

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

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(Dairy laboratory, Ltd.)
ICAR session, Riga, Latvia, 01.06.2010



History of milk recording in Latvia

- ✓ First information about milk recording analyses for milk fat content and milk yield we can find in beginning of 20th century
- ✓ Total protein for milk recording start analysed in 1980, 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

Number of herds and cows under milk recording and statistical



■ Number of herds, statistical

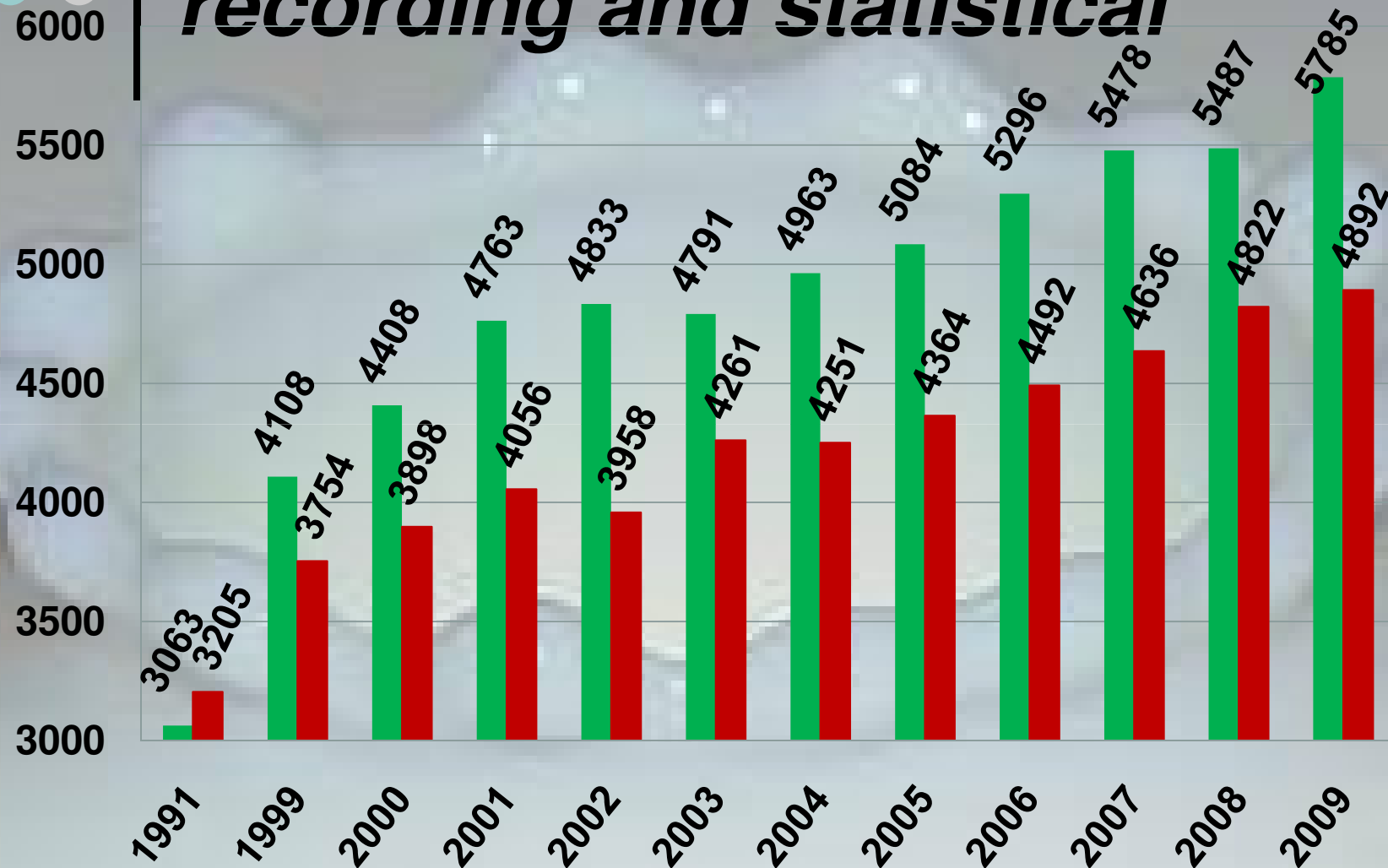
■ Number of herds under milk recording

▲ Number of cows, th statistical

✕ Number of cows, th under milk recording

Source: S/A ADC, 2010

Milk yield under milk recording and statistical



■ Milk yield under milk recording, kg ■ Milk yield by statistics, kg



Latvian milk recording analysis

- ✓ Milk recording system in Latvia is voluntary
- ✓ In National regulation are defined requirements for:
 - milk testing laboratory
 - milk sampling
 - milk analysing
 - analysing result recording



Breeding work rule

- ✓ 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

- ✓ Quality Assurance System according to standard LVS EN ISO/IEC 17025:2005

Accredited at:

- ✓ Latvian National Accreditation Bureau (LATAK), Member of European Co-operation of Accreditation



