The effect of singeing udder hair on mastitis and the bacterial content of milk

By Larry Fox, Professor
College of Veterinary Medicine
Washington State University

The Pasteurized Milk Ordinance clearly states that udders should be routinely clipped to keep udder hair short. It has been written that keeping udder hair short can lead to reduced exposure to bacteria, improved milk somatic cell counts, a decrease in udder preparation time, an increase in milking speed, a decrease in bacterial counts of milk, improved teat disinfection function, improved cleanliness of milker’s hands and milking units, improved milk sediment scores and a reduction in the number of towels needed to wash and dry udders.

There is logic to support such claims. Long udder hair may trap dirt and debris, which may increase the contamination of teats and milk by bacteria. Logic would then suggest that short haired udders would have less mastitis than long haired counterparts. Yet dairy operators should demand more than logic to substantiate rules and regulations. There should be hard evidence to support practices, whenever possible.

The Washington State University mastitis research group designed experiments to test the hypotheses that keeping udder hair short will result in: 1) less mastitis; 2) improved milk quality as validated by milk bacterial counts; and 3) reduced bacterial content on the teat skin. In these experiments, 218 cows were used. Udder hair was removed monthly from one side of the udder of each cow by singeing. On the other side of the udder of each cow, the hair was allowed to grow unrestricted. The study was conducted for 11 months, thus hair removal was not practiced for udder halves for nearly a year. At monthly intervals, milk samples were taken to determine mastitis infections. Teat skin swabbing solutions were also collected at this time to determine the bacterial contamination of the teat skin.

It was expected that teat skin bacterial counts would be highest on teats where udder hair was not removed, and likewise, the prevalence of mastitis would be highest in the mammary quarters where udder hair was allowed to remain.

These expectations would be consistent with the assumption that long udder hair traps bacteria, interferes with teat cleaning and thus will lead to an increase in teat skin bacterial counts and an increase in mastitis infections. The findings do not support our hypothesis as indicated in Table 1.

Table 1: New mastitis infections by pathogen type and by treatment (hair removed quarters versus hair not removed quarters).

<table>
<thead>
<tr>
<th>pathogen type</th>
<th>infections</th>
<th>hair removed</th>
<th>infections</th>
<th>hair not removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staph. aureus</td>
<td>36</td>
<td>3</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Coagulate negative Staph.</td>
<td>35</td>
<td></td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Streptococcal sp.</td>
<td>31</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Coliforms</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>3</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

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There were 3 more Staph. aureus infections and 3 less coagulate negative staphylococci infections (continued on next page)

Table 2: Bacterial counts (CFU/ml of milk) from udder halves with hair removed or not removed.

<table>
<thead>
<tr>
<th>treatment</th>
<th>SPC</th>
<th>coliform</th>
<th>PI</th>
<th>LPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>hair removed</td>
<td>3.03</td>
<td>1.44</td>
<td>3.55</td>
<td>3.01</td>
</tr>
<tr>
<td>hair not removed</td>
<td>3.43</td>
<td>1.48</td>
<td>3.66</td>
<td>3.12</td>
</tr>
</tbody>
</table>
14 ways to minimize the expansion or relocation blues

By Deanne Meyer
Extension Waste Management Specialist
University of California, Davis

Recently I had the opportunity to sit through a county Board of Supervisors’ meeting. It honestly wasn’t any different than any of the previous meetings I’ve sat through. I’ve worked with many dairy producers who get their financing lined up for staged growth, only to find out five years into the project that it isn’t going to happen that way. Here is a decade of lessons learned from sitting through meetings.

The permitting process:
1. Always be nice to the County and/or State staff. You need to be nice. It doesn’t matter how wrong they may be. It’s essential that you work with them even when you’re frustrated beyond belief. Answer questions as politely as possible and maintain a paper trail as if your project depended upon it.

2. Stay in touch with changes in County or State policy that may affect your ability to expand. Changes in local, regional or state policy can alter your ability to expand.

3. Obtain every permit necessary. Be sure that every permit needed is obtained at the beginning of the project – before construction begins. Keep copies of all documentation in a fire-proof safe. Your copies may be the only ones available when you really need them.

4. Plan for growth. When you build a new dairy or go through a permitting process identify what the limiting factors are for future expansion. Is it land, proximity to neighbors, water availability, or something else? Identify what your maximum population can be and where your vulnerable sides are. What is the county growth plan during the lifetime of your facility? Is a city going to expand or encroach? If so, how can you minimize the potential conflict between you and them when you were there first?

5. Have good legal counsel. Be sure your legal council is familiar with agricultural issues in your area. Be sure they understand your goals and objectives with your dairy. Include a junior partner if your legal counsel may retire before your project is finished.

6. Meet regularly with your consultant. Understand the strengths and weaknesses of your project. Take an active role in managing the different issues in neighboring counties or neighboring areas. I’ve been so very impressed with the strength and patience of dairy operators and their families through these incredible experiences.

The results of both trials do not support the contention that removal of udder hair will improve milk quality and reduce mastitis. So perhaps workers in herds that have excellent control of cow cleanliness would not need to remove udder hair to help maintain milk quality.

Summary

The results of both trials do not support the contention that removal of udder hair will improve milk quality and reduce mastitis. It could be argued that because the herd had excellent housing management, keeping cows clean and dry, and excellent milking technique, that udder hair removal was not necessary. Indeed, the herd has a long history of SPC counts less than 5,000 and SCC counts less than 200,000. So perhaps workers in herds that have excellent control of cow cleanliness would not need to remove udder hair to help maintain milk quality. However, it should be noted that because udder hair removal is stipulated by the PMO, it should be done as required. The PMO is revised every two years. Perhaps the requirement to remove udder hair is unnecessary and should be part of some revised PMO in the future.

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14. Stay educated about hot issues. Understand issues in neighboring counties or neighboring states. How will litigation in Idaho or Washington affect your proposed project?

The days of just building a dairy are long gone. Now, it takes all kinds of logistics to get a facility permitted and built. It is a given that time and patience will be expended. I’ve witnessed firsthand the stress associated with expansions or relocations. I’ve been so very impressed with the strength and patience of dairy operators and their families through these incredible experiences.