

Title The effect of fruit properties on the bruise susceptibility of tomatoes
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Abstract

Bruise prediction models for tomatoes are discussed. These models can provide useful information about the influence of fruit properties (for example ripeness) on bruise susceptibility, leading to recommendations for fruit handling. Statistical models were constructed with impact energy or peak contact force as the main independent variable. Bruise prediction models were made for tomato cultivar 'Tradiro'. The impacts were controlled by a pendulum. Multiple linear and nonlinear regression models were made to link fruit properties like ripeness, acoustic stiffness, fruit temperature, radius of curvature and location of impact (partition or compartment of tomato) with bruise damage. Because an objective method to measure the bruise size of tomatoes does not exist, absorbed energy was taken as a measure. Besides significant main effects significant interactions between fruit properties were also identified. Mutual interactions between fruit properties (for example interaction between radius of curvature and temperature) together with significant interactions between some fruit properties and the degree of bruising were noticed. Most of the effects of the fruit properties on bruise damage could be explained.