

Title Bruise susceptibilities of ‘Gala’ apples as affected by orchard management practices and harvest date

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Abstract

This study evaluated the influences of irrigation (frequent versus none), crop load (high versus low), and nitrogen (urea fertilizer versus none) on bruise sensitivity of mature apple fruit (cv. Gala) picked on three harvest dates. It includes a proposal for a new index of bruise sensitivity, called specific bruise susceptibility, as an additional tool for studying the effects of management practices on bruising of fresh produce. Results obtained showed that reducing irrigation frequency and practising selective and timely picking of mature fruit offer some potential to reduce fruit susceptibility to bruising. Analyses of the effects of orchard management practices based on specific bruise susceptibility of fruit ($\text{mm}^3 \text{J}^{-1} \text{g}^{-1}$) suggested that other biophysical fruit properties such as curvature (shape) and maturity status (rather than size alone) may have greater influence on the way in which induced variations in fruit size (e.g. through crop loading and irrigation) respond to mechanical loads during impact bruising.