

# Multi-sensor non destructive assessment of peach quality: a collaborative approach

Schotsmans, W.<sup>1\*</sup>, Molina-Delgado, D., Luro<sup>2</sup>, S., Gobrecht, A.<sup>3</sup>, Valero, C.<sup>4</sup>, Lleó, L.<sup>4</sup>

<sup>1</sup> IRTA, Postharvest Dpt., Av. Alcalde Rovira Roure 191, 25198 Lleida, Spain

<sup>2</sup> Ctifl, Centre de Saint-Rémy - Route de Mollégès - 13210 Saint-Rémy-de-Provence, France

<sup>3</sup> Cemagref, 361 rue Jean-François Breton BP 5095, 34196 Montpellier Cedex 5, France

<sup>4</sup> Universidad Politécnica de Madrid, Av. Complutense s/n 28040, Madrid, Spain - [diana.molina@irta.cat](mailto:diana.molina@irta.cat)



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Soluble solids content and firmness are some of the most important attributes of peach quality. These attributes are usually measured by destructive methods, but in the last decades non destructive techniques have given good results in the evaluation of different aspects of quality of fruits. However reliable information about these techniques and their capability to evaluate peach quality is still needed. During 2006, 2007 and 2008, the quality of Ryan Sun, Rich Lady and O'Henry peaches was evaluated in collaborative experiments as part of the European ISAFRUIT project, involving destructive measurements and non destructive tests. Changes in references parameters (MT firmness, SSC, flesh colour, diameter and weight) were related to the data given by different non destructive techniques (NIR Tromblon, Acoustic Firmness Sensor, IQ Sinclair, NIR Gun, NIR Case, Minolta Chromameter, Lateral Impactor) to establish the relationships. Cultivar induced a high variability in the set of measurements and also affected the correlation between reference and non destructive tests. The PLS models developed in this work indicated that the impact test was the most appropriate non destructive technique to estimate MT firmness. The best model was obtained combining the data from all cultivars and years and variables from acoustic and impact tests. In contrast to acoustic techniques NIR techniques (NIR Tromblon, NIR Case and NIR gun) were not able to predict firmness changes but satisfactorily estimated the levels of SSC measured with the refractometer. These results showed the feasibility of non destructive tests to evaluate quality of different peach cultivars.