

**Title** Washing method influences color development during degreening of grapefruit, orange, and tangelo fruit

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#### **Abstract**

Red grapefruits, navel oranges, and Orlando tangelos were harvested, evaluated for initial color, and exposed to different washing treatments within a day of harvest to determine the effect on subsequent color development during standard degreening treatments. Control fruit were not washed. Washing treatments included brush washing on a small research line, and commercial washing using a brush bed, a high-pressure washer (HPW) system, or a combination of the two. After washing, the fruit were immediately placed under degreening conditions (5 ppm ethylene with 95% RH) at 29°C. Color development of red grapefruit washed on the research packing line was significantly inhibited compared to the control even if the treatment was limited to only 1 minute in duration. Often, washed fruit took about twice as long to degreen as did unwashed fruit. In tests conducted on a commercial packing line, fruit washed on the brush bed or brush bed plus HPW were not significantly different from each other and showed the greatest delay in subsequent color development in all cases. Fruit washed with the HPW system showed intermediate inhibition of color development, showing significantly less inhibition compared to using brushes alone or brushes plus HPW in grapefruit and Orlando tangelos, but usually greater inhibition compared to the unwashed control. Treatments inhibiting fruit color development the most also resulted in the greatest rate of water loss during degreening and storage.