

Title Assessment of fruit softening attributes of *Actinidia* seedling vines
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Abstract

The N.Z. kiwifruit industry requires fruit that have a long storage life, are robust enough to survive transport and distribution and still provide consumers with a reasonable shelf life in the home. New cultivars will need to provide these storage/softening characteristics, and there is a need to develop tools that allow assessment of these characteristics in seedling populations. Fruit from 47 seedling vines, which comprised 17 families, and several commercial 'Hayward' lines were assessed for firmness by puncture with an 8 mm Effegi probe on up to 10 occasions during storage at 1°C. Data was analyzed using a number of models to describe the softening curves. The Boltzman function fitted as a NLME model was found to be very useful in describing the early period of softening, and the inverse exponential polynomial function was very useful in describing the late period of softening. Analysis suggests that a prolonged softening curve was usually associated with a shallow slope. Genotypes from some families seemed to cluster according to how they softened while genotypes from other families were spread throughout the continuum. Another aspect of softening was the minimum firmness associated with the lower plateau of the softening curve. The estimated minimum firmness was variable among genotypes within families and few matched the high values obtained for 'Hayward'. The results suggest there is room for optimism for developing protocols and methods that can effectively measure fruit softening behaviour for the identification of lines with superior storage potential for breeding and selection.