

## CHOOSING THE RIGHT CLEANING AND DISINFECTION PROGRAM FOR YOUR OPERATION

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Virtually all producers include power washing and disinfecting as part of their routine pork production practices. Despite the fact that this is a common activity, most have given little thought to why they do it or whether the method that they use is the most effective for them.

Why do we do it? It is clearly recognized that disease in pigs can come from the previous groups of pigs occupying that space. What is less often recognized is that there are costs to having the new pigs mount an immune response to the pathogens left by the previous pigs, even if no signs of disease are seen. The immune response requires energy and protein. The results of mounting that immune response are decreased growth rate and more uneven growth rate between pigs within the pen. Given that we are going to clean and disinfect, what are the options for doing the job?

### OPTIONS FOR DOING THE JOB

#### Doing It Yourself

Using Dr. Hurnik's data, let's work through the cost of washing a 1000-head finishing barn with 40 pens. We can compare the cost of using similar hot and cold water washing systems and presoaking the barn first. The average finishing barn would be washed three times per year.

	Hot		Cold		Net
Time (hrs)	21.33		27.60		
Time (min)	1278 min		1656 min		
Cost (\$)	\$14.00/hr	\$299	\$386		
Water Used	3 Gal. /min = 3834 gal		3 gal. /min = 4968 gal		
Manure/Water Removal Cost	1 ¢/gal	\$38	1 ¢/gal	\$50	
Disinfecting	16,400 sq. ft.	\$21	\$21		
Capital Cost of Machine (10 yr life)	\$8500	\$284	\$5000	\$167	
Operating - Repairs & Maintenance	\$43		\$20		
Cost/Pig Space/Batch	\$0.685		\$0.644		

## **Hiring a Custom Operator**

The cost of hiring a custom washer varies with the operator but for 2004 it averaged \$40 per hour per man. They typically supply the equipment, disinfectant and use hot water. It is to the barn operator's advantage to presoak and clean up major debris and empty the feeders. Using Dr. Hurnik's figures the cost to have a 40 pen (1000 head) finishing barn washed would be \$1280 plus disposal of the manure water generated (\$38) for \$1.32/pig place.

## **CHOOSING CLEANERS AND DISINFECTANTS\***

Which cleaner or disinfectant is right for your operation? The answer to that question will depend on the goals of your cleaning program and the constraints of things like water pH.

- **Organic Matter Removal:** Regardless of what specific organism you are looking at controlling, the first and most important step is to remove all evidence of organic matter. Start with a physical clean up of the area as soon as the animals are removed. Empty feeders and remove large amounts of feces. Presoak. The presoaking is most effective if the ventilation system for that area is shut off or reduced to a minimum during a 6 – 12 hour presoaking period. This aids in retaining moisture in the room or building and softening the residue left. Restart the ventilation system when you begin to power wash.
- Select a disinfectant appropriate to the organisms that you are looking to control and the physical conditions that you are working in.
- Calculate the correct amount of disinfectant to apply. The product monolog on the package will indicate the area that a certain amount of disinfectant is meant to cover. Calculating the surface area of the barn is fairly simple. Assume pen partitions and equipment are solid surfaces and add that area to the surface area of the floors, ceiling and walls. This will allow you to calculate the amount of product to apply to each room or barn. The product can be mixed in a fixed amount of water and sucked through the pressure washer with a venturi apparatus. Most products are most effectively applied through a low-pressure wand on the power washer.
- Provide protective clothing, etc. to the operator. Apply the disinfectant and allow it to dry.
- Plan to use a biofilm removal agent at least once per year, especially if your water is hard or very alkaline.

\* This list may not be complete

Class of Compound	Trade Name/Manufacturer	Description and Comments
Chlorine Based	Dettol – Reckitt & Coleman Canada Ltd Hibitane – Ayerst Savlon – Ayerst	Disinfectant for bacteria & fungi - Work best at pH 6 – 8, poor residual activity, and poor if organic debris present
Quaternary Ammonium	Ascend –Huntington Labs. Biosentry 904 – Pfizer	Germicide, fungicide, detergent - As a group, work best on Gram + bacteria with some activity on viruses, fungi and Gram -. Effective at pH 6 - 8, hard water reduces speed of kill, some activity in the presence of organic debris, some residual activity
Aldehydes	Fumalyse – Bio Agri Mix Profilm- Pfizer	Disinfectant, germicide, fungicide, virucide, vapour phase. - Kills wide range of organisms, effective at wide pH range, not affected by hard water, active with organic debris, residual activity
Phenol	Beaucoup – Ecolab Creolin – Stella Pharmaceutical Multi Phenolic Disinfectant - Bio Agri Mix 1 Stroke Environ Prosovet – Pfizer	Germicidal disinfectant - Good bactericide, but poorer on other organisms, effective at alkaline pH, not affected by hard water, active with organic debris, residual activity
Iodine based	Betadine Providine	Most common as skin or equipment sanitizers. - Wide range of organisms killed, effective at acid pH, not affected by hard water, not active if organic debris, some residual activity
Oxidizing Agents	Synergize - Preserve International Virkon – Dispar	- Glutaraldehyde and quaternary ammonium combined – combines properties of aldehydes & quats. - Wide range of organisms killed, effective at wide pH range, not affected by hard water
Biofilm Removing Agents	Acid – A-Foam – Pfizer Wipe Out – Ecolab	- Acid cleaner to remove biofilm (biological material trapped in hard water scale) - Degreaser, to aid in biofilm removal