Effective cleaning of poultry housing with advanced gel detergents

by Peter Thompson, International Division Manager, Evans Vanodine International plc, Brierley Road, Walton Summit, Preston, Lancs WA6 9PF, UK.

Effective application of detergent gel technology.

The livestock industry worldwide has, in the last 10 years, undergone a revolution in the thinking and technology behind the methods of cleaning before disinfection of housing.

Particularly in the case of poultry broilers, parent and grandparent farming, the use of simple high pressure water to remove dust and soiling is now seen as primitive, ineffective and quite simply a high risk procedure. With the presence of highly pathogenic micro-organisms and viruses increasingly affecting the efficiency of poultry breeding and farming, mortalities of 5% and above simply due to persistent contamination between flocks cannot be tolerated and protection by an effective biosecurity system is now a key objective of modern poultry producers.

Airborne transmission

In the foot and mouth disease outbreak in the UK in 2004, Defra, the UK Ministry of Agriculture, recorded the phenomenon of the virus transmitting through the air over long distances by water droplets. It was discovered that this carrier mechanism was due to the use of very high pressure water cleaning machines, employed by the Ministry itself to help disinfect and clean infected farms. Instead the virus, and other pathogens, were being blasted into an aerosol by extreme water pressure; the resulting droplets carrying up to 10km from an infected farm.

Evans Vanodine International plc, the British manufacturer of animal health disinfectants and biosecurity systems, carried out tests which indicated micro-organisms from livestock housing could also be cultured from air samples taken up to one kilometre downwind from a house in the process of being cleaned with only medium sized pressure washers.

Some years later this process clearly obstructed efforts to eradicate the outbreak of AIV from infected farms in Asia with the virus simply moving from one house to another in the overspray, and then back again. It is now acknowledged that this contamination vector will also allow transmission of other dangerous viruses and bacteria. Evans therefore decided that in order to help the industry, a new approach to cleaning was necessary to resolve this major critical control point in farm biosecurity.

The solution to aerosol transmission of pathogens however is simple: replace the mechanical energy of the high pressure water washers, by chemical energy in the form of a low pressure detergent system and prevent the droplets being created in the first place.

Evans modified its Biosystem 3000 Cleaning and Disinfection auditable operating program to include foam cleaning, to help the industry overcome this issue.

The key items required are few; a detergent and a generic foaming lance. The objective is to apply the detergent to all surfaces of the housing and equipment to soften organic soiling and trap any dust. Because the detergent creates a high density foam in the foaming lance, the nozzle pressure of the water jet is reduced and no droplets are formed. In addition, the foam allows very rapid application of the detergent – up to three times faster than simple high pressure water application and with consequent reduction in water consumption and application time.

After 20 minutes contact time, the foam will collapse onto the building surface and this effectively allows all dust and organic material to be removed using a low pressure rinse, and at no time whilst using the system is a pressure machine with higher than 70-100 bar necessary. Big pressure machines create overspray, damage the housing and simply use more water.

Finally, once the now thoroughly cleaned house has been allowed to dry, it can be disinfected using an authorised full spectrum biocide.

Latest advance in technology

The latest advance in cleaning systems now involves the use of detergent gel technology where a specialised formulation creates a shear thickening solution, effectively a 'sticky' foam which adheres even better to surfaces and so increases contact between the detergent and the substrate even better than foam alone.

The application of a detergent by gel cleaning formulations prior to the disinfection phase has proved to be more efficient and effective in terms of removal of organic material and subsequent improvement in disinfection standards.

Many livestock cleaning contractors are now using the this type of system and products; it should however be recognised that training in the use of the system is required for it to be fully effective.

Without adequate cleaning, the subsequent disinfection of poorly cleaned buildings is a recipe for disaster and offers no protection in the event of a pathogen entering the house. Contamination of one crop to the next becomes a clear probability. Gel cleaning using a properly formulated, tested and proven detergent is therefore the ideal and modern way for producers to evade a major source of infection and improve efficiency. ■