Implementing Milk Quality Programs

The Milk Money Program

Pamela Ruegg, DVM, MPVM
University of Wisconsin Madison
Key Contagious Mastitis Control Practices

- **Effective** teat dipping
  - 97% adoption
- Dry cow therapy of **all** quarters of all cows
  - 93% adoption
- **Appropriate** treatment of clinical cases
  - No data
- Culling **chronically** infected cows
  - 35% of all cows culled are for mastitis
- **Regular** milking machine maintenance
  - 43% analyze yearly

WI Parlors (n=101)
335,000 cells/ml

WI Stallbarns (n = 78)
430,000 cells/ml
Why is mastitis a problem?

- Improving milk quality is technically easy
- There is lots of knowledge about basic methods to improve milk quality
- Most farms want to improve milk quality but........
  - Too many competing issues

Opinions of Vets (n=42) & Ext. Agents (n=35)

- What stops improvement in milk quality?
  - Poor Advice
  - Not enough money
  - Lack of people
  - Low motivation
  - Too Many other problems
  - Milk Price too low
  - Farmers don't care

What are the real challenges?

• 2004 Survey of Wisconsin Dairy Farms
• Mailed 1000 surveys & received 584 back
• Summarized by herd size
  – Overall
  – >200 cows (n = 34 herds)

Hoe & Ruegg, JDS May 2006
Farms are dynamic & facilities are Limited

• The calving pen is also used to house sick cows
  – 73 % Overall
  – 25 % Big herds

• Purchased Cattle in last 3 years
  – 44 % Overall
  – 33 % Big herds

• Of those purchasing, % buying lactating cows
  – 62% Overall
  – 52% big herds
Our recommendations are hard to implement

- Sick Cows housed with Healthy cows
  - 73 % Overall
  - 25 % Big herds
- Milk Mastitic Cows using Separate Barn or Unit
  - 27 % Overall
  - 19 % Big herds
- Use same unit to milk
  - 12% Overall
  - 8% big herds
Improving Milk Quality Requires a Whole Farm Plan

- MM Farm owners indicate that employees are the biggest threat to milk quality
  - 82% never hold performance reviews
  - Only 28% have written job descriptions for milking
  - 24% never train milkers
- 53% have Spanish speaking milkers
  - 84% understand virtually no Spanish
  - 40% never have an interpreter

Greatest Milk Quality Challenge

Survey of MM Farm Owners, 1 year after MM
Modern Mastitis Control programs have to include the whole farm and all workers.
Improving Milk Quality Using Self-Directed Teams

- Farmer led effort to improve milk quality
- Supported in part by Wisconsin dairy producers
- Farms enroll and commit to form a milk quality team that meets monthly for 4 months
- Use Program material to help organize meetings and reach results
How Does Milk Money Work?

- Producers and their LOCAL experts work TOGETHER in a farmer-directed team
  - Once a month for 4 months
  - Reassess at 4th meeting
- 81% of registered farms completed at least 4 meetings
- 36% continue to meet after completing program
What happens at a team meeting?

• Use provided forms to:
  – Come to consensus on farm goals
  – Determine an action plan
  – Determine how actions will be tracked
  – Assign responsibility
  – Follow-up
Who has participated?

- >450 farms have enrolled
  - About 1200 total team members
- We have to market the program to get participation
- Facilitation of the teams is the most challenging aspect
- Most veterinarians are paid but most other team members are not

[Pie chart showing participation by various roles: Producers (427), Field Reps (117), Equip. Reps (98), Ext. Agents (65), Nutritionists (68), Other (151), Vets (202), Farm Workers (30)]
Management Of Wisconsin Dairy Herds Enrolled in Milk Quality Teams
Rodrigues et al., J Dairy Science, July 2005
**Smaller Herds that Enrolled had Poorer Performance**

Characteristics of WI dairy farms stratified by cow housing type

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Facility type</th>
<th></th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stallbarn (n = 101)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total lactating cows (n)</td>
<td>86.7</td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Yield per cow per day (kg)</td>
<td>28.1</td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Cows milked per hour per person</td>
<td>25.3</td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Milk price ($/cwt)</td>
<td>11.25</td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Bulk milk SCC premium ($/cwt)</td>
<td>0.00</td>
<td></td>
<td>0.014</td>
</tr>
<tr>
<td>Bulk milk SCC (cell/ml)</td>
<td>430,221</td>
<td></td>
<td>0.006</td>
</tr>
<tr>
<td>Monthly rate of clinical mastitis</td>
<td>0.08</td>
<td></td>
<td>0.058</td>
</tr>
<tr>
<td>Monthly cows culled for mastitis (%)</td>
<td>1.8</td>
<td></td>
<td>0.073</td>
</tr>
</tbody>
</table>
Smaller Herds Adopt Less BMP

- Freestall (n=101)
- Stallbarn (n=78)

