

The Importance of Cleaning to Disinfection

Cleaning and disinfecting stalls is critically important for biosecurity, especially in controlling disease outbreaks. However, much misinformation exists.

The average 1,000-pound horse produces 50 pounds of manure and urine per day. Add on to that other body fluids that potentially contain pathogens (nasal discharges, abscess material, blood, etc.), and a significant organic load exists in the average horse stall. Any surface that needs to be disinfected (treated with chemicals in order to kill pathogens) must be cleaned of dirt and organic material first.

Cleaning a stall takes detergent and manual labor. Power washers should not be used to avoid aerosolizing pathogens. Despite advertising claims, no “one-step” product exists that can be sprayed on a dirty stall and effectively kill pathogens. Surfaces must be scrubbed with a detergent or cleaning agent to loosen and remove as much organic matter as possible.

Detergents are cleaning agents that emulsify (loosen) organic matter without forming a “soap-scum” residue. A detergent should be used to scrub stall surfaces followed by rinsing to physically remove dirt and organic matter. Only after surfaces have been cleaned should they be sprayed with a disinfectant.

Studies have shown that over 90% of bacteria are removed from surfaces that are thoroughly cleaned first. Considering that equine herpesviruses, influenza viruses, and equine arteritis virus are lipid-enveloped, cleaning surfaces with detergent will disrupt this envelope, helping to render these viruses inactive.

While bleach is an effective disinfectant on “hard, non-porous, previously cleaned surfaces,” horse stalls on farms are rarely constructed of such materials. Bleach is also rapidly inactivated by organic matter.

Disinfectant labels state that “it is a violation of Federal law to use this product in a manner inconsistent with its labeling.” Users should understand and follow label instructions and call

the manufacturer with any specific questions. If the label states “dilute ½ ounce of disinfectant concentrate in one gallon of water,” use that dilution. Increasing the amount of chemical assuming it will overcome a dirty surface is a waste of time and money and could pose health hazards to people and animals.

Never mix different disinfectants together. For example, bleach combined with ammonia or strong oxidizers can produce lethal gas and dangerous chemical compounds. Every approved disinfectant in the United States has a safety data sheet (previously known as a material safety data sheet) which is available from the manufacturer and contains valuable information.

Additionally, the statement “proven effective against the following organisms,” followed by a long list of pathogens, is on many disinfectant labels. However, in the fine print is how this list was generated. Most disinfectants have been tested in the presence of 5% serum as the “organic” load. A feces-stained stall wall has an organic load much higher than 5% serum, which is why cleaning is critical to the effectiveness of any disinfectant.

Excellent infection control and disinfectant information is available at www.cfsph.iastate.edu and at www.aaep.org.

For more information, contact: Roberta M. Dwyer, DVM, MS, DACVPM; rmdwyer@uky.edu; 859-218-1122; University of Kentucky Department of Animal and Food Sciences; Lexington, KY

*A fact sheet reprinted by the University of Kentucky
Department of Veterinary Science from the*

 EQUINE DISEASE
QUARTERLY
FUNDED BY UNDERWRITERS AT LLOYD'S, LONDON
OCTOBER 2016
Volume 25, Number 4