Milk laboratory provide

- ✓ Milk samples containers with samples vials volume up to 45 ml
- ✓ Accompanying document for samples
- ✓ Milk samples preservative (BSM II)
- ✓ Transportation of samples



Results recording


- ✓ Samples testing results send to central data base in Agricultural Data Centre
- ✓ From data base farmers and breeding specialists take all milk recording information and analyses results



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:

- ✓ Tree 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



Dairy Laboratory Ltd. place in milk recording system

Government

ICAR

***Food and
Veterinary
service***

***National
reference
laboratory***

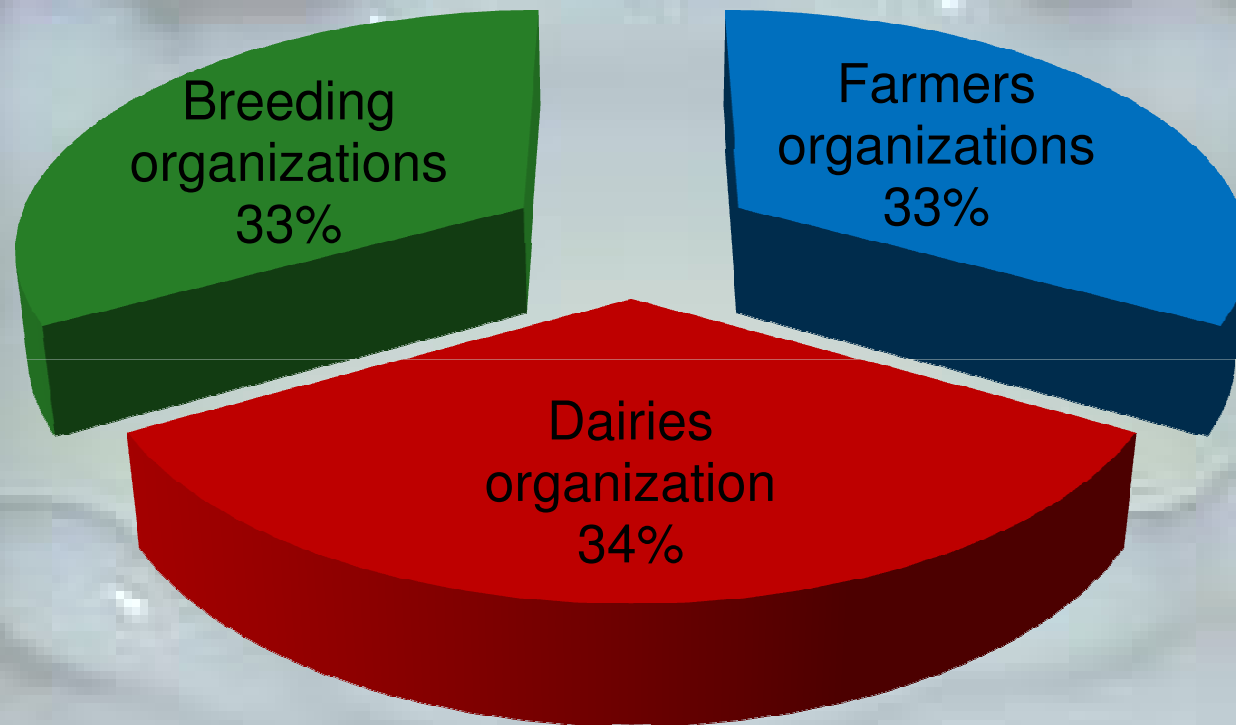
***Accreditation
bureau -
LATAK***

***Agricultural
Data Centre***

***SIA Piensaimnieku laboratorija
(Dairy Laboratory Ltd.)***

Farmers and Dairies

Owners of Dairy Laboratory

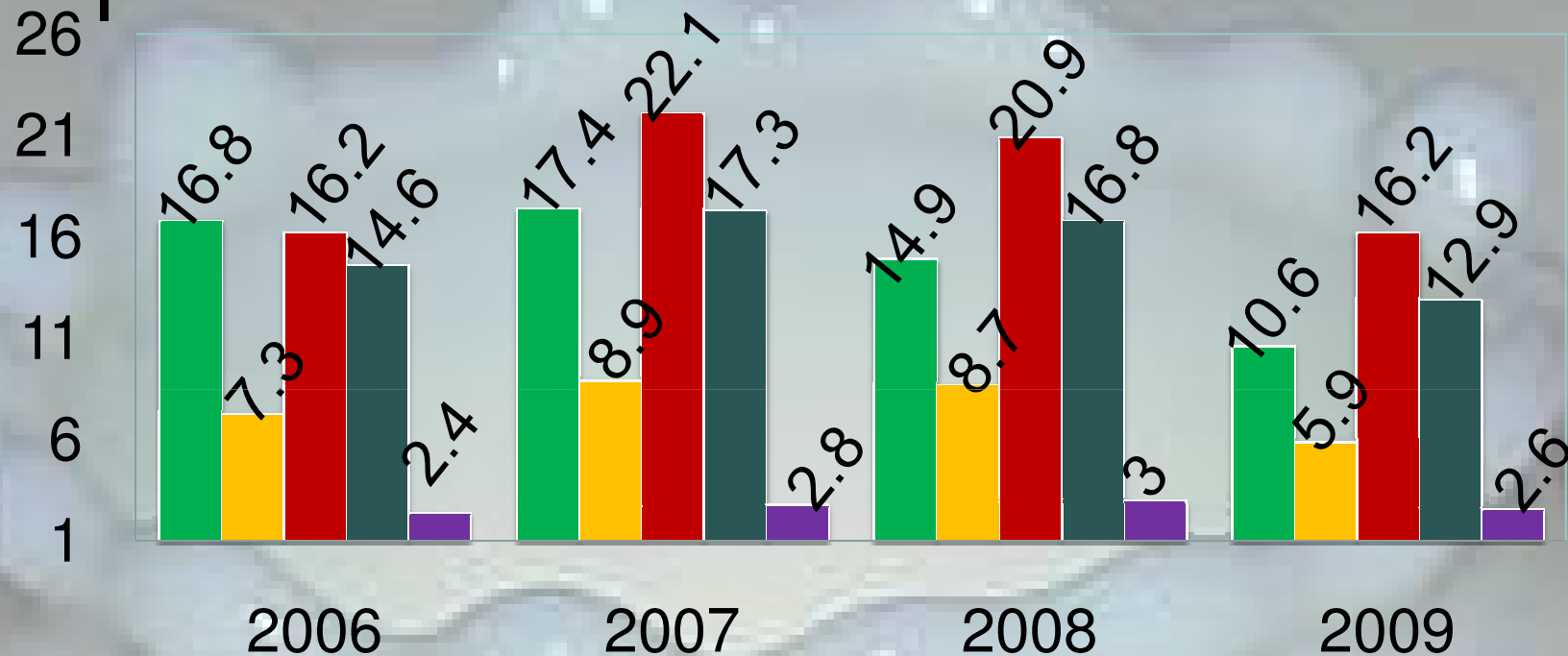




Organization structure of Laboratory


- ✓ Board (5)
- ✓ Administration (2)
- ✓ Head of laboratory and quality system (1)
- ✓ Technical manager, chemist (1)
- ✓ Microbiologist (1)
- ✓ Instrumental equipment operators (2)
- ✓ Data operators (2)
- ✓ Samples collection (2)

Testing samples quantity, th



■ Total bacteria count
■ Fat, Protein content
■ Urea content

■ Inhibitor
■ Somatic cells count



Education of Laboratory personal


- ✓ 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)



Reference materials (RM)

✓ For equipment calibration in laboratory are used RM from different producers:

- Latvia
- France
- Germany
- Denmark
- Italy
- USA



International Proficiency Testing (PT)

- ✓ Laboratory regular take part in several PT schemes in Latvia and in Europe countries for each parameter at least one time per year
