

# Using berry impact recording device for bruising assessment in southern highbush blueberry

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Acta Horticulturae 965: 143-148. 2012.

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## Abstract

Blueberries are prone to bruise damage and bruising leads to a rapid increase in the amount of decay. Due to excessive bruising damage caused by machine harvesters, the vast majority of the fruit destined for the fresh market are currently hand-harvested in the United States. The industry needs machine-harvestable fruit with fresh market quality to reduce harvest cost and to improve production efficiency. In this study, the bruise susceptibility of one crisp-flesh and one conventional-flesh highbush blueberry genotype was correlated with the data recorded by a berry impact recording device (BIRD) by dropping both the fruit and the BIRD sensor onto two types of contacting surfaces (hard plastic and cushioning material). The drop test confirmed that a conventional-flesh genotype ('Scintilla') was more susceptible to bruising than crisp-flesh genotype ('Sweetcrisp'). Using both the impact and velocity change, we established bruising probability lines for both the highbush genotypes. This was useful in transforming the impact data recorded by the BIRD sensor into bruising probability of a blueberry genotype. The result of this study will provide decision support for blueberry farmers and breeders for selection of machine harvestable highbush blueberry genotypes.