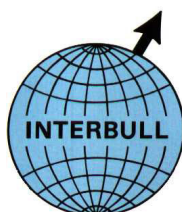


INTERBULL Centre

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INTERBULL is a sub-committee of the
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(ICAR)
General Secretariat, ICAR
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Interbull Centre Activity Report 2001/2002¹

INTRODUCTION

This document describes the activities at the Interbull Centre since the last annual meeting of Interbull (August 29-31, 2001, Budapest, Hungary). Workplans and future activities are also presented.

BUDGETS AND FINANCES

A complete financial report can be found in Appendix I+II. The result for year 2001 was quite positive and better than budget. A small deficit is projected for 2002, whereas balanced budgets for 2003 and 2004 are presented. No increases in service fees are proposed other than those resulting from expected expansion of services. The budgets will be official pending approval by the Interbull Steering Committee on May 25, 2002.

Full service fees for the udder health and Jersey conformation evaluations will apply as of 2002 and for Brown Swiss conformation evaluation as of 2003. The EU commission has continued their support of the Interbull Centre. For 2001 a contribution of EUR 60,000 was received and the same amount has been decided for 2002.

Interbull membership fees are handled directly by the ICAR office, Rome, Italy, and reported at the official meetings of ICAR. For 2001 the membership income of Interbull amounted to EUR 43,300. A similar amount is anticipated for 2002 and 2003. Membership income is used to cover overhead costs for ICAR/Interbull, some travel expenses, publications and information. The Interbull Centre also contributes about EUR 6,500 from service fees to cover these costs.

PERSONNEL

Ms. Dieuwke Prins from The Netherlands has been at the Centre since early February 2002 as an ERASMUS exchange student for approximately 4 months. She has been working on a project studying effects of changes in information sources in an udder health index on genetic correlations.

SERVICE AND OPERATION

International genetic evaluations for production traits were computed as scheduled in November 2001, and in February and May 2002, and test-runs were performed in September 2001 and March 2002. No new countries entered production evaluations and only a few changes in country-breed combinations were introduced: South Africa entered the Ayrshire evaluation; New Zealand entered the Brown Swiss evaluation; New Zealand and South Africa entered the Guernsey evaluation; Austria and Germany provided data from a joint evaluation to the Holstein evaluation; and Hungary and The Netherlands entered the Simmental evaluation.

¹ Presented at the 2002 Interbull Meeting, Interlaaken, Switzerland, May 26-27, 2002

International genetic evaluations for Holstein and Jersey conformation traits were computed according to the same schedule. First time participants in Holstein conformation evaluations were Danish Red & White, but no new countries entered the Jersey evaluation. Udder health evaluations for Ayrshire, Brown Swiss, Guernsey, Holstein, and Jersey were also computed at the same occasions. New countries/populations in these evaluations were Australia, Hungary, Israel, Italy, and the Red Holstein population from Switzerland.

The total numbers of populations in the most recent (May 2002) routine Interbull genetic evaluation services were as follows:

Breed	Production	Conformation	Udder health
Ayrshire	11	-	9
Brown Swiss	10	-	4
Guernsey	6	-	4
Holstein	26	19	18
Jersey	10	7	6
Simmental	10	-	-

Review of the Holstein conformation evaluation subcontract

The genetic evaluation for Holstein conformation has been run under a sub-contract with a North-American consortium. A group assigned by the Steering Committee of Interbull performed a review of the contract during the spring of 2001, and delivered its final report in June 2001. The report was favourably received by the Steering Committee during the meeting in Budapest, and a continuation of the sub-contract has been agreed to.

