Wisconsin Veterinary Diagnostic Laboratory
UNIVERSITY OF WISCONSIN–MADISON

Salmonellosis Disinfection Protocol

Proper Cleaning and Disinfection Post Confirmation of Salmonellosis

It is important that livestock trailers, maternity and calf pens and other areas suspect of being contaminated with *Salmonella* be properly cleaned **before** the disinfectant is applied. If these areas are not properly cleaned, the disinfection step is much less effective at killing pathogens. High-pressure washing **should not** be used because of the risk of cross-contamination of the environment and aerosalization of contaminated material, which can cause human and animal infection. Importantly, livestock owners and managers should understand that while high-pressure washers do remove gross soils, such as dried fecal material, it does not consistently remove bacterial biofilms. Biofilm removal is an essential and vital component of proper cleaning. The following is a simple cleaning and disinfection protocol that is widely used in livestock operations in the United States.

1. **Remove all bedding material**
   After the bedding material has been removed, a barn broom should be used to sweep up the remaining feed, dust and organic debris.

2. **Soak with water**
   Thoroughly wet the area with water using a garden hose. Water should be applied from high to low, starting at the highest point in the area and ending at the lowest point such as a floor drain.

3. **Alkaline foam cleaning**
   Apply an alkaline (pH of 11-12) foaming detergent (such as Total Alkaline Presoak™, Triton Chemical, Lakeville, MN) to the area using either a hand-held airless foamer (such as Lafferty Compact Model 25 Airless Foamer, Lafferty® Equipment Manufacturing Inc., Little Rock, AR) or air driven foamer. Start at the lowest point of the area to be cleaned and finish at the highest point. Apply the alkaline foaming detergent evenly to all the surfaces. Using plastic, pH indicator strips (such as Hydrion®, Micro Essential Laboratory, Brooklyn, NY) verify the pH of the alkaline, foaming detergent is correct.

4. **Alkaline foam soak**
   Allow for ≥ 10-15 minutes for the detergent to soak. **Do not** allow the foaming alkaline detergent to dry.

5. **Rinse**
   Rinse thoroughly with water using a garden hose going from the highest point to the lowest point of the area being cleaned.

6. **Acid foam cleaning**
   Apply an acid (pH of 3-4) foaming detergent (such as Surface Brite™, Triton Chemical, Lakeville, MN) to the calf pen or livestock trailer using either a hand-held airless foamer (such as Lafferty Compact Model 50 Airless Foamer, Lafferty® Equipment Manufacturing Inc., Little Rock, AR) or an air driven foamer. Start at the lowest point of the area to be cleaned and finish at the highest point. Apply the acid foaming

detergent evenly to all the surfaces. Using plastic, pH indicator strips verify the pH of the acid foaming detergent is correct.

7. **Acid foam soak**
   Allow for ≥ 10-15 minutes for the detergent to soak. **Do not** allow the foaming acid detergent to dry.

8. **Rinse**
   Rinse thoroughly with water using a garden dose going from the highest point to the lowest point of the area being cleaned.

9. **Dry**
   Allow the now clean area to completely dry out before disinfectant is applied.

10. **Disinfection**
    Twelve to 24 hours prior to use, disinfect the area with a 250 ppm solution of chlorine dioxide going from the highest point to the lowest point of the area to be disinfected. There should be 5-10 minutes of contact time. A hand held sprayer with Viton® seals or an airless foam applicator can be used to apply the chlorine dioxide. It is obligatory that the working concentration of chlorine dioxide be verified with plastic test strips (such as Insta-Test®, high range chlorine dioxide, La Motte, Chestertown, MD). When using chlorine dioxide at concentrations of ≥ 200 ppm, operators should wear protective eyewear and an R95 approved particulate respirator mask that is carbon lined (grey color). The masks can be obtained in the paint section of any local hardware store.

11. **Confirmation of cleaning and disinfection**
    Environmental testing can be performed post-cleaning and disinfection to assure the area is free of *Salmonella* using PCR and/or culture.

For more information about *Salmonella* testing options, turnaround time, and environmental testing protocols and kits please contact the WVDL at (608) 262-5432 or Salmonella@wvdl.wisc.edu and use our website at wvdl.wisc.edu.