Abstract

The work presents a methodology (instrumental and statistical) that synthesized a single numerical value for the degree of impact sensitivity of the fruit to impact damage. The drop damage index (DDI) is the result of a series of statistical steps, based on a multiple linear regression (MLR) model. This is determined for each fruit (species or cultivar) considering the contribution of different fruit and impact (direct drop on rigid support) variables to the damage. It represents the maximum drop height (in mm) for which the probability of damage of the cultivar is equal to 5%. The calculation procedure of the DDI is based on the observed values for the variable considered in the MLR model. Experiments have been conducted on four different fruits (apple, pear, apricot and peach) to determine specific values of the DDI. The conclusion is that the DDI can be used for measuring sensitivity or resistance to impact damage of the fruits.