Benchmarking
Verona 2007

A guided tour in part of the landscape of Danish milk recording

Recording is the basis for:
- Herd Management
- Staff management
- Advisory service
- Veterinary services
- National health schemes
  - Johne’s, Salmonella Dublin a.o.
- Budget and planning
- Production documentation
  - Finance institutes
  - Insurance
  - National Benchmarking
- Breeding

Organisation
- Since 1895 organized as farmer owned and farmer ruled organisations
- Has always been independent from any authority
- Have since app. 1950 carried out breeding evaluation under first national legislation, later combined national/EU legislation
- Government money never played a big role, and finally disappeared 15 years ago
- In 2003 28 of 31 regional associations merged into 1

Management
- 4 regions each responsible for a group of technicians and recorders
- Each technician responsible for all planning
  - Which herds on which dates
  - Farmers get the service they signed for
  - Day to day management and planning of recorders herds
  - Equipment, maintenance, instruction etc.
  - Appointments with lab trucks
  - Up and download of data
  - Verify data

Milk recording
96 % of cows and herds in one association
- MR owned by Danish Cattle Federation
  - Database owned by DCF
  - Farmer owned and ruled
- Lab owned by Eurofins
- 43 technicians (full time)
- 65 full employed in MR total
- We organize MR for all herds in Denmark
- All our services 100% paid by dairy farmers
Services

• Basic service is B-method (Non supervised)
• 11 recordings per year
• 6 recordings per year
• Rent out milk meters
• Rent out samplers for robots
• Recorders at disposal for those who need an extra hand (Paid by the hour)

Recording

• 2 daily milking, 11 recordings (sampling at one)
• 2 daily milkings, 6 recordings (sampling by both)
• 3 daily milking, 6 or 11 recordings (sampling by all)
• Robotic herds
  – one sample per cow
  – one sample per milking

Equipment

• We own the equipment (Apart from 300 installations of fixed in-place meters)
• It needs one decision to change system
• It needs one decision to change principle
• We develop continuously in cooperation with major delivers of equipment
  – Tru-Test (milk meters and software)
  – Lely (New sampling device)
  – Others (sampling from robotic systems, software, etc.)

Equipment

• 3,600 Tru-Test Electronic Milk Meters
• 100 Lely Shuttles
• 40 DeLaval Autosamplers
• 1,000 Tru-Test HI and WB meters
• 200 Tru-Test Ezi-Scanners
• 50 portable laptop computers
• Vans

Definitions

Technician:
  Responsible for a group of farms, typical 110
Recorder:
  Servicing the farmer on recording day.
  We employ 10 recorders (converted to full time)
Technicians have in average 10 recording days per month

Milk recording
Av. herd size
Number of recorded herds distributed by size, 1st Quarter 2007

<table>
<thead>
<tr>
<th>Herdsize</th>
<th>No. cows</th>
<th>No. herds</th>
<th>Av. herdsize</th>
<th>% cows</th>
<th>% herds</th>
</tr>
</thead>
<tbody>
<tr>
<td>to 50</td>
<td>28,935</td>
<td>884</td>
<td>33.9</td>
<td>5.7%</td>
<td>18.6%</td>
</tr>
<tr>
<td>51 to 100</td>
<td>38,833</td>
<td>1,339</td>
<td>73.8</td>
<td>18.2%</td>
<td>28.2%</td>
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<tr>
<td>101 to 200</td>
<td>249,511</td>
<td>2,075</td>
<td>136.8</td>
<td>65.5%</td>
<td>43.7%</td>
</tr>
<tr>
<td>201 to 300</td>
<td>69,300</td>
<td>294</td>
<td>235.7</td>
<td>13.3%</td>
<td>6.2%</td>
</tr>
<tr>
<td>301 to 400</td>
<td>19,624</td>
<td>58</td>
<td>338.3</td>
<td>3.8%</td>
<td>1.2%</td>
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<tr>
<td>401 to 500</td>
<td>4,644</td>
<td>11</td>
<td>440.4</td>
<td>9.9%</td>
<td>-</td>
</tr>
<tr>
<td>Over 500</td>
<td>8,776</td>
<td>10</td>
<td>677.6</td>
<td>1.3%</td>
<td>-</td>
</tr>
<tr>
<td>DK</td>
<td>518,823</td>
<td>4,671</td>
<td>111.1</td>
<td>100.0%</td>
<td>100%</td>
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</tbody>
</table>

