

Title Evaluation of differential energy x-ray analysis for non-destructive measurement of 'Hayward' kiwifruit (*Actinidia deliciosa*) attributes

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Abstract

'Hayward' kiwifruit (*Actinidia deliciosa*) were scanned with a differential energy X-ray analysis (DEXA) scanner and fruit weight, firmness, dry matter content, soluble solids content and mineral concentrations (N, P, K, Ca and Mg) were measured. DEXA variables retrieved from the X-ray images were related to each fruit attribute using stepwise regression. Fruit weight could be predicted from DEXA image area and the counts of low and high energy X-rays with a R^2 of 0.96. The relationships between DEXA variables and dry matter content or mineral concentrations were weak and inconsistent between positions on the conveyer or between measurement times. Therefore, the DEXA is unlikely to be useful for assessment of kiwifruit quality.