Brown Swiss conformation evaluation

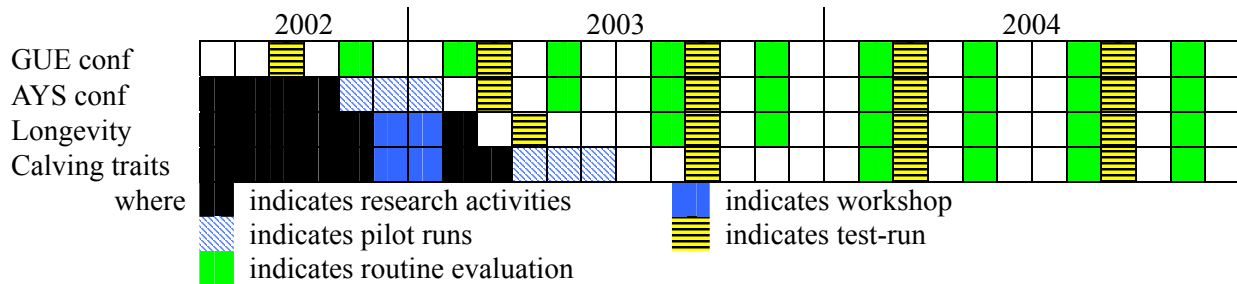
International genetic evaluation for conformation traits for the Brown Swiss breed was investigated in research and pilot studies during 2001. Results were presented during the Interbull Open Meeting in Budapest and evaluation results were discussed among participating countries. The Interbull Technical Committee reviewed the complete report and the conclusion was that preparation for routine international genetic evaluations could be recommended.

The test-run of March 2002 thus introduced conformation trait evaluation for the Brown Swiss breed. The test-run included data from 6 countries (Canada, France, Italy, The Netherlands, Switzerland and USA) and the evaluation considered 18 traits, although not exactly the same as for the Holstein breed. The same subcontractor performs the Brown Swiss conformation trait evaluation, as for the Holstein and Jersey conformation evaluations, and the first official routine evaluation is planned for August 2002 pending Steering Committee decisions during the meeting in Interlaaken.

Service expansion plans

Several research projects on international genetic evaluations are currently under way. For example, results on conformation trait evaluation for the Guernsey breed, longevity traits, and calving traits will be presented during the 2002 Interbull meeting. It is to be expected that these efforts will lead to expanded evaluations probably already in 2003, although it is obvious that further development is needed.

A possible scenario for future expansion could be as follows:



National data issues

The single most eventful, and disturbing, experience during the previous activity period of Interbull was the problems encountered at the February 2002 routine evaluation. Errors in the international evaluations of a group of bulls were identified only after the international genetic evaluation results had been distributed to participating countries. The problems were eventually traced back to errors in national evaluation results that went unnoticed in the ordinary checks of incoming data. It should be noted that the errors also went unnoticed in the checking procedures applied both by the Interbull Centre and the country in question. The international evaluation was repeated excluding the incorrect national data and results were re-distributed. The operational decision was made by the Centre in accordance with the current code of practice and with similar previous cases, although this case was unique and unfortunate since the errors were discovered so late in the process. The procedures for checking incoming data at the Centre have been extensively improved and expanded as a result of this event. It should be emphasized, however, that the Interbull code of practice identifies (2.1.1) that it is the duty of participating countries to check the quality of national data before sending them to the Centre. Methods for verification and validation of national genetic evaluations should be further developed and possibly included in the Interbull guidelines for national and international genetic evaluation systems.

It is important that countries correctly describe different sire categories, e.g. to distinguish between domestically proven bulls vs. imported bulls, young bulls with first crop daughters vs. proven bulls with first and second crop of daughters, and most important of all between natural service bulls vs. AI bulls. Earlier comparisons of data files for different traits within country revealed inconsistent coding of bulls, indicating a possible problem, and members participating in the international genetic evaluation were urged to verify their procedures for assigning the codes. It is encouraging to note that discrepancies between different traits within country have been reduced during the last period, although some problems or misunderstandings of codes still are apparent.

