

**Title** Assessing harvest maturity in nectarines  
**Author** L.M.M. Tijskens, P. Eccher Zerbini, R.E. Schouten, M. Vanoli, S. Jacob, M. Grassi, R. Cubeddu, L. Spinelli and A. Torricelli  
**Citation** Postharvest Biology and Technology, Volume 45, Issue 2, August 2007, Pages 204-213  
**Keywords** Non-destructive test; Time-resolved reflectance spectroscopy; Fruit flesh colour; Fruit firmness; Biological variance

### Abstract

The maturity at harvest of nectarines can be assessed with the novel technique of time-resolved reflectance spectroscopy (TRS) measuring the light absorption at 670 nm in the fruit flesh. A kinetic model was developed that links this absorption coefficient ( $\mu_a$ ), expressed as the biological shift factor, to firmness decrease during ripening. The model thus includes the variations in maturity at harvest of the individual fruit. In non-linear regression analyses of data from four different seasons, the explained part ranged from 81 to 92% for cv 'Spring Bright'. The kinetic parameters values obtained were highly similar in different seasons. The results suggest that in nectarines the degreening of fruit flesh, expressed as TRS absorption at 670 nm, is synchronised with the softening. The distribution of  $\mu_a$  was skewed, but that of the biological shift factor, derived from  $\mu_a$ , was normal. By measuring the colour of fruit flesh with the non-destructive and very rapid TRS technique, and applying the model parameters, individual fruit can be graded at harvest into classes of usability, selecting fruit with different ripening stages for different market segments and predicting their softening time, thereby guaranteeing sufficient firmness to transport the fruit and sufficient ripening potential to reach good eating quality upon arrival in the receiving regions or countries. Consumers therefore will be more satisfied, encouraging them to repeated purchase. Retailers and wholesalers will be more satisfied since fruit unfit for sale no longer needs to be transported.