



Milking Activity Control Service (SCM) in Italy: the experience of A.I.A.

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What is A.I.A.

- **A.I.A.** = **A**ssociazione **I**taliana **A**llevatori
- Umbrella, officially recognised organization in Italy for beef and dairy performance recording
- Beef cattle and meat sheep
- Dairy cattle, sheep, goats and buffaloes

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A.I.A. in Italy

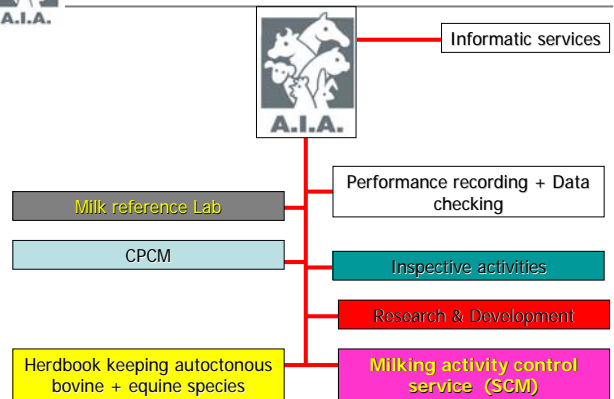
- **Over 90** Provincial Organizations
- **16** Regional Organizations
- **36** National Organizations
 - Herdbooks
 - Other activities



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A.I.A.'s structure



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SCM history

Since 1972, Italy has been involved in offering a periodic check of milking machines to recorded farms

(A.I.A.'s report during 18 th ICAR meeting, London, 1972)

This has always been considered as the **basis for reliable milk performance recording.**

A.I.A. has considered the "milking machines control service" (named SCM) as one of the key activities of Italian Breeders System

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SCM today

In year 2006, official name shifted from "Milking Machines Control Service" to "Milking Activity Control Service"

...i.e. The control activity is not anymore aimed to *machines* only but to several aspects related to the global milking activity

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SCM today

A.I.A. coordinates SCM (milk machine control service) in order to test all milking devices of recorded farms

Local SCM technicians perform tests in farms

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SCM organization

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A.I.A. central management

- Training and qualification of local technicians

- Definition and standardization of identification and recording devices test operating methods

- Relation with Government, Universities, Research Institutes, manufactures

- Technical support to local Breeders Associations



- Auditing on correct execution of SCM tests performed by local technicians

A.I.A.
Central SCM

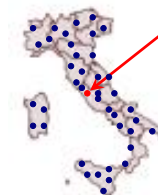
- Activities connected to routine tasks of Metrological Conforming Centre (CPCM) located in A.I.A.'s Milk Standard Laboratory (LSL)

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SCM organization

A.I.A.
Central SCM



A.P.A.
Local SCM



A.P.A. local activity

- Identification, setting up and periodic test of yield recording devices according to ICAR rules



- Static control of milking devices (according to ISO:5707)

- Scheduling for test activities in order to maintain the desired periodicity of controls

- Recording of test results on dedicated software

A.P.A.
Local SCM

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SCM organization – Central level

A.I.A. central management consists on:

- > Definition and standardization of SCM operating methods
- > Definition and standardization of identification and recording devices test operating methods
- > Inspective activity on correct execution of SCM tests performed by local technicians
- > Training and qualification of local technicians
- > Technicians routine update and contacts with manufacturers
- > Technical support to local Breeders Associations
- > Relation with Government, Universities, Research Institutes
- > Activities connected to routine tasks of Metrological Conforming Centre (CPCM) in collaboration with Milk Standard Laboratory (LSL) of AIA.

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SCM Technician training

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Technician training

Routine training steps

- General course (theory + practising on farm) with final examination
- 2 months working on field with tutoring of qualified technician
- Final exam (practise in farm)
- If positive → Qualification to SCM technician

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Technician training

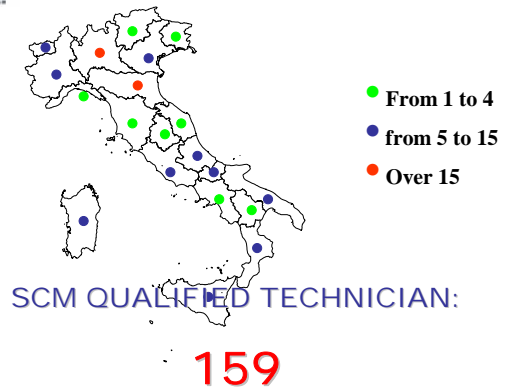
Routine technician updating

- Periodically, updating meeting are organized to
 - Acquire knowledge on new products put in the market from manufacturers
 - Share and exchange problems and ideas

