) <i>Balance:</i>	-3 455	-4 655	8259	-272	-2703	-7048
15) <i>Accum. Balance:</i>	-3 455	-8 111	4804	-6 063	2101	-4947

- 2012 and budget 2013: 20% manager + 30% staff 1 + 30% staff 2; actual 2013 and budgets 2014&2015: 10% manager + 10% staff 1 + 25% staff 2 + 30% staff 3 + 10% programmer
- 2012 and budget 2013: 5% of salaries; actual 2013: % of total budget in line 3; budgets 2014&2015: 3% of salaries
- 2012, budgets 2013&2014: 15% of salaries; actual 2013: % of total budget in line 3; budget 2015: 21% of salaries
- % of total budget in line 3
- 33% of salaries