

Providing A Clean Environment = Healthier Calves And Increased Profit



By Lorrie Meister, CVT
Livestock Specialist

A clean environment is essential to successful calf raising. Housing, air quality and cleanliness of the surfaces the calf comes into contact with (hutches, panels, bottles, pails, feeders, etc.) all play a role in raising a healthy, robust animal. Many

producers fall into habits of using certain products, or practices, to clean and disinfect surfaces because they have never considered, or have not taken the time to look for a better alternative.

For many years, bleach has been the most commonly used disinfectant on livestock operations. While bleach is effective in some ways, it has several major downfalls. Cryptosporidium and giardia are two common pathogens that bleach will not control. A common misconception when cleaning facilities is if it looks clean, it is clean. Unfortunately, this is often not the case. Studies of bacterial loads in dairy farm environments have shown that only 10% of bacteria present is free floating. That leaves the remaining 90% of bacteria attached to surfaces or trapped in biofilms.¹ Biofilms are a group of microorganisms which stick to each other and adhere to a surface. This representation of bacterial distribution proves how important the steps of sanitation (past the removal of gross debris) are in our cleaning protocols. Finding a disinfecting agent that can provide a broad spectrum of protection for your animals can be a challenge. Some agents work well in certain settings but not others. New studies have shown that chlorine dioxide is the best choice for on-farm sanitizing applications.

A Case For Chlorine Dioxide

When choosing a disinfecting agent consider that chlorine dioxide provides the quickest action at the lowest concentration of use. When used at the proper concentration, chlorine dioxide will reduce the environmental pathogen load to create a safe environment for calves to thrive in. If pathogen loads are high, mortality rates will increase. This not only affects your current profitability but future profits, as for most

operations this results in a decreased number of replacement heifers coming into the milking line.

When handled properly, chlorine dioxide is safe and easy to use, mixes well and has a wide variety of applications (hand washing, power washing, fogging). Chlorine dioxide is not pH dependent and is less corrosive than chlorine. Being able to use one agent at different concentrations for multiple applications will provide for greater efficiency on your farm. At the correct concentration, chlorine dioxide can even be used when animals are in the immediate environment. This factor alone is of great advantage to producers, especially when considering the growing popularity of group calf housing and automatic feeders.

New Formulations

Crystal Creek® has recently integrated a number of new chlorine dioxide disinfectants into our product lineup. One of these new items is the Exact™ Tablet: a chlorine dioxide tablet made to be mixed on-farm, with water, to the exact concentration you need to do the job at hand. These specially formulated tablets have a sustained release property which carefully controls the creation of the chlorine dioxide gas concentration when added to water. This property allows producers to use the product in various ways such as a water treatment, a cleaner/disinfectant and even as a fogging agent. Best of all, with Exact™ Tablets, these benefits are available at a more economical price than other products on the market.

Management Practices

In addition to using an effective, economical disinfectant such as chlorine dioxide, creating and maintaining good management practices can go a long way to raising healthy livestock. These practices can involve standardizing protocols and applying new technologies when necessary to help overcome a specific obstacle.

A) Basic general management practices to reduce cross contamination within the herd should not be forgotten. These practices include feeding calves from youngest to oldest, using good biosecurity measures with all animal handlers (clean gloves,

boots, coveralls), and providing appropriate air exchange in the housing environment. Keeping an adequate quantity of clean equipment on hand will make your operation run smoother on a daily basis. Each sick calf should have its own esophageal feeder per day. Having one spare feeder on hand will help avoid panic during an emergency situation. All these factors are essential to minimizing potential sources of illness and creating and maintaining an optimum environment for calves to grow in.

B) Another tool many producers find to be useful is an ATP meter. ATP (Adenosine Triphosphate) meters detect and measure the presence of organisms on an exposed surface. Investing in an ATP meter can help producers find trouble spots where microorganisms are not being eliminated in the environment and serve as a tool to evaluate when it is time to replace equipment. While the initial investment in an ATP meter can be significant, the return on investment can be great; especially for operations who are struggling with detecting sources of infection.

C) Written protocols are necessary to make sure the employees understand the nature of the disinfectant being used. Because chlorine dioxide cannot be transported it needs to be generated on site. Safety considerations during preparation, and use, include wearing protective gear such as nitrile gloves and eye protection. The most common concentration for on-farm use of chlorine dioxide is 100 ppm. When preparing concentrations >200 ppm, an approved respiratory mask should also be worn. Always prepare your solution in a well ventilated area, with cool water in a chemical resistant plastic container that can be sealed to store unused solution in the refrigerator per the product manufacturer's guidelines.

Developing a standard sanitizing operating procedure (SSOP) is vital to any successful

operation. Following the cleaning standards below will help you obtain quality results:

1. Physically remove any visible dirt or residue.
2. Soak equipment in a hot water chlorinated alkaline detergent solution for 30 minutes.
3. Manually wash bottles and buckets with a brush. Do not wash nipples in a dishwasher as bacteria build up can occur in folds and crevices. Hand washing provides an opportunity to check for cracks and defects on equipment that should be replaced.
4. Rinse with cold water.
5. Dry. Avoid stacking pails until completely dry.
6. Sanitize (preferably with a chlorine dioxide solution).



Working with your veterinarian to create a reference that is applicable to your specific operation will help you establish a baseline as well as enforce expectations for everyone involved in your cleaning protocol.

The implementation of chlorine dioxide has helped many producers overcome reoccurring health issues in their calf raising operations. The staff at Crystal Creek® is here to help you with any calf health issues you may be experiencing and

assist you in improving current protocols. Exact™ Tablets offer a safe, quick and highly effective option for sanitation on your farm. If you would like to take advantage of this new technology contact us at 1-888-376-6777 for further information on Exact™ Tablets and other cost effective disinfection products now available at Crystal Creek®.

1) Don Sockett, DVM, MS, PhD, ACVIM "Sanitation For Calf Scours Prevention", Bovine Veterinarian, January 2015.