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## 1-METHYLCYCLOPROPENE (1-MCP) FOR RETAINING RIPENING OF HASS AVOCADOS DURING STORAGE AND SHIPMENT, UNDER MICHOACAN (MEXICO) CONDITIONS

J. A. Osuna<sup>1</sup> and J. A. Beltran<sup>2</sup>

<sup>1</sup> INIFAP-C.E. Santiago Ixcuintla Nayarit. Apdo. Postal # 100. Santiago Ixcuintla, Nayarit. C.P. 63300. MÉXICO. E-mail: [josunaga@tepic.megared.net.mx](mailto:josunaga@tepic.megared.net.mx)

<sup>2</sup> AgroFresh Inc., 727 Norristown Road. Spring House, PA 19477-0904. USA. E-mail: [tbeltran@agrofresh.com](mailto:tbeltran@agrofresh.com)

The avocado is a climacteric fruit very sensitive to chilling injury, and requires special postharvest handling to maintain its quality, particularly during long transit and storage periods. The Mexican exports to Europe and Asia have been especially challenging due to the long shipment in sea containers (20-27 days), the landing time and the temporary storage at the distribution centers (up to 1-2 weeks) before being sent to the retailers. This has often resulted in significant losses in fruit quality and shrinkage at various stages of the supply chain, from landing through the shelf-life. Therefore, it has become very important to handle these distant shipments with special care, to consistently deliver high quality avocados to the increasingly demanding consumers and a more competitive market.

1-MCP has been shown to be very effective for regulating many of the undesirable effects of ethylene in postharvest fruits and vegetables, including accelerated ripening, softening and senescence during storage and transport. The objective of this study was to evaluate the activity of 1-MCP for slowing avocado ripening during transit, temporary storage and shelf-life, under conditions simulating the European or Japan exports. The avocados for this study were obtained from one of the leading Michoacan avocado exporter, and the experiment was conducted during August-September 2002. High quality export avocados (176 to 210 g) at physiological maturity (21% dry matter and 12% oil content) were treated with 1-MCP (200, 300 and 400 ppb during 12 hours at  $12 \pm 0.5^\circ\text{C}$  and  $90\% \pm 5\%$  R.H.) A set of untreated fruit was kept under similar conditions to those of the avocados being treated, under a complete randomized design and five replications. Respective sets of treated and untreated fruits were then held under conditions simulating the exports to Europe or Japan (18 days at  $6 \pm 0.5^\circ\text{C}$ ;  $90 \pm 5\%$  R.H. followed by shelf-life).

1-MCP was very effective for retaining color development and pulp softening, and for reducing weight loss, dehydration and the incidence of some key fungi diseases. The 1-MCP treated avocados had a postharvest life extended up 12 additional days (highest 1-MCP rate), when compared to the untreated fruit.