

Title Comparative study of techniques to restore the ripening process in 1-MCP treated 'Blanquilla' and 'Conference' pears

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Abstract

'Blanquilla' and 'Conference' pears treated with 1-MCP often remain 'evergreen', meaning that their ripening process is blocked and does not resume after removal from cold storage. In this work, to re-induce ripening, 1-MCP treatments were combined with temperature treatments. The first strategy involved treatment of 'Blanquilla' pears with 1-MCP (300 ppb), followed by air storage at 0°C and progressive re-warming to 6°C one month before removal. Following this strategy the ripening process was not re-established after removal and firmness remained excessively high. The second strategy was to treat 'Blanquilla' and 'Conference' pears with 1-MCP (300 ppb), store them at -0.5°C in regular air, followed by 5, 10 and 15 days at 15°C after which they were returned to cold storage for another 3 weeks. Ethylene production and quality (colour, firmness, soluble solids content and titratable acidity) were measured after 3 and 4 months of storage. The 1-MCP treatment completely blocked ripening during the entire experimental period in both cultivars. In 'Blanquilla', the heat treatments permitted restoration of the ripening process with the success depending on the time that the fruit stayed at 15°C. In 'Conference', the 'evergreen' behaviour was not reversed with the thermal treatments tested. As a consequence, 1-MCP treated fruit remained excessively firm and were not commercially acceptable.