Interbull code of practice (7.1.5) identifies that "Data on all bulls (domestic and imported) evaluated in the participating country with daughters in at least 10 herds should be sent to the Interbull Centre". However, we still encourage countries to include bulls with daughters in less than 10 herds, and bulls with no daughters, in the data sent to the Centre. Pedigree information in the national dairy-production proof file (record type 010) forms the basis for the evaluation of all traits which means that only bulls present in this file can get genetic evaluations for any of the traits. Also providing records for old bulls without daughters in the national evaluation due to national time edits (a common case for many countries adopting test-day models) is important since they may provide useful pedigree information. Assigning the correct values that indicate missing information on number of daughters/herds/EDC and breeding values, according to the file format descriptions, is very important for such records.

Information activities

The web-services of Interbull have expanded during this activity period. Foremost is the introduction of "Interbull Discussion Forums" providing the opportunity to discuss topics related to international

and national genetic evaluations of dairy cattle. The forum also provides a means of communication between the Centre and Interbull members. The discussion forums are found under its own heading on the web site of Interbull (<http://www.interbull.org>).

The web site now also offers the possibility to download files with cross-references of bull identification numbers under the "Genetic Evaluations" link. A possibility to interactively search for identified "aliases" of bull id's is also available.

The Interbull Steering Committee has decided that information about national genetic evaluation system for countries participating in Interbull evaluations, as provided in the various forms submitted by the countries, should be made available in order to increase the transparency. The forms that have been made available to the Interbull Centre in electronic form are now available on the web site of Interbull under "Genetic Evaluations/National GES information". Countries participating in the evaluations that have not yet provided the requested forms are encouraged to do so as soon as possible.

Workshop

An international workshop, co-sponsored and -organized by FAO, on developing a national genetic evaluation system for dairy cattle, was held in March in Uppsala, Sweden. The workshop was targeted to countries in "transition" within the Central and East European region and had 12 participants from 5 countries. Presentations were mainly by Interbull Centre staff, but also by the resource persons Eildert Groeneveld, Kjell Johansson, Mart Uba, and Péter Wellisch. The outcome of the workshop is not only increased knowledge among the participants, but also that probably two new countries will join the international evaluation for production traits during 2002.

RESEARCH AND DEVELOPMENT

The Interbull Centre, with the assistance of the Steering Committee and their resource persons, has prepared a document listing research topics in the field of international genetic evaluation. The purpose of the document is fourfold:

- List ongoing research projects;
- Identify which aspects of the international genetic evaluation process require more study;
- Prioritise these items from an Interbull perspective;
- Communicate those to potential research partners.

The document is available on the web site of Interbull under "Publications and Documentation/General information". It should be underlined that it is a "living" document that can only stay updated if all members provides information about ongoing research.

International genetic evaluation using performance records

International genetic evaluations are currently based on national evaluation results; hence, they depend on national genetic evaluation procedures. Despite standardisation efforts, the latter still vary from country to country thereby introducing sources of inconsistency in international evaluations. In addition, only bulls can be included in the current analysis and receive international breeding values. Demands for international evaluation and selection of cows, mostly to be used as bull dams, increase. International genetic evaluation based on individual performance records could alleviate these problems. The objectives of this project were to assess the feasibility and merit of an international genetic evaluation based on cow performance records, develop methods for genetic parameter estimation and conduct a pilot study analysing field data of Guernsey cows from several countries. Freddy Fikse is the principal investigator in this project.

The field data analyses showed that the range of management conditions for Guernsey's was much smaller compared to similar results for Holstein populations, and that the degree of genotype by environment interaction is much less for Guernsey than was originally assumed. It also showed that

international genetic evaluations using performance records is a viable alternative to MACE for the Guernsey population.

A simulation study, assessing the relative merit of an international genetic evaluation based on cow performance records compared to the method currently used, has also been performed. Results indicate that international evaluations on performance records analysis on production environment basis were superior over MACE based on national evaluation results and performance records analysis on country basis, although the gain of using performance records in international genetic evaluations may be marginal when the impact of genotype-environment interaction is small.

Results of these studies will be presented at the World Congress on Genetics applied to Livestock Production, Montpellier, France, and are published in the PhD-thesis of Freddy Fikse.

