Title Distribution and incidence of *Sphaeropsis* rot in apple in Washington State

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Abstract

Sphaeropsis rot, caused by *Sphaeropsis pyriputrescens*, is a recently recognized postharvest disease of apple in Washington State. To determine the distribution and incidence of this disease as well as other postharvest diseases, decayed fruit were sampled during packing or pre-sizing operations in commercial fruit packinghouses from 26, 72, and 81 grower lots in 2003, 2004, and 2005, respectively. Fungi associated with decayed fruit were isolated and identified. The most common postharvest diseases of apple in the region were blue mold caused by *Penicillium* spp., primarily *P. expansum*, gray mold caused by *Botrytis cinerea*, and Sphaeropsis rot, accounting for 32, 28, and 17% of the decayed fruit, respectively. Percentages of these diseases in the total decayed fruit varied from lot to lot. Bull's eye rot caused by *Neofabraea* spp. was responsible for 13.4% of the total decay and was most prevalent on Golden Delicious. Other minor diseases included speck rot caused by *Phacidiopycnis washingtonensis*, Alternaria rot caused by *Alternaria* spp., Mucor rot caused by *Mucor piriformis*, and core rot caused by a group of fungi, primarily *Alternaria* spp. Sphaeropsis stem-end rot was more common than calyx-end rot on Golden Delicious, whereas Sphaeropsis calyx-end rot was more common than stem-end rot on Fuji. On Red Delicious, both stem-end rot and calyx-end rot were common. Sphaeropsis rot resulting from infections through the fruit peel was more commonly seen on Golden Delicious and Fuji than on Red Delicious. The percentage of gray mold was higher on nondrenched fruit than on fruit drenched with thiabendazole (TBZ), whereas blue mold was more prevalent on TBZ-drenched fruit. Our results indicate that Sphaeropsis rot is an important component of storage rots of apples in Washington State.