

**Title** Comparison of postharvest changes in mango (cv Cogshall) using a Ripening class index (Rci) for different carbon supplies and harvest dates

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### **Abstract**

The length of time between harvest and the onset of the climacteric rise in fruit respiration depends both on the harvest stage and the storage conditions of mango fruit (*Mangifera indica* cv Cogshall). We therefore propose classifying fruit according to a Ripening class index (Rci) that takes both storage time and climacteric stage into account. Batches of fruit thus obtained are more homogeneous than those sorted according to their storage time or their climacteric stage alone, as shown by the lowest root mean square error values obtained for the majority of the physico-chemical criteria measured, such as total soluble sugars, starch, and total soluble solids contents, titratable acidity, pH, firmness and the ratio of total soluble sugars to total organic acids. The advantage of this classification system for monitoring postharvest changes in mangoes stored at 12 or 20 °C has been demonstrated. The Rci was used to study the impact of agronomic conditions such as the leaf-to-fruit ratio and harvest stage on the changes in physico-chemical criteria traditionally used as quality descriptors. Sugar content increases with the increase in carbon supply and the harvest stage, whereas the titratable acidity and the hue angle decrease during ripening. This type of index can be used to validate the relevance of harvest indicators by verifying the homogeneity of the changes in stored batches or for more effectively assessing the impact of a storage technique on fruit metabolism.