Streptococcus agalactiae
Case Study

Dr. Frank Welcome

Quality Milk Promotion Services
60 cow tiestall barn

- Violation of PMO Quality Standards
- Most recent Bulk Tank Somatic Cell Count (BTSCC) 780,000 cells/ml
- Standard Plate Count 10,000 cfu
QMPS Herd Survey

Identify the mastitis pathogens present

- Bulk tank milk culture
- Individual lactating cow milk cultures
- Individual cow somatic cell counts
Risk Assessment

- Herd History
- Milking equipment evaluation
- Milking procedures evaluation
- Housing, Environment & Sanitation
- Clinical mastitis treatment history
- Dry cow management
- Calf & heifer management
Analysis and Plan Development

- NYSCHAP veterinarian provides analysis of data
- Identifies major risk factors
- Provides intervention options
- Works with the herd owner (management), herd veterinarian and milk inspector in developing a herd plan to eliminate the problem.
Herd History

- 54 Lactating cows, grade Holsteins
- Ave 37 lbs. of milk /cow/day. 2X milking
- Raise all of their replacements
- Have not purchased new herd additions in over a year.
Milking System Evaluation

- Pump 5.5 hp, 36 CFM reserve airflow 26 CFM - INADEQUATE
- Milk line (1.5 in.) and pulsator line (2 in.) vacuum 14.4 inches Hg.
- Vacuum controller clean and functioning properly
- Pulsation rate 50/min, ratio 60:40.
- Inflations changed every 60 days (1100 individual cow milkings)
Milking Procedures

- Dry teat massage with dry paper towel
- Fore-stripped into strip cup
- No predipping or premilking teat sanitation
- Machine stripping is common
- Post milking teat dipping is used inconsistently
  - .5% iodine with dipper cup
Housing, Environment & Sanitation

- Pasture weather permitting, 18 hrs./day
- Winter housing - bedded with sawdust and/or straw
  - inadequate bedding
  - beds always wet
- Dry cows are housed in the same stalls and usually calve there in the winter.
Clinical Mastitis and Dry Cow Therapy

- Average 4 cases/month
- Primary treatment - OTC product
- Dry cow treatment is selective
### Initial Milk culture and SCC results

#### 85% Infection Rate

<table>
<thead>
<tr>
<th>Culture Result</th>
<th>No.</th>
<th>%</th>
<th>SCC</th>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>NEGATIVE</td>
<td>8</td>
<td>15</td>
<td>223,570</td>
<td>(67,000 - 490,000)</td>
</tr>
<tr>
<td>Strep ag.</td>
<td>27</td>
<td>50</td>
<td>3,086,000</td>
<td>(468,000 - 15,220,000)</td>
</tr>
<tr>
<td>Staph aureus</td>
<td>1</td>
<td>2</td>
<td>2,202,000</td>
<td></td>
</tr>
<tr>
<td>Strep spp.</td>
<td>2</td>
<td>4</td>
<td></td>
<td>(332,000 - 18,804,000)</td>
</tr>
<tr>
<td>Staph spp.</td>
<td>5</td>
<td>9</td>
<td>1,234,000</td>
<td>(166,000 - 2,574,000)</td>
</tr>
<tr>
<td>C. bovis</td>
<td>31</td>
<td>57</td>
<td>894,850</td>
<td>(258,000 - 3,272,000)</td>
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<tr>
<td>C. spp.</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Recommendations

**Streptococcus agalactiae cows**

- Treat ASAP, Amoxicillin was recommended.
  - All infected cows in all four quarters for three consecutive milkings
  - Dry off and treat eligible animals

- Segregate the infected cows at milking so that they are milked last.
  - They should be milked last until they can be resampled and cultured negative for Strep ag

- Resample the herd 3 to 4 weeks after treatment.
Recommendations

- **Staphylococcus aureus**
  - Milk this cow last.
  - Consider culling as a treatment option

- **Use post milking teat dipping consistently**
Recommendations

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Incorporate predipping into milking routine

 Allow dip to remain on teats for 30 seconds before wiping the teat dry with a single service towel.

 Use the same 0.5% iodine dip as is currently used for post dipping.
Recommendations

Environmental Mastitis

- Provide a cleaner, dryer, more comfortable environment for the cows
  - Remove manure & wet bedding more often
  - Apply more dry bedding more frequently
  - This includes the dry cow, heifer and maternity areas
Recommendations

อำนวยMilking System

- Consult with equipment dealer concerning
  - vacuum pump
  - air leaks
- Change Inflations every 6 weeks (800 milkings)
Compliance

- Staph aureus cow culled from the herd
- Strep ag cows treated as instructed and segregated at milking time
- Milking system was evaluated and repairs made by dealer
- New milking procedures
  - Consistent application of pre & post dip
  - Teats wiped dry with single service towel
  - Discontinued machine stripping
## Summary of surveys

<table>
<thead>
<tr>
<th>Survey#</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td># COWS</td>
<td>54</td>
<td>52</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>RESULT</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>NEG</td>
<td>8</td>
<td>23</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Strep agalactiae</td>
<td>27</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Staph aureus</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C. bovis</td>
<td>31</td>
<td>13</td>
<td>6</td>
<td>11</td>
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<tr>
<td>Strep sp.</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>7</td>
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<tr>
<td>Staph sp (CNS)</td>
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<td>11</td>
<td>5</td>
<td>7</td>
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<tr>
<td>A. pyogenes</td>
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<td>1</td>
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<tr>
<td>C. sp.</td>
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<td>0</td>
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<tr>
<td>Fungi</td>
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<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>G- Bacilli</td>
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<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>G+ Bacilli</td>
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<td>1</td>
<td>16</td>
<td>8</td>
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<tr>
<td>E. coli</td>
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<td>1</td>
<td>0</td>
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<tr>
<td>Klebsiella sp.</td>
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<td>0</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Environmental TOTAL</td>
<td>10</td>
<td>18</td>
<td>28</td>
<td>26</td>
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<tr>
<td>BTSCC</td>
<td>780,000</td>
<td>200,000</td>
<td>290,000</td>
<td>400,000</td>
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</tbody>
</table>
Summary of surveys

Strep ag vs Negative Cultures

- # Cows
- SURVEY
- NEG
- Strep agalactiae
Summary of surveys

Infection Rate vs BTSCC

- No. Infections
- BTSCC

- Strep agalactiae
- Environmental TOTAL
- BTSCC

SURVEY

1 2 3 4 5

0 5 10 15 20 25 30

0 100000 200000 300000 400000 500000 600000 700000 800000 900000

NYSCHAER

ANIMAL HEALTH • FOOD SAFETY
ENVIRONMENTAL STEWARDSHIP
Additional recommendations

- Bulk tank culture monthly for next three months to monitor *Strep ag.*
- Continue to improve environment (bedding & stall) and premilking sanitation
- Develop a Biosecurity Plan for mastitis prevention and infectious disease control
- Enroll in NYSCHAP Core and Mastitis Modules.
Conclusions

- Elimination of *Strep ag* from a herd is possible and economically viable.
- Requires a commitment for identification of infected animals, aggressive treatment, effective containment of the infection and rapid resampling of the herd.
- Herd monitoring and biosecurity plans should include monthly Bulk Tank Cultures and screening of new herd additions.
Conclusions

Environmental infections can become a significant problem as contagious mastitis is eliminated from a herd if critical environmental risks have not been adequately addressed.