Abstract

Bruise damage due to excessive impacts and compression forces is a major quality problem that results in downgrading of fresh horticultural produce. Therefore, knowledge of bruise susceptibility is important for design of handling systems. Over the years, several impact-testing devices have been reported by researchers for assessing the susceptibility of fresh produce to bruise damage. One of the practical difficulties in using the existing devices is the subjective estimation of the rebound energy. This is commonly achieved by visually estimating the maximum rebound height. Alternatively, an image acquisition system may be used to objectively measure the maximum rebound height. The first approach is time-consuming and requires considerable experience and good judgment, while the second approach requires additional investment in image capture and analysis. In this paper, we review the status of research on bruise susceptibility measurement and report the design and development a new device for impact testing of fresh produce that incorporates objective and automatic recording of the rebound height for estimation of rebound energy. Accuracy of the new device is demonstrated based on a comparison of alternative bruise susceptibility measurement systems.