



***Pseudomonas* spp.:**

A Practical Summary for Controlling Mastitis

*Authored by Turner Swartz, former Ph.D. Student, Dairy Science, Virginia Tech, and
Christina S. Petersson-Wolfe, Associate Professor & Extension Dairy Scientist, School of
Animal Science, Virginia Tech*

Pseudomonas spp. are environmental mastitis-causing pathogens that are Gram-negative and similar in structure to other coliform mastitis pathogens.

Pseudomonas spp. have been isolated from milking parlor drop hoses and are known to cause mastitis through the use of water during milking. When grown on blood agar, *Pseudomonas* spp. have been found to smell like grapes.

Information in this publication was summarized from the National Mastitis Council's Laboratory Handbook on Bovine Mastitis (Hogan et al. 1999).

Where are these organisms found?

Reservoirs of *Pseudomonas* spp. are contaminated water sources, particularly milking parlor drop hoses. *Pseudomonas* spp. can also be found in wet bedding, cooling ponds, pools of standing water, muddy lots or corrals, marshy areas, and manure and urine.

How do *Pseudomonas* spp. spread to the mammary gland?

The spread of *Pseudomonas* spp. can occur through environmental contact. This includes, but is not limited to, water use during milking, organic bedding, dirty or soiled stalls, and access to muddy lots and/or standing water.

How can you prevent and control mastitis caused by *Pseudomonas* spp.?

Prevention and control of *Pseudomonas* spp. are based on reducing the exposure of cattle to infected water sources. *Pseudomonas* spp. have been found in contaminated milking parlor drop hoses; to make

matters worse, *Pseudomonas* spp. are resistant to certain sanitizers, so water might still be contaminated even after disinfectants are added to the water. Therefore, the use of water during milking should be eliminated.

Proper milking procedures, including the use of effective pre-milking teat disinfectants along with thoroughly drying teats prior to milking, will help to reduce the number of new infections. Following forestripping, the use of an effective and proven pre-milking teat disinfectant is particularly important for this mastitis-causing pathogen. The pre-milking teat disinfectant should remain on the teats for 30 seconds prior to removal with either a paper towel or a single-use, clean, dry cloth towel. Following these guidelines, the time from the start of manual stimulation (forestrip or wipe) to unit attachment should be in the range of 60 to 120 seconds. This will allow the appropriate time for milk letdown.

After unit detachment, an effective and proven post-milking teat disinfectant should be applied with coverage over at least two-thirds of the teat barrel. In herds with a particular environmental mastitis problem, the use of a barrier teat dip is recommended.

Using inorganic bedding such as sand, cleaning stalls frequently, reducing overcrowding, and preventing access to wet areas will help to prevent and control *Pseudomonas* spp. mastitis. Immunization of cows with a coliform mastitis vaccine, such as J5, can potentially reduce the severity of *Pseudomonas* spp. mastitis. Please consult your herd veterinarian before implementing a vaccination protocol.

When are *Pseudomonas* spp. mastitis infections most likely to occur?

New infections can occur at any time during lactation. Cows in early lactation are at greater risk for new infections due to the increased stress and immune

suppression associated with the postpartum period. Periods of rain, as well as marshy areas and standing water that cows may be inclined to wade in during the summer, can also increase risk for infection.

How likely is *Pseudomonas* spp. mastitis to be cured?

Pseudomonas spp. typically cause chronic infections that do not respond well to antibiotic therapy. In fact, infected cows are frequently culled. Therefore, emphasis needs to be placed on prevention more than treatment. As a reminder, please consult with your herd veterinarian before beginning any treatment protocol.

Quick Notes

- *Pseudomonas* spp. are environmental pathogens associated with water use in the milking parlor and wet bedding.
- *Pseudomonas* spp. have been found in milking parlor drop hoses and are resistant to certain sanitizers.

- Reducing water use in the parlor as well access to wet areas can prevent infection.
- Reducing overcrowding and using inorganic bedding, such as sand, can also prevent infection.
- *Pseudomonas* spp. do not respond well to antibiotic therapy; thus, prevention is key.

References

Hogan, J. S., R. N. Gonzalez, R. J. Harmon, S. C. Nickerson, S. P. Oliver, J. W. Pankey, and K. L. Smith. (1999). *Laboratory Handbook on Bovine Mastitis*. Madison, WI: National Mastitis Council.