



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

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*Milk somatic cell counting requires an international reference system in order to obtain better equivalence in test results world-wide. Available knowledge and expertise has been brought together in a joint IDF/ICAR Project Group, which has started to work out a proposal for such a system. The ambition is fed by broad support from major stakeholders in the dairy sector.*

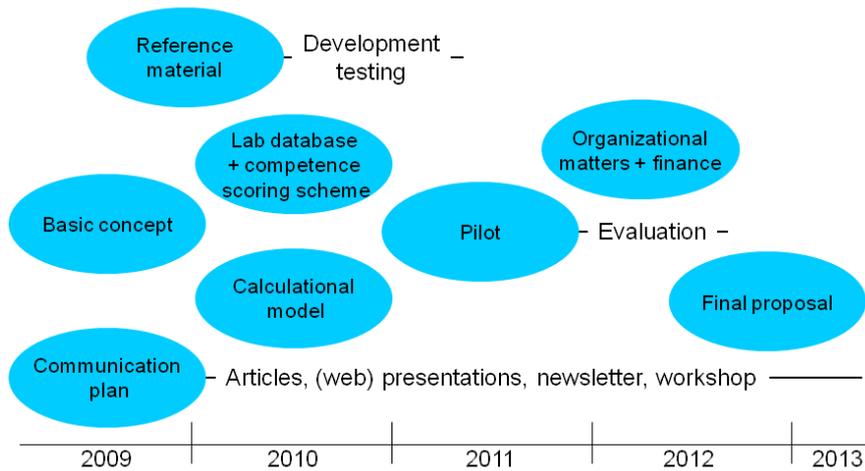
*By Véronique Ninane\*, Silvia Orlandini\*\*, Ute Braun\*\*\**

Somatic cells in raw milk are a biological marker of an udder infection. Elevated values in bulk tank milk raise the suspicion of inadequate herd management practices. Somatic cell count is therefore used as a criterion for milk hygienic quality in trade regulations and for milk payment purposes. In the frame of milk recording schemes, somatic cell counts help to pinpoint udder health problems with individual animals, thereby supporting dairy farmers in their herd management. It is estimated that yearly about half a billion somatic cell count determinations are made worldwide.

### **Why is a reference system approach needed?**

Somatic cell count (SSC) is widely determined by robust functioning fluoro-optoelectronic methods. These routine methods must be fine-tuned against an official reference method, the microscopic enumeration as described in the International Standard ISO 13366-1|IDF 148-1. Calibrations of the worldwide spread of instruments are done with local reference materials that are characterised by a single or a limited number of local laboratories. Unfortunately, a proper execution of the reference method depends to too large an extent on the inevitable subjective judgement of the involved analysts. This gives rise to poor reproducibility between laboratories [1]. Moreover, reference materials differ in type of cells and matrices. As a consequence, routine laboratories worldwide may show significant bias when compared within an international trial [2]. This variance highlights the need for the development of a more solid basis for equivalence in somatic cell counting worldwide.

The issue with somatic cell counting is an example case on how to safeguard equivalence in the operation of routine methods with poorly defined parameters. The joint IDF/ICAR Project Group intends to tackle the issue with a reference system approach, a concept that has already been extensively described by Christian Baumgartner [3].



*The timeplan of the project*

## The challenges ahead

A first challenge is to describe a broad supported scheme for the preparation and characterization of a reference material based on best available practice. We are grateful to the reference material providers who have recently forwarded us relevant information on their practices. A questionnaire for routine laboratories on the use of reference material for somatic cell counting is in preparation.

To guarantee the quality of the reference and routine data for reference material characterisation, the competence of the contributing laboratories has to be traceable through their performance scores as obtained by participation in proficiency testing schemes. The level of competence of these laboratories is to be taken into account in the reference value calculation. Therefore, the Project Group is developing a data processing model to weigh the traceable competence of contributing laboratories.

When having the foregoing available, the next step will be to test the concept in a pilot study. This to evaluate the robustness and the functioning of the whole system before proposing adoption on a wider scale.

In this whole trajectory, it is important to gain and maintain international support and (in the end) to find official recognition by regulatory bodies and competent authorities. Therefore, one of the basic tasks is the circulation of information among the stakeholders. This newsletter is part of that.

For further information, please contact the Project Group through its members (see below) or via the project leader Harrie van den Bijgaart ([bijgaart@qlip.nl](mailto:bijgaart@qlip.nl)).

## References

- 1 Orlandini, S., Lattanzi, L., Toscano, A.M. & Paggi, U. Interlaboratory collaborative study on the reference method for somatic cell counting in cows milk ISO 13366-1|IDF 148-1. Bull. Int. Dairy Fed. 427: 2-14 (2008).
- 2 Ubben, E.H. & Knappstein, K. 10 years of inter-comparisons on counting of somatic cells in raw milk. Mastitis Newsl. 26: 26-28 (2005).
- 3 Baumgartner, C. Architecture of reference systems, status quo of somatic cell counting and concept for the implementation of a reference system for somatic cell counting. Bull. Int. Dairy Fed. 427: 15-21 (2008).



*Reference group members at a recent meeting in Montreal*

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## Newsletter's next issue

November 2010, in conjunction with the IDF World Dairy Summit, to be held from 8 to 11 November in Auckland (NZ), see [www.wds2010.com](http://www.wds2010.com).

A webpage dedicated to the project will be soon available through the websites of IDF ([www.fil-idf.org](http://www.fil-idf.org)) and ICAR ([www.icar.org](http://www.icar.org)).



### 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)

### Joint IDF/ICAR Project Group

The broad support for the project is illustrated with the rapid extension of the Project Group, which now has 23 members: Dave Barbano (US), Christian Baumgartner (DE), Thomas Berger (CH), Ute Braun (DE), Pierre Broutin (FR), Angélica Mabel Fabro (AR), Marina Gips (IL), Slavica Golc Teger (SI), Paul Jamieson (NZ), Steen Kold-Christensen (DK), Olivier Leray (FR), Bertrand Lombard (FR), Chrysanti Matara (GR), Véronique Ninane (BE), Silvia Orlandini (IT), Anne Pécou (FR), Peristeri Popi (GR), George Psathas (CY), Tiina Putkonen (FI), Dalia Riaukiene (LT), Andrea Rosati (IT), Philippe Trossat (FR) and Harrie van den Bijgaart (NL, project leader).