 - Latvia – 4 times per year
 - Germany – 5 times per year
 - France, Italy, England – 1 times per year



Testing scope

- ✓ Milk compounds
 - Fat content
 - Protein content
 - Lactose content
 - Casein content
 - Urea content
 - Total solids



Testing scope

- ✓ Milk quality
 - Somatic cells count
 - Total bacteria count
 - pH
- ✓ Milk falsification
 - Inhibitor
 - Freezing point

One sample 35-40ml A lot of results



- ✓ *Total bacteria count*
- ✓ *Inhibitor test*
- ✓ *Fat and Protein content*
- ✓ *Somatic Cells count*
- ✓ *Freezing point*
- ✓ *Urea content*
- ✓ *Casein content*
- ✓ *Lactose content*
- ✓ *pH*



Testing methods

CombiFoss FC - MilkoScan FT 6000, Fossomatic FC



<i>Methods</i>	<i>Quality parameter</i>
ISO 9622:1999	Fat, Protein and Lactose content
LVS EN ISO 13366-2:2007	Somatic cells count
Validated methods	Urea, Casein and Total solids content
	Freezing point
	pH testing



Testing methods



<i>Methods</i>	<i>Quality parameter</i>	<i>Equipment</i>
LVS EN ISO 4833:2003, MET 001 - Validated	Total bacteria count	Plate count technique BactoScan FC
ISO 5764/IDF 108:2009	Freezing point	Multisample Cryscope 4C3
LVS 174:1999	Inhibitor test	“Delvotest SP”, Accelerator



SIA "Piensaimnieku laboratorija" ICAR session,
Riga, Latvia, 01.06.2010



Customers education

- ✓ Milk recording system
- ✓ Milk sampling for milk recording
- ✓ Milk sampling for payment analyzing
- ✓ Consulting about calibration of equipment



Relationship

- ✓ Ministry of Agriculture
- ✓ Agricultural Data Centre
- ✓ Food and veterinary department
- ✓ Latvian University of Agriculture
- ✓ International Dairy Federation
(National secretary)
- ✓ ICAR



Thank you!

Dairy laboratory represents:

- ✓ ***Quality***
- ✓ ***Speed***
- ✓ ***Customer service***

