

Title Firmness and soluble solids assessment of nectarines by NIRs spectroscopy
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Abstract

In the last few years, near infrared spectroscopy (NIRs) has been repeatedly used as a technique to measure the internal quality attributes of fruit. The research objective was to evaluate the accuracy of NIRs technique in estimating nectarine firmness and SSC. A special attempt was made to establish sufficiently robust calibration models potentially applicable to different cultivars and different fruit sizes. The commercial motivation underlying the research is that the techniques offer the possibility of fast on-line grading in terms of physical-chemical properties significant for consumer taste preference. The taste of ripe ready-to-eat peaches and nectarines is known to be largely determined by fruit firmness and SSC. The experimental design involved data sets corresponding to the fruit of three cultivars ('Big Top', 'Venus', 'Stark Red Gold') with fruit firmness and SSC measured by destructive methods and FT-NIRs mode. Two measurements were made on opposite sides of thinly pared fruit. NIR spectra of intact fruit were measured using a NIR-GUN Fantec portable spectrophotometer. Data sets of NIRs and constituent data were created for each of the three cultivar sample sets. In addition, two further data sets were prepared by combining the cultivar sample sets. The accuracy of the calibration and validation are defined by SEC and SEP. The results indicate that it is possible to measure internal quality attributes of the individual cultivar using NIR-GUN Fantec. Prediction of firmness and SSC appears to be cultivar-dependent and as a consequence a combined prediction model across cultivars and fruit size was not sufficiently accurate.