

**Title** Modelling the transient effect of 1-MCP on 'Hass' avocado softening: A Mexican comparative study

**Author** Salvador Ochoa-Ascencio, Maarten L.A.T.M. Hertog and Bart M. Nicolai

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#### **Abstract**

In this study the effect of 1-methylcyclopropene (1-MCP) on the softening of avocado fruit (*Persea americana* Mill.) cv. Hass was modelled. Data were collected throughout the 2006 season by sampling 40 batches of fruit from 8 different commercial orchards in the region of Michoacan (Mexico). A simplified mechanistic model was developed to analyse the experimental data. Most of the model parameters were treated as being generic for all fruit while only two of the model parameters were identified as being unique to each individual fruit. The two fruit specific parameters characterised the maturity at harvest of an individual fruit and the sensitivity of an individual fruit to 1-MCP. Monte Carlo simulations were performed. The model was able to describe the individual fruit behaviour very well explaining more than 95% of the observed variation for most of the fruit. The model successfully quantified the effect of 1-MCP on avocado softening taking into account the stochastic nature of batch behaviour. The developed model can be utilised to predict the behaviour of a specific batch of 'Hass' avocado fruit given the distribution of the two fruit specific model parameters.