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Correct decontamination

How to clean and disinfect
properly

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Decontamination fact sheet

1.1 Terminology

Cleaning is the removal of visible matter (organic or inorganic) such as soil, faeces or urine from objects and surfaces. It is normally accomplished manually or mechanically using water with detergents or enzymatic products.

Disinfection is a process that eliminates many or all pathogenic microorganisms, except bacterial spores using specialised chemicals that are active against target pathogens.

Sterilisation is a process that destroys or eliminates all forms of microbial life, usually reserved for health-care settings such as surgical theatres.

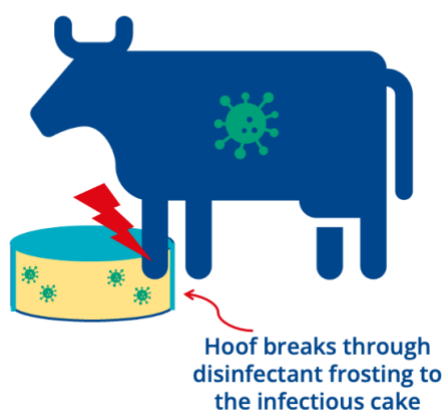
Decontamination is a more generalised term that refers to the destruction or removal of pathogens to render an item or an environment safe. It may include all three of the above (cleaning, disinfection, and sterilisation) although in agricultural settings, it usually refers to cleaning and disinfection only.

Decontamination = Cleaning + Disinfection

1.2 Principles of effective decontamination

Cleaning is pre-requisite to effective disinfection.

Disinfectants cannot penetrate surfaces of organic material such as mud or animal wastes¹. Disinfecting the surface of organic materials will not destroy the pathogens within, which later could come into contact with an animal. Applying disinfectant to faeces is like applying vanilla frosting to a chocolate cake. The cake remains full of chocolate, but now the outside is covered in frosting.



¹ The exception to this rule is clean wood, on which some disinfectants are effective given the appropriate contact time.



Correct application is critical.

If disinfectants are used without observing the manufacturer's instructions, they may be ineffective.

A table of appropriate disinfectants and applications for foot and mouth disease (FMD) and lumpy skin disease (LSD) can be found in Section **Error! Reference source not found.**

Selecting the right disinfectant for the pathogen is important.

A disinfectant that is effective against the target pathogen should be carefully selected.

Not all disinfectants ensure effective control against all target pathogens. Selecting the wrong disinfectant may lead to ineffective decontamination.

Decontamination will be ineffective if sources of infection remain in the area.

Decontamination can only be achieved in an area free from sources of infection. For example, if a pen with live animals is disinfected, any pathogens being excreted by those animals will continue to contaminate the environment immediately after disinfection. Cleaning of these areas lowers the pathogen load and should be done as regularly as is practical. However, disinfection should be reserved for periods of time where sources of infection can be removed. For example, in between consignments.

Ineffective decontamination is costly.

Frequent and liberal application of disinfectant may seem like a good biosecurity practice. However, when it is done ineffectively, disinfection is unnecessarily costly.



1.3 Disinfectant selection

Figure 1 Disinfectants that are active against FMD

Disinfectant recommendations for FMD ¹	Application method	Rate	CAUTION
Citric acid - anhydrous powder	Non-porous surfaces – apply solution for 15 minutes	30g product / L	Product is corrosive. Wear protective clothing and avoid contact with eyes and skin.
	Porous surfaces – apply solution for 30 minutes.		
Sodium hydroxide	Clothes/footwear and small equipment: soak for at least 10 minutes.	Always dilute product with water. 50mL product / L	Wear protective (water-resistant) clothing, gloves and safety glasses.
	Surfaces: apply 1-1.5L/m ² and soak for at least 10 minutes. Do not use high-pressure sprays.		
Sodium carbonate - washing soda crystals	Apply solution for 30 minutes	100g product / L	Mildly caustic for eyes and skin.
Sodium carbonate - anhydrous powder	Apply solution for 20 minutes	40g product / L	
Sodium hypochlorite (bleach)	Clothes/footwear and small equipment: soak for 15-30 minutes.	250ml product / L	Product is corrosive to metals and toxic for eyes and skin. Wear protective clothing, masks and gloves.
	Surfaces: apply 1-1.5L/m ² and soak for 15min on non-porous surfaces and 30 minutes on porous surfaces. Do not use high-pressure sprays.		
Potassium peroxy-monosulphate, sodium dodecyl benzene sulfonate and sodium chloride E.g. Virkon powder	Clothes/small items and equipment: Soak for at least 10 minutes.	20g product / L (2%)	Mildly corrosive for many metals.
	Surfaces: apply 1-1.5L/m ² . Do not use high-pressure sprays.		

Almost all disinfectants will be effective against LSD when manufacturer's instructions are followed.

