Title Influence of postharvest handling on the concentration of pesticide residues in peach peel.

Authors Taylor, K. C. and Bush, P. B.

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Abstract

To discern how the packing process influences pesticide residue loads on peach (*Prunus persica*) fruits, postharvest, post-hydrocooled and post-brushed fruits were assessed for levels of several pesticides. The packing house process reduced pesticide residue levels on fresh peaches to levels that were generally below detection limits of our assays in 1998. Carbaryl and captan residues from field-packed fruits were 32.2x and 21.9x, respectively, of that found in the peel of fruits processed in the packing house in 1998. Carbaryl levels were not reduced by hydrocooling but postharvest brushing reduced pesticide residues up to 94% in fruit peel. Across processing operations and cultivars assessed in 1999, hydrocooling, hydrocooling + brushing and brushing alone removed 37, 62 and 53%, respectively, of the encapsulated methyl parathion [parathion-methyl] residues from fruit peel. Hydrocooling had the greatest impact on phosmet removal from peel, reducing levels by 72.5%. After hydrocooling, phosmet was5.7x following brushing in one-half of the subsequent samples. This increase occurred at all three farms, suggesting that periodic cleaning of brushes may be necessary to prevent later contamination of peach peel with pesticides. In the only example in which propiconazole residue remained on peaches at picking, it was removed most effectively (69%) by the brushing operation. Nearly 31% of the propiconazole was removed in the hydrocooler. The packing process before shipment to retail outlets was generally effective in the removal of pesticides that may be present on peel at the time of harvest. Assessment of pesticide residue levels in peach flesh was uniformly below the levels of detection in our assays, suggesting that the classes of pesticide analysed in peaches were not transepidermal.