

Title Reduced risk strategies for control of blue mould and grey mould of apples and pears.

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Abstract

Blue mould caused by *Penicillium expansum* Link and grey mould caused by *Botrytis cinerea* Pers.:Fr., are the two most important postharvest diseases of apples and pears in Canada. Intensive and exclusive use of postharvest fungicide, thiabendazole (TBZ), has resulted in selection of TBZ-resistant pathogens in most packinghouses in North America. The effectiveness of reduced-risk postharvest fungicides, fludioxonil, and pyrimethanil, was evaluated against blue mould and grey mould in apples and pears in cold and controlled-atmosphere storages. In post-inoculation treatments, wounded apples (cv. Empire, Gala, McIntosh and red delicious) or pears (cv. Bosc) were inoculated with 1×10^4 conidia/ml of either TBZ-resistant or -sensitive *P. expansum* or *B. cinerea* and incubated for 18-20 h at 13°C, and then drenched with appropriate concentrations of fungicides. Treated fruits were incubated at 2-4°C for 3 months, in controlled atmosphere storages for 4.5 months and at 20°C for 6 days. Fludioxonil at a concentration of 300 µg a.i./ml and pyrimethanil at a concentration of 500 µg a.i./ml controlled blue mould and grey mould in apples and pears. The fungicides were effective in the co-treatment and in the post-inoculation treatment. Fludioxonil and pyrimethanil can provide an alternative to TBZ in postharvest control of blue mould and grey mould of apples and pears, where any TBZ-resistant spores are present. These two new reduced-risk fungicides can be incorporated in postharvest disease management strategies for the control of blue mould and grey mould of apples and pears.