

Cleaning and Disinfecting

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Animals are continually exposed to microorganisms, many of which can cause diseases. Some of these microorganisms can survive in the environment, flock after flock, because they are protected by organic materials/manure or bio-films that are in the environment. In order to prevent diseases, we have to **BREAK THE CHAIN!**

Cleaning and disinfecting (C&D) are two very important steps of a complete biosecurity program and are important tools used in breaking the chain of infection. A good sanitation plan must always be included in any health program. Isolation of the birds and sterilizing the environment would be the ultimate objectives but are not realistic. Therefore, attainable goals must be established so an effective level of sanitation can be maintained.

Sanitation Objectives

- Thoroughly clean all animal facilities, handling or transport equipment and barn tools – there should be no exception in the areas that are included in the program. After cleaning there should be no visible organic matter left behind.
- Reduce microorganisms to the lowest possible level through proper disinfection.
- Obtain new birds from known, disease free sources – to ensure that they do not arrive at your facilities harbouring pathogens like Newcastle Disease virus or *Salmonella* organisms.



An example of a facility with C&D challenges.

Preparing to Clean:

- It is best to clean when birds are not in the facility or can be kept away from the area/pen that is being cleaned.
- Cut the grass around the facilities.
- Remove equipment and other tools that cannot be cleaned and disinfected in the barn or loft, i.e. heaters, drinkers, and feeders.
- Remove left-over feed from feed bins and feeders.
- Remove litter/bedding from the barn and take to a proper storage, disposal or compost area.

Cleaning Procedures

The goal of cleaning is to physically remove all visible debris, dirt, soil, feces, and other organic matter. You need to use a lot of elbow grease! Sweep/blow down dust, cobwebs, and feathers from walls, nest, cages, beams, rafters, fans, and other accessible areas inside and outside the barn. Do not forget the service rooms. It is also a good idea to clean and disinfect the feed bins (if in use) at least once a year.



Scrape off any built-up debris and pay attention to hard to reach areas. Wash all surfaces with water and detergent. The detergent or cleaning agent aids in decreasing surface tension (makes water “wetter”), splits up organic material, emulsifies oils and fats, floats dirt particles, dissolves salts, and carries dirt off the surfaces that you are cleaning.

There are two basic types of detergents that can be used: a) Alkaline-based detergents that remove proteins and fats, and b) Acid-based detergents that remove mineral deposits like scale. The thoroughness of cleaning (use of high pressure washer), use of detergent and exposure time (low pressure application of foam/gel remains on surface longer), and use of hot vs. cold water all contribute to the efficacy of the cleaning job.



Clean all debris off of cages with water and preferably a detergent as well (there are varying types, including organic) before disinfecting.

Disinfecting Procedures

A good cleaning job should ensure that the disinfectant will be able to get to the remaining microorganisms on surfaces and reduce them by at least 99%. **Many disinfectants are inactivated by feces/organic matter.** To avoid wasting time and money make sure that cleaning efforts are thorough before disinfecting.

Choose the disinfectant and the application process based on your facilities and the equipment that you have. See the [Introduction to Disinfectants](#) factsheet (3.4) for different products and their characteristics.

Disinfectants can be applied by several methods including: low pressure (garden hose), through foam using a foam lance, or by thermo-fogging. Some commercial poultry operations use formaldehyde fumigation. This method has significant health and safety challenges and is not recommended for the backyard flock or inexperienced operator. Be sure to observe all safety precautions. Choose a disinfectant and application method that will work in your barn setup, with your bird management system and addresses any human health and safety concerns.

Here are the steps to proper disinfection:

- Read chemical labels thoroughly and make sure that you have the MSDS (Materials Safety Data Sheet) from the manufacturer. This will help you understand the precautions that you must take to protect yourself and what to do in the event of an emergency.
- Always wear protective equipment (clothing, mask, eyewear) when handling chemicals.
- Make sure from the label that you understand the application method. Some disinfectants work best when applied to a dry surface (air dried after cleaning and some to a moist surface)

- Determine the surface area (in square feet) to be disinfected using the following formula:

Barn without cages:

$\text{Length} \times \text{width} \times 2.6 = \text{area (sq ft)}$

Barn with cages:

$\text{Length} \times \text{width} \times 3 = \text{area (sq ft)}$

- Prepare the disinfectant solution based on the total area to be treated and use the dose provided by the manufacturer. Start application from the top of the barn and work your way down to the floor.
- Close and lock the barn. Keep people and animals out of the barn for a minimum of eight hours to allow sufficient contact time for the disinfectant to work. Ventilate the barn properly before repopulating.
- If possible, monitor the C&D by taking environmental samples for bacterial counts. This will tell you how effective your method was.

Organic material cannot be disinfected!!



Key Points to Remember:

- Clean and disinfect all equipment and tools removed from the barn. This includes drinkers, heaters, feeders, fans, shovels forks, wheelbarrows, equipment used for the C&D activity etc. Only return equipment to the barn after it has been disinfected.
- Include trucks and other delivery/ service vehicles in the C&D program.
- Make needed barn repairs. Do not put them off.
- Institute rodent and pest control. See [Pest Management in Bird Production](#) factsheet (3.5).
- Clean and flush water lines to remove calcium deposits.



TAKE HOME MESSAGE

- Clean out as thoroughly as possible before disinfecting.
- Use appropriate disinfectants and application methods.
- Follow all manufacture label instructions and take safety precautions when handling chemicals.
- Complete C&D program before bringing in disease free birds.

SUGGESTED REFERENCES

For further information on Cleaning and Disinfecting:

[Cleaning and Disinfection to Prevent a Foreign Animal Disease Outbreak](#) factsheet in the supplemental section (4.4) or http://www.poultryindustrycouncil.ca/factsheets/fs_157.pdf



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