



## IDF/ICAR Project on Reference System for Somatic Cell Counting in Milk

NEWSLETTER 4 - January 2013



*The IDF/ICAR project on improving the global equivalence in somatic cell counting in milk is progressing well. Major achievements during the last year are:*

- the optimization of the protocol for the preparation of reference materials;*
- the established contact with EU JRC/IRMM in Geel (Belgium) in order to explore the possibilities for the production of a primary reference material;*
- the testing of the calculational model for the determination of quality indexes of proficiency testing schemes and laboratories, which are to be involved in the characterization of reference materials;*
- a better insight in existing interlinkages on somatic cell counting in milk between laboratories world wide through proficiency testing schemes and the use of reference materials.*



*More information is under the headings below and at [www.fil-idf.org/RSSCC](http://www.fil-idf.org/RSSCC). We hope you will appreciate this fourth newsletter on the project.*

## “Analytical interlinkages” as a useful tool to built international metrological traceability

Laboratories have to verify their analytical performance to maintain the creditability of their customers and to fulfil the requirements of ISO 17025 when accredited. Part of this is using reference materials and participating in proficiency testing schemes. The answers received from the questionnaire on the preparation and use of reference materials show clearly that many laboratories participate in more than one proficiency test for somatic cell counting. Some laboratories also verify their calibration with different secondary reference materials. **It means that interlinkages exist between different laboratories.**

The project on the development of a reference system for somatic cell counting in milk aims to capitalize on these existing interlinkages, the so called bottom up approach! The dairy laboratories that deal with the counting of

somatic cells can in fact already use these existing interlinkages to better anchor their analytical results. This can to certain degree already create internationally oriented traceability and comparability for their results.

More information can be found in the proceedings of the Sixth ICAR Reference Laboratory Network Meeting held in Cork, Ireland, 28th May 2012, page 28 (Download proceedings)

## Standardizing a procedure for the preparation of reference materials (RM)

Reference materials (RM) play a fundamental role in quality assurance as they serve to establish accuracy and to demonstrate traceability. Regarding the quantitative determination of somatic cells in milk, RM are indispensable to calibrate automated cell counters, for quality control purposes or for reference transfer to other (secondary) reference materials. As such, they are a cornerstone in optimizing and maintaining global equivalence in somatic cell counting. To promote this process, it is important to standardize a procedure for the preparation of reference materials (RM) for somatic cell counting (SCC).

Based on the outcome of the recent questionnaires on reference materials, the Project Group has prepared two documents which are in an advanced stage to publication.

- RM SCC requirements according to ISO Standard 30-31-34-35
- Procedure for the preparation of a standardized RM

**In drawing up these two documents, the project group members expressed a preference for a simple preparation, resulting in a RM that is homogenous, stable and representative for the samples to be analyzed. The resulting optimal procedure for the preparation of a set of reference materials was identified and has been examined in a few research studies.**

To satisfy the different analytical situations and purposes for its application (e.g. certified RM with long shelf life or secondary reference material) the procedure allows the preparation of three types of products: liquid milk, frozen milk and lyophilized milk.

## Project Group takes up collaboration with JRC/IRMM in Geel

On 24 September 2012 representatives of the IDF/ICAR Project Group met with Prof. Henrik Emons and Dr. Heinz Schimmel from the EU Joint Research Centre/Institute for Reference Materials and Measurements in Geel (BE). This meeting was held to explore a possible cooperation in the development and production of a 'primary' reference material for somatic cell counting in milk. At the end of this fruitful meeting both parties agreed on a joint aim to further specify the approaches for such a project. A planning document will be prepared during the coming months.

# Easier link to project information at IDF website

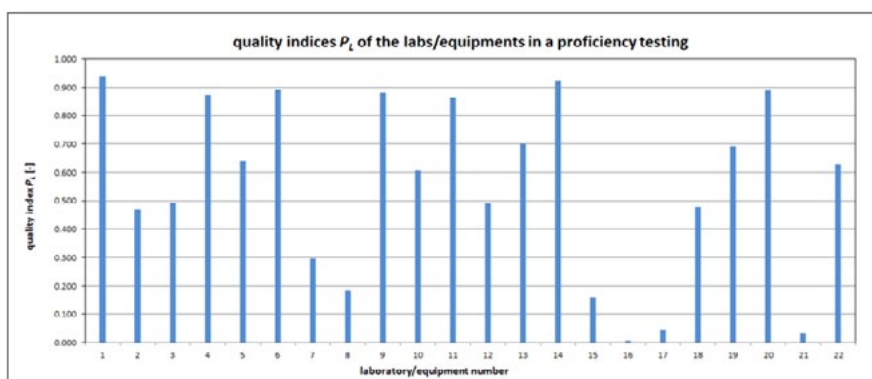
The Project Group makes gratefully use of webspace provided by IDF. Recently the URL was simplified. All information on the project can now be reached through [www.fil-idf.org/RSSCC](http://www.fil-idf.org/RSSCC).

