

## Report of the Milk Analysis Sub-Committee

### Introduction

The terms of reference for the sub-committee include every aspect related to milk analysis. This covers analytical methods, devices and systems for application to the every animal species of interest to ICAR whatever the location analyses are performed.

At the date of the present report the sub-committee is composed of 11 members:

1. Christian Baumgartner (Germany)
2. Egil Brenne (Norway)
3. Roberto Castañeda (Argentina)
4. Jan Floor (South Africa)
5. Marina Gips (Israel)
6. Olivier Leray (France), Chair
7. Silvia Orlandini (Italy)
8. George Psathas (Cyprus)
9. John Rhoads (United States)
10. Gavin Scott (New Zealand)
11. Harrie Van den Bijgaart (The Netherlands)

From the last ICAR session the foreseen extension of the membership to the African area was concretised with Jan Floor's nomination (manager of LactoLab, ZA) as a new member. Further membership extensions to Asia is still under consideration to enlarge worldwide representation in MA SC. The activities were carried out thanks to email communication and regular meetings either of the whole sub-committee or of part of it (project groups) as follows:

#### Milk Analysis Sub-Committee:

1. Niagara Falls (USA), 17 June 2008, 36<sup>th</sup> Biennial ICAR Session
2. Sochi (Russia), 17 May 2009, IDF/ISO Analytical Week 2009
3. Montreal (Canada), 16 May 2010, IDF/ISO Analytical Week 2010
4. Riga (Latvia), 2 June 2010, 37<sup>th</sup> Biennial ICAR Session

#### Joint IDF-ICAR project on Reference system on SCC:

1. Paris (FR): 9 April 2009
2. Sochi (RU): 22 May 2009
3. Berlin (DE): 22 September 2009 (IDF World Dairy Summit: communication and poster)
4. Montreal (CA): 18 May 2010

#### Meetings on On-farm Milk Analysis:

1. Niagara Falls (USA), 17 June 2008 (Working Party on OMA)
2. Paris (FR), 21 April 2009
3. Riga (LV), 1 June 2010

#### ICAR promotion: (Chair and ICAR General Secretary)

1. Moscow (RU), 18 March 2010: Russian Dairy Union,
2. Moscow (RU), 18 March 2010: Russian Federation of Milk Producers (Soyuz Moloko)
3. Moscow (RU), 19 March 2010: Laboratory of All-Union Dairy Research & Design Institute

### Working programme and current activities

The status of current activities and progress are reported in the minutes of MA SC meeting in Sochi (RU) 2009 and Montreal (CA) 2010.

### Key issues - Milk Analysis on-farm

An horizontal working group called Working Party on On-farm Milk Analysis (OMA WP) worked out guidelines suitable for milk analysers installed on-farm from 2007 till 2010.

A draft guidelines document was presented and discussed in Niagara Falls 2008. It was upgraded and completed till the end 2009. Between 2008 and 2009 two meetings were held to consider the comments

received from the manufacturers. The document was proposed for scrutiny to ICAR member organisation before their approval in the General Assembly of 4 June 2010 in Riga.

### **Key issues - Milk analyser approval by ICAR**

Launching of the process was made in July 2006.

Since 2003 a new international standard, ISO 8196-3 | IDF 128-3, based on the ICAR evaluation protocol has been prepared by IDF/ISO from the ICAR protocol and was published in end 2009. In 2010 MA SC hold it and approved the replacement of the former ICAR protocol of 2002 by that new international standard. Besides, specific adaptations have been agreed upon for manual instruments that may serve as master instrument for calibration and for instrument deriving closely from a former approved instrument of the same manufacturer. This will be stated in an updated approval procedure (under preparation).

### **Key issues - International reference systems**

The ICAR analytical quality assurance system involving the ICAR Reference Laboratory Network has shown evidence for a strong potential in the harmonisation of analytical results through international reference materials. Such an approach is being thought through and developed jointly by ICAR and IDF in an IDF project on somatic cell counting. Five experts of MA SC participate tightly in the project as project leaders. The aim will be to provide reference materials for SCC internationally recognised and used for both regulatory and private purposes in a sustainable way. Launching of the project was made in 2009 and an IDF-ICAR Project Group was created. Since then four meetings were held. A communication plan is being run with already a newsletter regularly circulated, communication in every possible event (e.g. World Dairy Summit 2009, ICAR Session 2010) whereas technical development are carried out with significant inputs from the outcomes of ICAR Reference Laboratory Network meeting of Niagara Falls 2008.

