



Latvian milk recording analysis and Dairy Laboratory Ltd. in the ICAR analytical reference system

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Abstract

Dairy farming is one of the basic agricultural sectors in Latvia. Therefore milk recording system is very important for our farmers and it has very old history. Initially in Latvia farmers could test milk recording analyses in every milk laboratory. Later when centralisation of milk recording system started farmers could do milk recording analyses only in laboratory of the Breeding station. Now we are working with Agricultural Data Centre program for milk recording and farmers can do these analyses only in the accredited laboratory. Breeding system in Latvia is regulated by the government. The state reference laboratory is the supervisor of all of Latvian milk control laboratories. The reference laboratory organizes proficiency testing and prepares reference materials for fat, protein content and somatic cells count.

Dairy Laboratory Ltd. works in the both fields of milk analysing, such as milk recording analysis and payment analysis. The quality system in the laboratory is very strictly determined according to ISO 17025 standard. We are working with ISO, IDF and validated methods. Scopes of accreditation are raw milk physical - chemical testing and milk, milk products and water microbiology. We work with instrumental methods and reference methods for milk microbiology and for determinate freezing point in milk. Our laboratory takes part in the different proficiency testing in Latvia and in the reference laboratories of European countries. Operation with different reference materials gives reliable, traceable and very precise results of analyses.

Staffs of the laboratory for a whole time get new experience and knowledge in the testing field. As well as we organise training for our customers in milk sampling system, transporting and milk recording system.

Keywords: national regulation, sampling, accreditation

1. Milk recording in Latvia

First information about milk recording analyses for milk fat content and milk yield in Latvia we can find in beginning of 20th century. Total protein for milk recording started analysed in 1980, for somatic cells count in 1998. In 1997 was founded State Agency Agricultural Data Centre (S/A ADC) and was started digital era of milk recording.

Now under milk recording are 120 800 cows in 8062 farms. Every year from 1991 we observe decreasing in number of cows and herds. Situation with milk yield is different and we see increasing in milk recording results and in statistical every year.

2. Latvian milk recording analysis

Latvian milk recording system is voluntary, but we have strong National regulation and support from government for this system. In National regulation are defined requirements for milk testing laboratory, milk sampling, milk analysing and analysed results recording.

The herd owners in whose herd's milk monitoring is being carried out shall receive control forms and reporting lists. All the cows and heifers of the herd, which are older than 24 months, must be indicated in the control forms. Taking milk samples for analysis, controller or the herd owner fills in the control list and sends it together with the milk samples to the Laboratory for processing.

Milk testing laboratory need to have Quality Assurance System according to standard LVS EN ISO/IEC 17025:2005. Accredited at Latvian National Accreditation Bureau (LA TAK), Member of European Cooperation of Accreditation.

Milk laboratory for milk recording analysing provide milk samples containers with samples vials volume up to 45 ml, accompanying document for samples, milk samples preservative (BSM II) and transportation of samples.

After testing Laboratory send samples testing results to central data base in Agricultural Data Centre. From data base farmers and breeding specialists take all milk recording information and analyses results.

3. National reference laboratory

The reference laboratory perform following tasks: co-ordinating of activities of the laboratories whose task is to conduct analyses to check the chemical and bacteriological standards; supervision and control of laboratories involved in raw milk control; preparation of calibration samples using reference methods, twice per month (fat, protein, dry matter, somatic cells count); preparation and implementation of proficiency tests four times per year.

In Latvia are 6 accredited raw milk routine laboratories. Three of them are Milk factory laboratories, they work only for payment testing. Two laboratories are DHI (Dairy Herd Improvement) laboratories in the Breeding and Artificial Insemination Station. One is independent laboratory - Dairy laboratory Ltd. it works to both systems - payment and DHI testing.

4. Dairy laboratory Ltd.

Dairy Laboratory place in milk recording system are in third place. First level is legalisation level from Government and according ICAR Guidelines. Second level are audit level from Food and Veterinary service, National reference laboratory, Accreditation bureau – LATAK, Agricultural data centre. Third level is Laboratory and basic of this system are Farmers and Dairies.

Dairy Laboratory is a private company. Our owners are non governmental organisations, stock companies and State. It represents three big groups of interest Farmers, Dairies and Breeding organisations.

Organization structure of Laboratory is following: board (5), administration (2), head of Laboratory and quality system (1), technical manager, chemist (1), microbiologist (1), instrumental equipment operators (2), data operators (2) and samples collection (2).

Staff of Laboratory every time renew skills and competence in testing field. Participation in specialised course for staff, study in High school. Technical tours in other testing laboratories (The Netherlands, Germany, Cyprus, Estonia, Lithuania).

For equipment calibration in laboratory are used Reference materials RM from different producers: Latvia, France, Germany, Denmark, Italy and USA.

Laboratory regular take part in several International Proficiency Testing schemes in Latvia and in Europe countries for each parameter at least one time per year. In Latvia – 4 times per year, in Germany – 5 times per year and France, Italy, England – 1 times per year.

Our Laboratory has following testing scope for milk compounds (Fat, Protein, Lactose, Casein, Urea content and Total solids), milk quality (Somatic cells count, Total bacteria count, pH) and milk falsification (Inhibitor, Freezing point).

All testing methods, what we use in Laboratory are based on National, international and in house validate methods. For milk compound we work with Infra red testing methods.

In Laboratory we have two reference methods for bacteria counting and freezing point.

Basic place of our works is precision of testing results, therefore important to give testing knowledge for our customers. For them we organise education courses and giving individual consulting in milk recording system, milk sampling for milk recording, milk sampling for payment analyzing and consulting about calibration of equipment.

We active take part in several work groups and projects in testing field and we have very close relationship with Ministry of Agriculture, Agricultural Data Centre, Food and Veterinary department, Latvian University of Agriculture, International Dairy Federation (National secretary) and ICAR.

Dairy laboratory represents: Quality, Speed and Customer service.