In a parallel project at the University of Wisconsin-Madison, where Freddy Fikse is a collaborator, applications of international animal models to Holstein production data from several countries are being investigated. Kent Weigel and Nate Zwald of the University of Wisconsin-Madison schedule a progress report for the 2002 Interbull meeting.

Data connectedness and genetic correlation estimation

Estimates of genetic correlations between countries considerably influence international genetic evaluations. The need for improved correlation estimation procedures is also growing as new traits are considered in international genetic evaluations. The objective of this project is to improve the genetic correlation estimation process in international genetic evaluations. Dr Hossein Jorjani of the Interbull Centre is the principal investigator in this project.

Current practice at Interbull Centre (and at Holstein Association, USA) is to estimate genetic correlations for small groups of countries at a time. These separately obtained correlations need to be collected together in a single genetic correlation matrix for all participating countries, which in almost all cases is not a positive definite matrix. A technique commonly known as “bending” is used to obtain a positive definite matrix. The original bending method was a simple one and all correlations are subject to change irrespective of their precision. A new “weighted bending method” was developed that allows correlations between pairs of countries with low number of common bulls to change more. The method was favourably reviewed by the Interbull Technical committee and will be used in future Interbull test runs.

A method to select sub-sets of data with the desired properties of providing a good measure of connectedness in international genetic evaluations and at the same time avoiding bias in the data selection process was developed. The method, based on effective number of proofs for each bull, was tested in full-scale runs for estimation of genetic correlations among all participating populations (among others 27 populations of Holstein) and proved quite feasible. Currently, estimates based on this method to select sub-sets are compared with the traditional method of selecting based on countries only.

Simulation of data to explicitly assess the impact of data structure and selection of data sub-sets on genetic correlation estimation has been performed. The simulation considered six (6) countries with cow population size 2,000-64,000 animals/generation, 20-640 bulls tested/country/generation, progeny group size 10-100 daughters/young bull and semen exchange among countries. Phenotypic and genetic parameters also show variation (heritability between 0.15 to 0.40 and genetic correlations between 0.50 and 0.90). Bulls are allowed to remain in the population for several generations and, probably most important of all, rate of exchange of bulls among countries varies and the export country is chosen at random. Therefore, connectedness among countries looks quite realistic. Results will be presented at the ADSA meeting, Quebec City, Canada, and at the World Congress on Genetics applied to Livestock Production, Montpellier, France.

Primarily Per Madsen and Just Jensen at the Danish Institute of Agricultural Sciences, in collaboration with Thomas Mark from the Interbull Centre, conduct a related project. The aim of this project is to investigate the possibilities of using Bayesian methods to estimate (co-)variance components for international genetic evaluations taking prior information into account. The method is applied to simulated data and to Ayrshire conformation data. Results of the study will be presented at the 2002 Interbull meeting.

Genetic correlations for composite traits

There has been some interest in international genetic evaluations for udder health indexes. These selection indexes commonly are composed of multiple traits. Using composite traits may be problematic in MACE, when information for different index traits becomes available at different age, thus causing changes in information sources over time. This is not only applicable to udder health indexes, but also to e.g. conformation traits, where composite traits are already used in MACE. A study on how estimated genetic correlations between countries change over time due to the change in information sources was therefore conducted. The principal investigator in this project has been Dieuwke Prins, under the supervision of Interbull Centre staff. Results of the study, showing that correlations do change substantially with time, will be presented at the 2002 Interbull meeting.

Use of daughter yield deviations and de-regressed proofs in estimation of genetic correlations

Results presented during the 2001 Interbull Meeting indicated that daughter yield deviations (DYD) might be preferred over de-regressed proofs (DPRF) when estimating (co-)variance components for international genetic evaluations. A study was performed on field data from countries providing daughter yield deviations. Results will be presented during the 2002 Interbull meeting showing that DPRF's are preferred as dependent variables for MACE compared to DYD's. Results presented at the 2001 Interbull Meeting were probably due to errors in simulating data for the study.