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Technician distribution



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SCM technicians activities

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Activities

- Institutional activities
 - Static control on milking machines
 - Trying out, identification and periodical check of performance recording devices
- Technical activities
 - Dynamic control on milking machines
 - Milking routine check
 - Control on refrigeration tanks
 - Washing and cleaning efficiency control

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Trying out, identification and routine check of recording devices



Aim:

- 1) Test meters and jars efficiency in order to achieve correct performance recording data
- 2) Identifying current used meters in recorded farms
- 3) Allow routine check on such devices

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Trying out, identification and routine check of recording devices

Meter trying out



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Trying out, identification and routine check of recording devices

Meter identification



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Trying out, identification and routine check of recording devices

Meter periodic check



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SCM technicians tools

electronic scale, buckets, testing kit with calibrated flowmeters, identification tags. These instruments are periodically tested at CPCM of AIA



Each technician is provided of a testing-kit and an operating manual

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Milk Meters Testing Kit

Is composed by a complete set of

flowmeters (hole diameter from 2.8 to 8 mm) and

air inlet pipes (hole diameter from 0.8 to 1.2 mm)

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Milk Meters Testing Kit

COMPONENTI KIT FLUSSIMETRI PER COLLAUDI LATTOMETRI E VASI

AIR INLET PIPES

PRINTED UPPERCASE LATIN LETTERS

FLOW METERS

DIFFERENT COLOURS

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Milk Meters Testing Kit

A **specific scheme** drives the technician on how to correctly assemble the kit components in order to avoid mistakes in matching device to be tested (brand and type) with the couple flowmeter/ air inlet pipe.

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Milk Meters Testing Kit

ASSOCIAZIONE ITALIANA ALLEVATORI - U.C.C.P.A. REV.001 07/06/06
File: tabella collaudi PRESIDENTI AZIONE

VADEMECUM COLLAUDO LATTOMETRI/VASI:

LATTOMETRO	DITTA COSTRUTTRICE	PERIODICITÀ COLLAUDO	MATERIALE OCCORRENTE		
			DIAMETRO FLUSSIMETRO:	DIAMETRO FORO INGRESSO ACQUA:	SOLUZIONE DI PROVA
Lattometri volumetrici					
Vasi	Diverse	2 anni	8 mm (A)	NO	acqua
Lattometri meccanici					
Mikroskop ml2	De Laval	1 anno	8 mm (A)	NO	acqua
Tru-Test	Tru-Test	1 anno	8 mm (A)	NO	acqua
Waikato Mk5	Miler Ag, New Zealand	1 anno	8 mm (A)	NO	acqua
Lattometri elettronici					
Level Milkmeter	Nedap Poisez	12 mesi	Non specificato	Non specificato	acqua
Melatron 508 G	Wendland-Surge	12 mesi	2,8 mm (B)	1,2 mm (K)	acqua + acido
Lati-Alarm	SAE Alfarm	12 mesi	3,5 mm (C)	1 mm (K)	acqua + sale
Melclac (Memolac Z)	Nedap	12 mesi	3,5 mm (C)	1 mm (K)	acqua
Manuflow 2 e 21	Manus	6 mesi	3,5 mm (C)	0,8 mm (V)	acqua
Piomaster 2000	De Laval	12 mesi	5 mm (D)	0,8 mm (V)	acqua
Gascoigne MR2000	Gascoigne Melotte	12 mesi	4 mm (E)	1 mm (K)	acqua + sale
Boumatic M3000	Boumatic	12 mesi	4,4 mm (F)	1,2 mm (K)	acqua
Dairy Manager	Surge, Babson Bros Co.	12 mesi	5 mm (D)	1 mm (K)	acqua

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Milk Meters Testing Kit

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Milk Meters Testing Kit

- Depending on device to be tested and following the scheme instructions, the technician **is driven to assemble the right elements of the kit in the correct way** without mistakes, in order to guarantee **correct results**

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Device identification

At the end of a trying out with positive result, the technician will apply a **sticky label** on the tested device to assure the correct identification of it

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Device identification

- the first one has to be stuck on the tested device



- the other one on the official paper form used by technicians to record data during testing operations.