## Assessing SCC proficiency testing schemes and laboratory performance

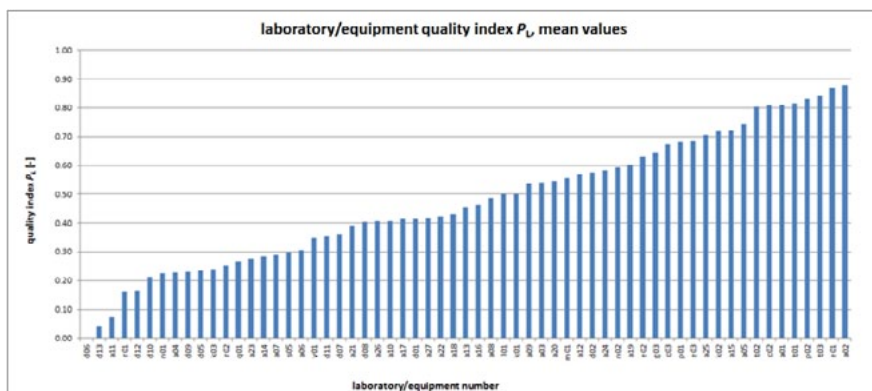
Thomas Berger, Werner Luginbühl

An Excel® spreadsheet using the probabilistic calculation approach is available since 2011 and was evaluated in a first pilot testing phase. This pilot testing phase consisted of two steps, using first a PT data set where the sample preparation and the PT conduction was well known (to get familiar with the calculation and to better understand the effects of the performance criteria), and using secondly a small study consisting of three PTs (two in Europe, one in the US) with overlapping laboratory participation.

The outcome showed that the spreadsheet is working. Depending on the design of the PT, laboratories are strongly discriminated by Quality Indices PL (see graph 1 and 2).

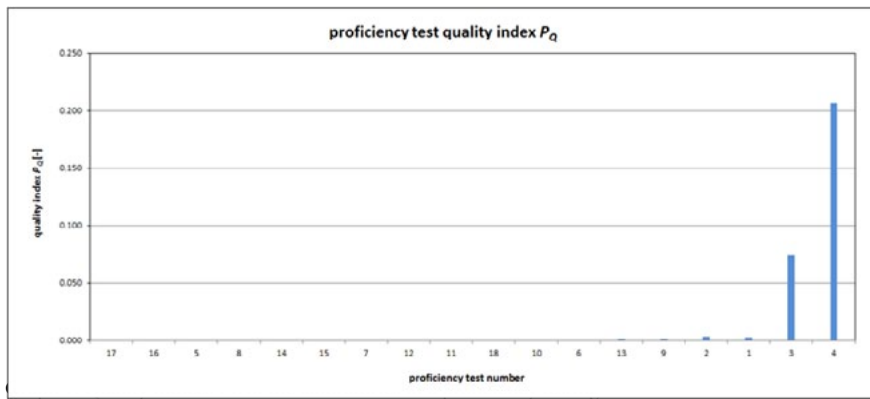


Graph 1: Quality indices PL of the laboratories in a proficiency testing



Graph 2: Mean values of Quality indices PL of different laboratories

The calculation of the Quality Index PQ to assess proficiency tests is strongly discriminating them (graph 3). Several PTs even received a 0 value because of the very strong influence of sr and sR. This influence needs to be analyzed by simulations and further modifications have to attenuate it.



After simulations and modifications, a second test phase will be planned where further data will be introduced and the influencing factors be analyzed.

## Communication overview

### Presentations

Reference systems, a new initiative of IDF and ICAR. Presentation during IDF World Dairy Summit. Berlin (DE), 23 September 2009 (presented by H van den Bijgaart).

International reference system for somatic cell counting in milk, a world wide challenge. Presentation during ICAR 37th Biennial Session. Riga (LV), 1 June 2010 (presented by C. Baumgartner).

