

Title Effect of high-pressure hot water washing treatment on fruit quality, insects, and disease in apples and pears
Part IV: Use of silicone-based materials and mechanical methods to eliminate surface arthropod eggs

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Abstract

The presence of surface arthropods on commercially processed apples and pears poses a problem when these fruits are exported to countries where there are either limits on the numbers of eggs or a total quarantine restriction against these pests. Removal of mite and other arthropod eggs, such as European red mite (ERM) and codling moth (CM) eggs, may be enhanced by the use of a surface cleaning system, such as a hot water, high-pressure spray. Even if organosilicones, like Silwet L-77, have been used to kill spider mites, it was unclear if these chemicals could also facilitate the removal of arthropod eggs from the surface of fruit. In the present study, high-pressure washing process was highly effective in removing CM and ERM eggs at pressures as low as 400 kPa, resulting in greater than 60% removal of ERM eggs and 90% of CM eggs. High-pressure washing was the most important factor in removal of codling moth and European red mite eggs than organosilicone dips or hot water sprays.