

Title Preharvest application of a boscalid and pyraclostrobin mixture to control postharvest gray mold and blue mold in apples

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Abstract

After harvest, apples (*Malus × domestica*) may be kept in cold storage for up to 12 months prior to packing. Gray mold caused by *Botrytis cinerea* and blue mold caused by *Penicillium expansum* are common postharvest fruit rot diseases affecting apples and are controlled commonly by applications of fungicides after harvest. To search for an alternative strategy, Pristine (a premixed formulation of boscalid and pyraclostrobin) as a preharvest treatment was evaluated for control of postharvest gray mold and blue mold in cultivars Fuji and Red Delicious apples during 2004 to 2006. Pristine (0.36 g per liter of water) was applied 1, 7, or 14 days before harvest. For comparison, thiram (2.04 g per liter of water) was applied 7 days before harvest and ziram (2.4 g per liter of water) was applied 14 days before harvest, to Fuji and Red Delicious, respectively. Fruit were harvested at commercial maturity, wounded with a finishing nail head, inoculated with conidial suspensions of either *B. cinerea* or *P. expansum*, stored in air at 0°C, and evaluated for decay after 8 or 12 weeks. In 2004 and 2005, Pristine was equally effective when applied to Fuji 1 or 7 days before harvest, reducing gray mold incidence by 93 to 99% and blue mold incidence by 78 to 94% compared with the nontreated control. Thiram reduced gray mold incidence by 38 to 85%. Thiram reduced blue mold incidence by 22% in 2004 but not in 2005. On Red Delicious, Pristine was equally effective when applied 7 or 14 days before harvest and reduced gray mold incidence by 69 to 85% and blue mold incidence by 41 to 70%. Ziram applied 2 weeks before harvest reduced gray mold incidence by 97 and 94% in 2005 and 2006, respectively, but it did not reduce blue mold incidence. The results indicate that Pristine applied within 2 weeks before harvest may be an effective alternative to postharvest fungicides for control of postharvest gray mold and blue mold in Fuji and Red Delicious apples.