- 3X Milking
- ATO
- Forestrip
- Predip
- Complete MR
- 1 Towel/cow
- Always Gloves
- Written MR
- Freq. Train
- Record Clinicals
- BTM Cult. Sey/yr
- Written Rx Prot.
Mastitis is Costing Farms Lots of Money

Financial characteristics of WI dairy farms stratified by BMSCC category

<table>
<thead>
<tr>
<th>Outcome</th>
<th>BMSCC category</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Standard milk production loss per cow ($</td>
<td>2.12&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.77&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5.35&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.001</td>
</tr>
<tr>
<td>Milk quality premium loss per cow ($</td>
<td>4.69&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7.33&lt;sup&gt;b&lt;/sup&gt;</td>
<td>11.79&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.037</td>
</tr>
<tr>
<td>Estimated loss from clinical mastitis per cow ($)</td>
<td>7.25&lt;sup&gt;a&lt;/sup&gt;&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.67&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7.23&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.040</td>
</tr>
</tbody>
</table>

- Low SCC: $14.06 per cow per Month
- Medium SCC: $15.77 per cow per Month
- High SCC: $24.37 per cow per Month

100 cow High SCC Herd - $29,244 per year
Implementation is Lacking Milking Management

• Data from WI freestall farms (n = 101)
  – 377 cows per herd
  – SCC = 335,000 cell/ml
• High adoption of recc. practices
  – 89% gloves; 97% postdip; 98% predip; 89% forestrip
• 6 pp milking each month
  – Range of 2 – 16

• Training was rare
  – Frequent: 22%
  – At hiring: 49%
  – Never: 29%
• Only 41% had written milking routine
  – 6% of stall barns
• WI stall barns (n = 78)
  – 86 cows per herd
  – 3 pp milking each month
  – 54% never train milkers
Implementation Matters

![Bar chart showing the impact of various factors on cows per hour per operator]

- **Written Routine**: No
- **Training Freq.**: Never
- **Complete Routine**: No
- **Forestrip Comp. Rout. & Freq. Train**: No
- **Train Freq & Complete**: Yes

*Note: The chart indicates a significant impact on cows per hour per operator.*
Influence of Training & Routine Monthly Rate of Clinical Mastitis

Frequent Training Results in Fastest Milking Speeds & Lowest Rate of Clinical Mastitis
What we learned – Part 1

• Smaller herds adopt fewer best management practices and have poorer milk quality
• Training of milking personnel is infrequent and is related to milk quality
• Few veterinarians are perceived as actively working with milk quality on farms
• There is a large and real opportunity to rapidly improve financial performance based on improvements in milk quality
Actions & Outcomes of Wisconsin Farms Completing Milk Quality Teams

Milk Money Farms Adopt Best Management Practices

Adoption Rate is adoption of each practice by non-users at meeting 1
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Before program</th>
<th>After program</th>
<th>Difference</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk milk SCC (cell/ml)</td>
<td>385,838</td>
<td>307,951</td>
<td>-77,887</td>
<td>&lt; 0.001</td>
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<tr>
<td>Standard plate count (cfu/ml)</td>
<td>14,564</td>
<td>10,433</td>
<td>-4,131</td>
<td>0.014</td>
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<tr>
<td>Yield per cow per day (kg)</td>
<td>29.8</td>
<td>30.6</td>
<td>0.82</td>
<td>0.223</td>
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<tr>
<td>Monthly rate of clinical mastitis (%)</td>
<td>6.8</td>
<td>4.9</td>
<td>-1.9</td>
<td>0.016</td>
</tr>
<tr>
<td>Monthly incidence of subclinical mastitis (%)</td>
<td>10.9</td>
<td>9.2</td>
<td>-1.8</td>
<td>0.033</td>
</tr>
<tr>
<td>Monthly prevalence of subclinical mastitis (%)</td>
<td>35.8</td>
<td>30.8</td>
<td>-5.0</td>
<td>0.008</td>
</tr>
<tr>
<td>Monthly cows culled for mastitis (%)</td>
<td>1.4</td>
<td>0.8</td>
<td>-0.7</td>
<td>0.023</td>
</tr>
<tr>
<td>Standard milk production loss per cow ($)</td>
<td>3.88</td>
<td>2.75</td>
<td>-1.12</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Bulk milk SCC premium ($/45kg)</td>
<td>0.07</td>
<td>0.27</td>
<td>0.20</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Milk quality premium loss per cow ($)</td>
<td>9.21</td>
<td>5.97</td>
<td>-3.24</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Estimated loss from clinical mastitis per cow ($)</td>
<td>6.48</td>
<td>4.42</td>
<td>-2.06</td>
<td>0.002</td>
</tr>
</tbody>
</table>
Conclusion

- Improving Milk Quality is Technically Easy
- Ability to implement management practices is the most important aspect of improving milk quality
- Implementation is dependent on
  - Development of standardized procedures
  - Ability to clearly communicate value
  - Continued training of personnel
- The team based approach to improving milk quality works well