In a related study using field data, properties of DPRF and effects of phantom parent grouping for a trait with low heritability (0.02) were studied. The results showed that the de-regression procedure worked satisfactorily and the effect of different phantom parent grouping in within country de-regression compared with across country analysis were negligible in this situation. The results are accepted for publication in Journal of Dairy Science.

Data verification

The quality of international genetic evaluations are dependent on the quality of the data submitted. As a consequence of events during the routine evaluation of February 2002, new procedures that can be used to increase the error detection abilities of the Interbull Centre as well as the ability to pinpoint problem animals were developed together with HA-USA. The method uses evaluations and reliabilities from consecutive evaluations to determine whether observed changes in individual evaluations are within expectations given the change in reliability. The method can easily be implemented in each individual country as an additional check on genetic evaluation results before data is submitted to the Interbull Centre for routine evaluations. Results will be presented during the 2002 Interbull Meeting.

National data quality

The joint project between the Interbull Centre and the University of Göttingen (Dr. Hermann Swalve), Germany, with the objective to develop flexible software to provide a simulation environment for testing and comparing breeding value estimation programmes, was initiated in 2001. An initial survey on evaluation procedures and data structures in a sample of countries was performed. Results were used in developing algorithms to generate observations according to country specific data structures. Results of the project will be presented during the 2002 Interbull Meeting.

National genetic evaluation procedures

At present, international genetic evaluations are based on results of national genetic evaluations from individual countries. Quality of the latter is crucial to ensure appropriate and useful international evaluations. Results from a survey of national genetic evaluation procedures and earlier Interbull guidelines were used to develop guidelines for genetic evaluations describing best industry practice. The guidelines have been published in Interbull Bulletin No. 28. "Interbull guidelines for national & international genetic evaluation systems in dairy cattle with focus on production traits".

R&D funding

In addition to funds raised from service fees, research and development activities at the Interbull Centre is financed by grants from the Swedish University of Agricultural Sciences (SLU), National Association of Animal Breeders (NAAB) and the United States Department of Agriculture (USDA), the European Union, and the World Guernsey Cattle Federation (WGCF).

Contributions of the above organisations to the future development of Interbull services are gratefully acknowledged.

INTERBULL PUBLICATIONS/PRESENTATIONS

The following Interbull-related publications/presentations were produced since the 2001 Interbull meeting:

Interbull Bulletin No. 27. Proceedings of the 2001 Interbull meeting, Budapest, Hungary, August 30-31, 2001.

Interbull Bulletin No. 28. Interbull guidelines for national & international genetic evaluation systems in dairy cattle with focus on production traits.

Emanuelson, U. 2001. INTERBULL. EAAP-News, Livest. Prod. Sci. 73, 90-92.

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Fikse, W.F., 2002. Advances in international genetic evaluation procedures of dairy cattle. Acta Universitatis Agriculturae Sueciae, Agraria 339. PhD Dissertation. Swedish Univ. of Agric. Sci., Uppsala, Sweden.

Fikse, W.F., Rekaya, R. & Weigel., K. 2001. Assessment of environmental descriptors for studying genotype by environment interaction. Proc. 52nd Annual Meeting of the EAAP, Budapest, Hungary, 72 (Abstr.).

Fikse, W.F., Rekaya, R. & Weigel, K. 2001. Genotype by environment interaction for milk production traits in Guernsey cattle. Interbull Bulletin 27, 9-12.

Jorjani, H. 2001. Simultaneous estimation of genetic correlations for milk yield among 27 Holstein populations. Interbull Bulletin 27, 80-83.

Jorjani, H. 2001. Interbull Guidelines. Presented to the Interbull Open Meeting, Budapest, Hungary. August 29-31 2001.

Jorjani, H. 2001. Interbull Guidelines: Unresolved issues. Presented to the Interbull Open Meeting, Budapest, Hungary. August 29-31 2001.

