

# Effect of field treatments with fungicide, potassium sorbate, or chitosan on postharvest rots and quality of table grapes

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## Abstract

Potassium sorbate, spray program of four fungicides, or one of three chitosan formulations were applied to clusters of 'Thompson Seedless' grape berries at berry set, pre-bunch closure, veraison, and 2 or 3 weeks before harvest. In 2009 and 2010 the natural incidence of postharvest gray mold was reduced by potassium sorbate, the fungicide program, or both mixed together, following storage at 2°C for 6 weeks. In 2011, the experiment was repeated with three chitosan products (OII-YS, Chito Plant, and Armour-Zen) at 1% chitosan. Chitosan or fungicide treatments significantly reduced the natural incidence of postharvest rots. Berries harvested from vines treated by two of the chitosan treatments or the fungicide program had fewer infections after inoculation with *Botrytis cinerea* conidia. None of the treatments harmed berry quality, including soluble solids, titratable acidity, pH, and berry size; and all increased endochitinase activity in berry juice. Confocal microscopy images indicated relatively high levels of hydrogen peroxide in berries treated with potassium sorbate. One of the chitosan formulations increased the quercetin, myricetin, and resveratrol content of berry skin.