

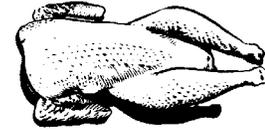


The University of Georgia

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PROCESSING TIP . . .

SANITIZING POULTRY PROCESSING FACILITIES USING ELECTROSTATIC SPRAYING DECREASES THE AMOUNT OF SANITIZER NEEDED

Electrostatic spraying (ESS) was developed over 2 decades ago and its most common use has been for applying pesticides to row crops. Scientists have demonstrated that insect control on cotton plants using ESS was equal to or better than conventional spray application using only one-half the amount of insecticide. Researchers have been able to demonstrate a 7-fold increase in spray deposition over conventional application methods achieving a 1.6 to 24-fold increase in deposition. This is due to the fact that processing equipment surfaces and plant surfaces such as walls have a native positive charge. As high pressure air and sanitizer are forced through a small aperture in the electrostatic spray nozzle, the air shears the sanitizer into tiny droplets (approximately 30 microns in diameter). These droplets are then exposed to an electrical charge as they exit the nozzle head. This transfers a negative charge to the sanitizer particle which then has a particular affinity for the surfaces in the area, such as processing equipment.

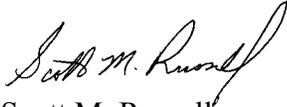
Because the deposition of sanitizer to the surface being treated is so much more efficient, as compared to conventional sprayers, much less sanitizer is required to result in the same bacterial disinfection rate when compared to commonly used commercial foggers or sprayers. To evaluate the effectiveness of this procedure, we individually placed 200 microliters of actively growing cultures of the pathogens, *Salmonella typhimurium*, *Listeria monocytogenes*, *Staphylococcus aureus*, the indicator *Escherichia coli*, and the spoilage bacteria *Pseudomonas fluorescens* and *Shewanella putrefaciens* onto 5 sterile teflon coupons. The bacterial inocula were allowed to dry on the surface of the coupon for 4 hours. Each coupon was sprayed for 10 seconds (3 separate sprays) using tap water (controls) or a 1:100 concentration of ByoCoat, which coated the coupon completely; however, because so little sanitizer was used, no sanitizer residual or wet appearance occurred

PUTTING KNOWLEDGE TO WORK

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immediately after spraying. After the exposure period, each coupon was rinsed in 100 mL of sterile 1% buffered peptone broth and each of the bacterial species were recovered.

Results indicated that electrostatic application of ByoCoat was extremely effective for eliminating populations of *Salmonella*, *Listeria*, *Staphylococcus*, *E. coli*, and *Pseudomonas* on food contact surfaces when applied using electrostatic spraying. This method should prove to be excellent for treatment of clean food contact surfaces as a means of sanitizing them prior to operation. Additionally, very little sanitizer was required to accomplish such bacterial reductions. Generally, surfaces are deluged with sanitizer, costing the companies more money to sanitize.



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Extension County Agent/Coordinator

“Your local County Extension Agent is a source of more information on this subject.”