Quality Assurance for milking installations and recording devices

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Quality Assurance and Recording Systems

- Introduction
- QA on Recording Systems in some countries
- QA system in The Netherlands
- Take Home message
Electronic Recording Devices

- Start with national guide lines,
- ICAR Guide Lines since 1992
  - Procedures for approval, routine testing
  - List of approved milk meters [www.icar.org](http://www.icar.org)
- Quality Assurance & Management becoming more important
Quality Assurance

- Fit the purpose
- Do it right the first time
  - Cost and time saving
- PCDA approach (Deming Circle)
  - Plan – Do – Check – Act
- Quality Management
  - Control, assurance and improvement

"As long as the circle is rolling, the quality is providing. Once the circle is interrupted, the quality fails." (Deming)

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Enquiry on request of CRV by ASG

- Enquiry
  - Utilization of ICAR guide lines
  - Quality assurance for milk meters in these countries
  - Netherlands, Germany, Denmark, France, Canada

MPR and utilization of milk recording

<table>
<thead>
<tr>
<th></th>
<th>CAN West</th>
<th>DK</th>
<th>FR</th>
<th>DE</th>
<th>NL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farms</td>
<td>6418</td>
<td>4750</td>
<td>98000</td>
<td>103500</td>
<td>21173</td>
</tr>
<tr>
<td>% MR</td>
<td>71.2</td>
<td>92.6</td>
<td>61.2</td>
<td>66.5</td>
<td>80.6</td>
</tr>
<tr>
<td>% EMM</td>
<td>11.3</td>
<td>17.9</td>
<td>1.8</td>
<td>6.5</td>
<td>24.7</td>
</tr>
<tr>
<td>% Cows in MR</td>
<td>81.6</td>
<td>95.7</td>
<td>70.3</td>
<td>83.8</td>
<td>85.1</td>
</tr>
</tbody>
</table>
## Working methods Installation Tests

<table>
<thead>
<tr>
<th>Country</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN, NL</td>
<td>Installation by dealer, official test by authority</td>
</tr>
<tr>
<td>DE</td>
<td>Installation test by dealer, water test by authority after 1 month, no national database</td>
</tr>
<tr>
<td>DK</td>
<td>Installation test by dealer, date of test send to MRO</td>
</tr>
<tr>
<td>FR</td>
<td>Installation test by MRO or dealers (limited) under MRO authority, no national database</td>
</tr>
</tbody>
</table>

## Working methods Routine Tests

<table>
<thead>
<tr>
<th>Country</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN</td>
<td>Annual test by MPRO technicians (meters used for breeding data)</td>
</tr>
<tr>
<td>DE</td>
<td>Annual test according to ADR protocol (ICAR) by MPRO or LWK technicians (85%)</td>
</tr>
<tr>
<td>DK</td>
<td>Routine test by dealer, ad-hoc check by MPRO</td>
</tr>
<tr>
<td>FR</td>
<td>Annual test by MPRO technicians, no central database</td>
</tr>
<tr>
<td>NL</td>
<td>Annual test by certified technicians, 2% check at random by KOM</td>
</tr>
</tbody>
</table>
### Combining routine test with maintenance

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes/No</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN</td>
<td>No</td>
<td>Fully separated</td>
</tr>
<tr>
<td>DE</td>
<td>No</td>
<td>Fully separated</td>
</tr>
<tr>
<td>DK</td>
<td>Yes</td>
<td>Integrated</td>
</tr>
<tr>
<td>FR</td>
<td>No</td>
<td>Plans to integrate</td>
</tr>
<tr>
<td>NL</td>
<td>Yes</td>
<td>Integrated</td>
</tr>
</tbody>
</table>

### Utilization of non-approved devices/combinations

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes/No</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN</td>
<td>Yes</td>
<td>Devices are not used for DHIA</td>
</tr>
<tr>
<td>DE</td>
<td>No</td>
<td>All ICAR approved</td>
</tr>
<tr>
<td>DK</td>
<td>No</td>
<td>All ICAR approved</td>
</tr>
<tr>
<td>FR</td>
<td>Yes</td>
<td>All ICAR approved, robots ?</td>
</tr>
<tr>
<td>NL</td>
<td>Yes</td>
<td>All ICAR approved, robots ?</td>
</tr>
</tbody>
</table>
## Costs of Quality Assurance Milk recording devices

<table>
<thead>
<tr>
<th>Country</th>
<th>Costs</th>
<th>Paid by</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN</td>
<td>Unknown</td>
<td>Farmers</td>
<td>Within service costs MRO</td>
</tr>
<tr>
<td>DE</td>
<td>Unknown</td>
<td>Farmers/governm</td>
<td>Within service costs MRO</td>
</tr>
<tr>
<td>DK</td>
<td>Unknown</td>
<td>Farmers</td>
<td>Costs are part of mainten. (€40- €70 per milk meter)</td>
</tr>
<tr>
<td>FR</td>
<td>I: €200/farm R: €150/farm</td>
<td>Farmers</td>
<td>MRO (future also dealers)</td>
</tr>
<tr>
<td>NL</td>
<td>I: €15-20/m R: €10-15/m</td>
<td>Farmers</td>
<td>directly to dealer or KOM</td>
</tr>
</tbody>
</table>

