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

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Slide 1

What is A.I.A.

• A.I.A. = Associazione Italiana Allevatori
• Umbrella, officially recognised organization in Italy for beef and dairy performance recording
• Beef cattle and meat sheep
• Dairy cattle, sheep, goats and buffaloes

Slide 2

A.I.A. in Italy

• Over 90 Provincial Organizations
• 16 Regional Organizations
• 36 National Organizations
  – Herdbooks
  – Other activities

Slide 3

A.I.A.’s structure

Informatic services
Performance recording + Data checking
Inspective activities
Research & Development
Herbbook keeping autoctonous bovine + equine species
Milking activity control service (SCM)

Slide 4

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 18th 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

Slide 5

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

Slide 6
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

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.
SCM 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

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

Technician distribution

SCM QUALIFIED TECHNICIAN:

Activities

- Institutional activities
  - Static control on milking machines
  - Tryng 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
Institutional activities

1) Static control on milking machines

Aim: Evaluate working efficiency of milking machine without animals milked

- A.I.A. produced a routine procedure following UNI ISO 3918, UNI ISO 5707, UNI ISO 6690, UNI 11008 (sheep and goats)
- The procedure describes all steps to be followed by SCM technician to perform a global control on milking machine
- Specific operative instructions have been set up for milking machines with inverter

Static control of milking machines

When

- On newly installed milking machines
- Once per year (routine check)
- Following breeder’s request

Where

- Officially recorded farms
- Not officially recorded farms

At the end of static control (same for tank control, routine check control, recording devices check) dedicated software of SCM technician can print a resume printout with recorded parameters, and suggested corrective actions to be performed (basing on found anomalies) and notes.

Example for static control

Statistics – Static control

Number of static control tests on

<table>
<thead>
<tr>
<th>Recorded farms</th>
<th>Year</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>21,490</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>21,714</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>22,850</td>
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<td>2004</td>
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<td>2005</td>
<td>21,875</td>
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<tr>
<td>2006</td>
<td>20,880</td>
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</table>

<table>
<thead>
<tr>
<th>Not recorded farms</th>
<th>Year</th>
<th>Tests</th>
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<tbody>
<tr>
<td>2007</td>
<td>4,712</td>
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<tr>
<td>2008</td>
<td>5,134</td>
<td></td>
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<td>2009</td>
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<td>4,381</td>
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<td>2011</td>
<td>4,074</td>
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<tr>
<td>2012</td>
<td>2,905</td>
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</tbody>
</table>

Routine activity

2) Trying out, identification and routine test on recording devices

All approved ICAR meters (jars, milk meters) are:

- Submitted to start-up (trying out) test
- Identified and registered with sticky labels
- Submitted to routine periodical check

State of the art:
- qualified SCM technician cover all farms
- Some A.P.A.s organize an additional static control service for further controls requested by breeder or in “self-control systems”
- NOTE: Performed (fee) even on NOT OFFICIALLY RECORDED FARMS

Instruments:
- pulsographers, vacuometers, fluxometers from different manufacturers

Future goals:
- perform 2-3 routine controls per year
- Maintain control service requested by breeders
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

Meter trying out

Meter identification

Meter periodic check

SCM technicians tools

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

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)
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.

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.
Device identification
- the first one has to be sticked on the tested device
- the other one on the official paper form used by technicians to record data during testing operations.

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

Routine activity
Recording devices identification

Number identified/year

1999 2000 2001 2002 2003 2003/04
0 2000 4000 6000 8000

Routine check on technician instruments

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

Technical activities

Milking devices control was a major need as SCM started
New scenarios occurred as time passed by:
1. 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........
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.
   • Emphasis of regulations on milking routines (from milking cows to final products)

OPTIMIZING MILKING ACTIVITY EFFICIENCY depends on the correct equilibrium among:

- Animal
- Breeder
- Machines

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- Breeder
- Machines

1) Dynamic control on milking machines

Aim:
- To check milking machine’s correct working while animals are milked
  ➔ Fit to productive need of herd

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
Dynamic control on milking machines

Dynamic controls performed:
• During milking activity
• On animals having the highest yields

Fluctuations of working vacuum are recorded

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

Technical activities

2) Milking routine check
Aim:
To verify the efficiency of routine operations during machine milking using milk flow curves from each cow

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).

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)

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
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 maintenance (e.g., how to replace refrigerating fluid, welding control, escapes search)

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

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.

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

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 (temperatures, times, mechanical action, detergents)

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)
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

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

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

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

Possible future development

**Task**

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

Thank you