

**Annual report (2010) of the  
National Reference  
Laboratory for the  
microbiological testing of milk  
and dairy products.**



**This report describes in chronological order the activities of the above laboratory in pursuance of its legislative requirements.**

## **Proficiency trial for total viable count of raw milk at 30°C (EN ISO 4833).**

Prior to the commencement of the trial the EU Reference Laboratory (EU-RL) performed testing to determine the best bacteriostatic agents that would maintain the integrity of the spiked samples during the proposed proficiency trial.

The agents tested were boric acid, sodium azide and a mixture of boric acid, glycerol and potassium sorbate. The results indicated that the latter was suitable (Appendix 1a)

The proficiency trial was described in the last report but at the time of writing the results had not been analysed. The trial took place in December 2009 and involved the testing of 6 samples of raw milk viz two each with approximately  $2 \times 10^4$ ,  $3 \times 10^5$  and  $1 \times 10^6$  cfu/ml. The UK NRL identifier was 22.

As can be seen from the collated results (Appendix 1b) the NRL performed well with a z-score of 0.27, 0.00 and 0.33 at the low, medium and high inoculation levels respectively. It should be recognised that a z-score with a modulus less than 2 is regarded as satisfactory, a value between 2 and 3 indicates perhaps an incipient problem that warrants investigation and a score of  $>3$  indicates a problem requiring attention.,

Since this laboratory performed the testing strictly according to the prescribed method using maximum recovery diluent all the NRL results were included in the overall statistical analysis.

## EU Reference Laboratory workshop on alkaline phosphatase activity in cheese.

This was attended by Miss Sharon Cassidy (NRL Project Manager) on 18 – 19 March 2010 at the EU-RL in Paris. The workshop was devoted to a demonstration by EU-RL staff of the measurement of alkaline phosphatase activity in cheese using a fluorometric method (ISO 11816-2).

This was followed by a demonstration by Advanced Instruments USA on the use of the Fluorophos machine (model FLM200). It should be appreciated that although the UK-NRL has experience of measuring alkaline phosphatase activity in whole, skimmed milk and cream it has no prior experience of measuring this parameter in cheese.

The workshop was followed by a proficiency trial in May 2010 organised by the EU-RL and involved all the NRLs of member states. This was designed to select those NRLs who were deemed competent and subsequently asked to participate in a more general survey of alkaline phosphatase activity in cheese which would form the evidence base for new regulations for that parameter in a cheese matrix.

The UK NRL participated in this initial proficiency trial and although no formal response has been forthcoming from the EU-RL on our performance the NRL has been selected to participate in the general survey of cheese scheduled to commence later this year.

The UK-NRL Project Manager is currently collating information on UK pasteurized milk cheeses in advance of the survey. This will be used to select the cheeses to be included in the UK survey. The number of replicates etc will be decided after consultation with the AFBI Biometrics Department.

Relevant communications from the EU-RL on this matter are included in Appendix 2.

## Official Control Laboratory questionnaire update.

This is an annual exercise to ensure that information held on all relevant OCLs is current. A collation of the updated responses is given in Appendix 3.

The responses prompted the Project Manager to inquire why some OCLs are not UKAS accredited for the full repertoire of tests performed on behalf of the Competent Authority.

It became apparent that in these cases the number of tests performed annually was not deemed sufficient to make formal UKAS accreditation economically feasible.

In mitigation however those tests identified were all included in external quality assurance schemes involving ring testing of blind samples.

## EU-RL workshop on total flora testing and somatic cell counts

This was attended by the Project Manager between 30 September to 1 October 2010 in EU-RL Headquarters in Paris.

The purpose of the workshop was to discuss the acceptability or otherwise of manual reference methods for both total viable count and somatic cell counting and automated methods.

A report of this work shop can be found in Appendix 4.

## First annual meeting of all UK NRLs.

This was attended by the Project Manager and took place on 4<sup>th</sup> October 2010 at FSA Headquarters in London.

A presentation was given on the work of the NRL (milk and dairy products) by the Project Manager, Miss Sharon Cassidy. This gave the opportunity for discussion amongst all the representatives of the other UK NRLs.

The key points of the meeting prepared by the FSA are given in Appendix 5.

## Proficiency Trial on somatic cell counting organized by EU-RL.

This took place between 11<sup>th</sup> to 15<sup>th</sup> November 2010 and was based on reference method ISO 13366-1.

The reference method is manual and cumbersome and not suitable for a laboratory with a high throughput of samples. Most laboratories, such as the Veterinary Science Division (VSD) which is part of the UK-NRL, employ an automated procedure.

The VSD therefore is not acquainted with ISO 13366-1 and hence participation in the proficiency trial was designated to Mackie and Beattie Scientific Services based in Edinburgh.

The samples were processed and the results generated communicated to the EU-RL.

The overall results are awaiting collation and analysis by the EU-RL. (Appendix 6).

## Alkaline phosphatase detection in goat's milk

The NRL assisted the EU-RL in an initial study of measurement of alkaline phosphatase activity in raw caprine milk. This led to a proficiency trial organized by the EU-RL on 9<sup>th</sup> December 2010.

Unfortunately, like some of the other NRLs, our designated samples arrived late, in this case due to adverse weather conditions.

This resulted in instability of the negative sample which is required to calibrate the machine before commencement of the tests proper.

The EU-RL was rapidly informed of the situation in the hope of obtaining further samples.

In the event this did not prove possible and consequently the NRL was unable to participate. (Appendix 7).

## Correspondence between NRL and OCLs

The NRL has been approached with a number of queries from OCLs regarding testing methodology.

These have been responded to by the NRL and all correspondence archived for future reference and audit purposes.

As a member of BSI Technical Committee ASW/9 the NRL Lead Scientist has access to relevant new BSI or ISO standards. Information regarding these are now circulated to the OCLs but for copyright reasons the actual standards cannot be circulated.

In addition however, draft standards are sent to BSI committee members for comment. These have been circulated to the OCLs for their input.

This helps to ensure that the dairy industry has a proper input into all such proposed new standards.

## Future events

The annual EU-RL discussion workshop has been scheduled for 2<sup>nd</sup>-3<sup>rd</sup> of May 2011 at the EU-RL Headquarters.

The agenda will be sent in due course to the FSA for comment and approval sought for participation by the Project Manager.

## Future activities.

It is intended to circulate a questionnaire to the OCLs to investigate how best the NRL can assist them and comment on our overall performance.

Consideration has also been given to the feasibility and possible cost of developing and maintaining a website for the NRL with links to other relevant web pages.