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Setting up, identification and routine check of recording devices

State of the art:

From 2000, all milking recording devices are identified using sticky labels

Routine check

- Meters: every year
- Jars: every 2 years

Instruments:

- Testing kit
- Procedures manual (according ICAR guidelines)
- Identification labels

Future goals:

- Higher frequencies of routine check, especially related to use of electronic milk meters for performance recording
- Additional on request controls requested by breeders

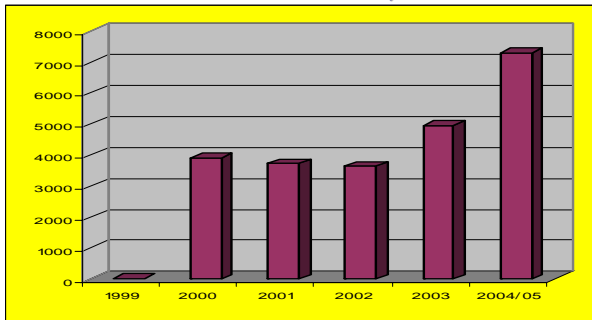
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Routine activity

Recording devices identification

Number identified/year



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Routine check on technician instruments

From 2003 all instruments used by SCM technicians are routinely tested on a reference A.I.A. lab (CPCM)

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At the moment, about **1.800** recorded farms use more than **23.000** tested milk meters



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Technical activities

Milking devices control was a major need as SCM started

New scenarios occurred as time passed by:

- Technology more applied in farm**
 - Electronics and informatics applied in farm
 - Increase of electronic recording devices
 - Need to monitorize milk quality
 - Introduction of specialized control instruments
 - Etc.....

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Technical activities

2. New needs from the breeder:

- Problems in milking activity to be
 - Fastly identified
 - Fastly solved
- Highly specialized technicians

3. EU regulations on milking activity:

- Need to introduce in animal farms systems to evaluate hygienic and sanitary aspects.
- Emphasys of regulations on milking routines (from milking cows to final products)

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Technical activities

The milking machines control is just a part of MILKING ACTIVITY, i.e. all that happens from animal entering to parlour to milk loaded in tank truck

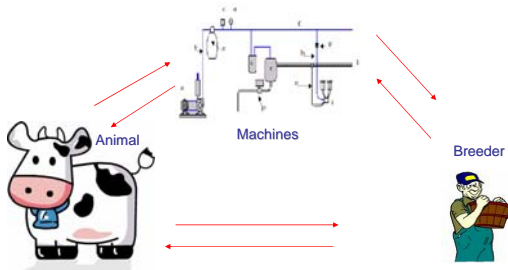
The goal to be achieved is OPTIMIZING MILKING ACTIVITY EFFICIENCY

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Technical activities

OPTIMIZING MILKING ACTIVITY EFFICIENCY depends on the correct equilibrium among:



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Technical activities

Additional information on milking activity are used to make a "global" evaluation of milking activity

E.g.: static control shows no anomalies, but udder health and milk quality are not ok

Around 80% of udder health and hygienic problems come out from bad milking routine

To make a global evaluation of milking activity possible, several technical services are performed by SCM technicians

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Technical activities

1) Dynamic control on milking machines



Aim:

To check milking machine's correct working while animals are milked

→ Fit to productive need of herd

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Dynamic control on milking machines

- Milking machines are used on animals
- Static control sometimes is not able to point out if milking machine operating in a correct range of static parameters fit with the needs of herd
- Could be undersized for herd's needs (e.g. turbulence of milk in pipes) even working perfectly in static control

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Dynamic control on milking machines

Dynamic controls performed:

- During milking activity
- On animals having the highest yields

Fluctuations of working vacuum are recorded

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Dynamic control of milking machines

State of the art:

Control performed following

- Specific requests from breeders
- Anomalies during static control
- Udder health problems found in milked animals

Instruments:

- Same as static control

Future goals:

- Routine dynamic controls one per year) on all milking machines of recorded herds
- Additional controls requested by breeders

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Technical activities

2) Milking routine check



Aim:

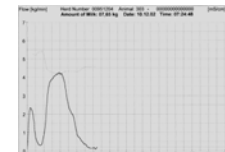
To verify the efficiency of routine operations during machine milking using milk flow curves from each cow



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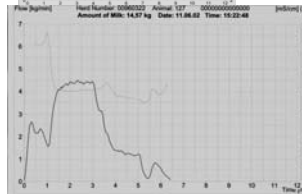


Milking routine check



Use of devices able to produce a flow chart for each cow.

