

How to Clean Calf Stuff

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Do you know if your calf feeding equipment and housing are clean? Everyone has some type of protocol for cleaning calf stuff, but is the cleaning successful? Does it remove organic matter and biofilms and leave a squeaky clean surface? With milking equipment, Bactoscan results quickly inform us if there is a breakdown in the cleaning process; however, we often wait until calves are sick to check the cleanliness of feeding equipment and pens.

Improperly cleaned surfaces form biofilms that harbour bacteria which are harmful to the calf, and these biofilms are difficult to remove. Milk is a great place for bacteria to grow, and calves shed huge numbers of pathogens in their manure, so feeding equipment and housing areas need extra attention. Over time, plastics become scratched and are impossible to clean, so replacement is the only option. I had a farm where bacteria counts were very high in milk from half of the calf bottles. It turned out there were two plastic pails used to transfer milk into the bottles and one was new and the other was old. We could easily see which bottles were filled from which pail! Other tough areas include valves and transfer hoses that are not easily cleaned, hutches in the winter, or wooden pens.

To find the source of contamination, take samples working backwards from the calf: take milk right out of the nipple and send for total bacteria counts. If those are high, sample back along the milk's travel from the bottle/pail to the parlor. There are different expectations for colostrum, whole milk, and milk replacer, so work with your veterinarian to troubleshoot the source of contamination.

Cleaning Feeding Equipment:

1. Rinse with **warm** (100-120 F, or 38-49 C) water, before milk has dried. This must be done to remove milk residue, and is most easily done right after feeding. Water must be only warm because hot water will cook milk proteins onto the surface, making them very hard to remove.
2. Scrub in **hot** (>120 F, >49 C) water with a chlorinated detergent. This is the most important step for removal of bacteria, Crypto, biofilms, and organic matter. The water temperature must remain above 120 F/ 49 C the entire time or else dirt can redeposit onto the surface you are trying to clean! Scrubbing means with a brush, not just swishing the water around the bottle.
3. **Disinfect** with an appropriate chemical. Disinfectants only work on clean surfaces (see steps 1 and 2 above). There are several disinfectants available and their

effectiveness depends on how clean the surface is, chemical concentration, and contact time. For example, if using bleach, mix 1.5 cups of household bleach into 5 gallons of hot water and submerge equipment or fill pails for at least 5 minutes. Make sure to follow the manufacturer's guidelines, and provide and use the necessary protective gear when handling these chemicals.

4. Air dry. Bacteria like to grow in moisture, so allow equipment to dry. Do not stack pails upside down on the floor.

Cleaning pens/ hutches:

1. Perform between calves or groups of calves to create an all-in all-out system. Scrape the bedding away.
2. Pressure wash with hot water and detergent to remove organic material. Rinse.
3. Allow to dry. Otherwise, the water left on will dilute your disinfectant in the next step.
4. Disinfect. Mix and apply disinfectant according to the manufacturer's directions and allow an appropriate contact time – usually at least 10 minutes. Examples of disinfectants are Virkon, bleach (3 cups per 5 gallons water), and chlorine dioxide. Be very careful when handling these chemicals, and use the appropriate safety gear, such as eye protection and gloves. Note that chlorine dioxide is very effective but it is also explosive!

Go over the cleaning protocols with your employees periodically to prevent protocol drift. Show them how to measure and mix the chemicals and keep the wash water at the right temperature. Sometimes a mechanical bottle washer is a good investment to save labor and provide consistency. Happy cleaning!