

Abstract:

A wide range of fruit maturities occurs on feijoa trees during fruit development, principally because flowering and fruit set occur over a 3-month period. Currently, the decision to harvest fruit is based on “touch picking” (a method that relies on the picker’s judgement of the detachment force) and a visual assessment of internal characteristics of a representative sample of fruit. This combination of picking method and range of maturities commonly results in great variability in storage performance, even within the same lines of fruit (Thorp and Bieleski, 2002). A non-destructive method to determine fruit maturity at harvest should improve grading and may permit fruit to be segregated for optimal storage and marketing. Non-destructive methods of evaluating maturity or ripeness include non-destructive compression, acoustic impulse response, density, and near infrared (NIR) spectroscopy (Abbott et al., 1997). The first three of these methods have recently been evaluated for their ability to predict maturity of ‘Unique’ feijoas (Gaddam et al. 2004). A moderate correlation ($r^2 = 0.59$) was found between the acoustic impulse response on a visual maturity scale that ranged from 1 (immature) to 7 (late senescence). According to this scale, developed by HortResearch, Mt Albert, NZ, fruit graded 2 – 3 are best suited for storage. This paper reports the results of a preliminary segregation trial of export-graded fruit using the acoustic impulse response technique.