Extension programming to address somatic cell count challenges and opportunities

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Impacts of mastitis felt throughout the food chain

**Cow**
- Morbidity
- Mortality
- ↓ Production
- Treatment

**Farm**
- ↓ Herd efficiency
- ↑ Costs
- ↓ Revenues
- ↑ Risk other cows

**Processor**
- Shorter shelf life
- Decreased cheese making ability

**Consumer**
- Poor taste
Where does the Southeast rank in milk quality?

USDA-AIPL, DHI Summary 2014
Southeast Quality Milk Initiative (SQMI)

Our Goal

Enable dairy farmers to move toward production systems compatible with the concept of a sustainable dairy industry in the Southeast US
The Plan

1. Why are practices adopted? (or not...)
2. What practices are effective in the SE?
3. Tools & services to help make informed decisions.
4. Education programs for current & next generation

Research * Extension * Education
SQMI Team

- **UT:** Steve Oliver, Raul Almeida, Gina Pighetti, Peter Krawczel, Mark Fly
- **VA Tech:** Christina Petersson-Wolfe
- **U KY:** Jeffrey Bewley, Lori Garkovich, Amanda Stone, Michelle Arnold
- **U GA:** Steve Nickerson
- **MSU:** Stephanie Hill-Ward
- **FL:** Albert DeVries

**Dairy Advisory Board:** Producers, Industry, Universities, Government
Objective 1. Why?

- Why (or not) are practices adopted?
  - Financial
  - Infrastructure
  - Social
  - Psychological
- Survey-based approach
Objective 2. What?

- Identify strategies effectively & efficiently employed in the southeast
- Annual status report
- On-farm assessments (n= 304)
- On-farm demonstrations in final 3 years
What is the single most important key to maintaining a low somatic cell count?

<table>
<thead>
<tr>
<th>Response</th>
<th>n</th>
<th>Response</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeping Cows and Facilities Clean</td>
<td>31</td>
<td>Cow Comfort</td>
<td>4</td>
</tr>
<tr>
<td>Dry, Clean Bedding</td>
<td>14</td>
<td>Paying Attention to Detail</td>
<td>2</td>
</tr>
<tr>
<td>Consistent Milking Routine</td>
<td>10</td>
<td>Dry Treating All Quarters of All Cows</td>
<td>2</td>
</tr>
<tr>
<td>Forestripping</td>
<td>7</td>
<td>Preventing Rather Than Curing</td>
<td>1</td>
</tr>
<tr>
<td>Pre- and Post-Dipping</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stone and Bewley, 2011
Objective 3. Support tools & services

- Ability to make more informed decisions
- Decision support tools w. economics factored in
- Incorporate into existing software and/or hand-held devices
- Educational material
- For producers, employees, industry professionals
Example Inputs

http://www2.ca.uky.edu/afsdairy/MilkQualityCalculator
Example Outputs

http://www2.ca.uky.edu/afsdairy/MilkQualityCalculator
Coliform Mastitis Vaccine Economic Opportunity Dashboard

Developed by Amanda Sterrett and Dr. Jeffrey Bewley
University of Kentucky College of Agriculture
Animal & Food Sciences Department
amanda.sterrett@uky.edu or 412-558-2075

- Average Herd Size: 100
- Cost of Vaccine Bottle (250 mL): $71.99
- Cows Vaccinated ( / Hour): 15
- Average Labor Wage ( / Hour): $11.45
- Current Milk Price ($ / cwt): $22.96
- Cost for Replacement Cow: $1,800

- Milk Production / Cow / Lactation (lbs): 14,387
- Number of Clinical Mastitis Cases Annually: 25
- Average Labor Wage ( / Hour): $11.45
- Current Milk Price ($ / cwt): $22.96
- Cost for Replacement Cow: $1,800

- Number of Coliform Cases Annually: 10
- Average Culling Rate: 0.3

- Benefits per Cow: $46.04
- Cost per Cow: $5.08
- Annual Savings per Cow: $40.95
- Annual Herd Savings: $4,095.35

Coliform mastitis vaccines are not meant to replace good management— their purpose is to complement your current mastitis prevention strategies and to take your herd to the next level of health. There are many
# Mastitis Cost Breakdown

<table>
<thead>
<tr>
<th>Cost type</th>
<th>First lactation</th>
<th>Second and later lactations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost milk</td>
<td>$131.41</td>
<td>$133.46</td>
</tr>
<tr>
<td>Vet and drug</td>
<td>$76.62</td>
<td>$76.62</td>
</tr>
<tr>
<td>Discarded milk</td>
<td>$64.38</td>
<td>$81.00</td>
</tr>
<tr>
<td>Labor</td>
<td>$12.22</td>
<td>$12.22</td>
</tr>
<tr>
<td>Death</td>
<td>$11.37</td>
<td>$12.19</td>
</tr>
<tr>
<td>Culling</td>
<td>$9.49</td>
<td>$17.92</td>
</tr>
<tr>
<td>Days open</td>
<td>$1.21</td>
<td>$3.47</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$306.95</strong></td>
<td><strong>$340.14</strong></td>
</tr>
</tbody>
</table>

Liang and Bewley, 2013
Objective 4. Education programs

- Need for knowledgeable personnel
- Disseminate decision support tools & advances for improving milk quality
  - Print, in person training, online
  - Spanish translations
- Internships
YouTube: Milking Procedures Video
YouTube: Virtual Case Studies

Managing Somatic Cell Count on Guffey Farm
From: UKAgriculture | Jan 26, 2010 | 672 views
Managing Somatic Cell Count on Shelby Guffey Dairy Farm in Albany, Ky. Farm tour

Managing Somatic Cell Count on Kinslow Farm
From: UKAgriculture | Feb 8, 2010 | 612 views
Procedures used on Don Kinslow Dairy Farm to minimize somatic cell counts in milk.
SQMI helping move towards a more sustainable dairy industry

- Identify what works in
- Provide tools & knowledgeable people
- Reduce mastitis
- Increase → milk yield, efficiency, premiums
- Decrease → costs and risk associated with bacteria & antibiotics
• Extension of the KDDC Market Incentive Leadership for Kentucky (M.I.L.K) program

• Producers were not getting M.I.L.K bonus

• Involve KDDC consultant, extension agent, veterinarian, consultant

• ~100 participants thus far

• Milk Quality Audits
  • Records
  • Milking procedures
  • Facilities
  • Culture interpretation
  • Animal hygiene
  • Dry cow management

• Send follow-up evaluation report
Commonalities Among Successes

- Strong desire to change
- Motivation to maintain milk market or attain milk quality bonus
- Desire to stay in the dairy industry for a long-term
- Desire to understand why there is a problem and how to prevent it in the future
- Focus on human resources and parlor management
- In most cases, small management changes resulted in large reduction in SCC
M.I.L.K Counts Failures

- Producer does not want to change
- Capital/cash flow problems
- Unwillingness to cull
- Identification of wrong bottlenecks
- Too much focus on “what” rather than “why”
- Incremental changes at lower levels are more difficult
Conclusions

- Low SCC can be achieved anywhere in the world
- Extension programming for milk quality requires a multi-disciplinary team approach with integration of multiple learning methods
- Focus on increasing understanding or economic impact and prevention of mastitis
- A combination of on-farm consultations, written materials and electronic methods may work well
- Understanding the people factors is essential
SQMI would not be possible without

This project is supported by Agriculture and Food Research Initiative Competitive Grant no. 2013-68004-20424 from the USDA National Institute of Food and Agriculture.
Any Questions?

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