Title Comparison of destructive and non-destructive (NIR) dry matter determination for 'Hort16A' (ZESPRI™ gold) kiwifruit

Authors W.C. Schotsmans, A.J. Mawson, B. MacKay

Citation ISHS Acta Horticulturae 753:283-288. 2007.

Keywords *Actinidia*; dry matter; near infra-red spectroscopy; oven-drying; freeze-drying

Abstract

Grower returns for *Actinidia chinensis* 'Hort16A' kiwifruit (sold as ZESPRI™ GOLD Kiwifruit) are strongly influenced by dry matter content of their fruit at harvest, which is an indicator for the fruit's fully ripe soluble solids content. Traditional techniques to determine dry matter content are destructive and time-consuming. In this study, NIR spectroscopy proved a convenient and reliable alternative to destructive dry matter content determination. Although the correlation coefficients between conventional and NIR determination were not strong (0.65), the slope of the fitted regression line was close to 1; and adjustment of the models with data from other seasons may improve this. The correlation between dry matter values from oven-drying and NIR improved substantially with later harvests. Inaccuracy using the destructive methods is likely to be higher than that using a generic NIR model without adjustments for possible seasonal differences. Differences in dry matter content between harvests, growers, fruit and vine position were very small. Additionally, there were no significant changes in dry matter content during storage.