Jorjani, H., Philipsson, J. & Mocquot, J.-C. 2001. Interbull Guidelines for national and international genetic evaluation systems in dairy cattle with focus on production traits. *Interbull Bulletin* 28, 30 pp.

Jorjani, H., & Strandberg, E. 2001. Dominance variance under assortative mating in a finite locus model: A simulation study. *Proc. 52nd Annual Meeting of the EAAP, Budapest, Hungary*, 69 (Abstr.).

Kolmodin, R., Strandberg, E. & Jorjani, H. 2001. Effect of selection combined with improved environment on environmental sensitivity. *Proc. 52nd Annual Meeting of the EAAP, Budapest, Hungary*, 69 (Abstr.).

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Madsen, P., Sørensen, M.K. & Mark, T. 2001. Validation and comparison of methods to estimate (co)variance components for Mace. *Interbull Bulletin* 27, 73-79.

Mark, T., Fikse, W.F., Emanuelson, U. & Philipsson, J. 2001. International genetic evaluations of Holstein sires for udder health traits. *Proc. 52nd Annual Meeting of the EAAP, Budapest, Hungary*, 23 (Abstr.).

Mark, T., Nielsen, U.S., Pösö, J., Gundel, M. & Svendsen, M. 2001. Genetic relationships among functional traits in the Nordic Holstein populations. *Interbull Bulletin* 27, 64-67.

Svendsen, M. & Mark, T. 2001. Genetic relationships among functional traits in the Nordic Ayrshire populations. *Interbull Bulletin* 27, 60-63.

Urioste, J.I., Gianola, D., Rekaya, R., Fikse, W.F. & Weigel, K.A. 2001. Evaluation of extent and amount of heterogeneous variance for milk yield in Uruguayan Holsteins. *Anim. Sci.* 72, 259-268

Weigel, K.A., Rekaya, R., Zwald, N.R. & Fikse, W.F. 2001. International genetic evaluation of dairy sires using a multiple-trait model with individual animal performance records. *J. Dairy Sci.* 84, 2789-2795.

Zwald, N.R., Weigel, K.A., Fikse, W.F. & Rekaya, R. 2001. Characterization of dairy production systems in countries that participate in the international bull evaluation service. *J. Dairy Sci.* 84, 2530-2534.

INTERBULL STEERING COMMITTEE MEMBERSHIP

Steering Committee members should have industry support in the regions they represent. Candidate names are put forward by the Steering Committee to the Business meeting in Interlaaken for nomination and are then appointed by the ICAR board. Service terms for Mark Jeffries, Jean-Claude Mocquot, Rex Powell and Hans Wilmink expire this year. Mocquot, Powell and Wilmink were willing to renew their service terms and have received support to do so. Jeffries indicated that he would retire from the Steering Committee and Robert Poole has received support to replace him as the representative for Oceania.

WORKPLANS

Services

Routine evaluations for production, conformation and udder health

Release dates (second Monday each of the following months):

2002 August 12

November 11

2003 February 10
May 12
August 11
November 10

Test runs for production, conformation and udder health:

2002 September
2003 March
September

Test runs for international genetic evaluations for additional traits may take place during 2003, pending the outcome of current research.

Research

Project	Status	Contact person at Interbull Centre
Data connectedness and genetic correlation estimation	work in progress	Hossein Jorjani
International genetic evaluation based on individual performance records	work in progress	Freddy Fikse
Software development for national evaluation auditing purposes	work in progress	Hossein Jorjani
Validation of complex statistical models	work in progress	Hossein Jorjani
Bayesian estimation and prediction	work in progress	Thomas Mark
Multiple-trait MACE	to be initiated	Thomas Mark
Effects of national genetic evaluation systems on genetic correlation estimates	to be initiated	Freddy Fikse
Treatment of genetic groups in MACE	to be initiated	Freddy Fikse

Meetings

Interbull sponsored session at 7th World Congress on Genetics Applied to Livestock Production (WCGALP) in France, August 19-23, 2002.

