

Title Robustness of NIR calibrations for soluble solids in intact melon and pineapple
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Abstract

The soluble solids content of intact fruit can be measured non-invasively by near infrared spectroscopy, allowing “sweetness” grading of individual fruit. However, little information is available in the literature with respect to the robustness of such calibrations. We developed calibrations based on a restricted wavelength range (700-1100 nm), suitable for use with low-cost silicon detector systems, using a stepwise multiple linear regression routine. Calibrations for total soluble solids (°Brix) in intact pineapple fruit were not transferable between summer and winter growing seasons. A combined calibration (data of three harvest dates) validated reasonably well against a population set drawn from all harvest dates ($r^2 = 0.72$, $SEP = 1.84$ °Brix). Calibrations for Brix in melon were transferable between two of the three varieties examined. However, a lack of robustness of calibration was indicated by poor validation within populations of fruit harvested at different times. Further work is planned to investigate the robustness of calibration across varieties, growing districts and seasons.