

ICAR Working Group on Milk Testing Laboratories

- Biennial report of activities in 2000-2001 -

At the date of the present report, ICAR Working Group on Milk Testing Laboratories (MTL WG) is composed of 8 world-wide representative members as follows :

Christian BAUMGARTNER	(Germany)
Egil BRENNE	(Norway)
Des JOHNSTON	(New Zealand)
Olivier LERAY	(France)
Ugo PAGGI	(Italy)
George PSATHAS	(Cyprus)
John RHOADS	(United States of America)
Harrie VAN DEN BIJGAART	(The Netherlands)

Since the last Biennial ICAR Session in Bled (May 2000), the Working Group on Milk Testing Laboratories (MTL WG) has met three times : in Zutphen (NL) on 8 November 2000, on 14 May 2001 during IDF Analytical Week in San Pellegrino (IT) and on 19-20 November 2001 in Munich.

Working programme :

The general working programme on the implementation and the development of Quality Assurance in milk testing laboratories presented in Ottawa in 1994 is continued.

A special attention is now paid to milk analysis on-farm as a probable analytical breakthrough for the next future and to its implications with regards to analytical quality assurance (AQA).

Since Bled 2000 meeting, specific issues about small ruminant milk analysis– i.e. sheep and goat milk – have been introduced in the general frame.

1. Technical documents :

1.1. Guidelines for Quality Assurance in DHI analysis :

The document is regularly (yearly at least) updated for aspects relevant to methods and standards. The more recent update (Autumn 2001) includes requirements regarding quality assurance to be met by analytical quality assurance service suppliers, i.e. reference materials and proficiency testing. The document is aimed at being approved and distributed for the ICAR Session 2002.

1.2. Protocol for the evaluation of milk analysers and official approval by ICAR:

The definition of a standard protocol to evaluate milk analysers in the milk recording frame was initiated in 1996.

All the parts of the document have been completed. It was circulated to Board members in May 2001 for comments. Since practical examples were added and the text reviewed by group members for last remarks. The protocol is aimed to being distributed and approved for the ICAR Session 2002.

The approach was introduced to IDF during IDF/ISO/AOAC Analytical Week 2001 in San Pellegrino and as it was felt relevant to create a common umbrella for the evaluation of routine methods and/or instruments thereby contributing to transparency and limiting confusion and duplication.

2. Information to ICAR :

2.1. Questionnaire of milk testing laboratories situation within ICAR :

An inquiry about ICAR country situation for analytical quality assurance in milk recording laboratories was carried out in 2001. It implies two levels of information gathered through two questionnaires dealing with national AQA organisation on one hand and AQA laboratory routine practices on the other hand. A report will be made available for the ICAR Session 2002.

2.2. Analytical Quality Assurance in on-farm/on-line milk recording analysis :

The development of on-farm/in-line analytical system announces great changes and consequences in milk recording and consequently analytical quality assurance aspects have to be considered with no delays.

A letter about changes and future consequences of the development of these analyses was sent by MTL WG to ICAR Board in the spring of 2001. The concerns of the group met the interest of Swiss Organizing Committee of ICAR Session 2002, which incorporated the item in the program for Technical Session 5 on May 30, 2002.

The viewpoint of the group for such types of measurement with regard to AQA and application/adaptation of guidelines produced by the group was considered of a major interest for ICAR. Therefore a paper will be presented during this Technical Session on behalf of the MTL WG.

3. Participation in the international standardisation :

Members of MTL WG participate as experts in IDF/ISO/AOAC Analytical Week. Since the last ICAR sessions, the IDF analytical week was held once in San Pellegrino (Italy) in May 2001 and will be located in Toledo (Spain) in 2002 (April 22-26). Items of interest are updates and revisions of standardised analytical methodology for determination of fat, protein, lactose, SCC, urea, and casein in milk. IDF/ISO/AOAC Joint Action Teams (JAT) concerned are the followings :

⇒ JAT on Quality Assurance and Proficiency Testing (ex-Group E203): (O. Leray, U. Paggi)

-The implementation of an international dairy reference laboratory network for IDF :

A questionnaire was circulated to IDF member countries to nominate qualified laboratories for chemical analysis of main component of milk. It is the first part of a larger network that will gather reference laboratories for every category of analysis and dairy products. For those reference laboratories that operated for both milk recording and milk payment in there countries, it is foreseen redundancy with ICAR international interlaboratory studies to be avoided by participations in same trials for milk components in common. It is intended a data base on reference laboratories to be made available on a web site. (Project leader O. Leray, FR).

⇒ JAT on Fat (ex-Group E301): (G. Psathas)

- New work item : Standardisation of extraction method (Röse-Gottlieb) for sheep and goat milk (high fat content milk). (Project leader G. Psathas, CY).

⇒ JAT on Nitrogen compounds (ex-Group E302 : Protein) : (O. Leray (chairman), G. Psathas)

- Urea : On-going standardisation of the differential pH method based on the enzymatic principle as a reference method for urea.

