

House hygiene: cleaning and disinfection for success

To take advantage of the ever-increasing genetic potential of our broilers, it is more important than ever to give them the best environment in terms of temperature, ventilation and feed and water management.

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The first step is to ensure your birds have a clean environment where chicks can eat, drink and rest without being harmed by bacteria or virus.

You can achieve this by following a clear and comprehensive cleaning and disinfection program each time birds leave the farm, regardless of whether the previous flock had any health issues. A late infection might not have harmed fully grown birds with a well developed immune system and protected by the vaccination program, but the pathogens remaining in the environment could be much more dangerous for day-old chicks still building up their own defences.

Simple step-by-step program

The cleaning program must be simple, easy for everyone to understand and followed step-by-step. The different operations should be performed in the right sequence, and in the right time, without rushing the procedure.

After all birds have left the farm apply insecticide to the litter, then remove it



from the houses and take it at least one kilometre away from the farm. This step is when the most common mistake is made. Several times I have seen farms with multiple houses where litter is being removed from the last few houses while washing down has already been finished in other houses. This risks organic material recontaminating the clean houses, reducing the effectiveness of your whole program.

Again, do not rush through the different steps. Scrupulously remove all organic material, then start washing the house and equipment. If any equipment cannot be water cleaned, remove it and dry clean it. The potential to use water to clean equipment must be one of the parameters for choosing which equipment to buy, for example with light bulbs.

It is also important to clean the outside of air inlets and curtains to avoid ventilation contaminated dust being drawn inside

when the system is started again. Apply a foam detergent and leave it for the specified time. Then rinse with high pressure, working in one direction from top to bottom to avoid recontamination. It is also important to have the appropriate number of water outlets and drains.

The cleaning procedure must include all rooms in direct or indirect contact with the poultry houses, such as service rooms and storage facilities for dead birds.

Feed bins and feeding lines are difficult to wash and disinfect. If this is not possible, fill them with feed or a feed ingredient, for example maize, mixed with a high-dosage disinfectant during the cleaning period, then empty them completely.

Water lines must be filled with a cleaning solution and then flushed thoroughly. Then reinstall all equipment and start with the disinfection.

Choose the correct chemicals

There are several chemicals available for disinfection – choose whichever best fits your own situation. In general, the best results are achieved with liquid disinfectants followed by fumigation. In any case, follow closely the manufacturer's specific instructions. The best disinfectant will not work if it needs a 20°C temperature to achieve the correct chemical reaction

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but is used during winter at 0°C – or if it needs to be used at a 5% concentration but is diluted to 1%.

Organic matter interferes with the activity of many chemicals, therefore it is very important that surfaces are clean before disinfecting. Again, I have often seen people not washing but only disinfecting to speed up the procedure.

Remember that removing the litter and washing reduces 90% of microbiological load, while disinfection in general achieves only a 10% reduction.

Apply disinfectant with low-pressure water to ensure that it reaches all surfaces. Start from the end of the house and move towards the entrance, again to avoid any risk of recontamination.

After liquid disinfection has finished and all equipment has been reinstalled, this is time to fumigate. To be effective use the right concentration (normally calculated in m^3) at the correct temperature (for example for formaldehyde $>20^\circ C$) for the correct time. Then ventilate the house to remove any chemical residue.

After litter placement you can disinfect the house again, repeating fumigation but be careful if using products that need to be ignited: they could burn down the house. Fumigation is the best option because spray disinfectant can leave residues potentially harmful to chicks.

All people involved with the disinfection must be properly protected with masks, gloves, goggles and overalls according to the chemical's safety guidelines. This is not only necessary for human welfare, but will ensure that all operations are performed in the right way.

Successful testing

To test if the procedure has been successful, take samples at the end of the process. Swabs must include all surfaces and equipment. The effectiveness is measured by Total Viable Count (TVC) per cm^2 , which represents the quantity of micro-organisms on a surface. Remember, the aim is NOT to achieve sterilisation, but to reduce contamination to a minimum.

Floors must not exceed 1,000TVC/ cm^2 , all other surfaces must not exceed 100TVC/ cm^2 . No salmonella should be isolated.

If you do not achieve these results, look again at your procedure and ascertain what went wrong and what must be changed.

The most common reasons for failure are use of the wrong disinfectant for a particular situation; its poor application so that it does not come in contact with the microbiota; staff not being well trained or equipped; not allocating the adequate time for the different procedures; and



reinfesting the cleaned houses by vermin and/or people.

When a house is clean, keep it clean. Keep doors closed and put footbaths at every entrance with a boot change for everyone.

Finally, do remember there is a direct correlation between cleaning and final performance. Have a precise program for your cleaning procedure based on the chemicals chosen, and follow it without any shortcuts. Your aim is not to eliminate all micro-organisms – but to decrease them to a minimum. Once you succeed in keeping your poultry houses clean, you have made the first step to give your birds the best chance of performing to potential and so maximising the financial return. ■