



Worthwhile Operational Guidelines & Suggestions

BROILER PROCESSING TIMELY INFORMATION – JUNE 2010

Ultraviolet light for surface decontamination

Ultraviolet light is a USDA approved non-thermal non-ionizing microbicidal technique that has potential application as a food decontamination tool. Ultraviolet light has been proved as an effective germicidal technique in various areas of food safety, effectively applied in drinking water disinfection against oocysts of *Cryptosporidium* and *Giardia*, viruses like Hepatitis A, Adenovirus, Poliovirus, and pathogenic bacteria like *Shigella dysenteriae*, *Salmonella typhi*, *Bacillus subtilis*, *E. coli* O157:H7 and *Vibrio cholera*. Water disinfection systems using UV are available readily in market, safe, easy to install, do not leave toxic residues, and reduce operation cost due to minimal supervision and maintenance. In addition to water disinfection, air purification systems using UV technology can improve microbial air quality in food handling and processing areas as well as cold stores and egg-hatching cabinets by inactivating bacteria like *B. subtilis*, fungus like *Aspergillus niger*, yeasts and algae.

The lack of deep penetration by UV light can be used to our advantage for effective surface decontamination of food contact surfaces such as conveyor belts that are a major source of food contamination. The intricate design of conveyor belts makes sanitation difficult, thus providing a niche for bacteria growth. Moreover there are limited options for installing an in-process system to prevent dissemination of pathogens. UV can be an efficient short time (1-3 sec) in-process sanitation system for decontaminating *Listeria monocytogenes* and *Salmonella* Typhimurium on conveyor belts made from different materials. Similarly, UV technology can be used for decontamination of stainless steel surfaces and packaging materials. In addition to food contact surfaces, UV technology can be applied in the egg industry to reduce *S. Typhimurium* and *E. coli* contamination on surface of shell eggs, and *S. Typhimurium*, *L. monocytogenes* and *E. coli* O157:H7 on raw poultry surfaces, which can serve as a source of contamination during further processing. Recently, UV, in addition to flash pasteurization or sodium and potassium diacetate or nisin, was found to be an effective post-process intervention step in ready-to-eat poultry products.



Contact: M. Singh, PhD.
Phone: (334) 844-2599
E-mail: mzs0004@auburn.edu
Poultry Science Department
Auburn University, AL 36849-5416

