

Title Effect of maturity and cold storage on ethylene biosynthesis and ripening in 'Bartlett' pears treated after harvest with 1-MCP

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Abstract

To further our understanding of the response of 'Bartlett' pear fruit to 1-methylcyclopropene (1-MCP) and their ability to recover the capacity to ripen, 'Bartlett' pears were treated with $0.3 \mu\text{L L}^{-1}$ 1-MCP for 12 h at 20 °C immediately after harvest in two seasons and to pear fruit of four maturities. 1-MCP decreased rates of softening, ethylene production, respiration, and yellow color development, and reduced incidence of scald and internal breakdown. Ripening recovery induced by cold storage of 1-MCP treated fruit depended on maturity and season and was associated with stimulated ethylene production, including 1-aminocyclopropene carboxylic acid synthase (ACS) activity, 1-aminocyclopropene carboxylic acid oxidase (ACO) activity, and transcript levels of genes associated with these enzymes.