DETERMINATION OF WATER CONTENT AND SEVEN-CARBON SUGAR CONCENTRATION IN 'HASS' AVOCADOS USING NIR SPECTROSCOPY

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'Hass' avocados were harvested at 9 different times (100 fruit per harvest) during a growing season and analyzed by reflectance NIR spectroscopy to non-destructively measure the moisture content and seven-carbon sugar (mannuheptulose and perseitol) concentrations. Whole fruit and cores were used for water content and dried, milled tissue was additionally used for the determination of sugar concentrations. The sugar content of the avocadoes was measured using HPLC. The wavebands corresponding to C-H absorbance bands were most highly correlated with moisture content, while the water-related absorbance bands not as highly correlated. NIR can be used to predict moisture content, seven-carbon sugar concentration. These two parameters are useful in predicting ripening period and storage potential, and ultimately fruit quality. NIR spectroscopy has potential to be used to grade avocados on-line to minimize the variation in ripening period and predict the potential storage period.