An average technician:
- Responsible for 110 herds
- Service 5 herds per day
- Visit 10 farms per day
  - 5 in and 5 out
- Posses 80-100 milkmeters
- Posses 3-5 samplers for AMS herds
- Deliver 5-800 samples per day

Tru-Test DataHandler is our standard data carrier
Milking equipment, types

• 550 herds AMS/VMS
• 800 herds tie up barns (app.)
• 3200 parlours /rotaries (app.)
  – Of which app. 300 have fixed in place meters

Challenges 2000-2007

• AMS / VMS systems increasing
• Cows milked per hour increasing (up to 300)
• Manual sampling does not fit the decade
• Need for more detailed informations
• Need for automation in the lab
• Lab equipment gets more sophisticated
• Get more informations out of the sample

Safe sampling is the code word!

The sample is the center - not the meter!

Analysis on DHI samples

Standards:
• Fat, protein, SCC, lactose, urea

Options:
• Paratuberkulose (Johne’s)
• Salmonella Dublin

Future:
• ????
• ????

Portable electronic meters was the innovator

Barcoded vials was the goal
With EID and Electronic meters

Receipt is printed…

…corrections are made

Robotic systems
No of milkings boxes increasing
- Average more than 2
- 4-6 quite common
- Max is 11 in one herd
- Sampling without automation is not possible
- The bigger the herd, the more need for precise and correct informations

In service for the farmer

• 2 extra hoses for air is needed
• Datalink through e-link (service link)
Transferred data, per milking
Fixed in-place meters

<table>
<thead>
<tr>
<th>ID</th>
<th>Official ID</th>
<th>KG, milking 1</th>
<th>Ball no., milking 1</th>
<th>Milking time 1</th>
<th>Duration 1</th>
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<tr>
<td>87</td>
<td>056783-00087</td>
<td>11.9</td>
<td>18</td>
<td>06:37:11</td>
<td>5:18</td>
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<tr>
<td>507</td>
<td>069943-00507</td>
<td>6.3</td>
<td>9</td>
<td>06:09:42</td>
<td>5:56</td>
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<tr>
<td>517</td>
<td>069943-00517</td>
<td>15.3</td>
<td>18</td>
<td>06:08:41</td>
<td>10:12</td>
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<tr>
<td>570</td>
<td>077169-00570</td>
<td>11.7</td>
<td>23</td>
<td>05:07:54</td>
<td>4:21</td>
</tr>
<tr>
<td>619</td>
<td>043407-00619</td>
<td>8.5</td>
<td>3</td>
<td>05:19:31</td>
<td>7:32</td>
</tr>
<tr>
<td>644</td>
<td>018275-00644</td>
<td>16.6</td>
<td>3</td>
<td>06:06:16</td>
<td>7:40</td>
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<tr>
<td>653</td>
<td>069943-00653</td>
<td>10.5</td>
<td>37</td>
<td>05:33:12</td>
<td>4:08</td>
</tr>
<tr>
<td>655</td>
<td>069943-00655</td>
<td>9.6</td>
<td>6</td>
<td>06:38:51</td>
<td>4:30</td>
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</tbody>
</table>
Challenges on recording day

- Read the data
- Keep right format on animal ID on farmers management system
- Keep farmers hands away from changing animal ID setup!!!
  - "I just wanted to see what would happen if..."
- Develop efficient software for field staff
- Update field staff

Samples handled by ILAS robot...

Moving-shaking-lid off-barcode reading...

Analyzing...

Development 2007-8

- Veterinary analyses
  - Mastitis, Uberis, Aureus,… (needs more details)
  - Mastitis, B. streptococcus (working, not implemented)
- Datacollecting
  - Minutes per milking for breeding values.
  - Flow profiles
  - Logistics
  - Efficient, safe and fast transportation
Deviation in no samples from week to week
Jan-May 2007

How to handle diff. no. of samples

- Adjust capacity on lab (from 4 o 5 robots)
- Booking system to be implemented
- Technicians to plan recordings up to 8 weeks ahead
- Recording dates will be fixed
- All farmers will be informed of recording dates min. 8 weeks ahead
  – If a farmer want to change less than 8 days before recording, we charge 75 €

Veterinary analysis
- an example

- Para TB / Johne's disease is the indicator
- Improve internal logistics (dirty/clean areas)
- Do not feed milk to calves from infected cows

Information's based on recording samples

Only a safe sampling can justify veterinary information's

Did we find the ultimate way?

NO!

There is still a lot to do!

Thank you for attention!