

Abstract

A new harvester, which uses a rapid displacement actuator on the main scaffolds to remove apples from trees with narrow-inclined trellises, has shown good potential. With this technique, stem loss (stempulls) during harvest ranges from 20 to 57%, depending on the cultivar. This can create a potential point of entry for pathogens. We evaluated the susceptibility of the stem cavity area, with and without stems, to blue mold decay (*Penicillium expansum*) on three cultivars of mechanically harvested apples, and tested the effectiveness of the antagonist *Pseudomonas syringae* (used in BioSave 110) in controlling decay. Fruit with stempulls were more susceptible to blue mold decay than fruit with stems. On fruit with stempulls inoculated with *P. expansum* and stored for 2 months at 1°C, decay incidence was 0% on 'Pink Lady', 8.3% on 'Ace Spur Delicious', and 41% on 'Empire'. On fruit with stems, there was no decay on all three cultivars. *P. syringae* reduced decay on 'Empire' with stempulls to 3.3%, and no decay occurred on the other two cultivars. Similar trends were observed on fruit stored at 22°C for 14 days, but the incidence of decay was higher, and only 'Pink Lady' had no decay on the antagonist-treated fruit. Although mechanical harvesting can predispose the stem cavity to decay in some cultivars, this problem can be alleviated using biological control without resorting to the use of synthetic pesticides.