### **Key issues - Annual international proficiency testing programme :**

It was renewed in 2009 and 2010 for cow milk with no change and renewal for 2011 was approved in Montreal. The convention between Service-ICAR and the organiser (Actilait/Cecalait, France) will be updated and the new proposals for 2011 dispatched with the usual annual information/announcement letter in December.

Proficiency studies in sheep and goat milk analysis are still not proposed in 2008 but the possibility is maintained if sufficient number of laboratories expressed such a need for 2011.

An update of the Laboratory network situation and proficiency study activities was made in Riga during the meeting of ICAR Reference Laboratory Network and are reported in the proceedings. A decrease in participation occurred in 2009 and the need was stressed to promote these trials and their technical and political interest for the international milk recording data equivalence recognition. A review of analytical performances and overall precision measured within the network through ICAR trials showed continuous improvement along time and compliance with standard precision figures thus bringing proof of the efficiency of the system and work done.

### **Key issues - Education and training**

This is one of major importance in analytical harmonisation. Today it is developed mainly through communication in dedicated workshops as for instance the regular meetings of ICAR Reference Laboratory Network during biennial ICAR sessions.

Basically, the international level cannot provide education and training directly to testing laboratories in ICAR countries for evident reason of workload and language, what necessitates relays. So the principle lies in education and training actions to be made through Lab network members. The international level, ICAR MA SC, should promote regular realisation of national/local action, guidance for essential items, standard documents or tools. A harmonised training programme could be drafted.

The possibility to develop video clips as supports to analytical method standards keeps being under consideration by both ICAR MA SC and IDF.

## Information to ICAR and ICAR members

Regular information is given by e-mail through the annual letter on reference laboratory network activities and the updates of the list of network members, through the website of ICAR where report, survey results, protocol, procedures, etc are posted, and thanks to open meetings of MA SC and ICAR Reference Laboratory Network held during international events such as ICAR sessions and IDF/ISO analytical weeks. As an example, the last laboratory workshop held in Riga was made to promote the international reference systems and inform on new analytical developments of interest for milk recording and farmers.

Presentations and findings will be all reported and posted on the website of ICAR.

Development of tools to improve the access to information is underway (on-line questionnaire on laboratory situation) or under consideration (ICAR laboratory data base in milk recording).

## Co-operation and links to other WG/TF/SC

MA SC is connected to other expert groups of ICAR but also technical bodies or working groups of IDF-ISO for joint actions:

1. Working Party on On-farm Milk Analysis (WP OMA) and RD SC
2. Regular activity through participation as experts in IDF/ISO project groups ( e.g. WDS Berlin 2009, IDF-ISO analytical week)
3. Liaison to IDF Method Standard Steering Group
4. ICAR contribution in IDF/ISO symposium in Sochi (RU) in 2009 and Montreal (CA) in 2010
5. Joint IDF/ICAR new work item on an international reference system for somatic cell counting (SCCRS) launched and presented during the World Dairy Summit in Berlin on 23/09/2009.

## Key points to address

- 1- As worldwide recognition is a general issue, it is expected that every ICAR dairy organisation has an expert laboratory nominated as member of ICAR Reference Laboratory Network and that every network member can participate in ICAR PT schemes. Entering in the system is indeed a individual voluntary demarche from which each member organisation can then get much benefit in return together with ICAR community. In a global worldwide economy the international anchorage so provided is an additional assurance for compliance and recognition of analytical equivalence worldwide.
- 2- For the evaluation and approval of new milk analysers by member organisations it must be taken care that the ICAR protocol should be used as a minimum requirement since it is a piece of ICAR guidelines. Indeed the protocol makes evaluations comparable worldwide, everywhere, every time, with same degrees of confidence in the outcomes which is the only condition that ICAR could grant an international approval.
- 3- Provision of knowledge and service development. The development of international reference system requires to acquire further knowledge on the precision of methods of milk analysis used within ICAR. FTMIR has brought larger variety of possible compounds to be measured and potentially significant improvement for classical compounds like fat and protein. Fat and protein fine compositions were sources of discrepancy in precision and accuracy for milk analysers with limited filter numbers. Large spectrum analysis brought good promises to optimise centralised calibration. Till now this have still not been evaluated at the international level. An experiment to evaluate worldwide regional effect on MIR calibration within ICAR is foreseen for 2011-2012, which would require a financial support.

