

Title Advances in postharvest management of pears
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Citation ISHS Acta Horticulturae 909:673-678.2011.
Keywords *Pyrus communis*; pear ripening; postharvest fungicides; 1-MCP; superficial scald

Abstract

The need for postharvest conditioning in order to induce ripening capacity limits early-season marketing of several winter pear cultivars. The length of time needed to induce ripening capacity decreases with later harvest, with increasing duration of exposure to ethylene, and with increasing storage temperature. Peak efficiency for inducing ripening capacity in 'd'Anjou' and 'Comice' pears was at 10°C. Recent postharvest fungal decay research has demonstrated the value of fungicide applications 1-2 weeks pre-harvest, integrated with orchard calcium sprays, timely harvest, and prompt application of postharvest fungicides or biocontrol agents. A predictive model for risk of postharvest infection by *Botrytis cinerea* showed the utility of sampling fungal DNA on the fruit surface at harvest, but proposes that overall orchard quality (presence of dead limbs and tall weeds) is highly predictive of gray mold decay. Postharvest-applied fungicides fludioxonil and pyrimethanil have been effective in the USA when applied soon after harvest, albeit with risk of resistance development. Use of biocontrol agents for postharvest decay is developing slowly in limited geographic areas. Implementation of 1-MCP to enhance European pear storage is problematic due to risk of excessive inhibition of ripening. Simultaneous treatment with 1-MCP and ethylene (1:1) and post-storage conditioning at 10°C prior to ripening show promise for overcoming this obstacle. Fine control of 1-MCP dosage may be compromised by wooden or other organic container materials, especially when wet. Dosages of 1-MCP sufficiently low to avoid ripening inhibition may be of value in inhibiting superficial scald, especially in combination with antioxidant treatments. Uniform treatment with low dosage 1-MCP may be difficult to maintain, and response may vary among fruit lots and seasons. Storage at very low levels of oxygen can inhibit superficial scald development, but in some cases with increased risk of other physiological disorders.