Title Management of postharvest diseases of potato (*Solanum tuberosum* L.)

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Abstract

Postharvest diseases of potatoes such as late blight (*Phytophthora infestans*), *Fusarium* dry rot (*Fusarium sambucinum and* spp.), Pythium leak (*Pythium ultimum*) and Pink rot (*Phytophthora erythroseptica*), are responsible for significant economic losses in the potato industry. Management of these diseases using biocontrol fungicides and conventional fungicides was evaluated on cv. FL 1879 at 10°C. Phosphorous acid, hydrogen peroxide and azoxystrobin applied in storage was moderately effective in controlling pink rot, Pythium leak and late blight pathogens compared to *Bacillus subtilis* and *Bacillus pumilus* . In-season application of phosphorous acid followed by bin loading applied phosphorous acid reduced late blight incidence, while field treatment with phosphorous acid or mefenoxam followed by storage treatment with phosphorous acid reduced pink rot and Pythium leak incidence. Field treatment with *B. subtilis* or mefenoxam followed by storage treatment with *B. subtilis* , the 3-way mixture of azoxystrobin, fludioxonil and difenoconazole or phosphorous reduced dry rot incidence. Eleven species of *Fusarium* were isolated from dry rot symptomatic seed potato tubers in Michigan. All the species were pathogenic to potato tubers with F. sambucinum being the most aggressive. *In vitro* tests showed that all isolates were sensitive to difenoconazole; only *F. sambucinum* isolates were insensitive to thiabendazole and both sensitive and insensitive-fludioxonil isolates of *F. sambucinum* and *F. oxysporum* were reported. Registration of new chemistries for control of Fusarium dry rot is necessary.