

**Title** Using non-destructive methods to correlate chilling injury with fruit maturity  
**Author** Glenn Hale, John Lopresti, Elisa Bonora, Dario Stefanelli, Rod Jones  
**Citation** Abstracts of 7<sup>th</sup> International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.  
**Keywords** chilling injury; nectarine

### Abstract

Two non-destructive instruments were used to quantify maturity of nectarine fruit (*Prunus persica* (L.) Batsch) cv August Fire. One was an A WET A which measures fruit firmness acoustically and was found to be well correlated with flesh firmness measured by hand-held penetrometer ( $R^2=0.68$ ). The other was a DA-Meter which measures chlorophyll content (by difference of absorbance) just beneath the fruit skin and has previously been shown to correlate well with fruit ethylene production rate and consequently fruit physiological ripening stage (Ziosi *et al*, 2008). In our study, DA values were found to be less highly correlated with fruit firmness measured by penetrometer ( $R^2=0.52$ ). Fruit were sorted into maturity classes and stored in plastic bags at 5°C and 85% RH. Maturity classes were defined by the A WET A as mature (<70), mid (70-73) and immature (>73) and by the DA-Meter as mature (<0.7), mid (0.7-1.0) and immature (>1.0). After 15, 23 and 34 days storage followed by 2 days ripening at 20°C fruit were assessed for symptoms of chilling injury expressed as flesh browning, flesh bleeding and loss of flavour as well as loss of juiciness. Severity of CI was rated on a five-point scale where 1=none and 5=severe while juiciness was measured on a scale of 1=very juicy and 5=no juice. Chilling injury increased during storage with the highest ratings at the 34 days assessment. The main symptoms observed were in flesh bleeding and browning. Chilling injury was found to be dependent on fruit maturity as assessed by both non-destructive methods with mature fruit being less susceptible as previously reported by Fernandez-Trujillo *et al*, (1998) which found a correlation between fruit ethylene production, chilling injury rate and fruit maturity. Since the DA-Meter correlates well with the physiological ripening stage of the fruit as expressed by ethylene production rate it may be better for predicting susceptibility of fruit to CI during subsequent storage.