

Title Use of 1-methylcyclopropene (1-MCP) as a strategy to improve post-harvest life of 'Abate Fetel' pears

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Abstract

Ethylene plays an important role in coordinating the ripening process in climacteric fruit, including pears. Regarding 'Abate Fetel', despite having good storage potential, little information is available about the effect of ethylene inhibition (pre- and postharvest) in the development of quality attributes. Therefore, the main objective of this study was to evaluate the effect of two formulations of 1-methylcyclopropene (1-MCP), one applied preharvest (Harvista™ Technology) and the second one after harvest (SmartFresh™). In order to develop a commercial strategy, including doses of both formulations, timing of application and storage potential, the trials were performed during three seasons in the same orchard: 2006-2007, 2007-2008 and 2008-2009. Evaluations included both quality and physiological parameters, such as total soluble solids, titratable acidity, flesh firmness, color development, ethylene production and respiration rate, amongst others. In general, the fruit treated with either formulation of 1-MCP maintained higher firmness than the non-treated fruit during cold storage, especially with SmartFresh™. Similarly, during shelf-life the fruit treated with 1-MCP took longer to reach the ready-to-eat stage, both in terms of firmness and color development. As shown for other species, there was an important effect of the maturity stage at harvest and storage time on the effectiveness of both formulations.