

Title Reducing *Salmonella* on cantaloupes and honeydew melons using wash practices applicable to postharvest handling, foodservice, and consumer preparation

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### Abstract

Washing conditions that included a soak or brush scrub were evaluated for removal of *Salmonella* from the surface of smooth (honeydew) or complex (cantaloupe) melon rinds. Melon rinds were spot-inoculated onto a 2.5 cm<sup>2</sup> area of rind (squares) with approximately 6.0 log<sub>10</sub> CFU/square of an avirulent nalidixic acid-resistant strain of *Salmonella typhimurium*. Melons were washed by immersion in 1500 ml of water or 200 ppm total chlorine and allowed to soak or were scrubbed over the entire melon surface with a sterile vegetable brush for 60 s. Inoculated sites, uninoculated sites (“next to” sites) that were adjacent to inoculated sites, and sites on the side of the melon opposite (remote sites) the inoculated site were excised and pummeled in a stomacher for 2 min prior to plating onto tryptic soy or bismuth sulfite agar supplemented with 50 µg/ml nalidixic acid. *S. typhimurium* was reduced on the rind of cantaloupe by 1.8 log CFU/melon after soaking for 60 s in 200 ppm total chlorine, which was significantly better than the 0.7 log CFU/melon achieved with soaking in water. For both water and 200 ppm total chlorine, scrubbing with a vegetable brush was shown to be significantly (0.9 log CFU/cantaloupe) more effective than soaking alone. When honeydew melons were soaked or scrubbed in water, reductions of 2.8 log CFU/melon or >4.6 log CFU/melon (four of five samples), respectively, were observed. However, when water treatments were used, the presence of *Salmonella*-positive “next to” and remote sites indicated that bacteria were spread from inoculated site on the rind to uninoculated sites either through the rinse water (40–70 CFU/ml of *Salmonella*) or scrub brush (400–500 CFU/brush). Transfer to other sites occurred more often with cantaloupe than honeydew melons. This transfer was eliminated when 200 ppm total chlorine was used. When 200 ppm total chlorine was used, *Salmonella* could not be detected in the water or on the scrub brush. For optimal microbial removal in food service and home settings, melons should be scrubbed with a clean brush under running water. However, to ensure the benefits of brushing, instructions for cleaning and sanitizing brushes must also be emphasized. For food service settings where concentration and pH can be adequately measured, the use of chlorinated water may provide additional benefit.