

Title            Role of Post-harvest Processing Practices in Contamination of Lettuce  
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### **Abstract**

During post-harvest processing foodborne pathogens can be transferred to a product through processing waters, equipment, or contaminated product. In the present study, a series of experiments were conducted using *Escherichia coli* 0157:H7, fluorescent microspheres (beads), and *Enterobacter aerogenes* to determine efficacy of washing, impact of cross-contamination, and whether bacterial factors are required for pathogen transfer. The efficacy of washing to remove *E. coli* 0157:H7, beads, and *E. aerogenes* from lettuce was investigated by exposing contaminated lettuce (ca. log 7 CFU or particles/g) to the following; wash, spin-dry, wash, and spin-dry. Population of *E. coli* 0157:H7, beads, and *E. aerogenes* decreased, 2, 2.6, and 1.3, respectively, on lettuce. In experiment 2, pathogen and bead free lettuce was washed in contaminated wash water (5.5 log CFU or 4.1 beads/ml), spin dried and washed again in contaminated wash water (4.9 log CFU or 3.9 beads/ml) and spin dried. Population of *E. coli* 0157:H7, beads, and *E. aerogenes* on lettuce were 3.5, 2.4, and 4.1, respectively. In experiment 3, a single piece of contaminated lettuce (~2 g/piece; 7.6 log CFU/g *E. coli* 0157:H7) was mingled with 200 g of pathogen free lettuce. The lettuce was subjected to two wash and spin dry cycles and then *E. coli* 0157:H7 populations determined. Following the second spin-dry step, level of *E. coli* 0157:H7 on lettuce was 5.2 log CFU/g. These series of experiments demonstrate the limited efficacy of washing in removing bacteria from lettuce and the cross-contamination of product during processing.