Trained SCM technicians interpretate flows curves and determine what causes the "anomalies" in milking process efficiency



Breeders are informed and trained on how to solve the problem (both mechanical and human)

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Milking routine check

State of the art:

25 A.P.A.s perform this service

Instruments:

- Recording devices and related software performing milk flow analysis

Future goals:

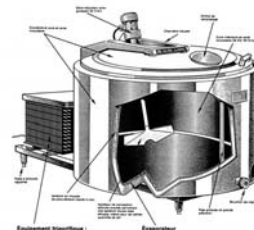
- To perform this activity yearly in each farm, giving reliable results to breeders (particularly in case of problems in milk quality and/or udder health)

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Technical activities

3) Control on refrigerating tanks



Aims:

- 1) Check correct tank working respect to manufacturer's parameters and
- 2) give to breeder correct information about efficiency of milk refrigeration

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Control on refrigerating tanks

- **Highly appreciated by breeder**
- Several formation and updating meetings to improve knowledge on tank's working and how to test it correctly
- Updating meetings on tank's manutention (e.g. how to replace refrigerating fluid, welding control, escapes search)

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Control on milk refrigerating tanks

State of the art:

Performed mainly in northern Italy

Instruments:

- Produced mainly by one manufacturer (refrigeration curve)

Future goals:

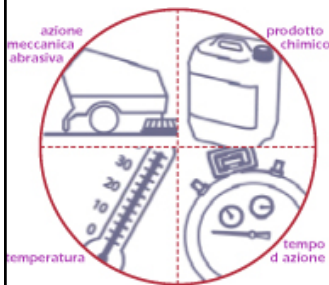
- To extend service all over the country
- Provide additional service to check compliance with metrological requests

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Technical activity

4) Washing and cleaning efficiency control



Aim:
Verify efficiency of washing and cleaning systems of milking devices and refrigerating tanks to prevent pollution and increase of microbial activity.

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Washing and cleaning efficiency control

The following parameters could be used

- ✓ **Water hardness**
- ✓ **Water turbulence and washing water temperature**
- ✓ **Bacterial presence determination and residual chlorine presence in drain water**
- ✓ **Protein research on milking machine and tank surfaces before use**

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Control on milk refrigerating tanks

State of the art:

Few A.P.A.s are making trials on this activity. Need to develop

Instruments:

- Recording devices with dedicated software
- Integrated systems (e.g. tanks: temperature and washing efficiency)
- Kits to determine water's hardness or to find chlorine or protein presence on surfaces, or bacterial count
- Trials with bio-luminescence recorders

Future goals:

- Setting up procedures to test general hygienic status of milking machines and tanks using specific parameters
- Setting up a procedure for testing efficiency of washing systems (tempeatures, times, mechanical action, detergents)

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Present

• Performance recording related activities

- How is milking machine working?
- Is meter working correctly?

• Activities for milking routine efficiency

- Not only aimed to performance recording but...
- Even to correct mistakes in milking activity practice (from animal entering parlour to milk loaded into tank truck)

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Present

Public funding

- Static control
- Start up and routine check for meters

Totally paid by breeder

- Dynamic control
- Milking routine check
- Control on milk refrigerating tanks
- Control on washing and cleaning efficiency

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Present

SCM activity's has an institutional (public funding) and a technical (total cost on the breeder) part

If activities are considered together, there is:

- an increase of service cost percentage paid by the breeder and
- a decrease of public funding percentage in service's cost

This is due to the cost for services like

- Dynamic control
- Milking routine check
- Control on milk refrigerating tanks
- Control on washing and cleaning efficiency

that are fully paid by the breeder

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Possible future development

- **Maintain and improve performance recording related activities (institutional)**
- **Improve technical assistance to breeders**
 - General efficiency check in milking animals
 - Efficiency check in mechanical and/or human effects on milking (e.g. milk flow curves → checking efficiency of milk man and/or milking group)
 - Efficiency check of hygienic status of milking machines
 - Efficiency check of milk refrigerating tanks

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Possible future development

Going on training a SCM technician which is going to be a **global consultant** in milking activity

- Test
- Information
- Suggestion
- Problem solving

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Possible future development

Task

Going on giving SCM technicians instruments and know-how to adequately answer to new needs arising in milking activity

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Thank you

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