



**MA SC**  
**ICAR Sub-**  
**Committee on**  
**Milk Analysis**

**Enhancing sustainable milk production with  
new milk analysis tools?  
New ideas for attempting new ways!**

**Foreword**

*The workshop was prepared and animated by O Leray and C Baumgartner. C Baumgartner guided the discussion and summed up the outcome of the workshop in a first draft. O Leray fed the discussion with examples of significant issues in dairy analytics, explained technical details and presented a summary of important analytical topics of last years and today.*

**Introduction**

This workshop had its origin in the session of the ICAR reference laboratory network in 2010 in Riga. There was strong indication given by the participants that ICAR should give more room to discuss future developments and formulate new ideas in terms of analytical tools to better serve the future needs of milk production.

The workshop was intended to be a brainstorming session and to involve any interested stakeholder in the dairy milk production chain. It was tailored for interested professionals who wanted to participate in a friendly collective "think tank work" together with specialists in milk analysis and from dairy laboratories. This was the statement of the invitation at least.

The objective of the workshop was to identify new potential indicators or markers in milk, which could serve the key issues and main problems for decision makers and herd managers, when it comes to responsible and socially acceptable milk production conditions.

This task should have been tackled with the background of most recent technical knowledge as well as the actual trends in society such as environmental care, animal welfare and social compliance.

The outcome of this workshop should also mark the way of ICAR and its members towards the future in milk analysis focused on the new challenges lying ahead of the milk producers.

**Presentation of the workshop and organisation of work**

After a welcome word and a round table for participant introduction and a presentation of the objectives of the meeting and the method to operate, it was agreed upon to work in three work groups about the topics "Global trends influencing analytics", "Important trends in dairy production" and "Important trends in Analytics". The outcome of this work should be reviewed by the leaders of each work group before being sent to all participants for further input and comments. In the end there should be a summary and motivating paper, which could lead the way to further discussions and more intense discussions about future developments.

## Outcomes of brainstorming work

The outcome of the three work groups were presented by the respective group leaders and discussed by the participants. They can be summarized by the following key messages / key questions:

### Group 1 – Trends / MegaTrends

*S Kold-Christensen (DK), D Chédotal (FR), O Leray (FR)*

- Traceability is essential! All data from the cow to database(s) and all information back to the farm must be traceable and transparent → challenge: standardization, harmonization, easy-to-use, easy-to-understand!
- Sharing information is essential! – “We have a graveyard of data”; data could be used much better and much more effective; coordinate all partners around the globe! Denmark could be seen as a positive example with its national cattle data base;
- Technologies for transferring information are important! “What does the farmer like to use?” There should be an adaption to the users’ preferences more than to the capabilities and routines of labs or DHI organisations.
- There is a need for new types of information beneath figures and precision data! Customers are looking for “management tools”, which can be used in a direct and uncomplicated way; “no studies needed!”
- Networking means getting dairy companies more involved in the ICAR work! This also serves the goal getting more farmers involved into DHI (and the ICAR work)!
- There is a field of tension between standardization/harmonization vs. individual diversity. Diversified products and services still need continuity in quality and history of data! Laboratories and organisations will have to offer a → scale of different “harmonized” services | flexible combinations according to the needs of customers!
- More and more farmers try to be successful by seeking for market niches where they can sell a unique or different product with added value. This the case for special labelling such as “Mountain Milk” which can be characterized by specific milk fatty acid profiles due to natural grazing of mountain flora, or similarly new animal feeding direction given by associations (e.g. [www.bleu-blanc-coeur.com](http://www.bleu-blanc-coeur.com)) with regard to nutritional quality of fat in milk and meat. How can DHI/ICAR support their need for “prove of uniqueness”? Or in other words: how can analytics support sale strategies of milk producers?

### Group 2 – Dairying / Production

*J High (US), T Asmussen (DK), D Lefebvre (CA), D Pourchet (FR), SC Park (KR)*

- According to the different markets (e.g. fluid milk, cheese, organic products etc.), how can DHI support different herd sizes?
- Many stakeholders of the dairy chain, especially the consumers, are not aware of basic facts about milk and dairy products. How can we help to educate / inform consumers, but also farmers and others about basics and facts?

- How can ICAR help to approach different levels of use of technology (farms without using electricity e.g.)?
- How can we deal with social issues: People ask how milk is produced? How are cows kept? How is milk treated on the farm and during transport?
- How has analytics to react on changing production structures (growing herds, automated systems, ...)
- A main intention – for economical reasons – is to create as much information as possible out of one sample. But sampling procedures must be “perfect”! If we don’t have a representative and “correct” sample, quality efforts in the lab are partly wasted!

### **Group 3 – Analytics**

*S Orlandini (IT), D Krencik (PL), A Szewczyk (PL), SC Park (KR), C Matara (GR), K Peristeri (GR), D Varvarousi (GR), HL Chang (TW), JT Chen (TW), YY Sung (TW), C Cucho (FR), D Pourchet (FR)*

- Extreme needs may co-exist in ICAR and develop new parameters must not oppose consolidate use of traditional parameters; participants make the group aware, that it is still an issue to implement analysis for fat, protein and lactose in daily DHI life in a correct and smooth way. Efforts should be spent to assist the need of “basic systems” throughout the ICAR world.
- ICAR should head for global collaboration to reach harmonized protocols and procedures in related analytical fields (e.g. ISO-IDF analytical standardization)
- ICAR should assist developing analytical strategies (see joint IDF/ICAR project “Reference System for Somatic Cell Counting”)
- Efforts should be also spent on how to qualify different sources of data according to their quality (description of a “standard quality” of data, re ICAR Guidelines and Certificate of Quality).
- Again: sample quality is the most important basis of lab work! ICAR has to take care of this fact.

After presenting these items in the plenum of the meeting, some questions and comments did arise:

- Dealing with the mentioned problems, one should ask: What are the needs of the farmer? Once known one could translate them into technical applications!
- G Katz commented: “Do not ask, what kind of milk do we have, just ask what kind of milk do we want and create the milk we want”, e.g. milk for liquid consumption with regard to the size of fat globules, casein micelles, etc.
- O Leray mentioned that, beside the technological demand of dairy industry, the farmer’s need is naturally to respond to the society and consumers demand for a better economical income. This can differ from parts to others of ICAR World so analytical needs can be different. As an example in Western Europe environment protection, animal welfare, safe and healthy nutrient and food are discriminating criteria and subject of claim to attract consumers.

Regarding the further proceeding with this work the following was agreed upon by all participants:

- After being reviewed by the leaders of the three work groups, this summary report should be sent to all participants for further comments and then be finalized by Olivier Leray and disseminated amongst all.
- ICAR Head Office / Secretary General should be made aware of the outcome (Olivier Leray).
- A consecutive workshop should be planned for the ICAR Congress in Cork, Ireland end of May 2012 (Olivier Leray, Christian Baumgartner) beside the usual ICAR Reference Laboratory Network meeting which to it is felt as a good complement by all.
- There should be a constant opportunity in the future to discuss more general and strategic analytical questions without too many restrictions (by time and program).

Wolnzach, 25 June 2011 – Christian Baumgartner

Poligny, 12 July 2011 – Olivier Leray

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