Annual Interbull meeting, 2003, in conjunction with the EAAP meeting in Italy, August 29-30, 2003.

Interbull workshop in preparation for expanded services.

Planned Publications

Interbull Bulletin: Proceedings Interbull Open Meeting May 26-27, 2002, Switzerland.

Interbulletin July 2002.

Interbull Centre Finances and Budgets (Euro), April 2002

COMMENTS TO ACCOUNTS AND BUDGETS

The financial situation of the Interbull Centre is presented in Appendix II. All figures are given in Euros. The table includes the final accounts for 2001 in comparison with the results for 2000 and the budget for 2001. The budget for 2002 is revised according to the expectations as of the end of April 2002. A budget for 2003 is presented for approval together with a provisional budget for 2004 in order to have an opportunity to project the economy on a longer term.

Some important assumptions for the budgeting procedure have been made. These will be described in more detail below, but the most important facts are:

- The most recent statistics on number of recorded cows per breed and country from ICAR have been used to calculate service fees. According to these the number of cows has gone down in several countries, which in some cases negatively affects the service fees.
- New countries are expected to enter the service shortly (Japan, Slovakia, Lithuania).
- Conformation evaluations will start with BSW in 2002 and most likely with AYS in 2003.
- Promising results from collaborating research groups in Germany and the Netherlands on international evaluations for calving traits and longevity traits respectively, will be presented at the Interlaaken meeting. It is expected that, following a workshop at the end of 2002, a service for international evaluations of these traits will be developed for use during 2003. This service could be conducted by the Interbull Centre without any outsourcing, but assumes that the expansion of personnel at the Centre with 0.5 scientist as was budgeted for in 2002, is followed by another 0.5 scientist for 2003 and onwards, i.e. another scientist should be recruited from the second half of 2002.

Accounts for 2001

The final accounts for 2001 are presented in Appendix II according to the same format as in previous years. The accounts have also been audited within the normal procedures for the Swedish University of Agricultural Sciences. The result for 2001 was considerably better than the projections in the budget. Incomes were as expected but costs were down at several points. Major differences were due to lower costs for travels and conferences. Contrasting to 2000 and 2002 there was primarily only one main conference attended (Budapest) in 2001 and no workshop was held. Costs for ICAR/Interbull to cover protections of name and logo were lower than expected. The effective use of Internet communications for information, discussion and decision-making at Steering Committee level has also contributed to lower costs for other means of communication.

The result for 2001 led to a balance of 46,235, which means that the accumulated balance at the end of 2001 was 106,592. An increased balance was asked for at the last business meeting of Interbull.

Revised budget for 2002

Comments refer to the numbers in the table and points at deviations or new information since last meeting. Corresponding figures when appropriate for 2001 are given within brackets.

1. Service fees are adjusted to the most recent statistics on recorded cows in each country. Service fees are for production 307,000 (311,800), conformation 64,000 (75,662), and udder health 33,000.
2. A one-year prolongation of the USDA financed research project from Nov. 2001 has been achieved through kind support by NAAB. SLU has decided to provide a 0.5 researcher position for four years starting April 2002. Continued support (£ 5,000) by the World Guernsey Cattle Federation (WGCF) is expected.
3. A EU grant of 60,000 has already been decided for 2002. 70% is paid during the actual year and 30% the next year after an approved report.

4. In February a workshop paid by FAO was held at the Centre for East European countries in transition as a preparation for participation in international evaluations.
5. Salary costs incl. social benefits are included for on average 4.6 (4.1) scientists, 0.6 programmer and 0.4 secretary (no change compared to previous budget).
7. 2002 includes two main conferences, ICAR at Interlaaken and WCGALP at Montpellier. A workshop is planned to take place late 2002 as a preparation for expansion of the services. Furthermore, Interbull is sponsoring (10,000) one session at the WCGALP.
12. A new contract has been established between Interbull and the North-American consortium on outsourcing the conformation evaluations. Future work will not include as much development work as was needed in the initial period. The contract assumes an annual basic fee of 47,000 with 1,000 for each additional breed not included 2001. The costs for the audit project conducted in Germany do not affect the budget except for some travel costs.