## Concluding remarks

- **Milk recording**
  - High participation rate
  - Electronic milk recording growing

- **Installation and routine tests**
  - In general according to ICAR procedures
  - By MRO in CAN, FR and Germany
  - By dealers in NL and DK

- **Quality Assurance**
  - Within MRO: CAN, FR and DE
  - NL : KOM (quality management system)
  - DK : MRO administrative system, no checks in field
Quality Assurance and Recording Systems

- Introduction
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QA Management system in NL

- Start in seventies with milk machine testing
- Testing by advisors, separate maintenance
- Uniform way of testing (ISO)
- Integration of testing and maintenance by technicians (cheaper) in eighties
- Integration with milk meter test (nineties)
- Independent organisation KOM
- Service oriented
Mission of KOM:

A service oriented independent organisation aimed on monitoring and improving quality of the regular maintenance of
- milking machines,
- milk storage systems and
- milk recording devices

System fits in Quality Management Systems of the Dutch Dairy Industries and DHIA

KOM - Quality system

- Milking machine maintenance
- Milk storage maintenance (bulk tank and milk cooler)
- Milk recording by milk meters en jars

Clients:
- Milking machine industry
- Dairy industry
- Breeding organisations
- Farmers
How?

- Registration of all test reports
- Annual training programs
  - Actualize information/new developments
  - Evaluation of test reports per technician
  - Testing of equipment used by technicians
- Random check on farms
  - Milking machines, tanks, recording devices
- Dissemination
  - Reports, articles, web site

How? (continued)

- Training programs for technicians (Certification)
- Acceptance tests for milk meters
- Develop new standards and reports
- Quality check on milk recording (on farm re-check)
### Certificate course

- Obligatory within dairy quality management systems
- 2 courses (complete or short)
- Course contains:
  - Construction, machine milking
  - Milk meters and testing
  - Milk Quality and Quality Control
  - Communicational aspects
- Examination

### To maintain certificate

- Obligatory annual instruction
- Annual check test equipment
- At least 10 reports per year
- Random quality check
  - on farm test
  - 5 test reports
A. Milking machine maintenance

- Registration of reports and quality check
- Uniform test report with ID (KOM number)
- Integrated planning (quarterly)
- Random checks in the field (2%)
- Monthly survey reports for dealers
- Annual report of results

Some figures (2007)

- 10 Brands (Suppliers)
- 130 Milking machine dealers
- 380 Certified technicians
- 21,000 Checked reports (total 23,000)
- 20,790 Farmers
Test reports

Share of milking systems in NL (%)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bucket</td>
<td>5.3</td>
<td>0.7</td>
<td>0.2</td>
</tr>
<tr>
<td>Pipe line</td>
<td>21.1</td>
<td>14.0</td>
<td>10.6</td>
</tr>
<tr>
<td>Herringbone</td>
<td>62.7</td>
<td>68.7</td>
<td>65.8</td>
</tr>
<tr>
<td>Side by Side/Tandem</td>
<td>10.1</td>
<td>12.5</td>
<td>13.6</td>
</tr>
<tr>
<td>Rotary</td>
<td>0.6</td>
<td>1.3</td>
<td>2.5</td>
</tr>
<tr>
<td>AMS</td>
<td>0.04</td>
<td>2.8</td>
<td>5.3</td>
</tr>
<tr>
<td>Nr of farms</td>
<td>35540</td>
<td>23595</td>
<td>20790</td>
</tr>
</tbody>
</table>
B. Milk storage and maintenance

- No technical check by KOM
- Registration of reports
- Focus on hygiene and temperature
- Random checks (2%)
- Survey reports
  - Test ID overview
- Annual report of results

4 Brands, 130 certified technicians
C. Milk meters

- Registration and check of reports
- Fixed and portable meters
- Random checks (5%)
- Integrated planning (quarterly)
  - Annual checking report
- Monthly survey reports
- Annual report of results

Some figures (2007)

- 1 Dutch breeders organisation (NVO)
  - CR-V (largest)
  - 10 others
- 17,000 farms
  - With jars: 8,500
  - With meters: 5,500
  - With Tru-Test: 3,500
Results random checks by KOM in 2007

Ongoing activities

- Co-operation with neighbour countries
  - Mutual agreement with Belgium/Germany
  - Recognition quality programs/certificates
- Service for dealers and breeding organisations, planning, quality progress reports,
- Data analysis – test data and milk quality figures
- Alternative routine test procedures by using smart statistical approaches
- Electronic test report, data exchange via Internet
  - Automatic linkage with dairy industry quality programs
Take Home Message

- Milk recording systems
  - Pedigree values
  - Management information farmer
- Quality Assurance and Management becoming more important
- Lowering costs for farmers and recording organizations
- Integration of quality systems