

# CALF FACILITIES: CLEAN, CLEAN, CLEAN!



Photo by Wyatt Bechtel

## Cleaning calf pens goes beyond removing bedding to cleaning floors to remove biofilms that harbor bacteria.

Cleaning calf facilities starts with water, but it will take more than H<sub>2</sub>O to remove harmful bacterial layers that negatively impact calf health and farmers' bottom lines.

"Water is needed in almost any aspect of cleaning and disinfection," says Don Sockett, veterinary microbiologist at the University of Wisconsin.

Facility designs should include ways to move water out easily, using slopes and drains. "When you design your facilities, you have to think about how you're going to clean them," Sockett says.

However, don't use a high-pressure washer to clean calf pens because of cross contamination. "High pressure washers are good to remove soils, but they are not very good at removing the biofilm layer," Sockett says.



Biofilm is the enemy of calf raisers, Sockett adds. Bacteria lives in communities called biofilms. These communities harbor many pathogens, up to 95% of the organic load.

"If your cleaning is not efficiently removing the biofilm layer, you're really not accomplishing much," Sockett says.

Bacteria associated with respiratory disease, scours, roto virus and crypto will hide in biofilms. It is important to control the spread of these bacteria because they can be financially devastating. For instance, a study from Quebec, Canada showed mycoplasma bovis reduced average daily gain in pre-weaned dairy calves by 40%.

"That's a lot of money in lost milk and future returns," Sockett says. "So it is really important to remove the biofilm."

Biofilms are composed of carbohydrates, proteins and fat. This is similar to components in milk. Sockett says producers should apply similar sanitation methods used for milking parlors when cleaning calf facilities or feeding equipment.

## Here is an outline for cleaning feeding equipment like bottles or buckets:

- Clean off large particles
- Rinse with luke warm water (90° F)
- Manually wash with a brush for 2 - 3 minutes using hot water (at least 140° F) mixed with chlorinated alkaline detergent containing an 11 - 12 pH
- Rinse with cold water
- Rinse a second time with cold water mixed with 2 - 3 pH acid and 50 ppm solution of chlorine dioxide
- Let dry
- Sanitize with a 50 ppm solution of chlorine dioxide within 2 hours of use. Having the proper soap will help emulsify the fats, while breaking down or solubilizing the carbohydrates and proteins.
- The acid rinse aids in removing the mineral deposits created by hard water.
- It is important to check to see if the soap you are using is the right pH. Sockett points out that many soaps don't fall into the right pH category. "You want a caustic soap with a pH of between 11 and 12."





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**A similar guideline can be used for calf pens or trailers:**

- Clean up the large filth like manure, bedding or feed
- Soak with water. Don't use a high-pressure washer during any of the process because of cross contamination
- Alkaline foam cleaning using an 11 - 13 pH
- Soak with water
- Rinse with water
- Acid foam cleaning using a 3 - 4 pH
- Soak with water
- Rinse with water
- Dry
- Disinfect

Sockett prefers using handheld foamers to do cleaning in pens and trailers since they can help restrict the flow of chemicals and maintain a proper pH.

"I like to use handheld foamers because they use them in car washes so I know they aren't going to be as harsh on the environment," Sockett says.

Another important consideration for cleaning are brushes. Sockett recommends using new brushes at least quarterly each year. If you have higher bacterial loads or are using brushes more regularly they could be replaced monthly.

"Trust your procedures," Sockett says. "Your goal is not to eliminate pathogens from your premise. You want to reduce the numbers so that when animals are exposed they won't get the disease."



Dr. Sockett grew up on a dairy farm in Southern Ontario, Canada and graduated from veterinary school at the University of Guelph in 1981. After graduation, he successfully completed internship and residency programs in large animal medicine and surgery at the University of Minnesota and Colorado State University, respectively. He obtained his PhD degree from the University of Wisconsin-Madison in 1991. Dr. Sockett has authored over 100 articles on infectious diseases of dairy cattle in scientific and lay journals. Currently, he works as a veterinary microbiologist/epidemiologist at the University of Wisconsin, Veterinary Diagnostic Laboratory.

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