

# Addressing the postharvest vascular staining disorder of 'Maluma' avocado (*Persea americana* Mill.) Fruit

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## Abstract

'Maluma' is an early 'Hass'-like avocado (*Persia amerericana* Mill.) cultivar originating from the Limpopo province, South Africa. The quality of 'Maluma' fruit is generally acceptable, but it is susceptible to a type of 'vascular staining' disorder. The vascular staining occurs in the flesh as dark red speckles or distinctive red streaks adjacent to the vascular tissue and develops during ripening. A project was designed to establish the causes of the disorder and to formulate appropriate harvest and storage protocols. The project consisted of two studies. The first study concerned a longitudinal survey during which fruits were sampled from three orchards in the Nelspruit region on a two weekly basis and ripened directly. Maturity at harvest, as well as the incidence and the intensity of vascular staining upon ripening were determined. The average dry mass content at the first sampling was 20% in all orchards and it increased to 30% during the last sampling. Vascular staining was recorded in fruits from all three 'Maluma' orchards. However, incidence and the intensity of the disorder significantly decreased as the fruit matured. From the results it is recommended that the 'Maluma' cultivar only be harvested when a moisture content of 77% (23% dry mass) is reached. The second study involved the use of 1-methylcyclopropene (1-MCP) and controlled atmosphere (CA) to combat the disorder. A 1-MCP application of 300 ppb was shown to effectively reduce the incidence and intensity of the disorder.