Global Networking with Ring Trial as a tool in Reference System on SCC. Presentation during MPR Bayern Jubilee Symposium. Freising (DE), 18 October 2010 (presented by S. Orlandini - O.Leray)

Worldwide equivalence of analytical results with emphasis on reference systems. Presentation during MPR Bayern Jubilee Symposium. Freising (DE), 18 October 2010 (presented by H. van den Bijgaart).

Reference system for somatic cell counting in milk. Presentation during EU JRC/IRMM Symposium on The Future of Reference Materials – Science and Innovation. Geel (BE), 25 November 2010 (presented by S. Orlandini).

Needs by the dairy sector with emphasis on somatic cell counting in milk. Presentation during CCQM/BIPM Workshop on The Role for Reliable Traceable Microbiological Measurements to Ensure Food Quality and Safety. Paris (FR), 6 April 2011 (presented by H. van den Bijgaart).

Reference system for somatic cell counting in milk. Presentation during 3rd International AABP/NMC Symposium on Mastitis and Milk Quality. St. Louis (US), 22-24 September 2011 (presented by S. Orlandini).

Improving global equivalence in somatic cell counting. Presentation during IDF World Dairy Summit. Parma (IT), 17 October 2011 (presented by H. van den Bijgaart).

International survey on somatic cell counting – Situation of lab network or-

ganisation and practices. Presentation during the 38th ICAR Session. Cork (IE), 28 May-1 June 2012 (presented by S. Orlandini).

Reference system for SCC. Presentation during the Workshop of NRLs for Milk and Milk Products, Paris (FR), 3-5 October 2012 (presented by T. Berger)

## Publications

Bulletin of the IDF No. 427/2008 - Towards A Reference System For Somatic Cell Counting In Milk, 21 pp.

Newsletter 1, August 2010 ([Download Newsletter 1](#))

Newsletter 2, November 2010 ([Download Newsletter 2](#))

Newsletter 3, July 2011 ([Download Newsletter 3](#))

C. Baumgartner & H. van den Bijgaart. International reference system for somatic cell counting in milk, a world wide challenge. In: E. Sjukina, E. Galvanoska, O. Leray & C. Mosconi, Eds. ICAR Technical Series no.14, November 2010. Rome, Italy: ICAR, p. 271-274 ([Download journal](#))

S. Orlandini & H. van den Bijgaart. Reference system for somatic cell counting. Accreditation and Quality Assurance, vol. 16 issue 8-9 August 2011, p. 415-420 ([Download article](#))

S. Orlandini. Reference system for somatic cell counting in milk. Proc. 3rd International AABP/NMC Symposium on Mastitis and Milk Quality, St. Louis, USA, 22-24 September 2011 ([Order proceedings](#))

S. Orlandini. International survey on somatic cell counting – Situation of lab network organisation and practices. In : Proc. Sixth ICAR Reference Laboratory Network Meeting, Cork, Ireland, 28th May 2012, p. 28-56 ([Download proceedings](#))

O. Leray. PT scheme interlinkage and international laboratory anchorage. In : Proc. Sixth ICAR Reference Laboratory Network Meeting, Cork, Ireland, 28th May 2012, p. 57-81 ([Download proceedings](#))

## Joint IDF/ICAR Project Group

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## **IDF (International Dairy Federation)**

The mission of IDF is to represent the dairy sector worldwide by providing the best global source of scientific expertise and knowledge in support of the development and promotion of quality milk and dairy products to deliver consumers with nutrition, health and well-being.

1200 experts appointed by IDF members work on the areas of dairy farming, food standards, analytical methods, nutrition, hygiene and safety, science and technology and economics and marketing. IDF places great emphasis and importance on ensuring that the works it promotes are of the highest scientific integrity and are relevant and applicable to the dairy sector and industry as well as to international organizations, governments and legislators.



[www.fil-idf.org](http://www.fil-idf.org)

## **ICAR (International Committee for Animal Recording)**

ICAR is an international non-profit body that promotes the development and improvement of the activities of performance recording and the evaluation of farm livestock.

This is achieved through:

- Establishing rules, standards and specific guidelines for the purpose of identifying animals, the registration of their parentage, recording their performance and their evaluation and publication of the findings;
- Providing incentives for concertation and collaboration in animal performance recording and evaluation within and among international organisations, public authorities and industry.



[www.icar.org](http://www.icar.org)