- New work item : Standardisation of Kjeldahl method for the protein determination in sheep and goat milk (high protein content milk). (Project leader G. Psathas, CY).

⇒ JAT on Indirect automated methods (ex-Group E303) : (Ch. Baumgartner, H. van den Bijgaart (Deputy chairman), E. Brenne, O. Leray, U. Paggi, G. Psathas)

- Somatic Cell Counting : Revision of IDF Standard 148A:1995 accounting particular aspects of sheep and goat analysis.

- New work item : Production of a protocol for the evaluation and international approval of milk analysers as IDF and ISO standard with the same approach as the ICAR protocol.

- Monography on new applications of mid-infrared spectroscopy for the analysis of milk and milk products. (Project leader H. van den Bijgaart)

⇒ JAT on Lactose and lactates (ex-Group E401): (U. Paggi)

- Lactose : * On-going standardisation of HPLC as a reference method ; evaluation of precision characteristics.

* Evaluation of pH-metry method as a possible alternative.

4. International DHI Reference Laboratory Network :

4.1. Present situation :

ICAR reference laboratory network created in 1996 has progressively grown up to 37 laboratory members from 31 countries in Autumn 2001 and its present composition is the following :

Austria	(1)	Belgium	(2)	Bulgaria	(1)	Cyprus	(1)
Czech Republic	(1)	Denmark	(1)	Estonia	(1)	Finland	(1)
France	(1)	Germany	(1)	Hungary	(1)	Ireland	
	(1)						
Israel	(1)	Italy	(1)	Korea	(1)	Latvia	(1)
Lithuania	(1)	The Netherlands	(1)	New Zealand	(1)	Norway	(1)
Poland	(1)	Slovak Repub.	(1)	Slovenia	(1)	South Africa	(3)
Spain	(1)	Sweden	(1)	Switzerland	(1)	Tunisia	(2)
United Kingdom.	(2)	U.S.A.	(2)	Zimbabwe	(1)		

() : number of member(s)

Collaboration and mutual information between members are expected to be developed to favour and generalise good analytical practices. To help in that, an official list with an information of every member was distributed first in July 1998 and since then updates have been periodically produced and dispatched by e-mail. It is aimed at making the list available on ICAR web site with regular information on the working group and its activities.

4.2. Ongoing developments :

The proposal for implementing a international laboratory network for small ruminants was approved by group members in Zutphen (Nov.8, 2000) and ICAR Board at Paris session (May 19, 2001). The launching stage of the network – circulation of a questionnaire to National Committees for the nomination/designation of laboratory members - was agreed upon for a start-up from December 2001 at MTL WG meeting in München on November 19-20, 2001 and a first questionnaire for nominations was circulated together with the annual letter of information and the annual proficiency testing programme announcement .

Its structure and organisation were fixed according to a model based on consistency and similarity of organisation, information and co-ordination for the different species cow, sheep and goat. In practice, there will be an overall Reference Laboratory Network gathering so-called AQA reference (or master) laboratories for every species, within which distinction is made between dedicated sub-networks for different species. The nature of the information made available would therefore be identical as would be maintenance and circulation of updates made by one general co-ordinator (currently the chairman of the working group).

Dedicated activities would be assigned to AQA service providers identified by MTL WG and proposed to ICAR. The actual supplier identified for sheep and goat is LSL-AIA (IT) as is CECALAIT (FR) for cow. The scope of the work, the technical details and the financial aspects will be defined and become part of an (expectedly formal) agreement between ICAR and the service provider concerned. Harmonisation in experimental work designs is foreseen – the actual reference basis being the ones used for cow – and, as far as it is possible, harmonisation of fees rates too.

The production of a document on the organisation of interlaboratory studies for this issue is underway for submission to ICAR Board.

5. International Interlaboratory Proficiency Studies :

Since the last ICAR biennial session and at the date of 33rd ICAR Session, 4 international interlaboratory studies have been carried out, making a total of 13 trials from the launching of ICAR ring test in 1996. They were dedicated to cow milk analysis and have concerned the determination of fat, protein and lactose by the reference (chemical) methods, plus the somatic cell counting for reference and routine methods since 1999 and urea for reference and routine methods since 2000.

For the beginning, ICAR interlaboratory studies have been organised by the French organisation CECALAIT and recently a convention was signed between ICAR and CECALAIT regarding the interlaboratory proficiency services.

In the frame of developments for small ruminant milk analysis, international proficiency studies will be launched – expectedly in 2002 - with similar designs and frequencies. As for cow, a convention will be establish with the proficiency service supplier Laboratorio Standard Latte (LSL-AIA).

6. Next meeting of ICAR MTL WG :

Eventually, an informal meeting of MTL WG can be held in Toledo (ES) during the next Analytical Week of IDF/ISO/AOAC from 22 to 26 April 2001. The next official meeting is scheduled for Interlaken on 28 May 2001.

Poligny, 29 March 2002

Olivier Leray
Chair p. of ICAR Working Group
on Milk Testing Laboratories