

**Title** The effect of postharvest applications of imazalil in wax on decay and sporulation caused by *Penicillium digitatum* on late picked navel oranges

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**Citation** Program and Abstract. 2007 Australasian Postharvest Conference. Crowne Plaza Terrigal, NSW, Australia. 12 September 2007. 87 p.

**Keywords** orange; imazalil; green mold rot

### **Abstract**

The continued viability of the citrus industry in Australia is partially dependent upon keeping fruit free of decay, especially on long voyages to overseas destinations. If fruit does decay in transit, it is also important to limit further contamination of otherwise healthy fruit by preventing decayed fruit from sporulating. Overseas research has shown that fungicides incorporated into wax can reduce decay and sporulation caused by the pathogen *Penicillium digitatum*. In Australia, citrus packers incorporate fungicide into wax as an 'insurance policy'. However, there is concern that established residue levels left by wax applications may not control decay and sporulation on fruit picked later in the season. This study examined how using imazalil in wax affects decay and sporulation control of *P. digitatum* in late picked navel oranges. Four different concentrations of imazalil were added to wax and applied to navel oranges at two volumes and decay and sporulation recorded. Results showed that when the concentration in wax was doubled from 1000 to 2000 µg/L there was a significant drop in decay but not sporulation. Decay control did not improve significantly when the concentration in wax was 3000 and 4000 µg/L. Sporulation control was improved when volume of wax applied was greater at the higher concentrations. A small subset of residue data showed that levels for each treatment were similar for both decay and sporulation tests and increased with increasing concentration and amount of wax applied. However, a single application of fungicide in wax was not sufficient to fully control decay or sporulation.