## Next meetings

The next meetings will be organised during the next IDF and ICAR international events as follows

1. Lyon (FR), 23-27 May 2011, IDF/ISO Analytical Week 2011
2. Bourg-en-Bresse (FR), 20-24 June 2011, ICAR Technical Session
3. Parma (IT), 15-19 October 2011, IDF World Dairy Summit

## Conclusion

MA SC is in expansion for worldwide representativeness (regions, sectors), carry on its regular activities (work programme), consolidate existing ICAR AQA system and broaden its recognition, strengthen IDF/ICAR collaboration for common interests, broaden focus onto milk analysis out of laboratories (with other ICAR technical bodies), aim to develop adequate tools and future services for laboratories

### Four Yearly Programme of Sub-Committee on Milk Analysis (MA SC) 2007-2010

Work item	1 2	3 4	5 6	7 8	9	10	11				
Theme Analytical QA (toolbox)	Analytical QA (toolbox)	Analytical QA (toolbox)	Analytical QA (toolbox)	Laboratory network & harmonisation	Laboratory network & harmonisation	Laboratory network & harmonisation	Laboratory network & harmonisation				
Title Guidelines on organising proficiency study	Guidelines on organising centralised calibration	Guidelines on on-farm analytical devices	Reference materials Reference systems	ICAR approval of new milk analysers	On-line questionnaire on laboratory situation within ICAR	Website data base on laboratories of ICAR countries	International proficiency studies	Reference Laboratory Network meeting	Education & training on analytical matters	Liaison to other (international) groups of experts	
Experts	<i>O Leray G Psathas S Orlandini</i>	<i>C Baumgartner O Leray S Orlandini</i>	<i>C Baumgartner H v d Bijgaart M Gips O Leray E Brenne</i>	<i>C Baumgartner H v d Bijgaart O Leray S Orlandini</i>	<i>3 examiners + All</i>	<i>G Psathas G Scott + ICAR HO</i>	<i>O Leray G Psathas + ICAR HO</i>	<i>O Leray S Orlandini</i>	<i>All</i>	<i>C Baumgartner S Orlandini + ICAR HO</i>	<i>H v d Bijgaart O Leray</i>
Objectives	ICAR guidelines and IDF/ISO IS	ICAR guidelines and IDF/ISO IS	ICAR guidelines	To be considered	Eval. report examination / advising ICAR	Two-yearly information	Regular updated information	Evaluation services	Two-yearly information	Improving laboratory testing performances	Information and feed-back / Horizontal work
2007	- Introduction - Outlines	- Introduction - Outlines	- Introduction - Outlines	Consideration for interest : - Provision of information - Guidelines on RM Qualification - Qualifying RMs	On-going process			Annual Programme	Programming	Elaboration of supports for teaching/training (movies on methods)	Setting up of a horizontal ICAR working party on on-farm testing (composition, work programme, meeting) Liaison persons with IDF MCM & QASADS SC
2008	Working draft	Working draft	Working draft	SCC reference system	On-going process	Definition of content, structure, reporting	Content & design definition IDF completed ICAR	Annual Programme	Organising	On-going process Video clip project	OMA WP meeting MSSG/ICAR SCC reference system
2009 Del	Delayed (ref system)	Delayed (ref system)	- Reviewed draft - MO draft	SCC reference system	On-going process	Implementation delayed	delayed	Annual Programme	Programming	On-going process Video clip project	OMA WP meeting MSSG/ICAR SCC reference system
2010 Del	Delayed (ref system)	Delayed (ref system)	Final draft: - G.A. approval - Inclusion in ICAR guidelines	SCC reference system	On-going process Process update Protocol update	Implementation delayed	delayed	Annual Programme	Organising	On-going process Video clip project	OMA WP work (MASC & RDSC) MSSG/ICAR SCC reference system

