

Title Preharvest application of AVG modifies harvest maturity and cool storage life of 'Arctic Snow' nectarines

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### **Abstract**

The objective of this research was to determine whether AVG (aminoethoxyvinylglycine, ReTain, a commercial plant growth regulator), an inhibitor of ACC (1-aminocyclopropane-1-carboxylate) synthase, affects the cool storage life of 'Arctic Snow' nectarines harvested at two different maturities. Storage life of nectarines is limited by the loss of ability to ripen when returned to normal temperatures and the development of internal flesh disorders that include mealiness and bleeding of anthocyanin pigments. ReTain delays changes in ground colour and flesh softening in peaches and nectarines. Ground colour is typically delayed by around 3 days however flesh softening is delayed further. Treatments were harvested to different maturity indices following application of ReTain at labelled rates on a commercial block in Shepparton, Victoria, Australia. The first ReTain treatment was harvested to the same ground colour ('ReT A') as the untreated control fruit (UTC; 3-day delay) whereas the second ReTain treatment ('ReT B') was harvested at the same flesh firmness as the UTC (8 days delay). The fruits were transported overnight by refrigerated road transport to University of Western Sydney. All fruits were dipped in 500 ppm Rovral (ipridione) fungicide. The physiological age of the fruit was assessed by following the time course of ethylene production at 20 deg C. Replicated samples of fruits were stored at 1.5 deg C in steel drums ventilated either with ethylene free air or air plus 20 ppm ethylene. Replicate samples were transferred weekly to 20 deg C and after 7 days of ripening were assessed for flesh firmness, juice recovery (mealiness) and bleeding. 'ReT A' was mealier than both the UTC and 'ReT B' and developed symptoms earlier (starting after 3 weeks in storage), whereas 'ReT B' was less mealy than UTC fruits. Ethylene treatment reduced mealiness in all treatments.