Intensive cleaning and disinfection of units following PEDv breakdown

Cleaning and disinfection is critical to any disease elimination strategy, not just PED.

The 5 basic steps of cleaning and disinfection are:

1. **Remove organic matter**
2. **Soak with detergent**
3. **Clean and dry**
4. **Disinfect**
5. **Dry**

It is critical to **plan** the cleaning and disinfection in advance so that there is no need to re-enter the cleaned building or room before restocking.

Pig flow and procedures may need to be adapted on farm to create the potential for all-in all-out management by building. It may also be necessary to create clean and dirty areas on farm with separate footwear, overalls and equipment as cleaning and disinfection of the unit.

1. Remove organic material THIS IS CRITICAL

- Remove all slurry/manure from previous pigs before you start
- Empty slurry pits, replace pit plugs once empty
- Remove all bedding and organic matter from the rooms and buildings
- Empty feed lines, augers and feeders/hoppers/troughs
- Bag the first 50 kg of feed flushed out of boot and auger, then discard
- Visually inspect inside of bin, ceiling to boot and remove all traces of feed
- Disconnect all moveable items e.g. feed hoppers. If possible move these out of the building and clean and disinfect separately
- Open up all inaccessible areas such as pits and fan housings where possible
- Have a last sweep up
- Remember high loads of organic material will inactivate disinfectants.

In addition

- Empty, clean and disinfect all contents from freezer, fridge, medicine stores, etc
- Also consider pig boards, hurdles, scales, tools and other equipment
- Discard overalls and buy new protective clothing
- Boots should either be discarded or thoroughly brushed, washed and soaked in disinfectant for at least an hour
- Isolate the in-situ electrics before blasting with water!

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2. Soak with detergent

- Detergents work by breaking down dirt, fats and oils which is especially important in farrowing rooms with high levels of milk fats
- Using a detergent will help to further remove organic contamination prior to disinfection, enhancing the action of the disinfectant and speeding up washing time
- Detergents should be used in **all** situations, but are even more important if there is not the option of hot pressure washing
- Soak **all** surfaces (ceiling, walls, floors, curtains and any fixed equipment) with cold water and apply a farm-specific detergent following the label calibration and dosage information
- Detergent is generally applied at low pressure
- Using a foamer head is recommended
- Allow a couple of hours, ideally overnight, for the detergent to soak in.

3. Clean and dry

- Use a pressure washer with clean water (never recycled water) at high pressure
- Hot (70˚C +) water is much more effective
- Clean all surfaces, starting with the ceiling and work downwards to prevent spreading dirt back onto already clean areas
- Pay particular attention to difficult areas such as corners, drinking points, fan and ventilation ducts, on top of pipes, light fittings, sides of slats etc
- Flush out all water systems and clean header tanks
- Ensure all surfaces and equipment are visibly clean
- Repair or replace corroded fixtures, surfaces and flooring as these can harbour pathogens and are difficult to clean
- Equipment that cannot be pressure washed (ie creep lamps, heaters) must be washed by hand and follow with disinfectant wipes
- Repeat washing where necessary until **all** organic material is removed
- Examine and re-examine until all surfaces are ‘white glove’ clean
- Empty slurry pits again and replace pit plugs when empty
- Allow surfaces to dry thoroughly before beginning disinfection.

4. Disinfect

- Only begin disinfection when **all** surfaces are 'white glove' clean and dry
- Select a disinfectant that is suitable for PEDv (and any other pathogens that may be present on the unit), discuss this with your vet
- PEDv is inactivated by most virucidal disinfectants, including phenols, peroxygen, chlorine, sodium hydroxide (2%), formalin (1%), sodium carbonate (4% anhydrous or 10% crystalline, with 0.1% detergent), ionic and non-ionic detergents, strong iodophors (1%) in phosphoric acid
- A list of DEFRA approved disinfectants can be found on: **http://www.defra.gov.uk/animalh/diseases/control/testing_disinfectants.htm**
- Check that the disinfectant is compatible with the detergent
- Check the disinfectant is appropriate for its intended use (ie one for the pens/building) may not be suitable for the water system
- Familiarise yourself and your staff with the disinfectant safety data sheets
- Follow recommendations for disinfectant dilution and application rates
- All dilutions should be freshly made on the day of use
- Aim to apply disinfectants under low pressure (eg with knapsack sprayer).
- Knapsack sprayer application is ideal for surface contact and wetting. Pressure washer dispensing systems are rarely reliable and many disinfectant products are corrosive and will shorten the life of a washer
- Apply disinfectant evenly from one end of the room or building working downwards
- Disinfect all surfaces, drinking points and feeding equipment
- Pay particular attention to difficult areas such as: corners, drinking points, fan and ventilation ducts, on top of pipes, light fittings, etc
- Disinfect water systems including header tanks with appropriate product that is effective but not corrosive to the plumbing
- Follow manufacturer's recommendation but usually allow to sit in pipes and tanks overnight before flushing out.

Remember Health and Safety when using disinfectants – all necessary protective clothing should be provided and worn when handling and applying disinfectants and detergents.

The efficacy of disinfectants depends on several factors including:

- **Environmental temperature:** Below 4˚C a stronger concentration of disinfectant may be needed. Ensure staff know the dilution rates and how to make up the correct concentrations
- **Contact time:** In some cases a longer contact time can enhance the efficacy of disinfectants. Always allow disinfectants to dry. Do not rinse away
- **Pathogen:** Use pathogen-specific disinfectants where possible. Some pathogens are more susceptible to some disinfectants than others.

5. Dry

- Many pathogens can persist in damp, humid conditions
- It is essential to allow surfaces to dry and keep dry for at least 24 hours
- Ideally rooms should be left for 5–7 days before re-stocking
- Consider investing in a portable blow heater to reduce drying times and/or using water-repellent surfaces in pens
- Heating to 70˚C for 10 minutes would be ideal as this inactivates the virus
- Try to prevent or reduce water pooling and keep drains clear and functioning to ensure emptying.

Other considerations to prevent recontamination

- Take care to prevent recontamination. It takes time and effort to clean and disinfect properly, make sure you do not undo all the good work
- Place a newly replenished foot dips outside the clean rooms/buildings. Ensure these are regularly refreshed with a suitable disinfectant
- Regularly clean/replace the boot brushes/washers as they can become heavily contaminated
- Wash and disinfect all equipment (eg brushes, shovels, scrapers, machinery) between batches, this is frequently overlooked but crucial to prevent recontamination
- Repainting or whitewashing should be considered for difficult to clean areas eg wood
- Enhance your rodent control
- Sweep, wash and disinfect outside the perimeter of buildings, or use whitewash as applicable
- Include the loading bays in your cleaning and disinfection routine.