It is expected that the 2002 results will be slightly negative (-9,310), but much less so than the budget for 2002 approved last year (-25,000) and the positive balance achieved for 2001. The accumulated balance at the end of the year is expected to about 97,000.

Budget for 2003 and provisional budget for 2004

The target has been to present balanced budgets for these two years. This means that expanded services must pay for the increased needs for personnel and related R&D and service costs. Specific comments are given when essential deviations from previous years are expected. The provisional figures for 2004 are given within brackets.

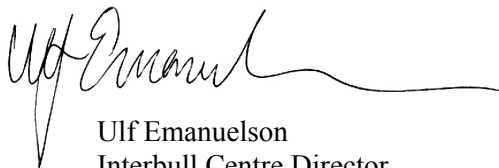
1. Service fees for production are expected to 329,000 (no change), for conformation to 75,000 (no change), udder health 33,000 (36,000), calving traits 24,000 (36,000) and for longevity 24,000 (36,000). No change in service fee per trait/breed/country is foreseen for already existing services. Increases are due to more countries, breeds and traits included in the service.
2. Only research grants from SLU and the WGCF are included, but more is welcome!
3. Salary costs are included for 5.1 scientists, 0.6 programmer and 0.4 secretary. No change 2004.
7. The provisional budget for 2004 accounts for possibly two meetings, the ICAR meeting in Tunisia, and one workshop. Provision is also made for some travel costs of a Technical Advisory Committee and for some collaborating scientists.

The budget for 2003 means an increase of nearly 10% from 2002 and an additional 5% in 2004.

Uppsala, April 29, 2002



Jan Philipsson
Interbull Secretary



Ulf Emanuelson
Interbull Centre Director

Interbull Centre Finances and Budgets (Euro), April 2002

	2000	2001		2002	2003	2004
	Actual	Budget	Actual	Budget (revised)	Budget	Prov. budget
Income						
1. Service fees	345,572	387,462	387,462	404,000	485,000	512,000
2. Research grants	98,577	100,000	102,707	100,000	90,000	94,000
3. EU grants	50,000	60,000	58,304	60,000	60,000	60,000
4. Other income			810	14,690		
Total	494,149	547,462	549,283	578,690	635,000	666,000
Expenses						
5. Salary costs	241,868	260,000	254,773	294,000	352,000	365,000
6. Computer costs	33,708	35,000	34,648	38,000	45,000	45,000
7. Travels, conferences	32,191	35,000	17,330	55,000	25,000	35,000
8. Publications	11,773	13,000	10,655	13,000	15,000	15,000
9. Phone, fax, postage	12,024	16,000	12,554	13,000	14,000	15,000
10. Steering Comm. And ICAR	6,343	25,000	14,437	12,000	14,000	14,000
11. Miscellaneous	3,916	4,000	4,214	5,000	5,000	5,000
12. Outsourced activities	21,114	55,000	53,705	48,000	50,000	52,000
13. Office and univ. adm. costs	90,810	110,000	100,732	110,000	115,000	120,000
Total	453,747	553,000	503,348	588,000	635,000	666,000
Balance	40,402	-5,538	46,235	-9,310	0	0
Accum. Balance	65,895	60,357	106,592	97,282	97,282	97,282

Note: Interbull membership fees are not included in this table because they are handled directly by the ICAR office, Rome, Italy, and reported at the biennial meetings of ICAR. For 2001 the membership income of Interbull amounted to EUR 43,300 and for 2002 membership fees are budgeted at 46,327. They contribute to cover overhead costs for ICAR/Interbull, some development work, travels, publications and information work. The Interbull Centre also contributes (EUR 6,343) annually to ICAR from service fees to cover these costs.