

#### Abstract:

A method to perform an indirect assessment of fruit firmness through a color measurement and non-destructively sort peaches for firmness is described. Peaches of 3 cultivars ('Babygold 9', 'Elegant lady', and 'Maycrest') were classified into two classes according to actual firmness data and using the thresholds resulting from a k-means clustering (multivariate analysis). Fruits were then classified in the same 2 classes with a linear discriminant analysis, based on color attributes. In general, total correct classification resulted highest for 'Babygold 9' (93%) and lowest for 'Elegant lady' fruits (65%), with accuracy varying according to the color pattern of the cultivar (i.e. per cent of "blush" on the total peel surface). Further studies are needed in order to validate these results for other varieties.