

Title Image Analysis Techniques for Automated Hazelnut Peeling Determination
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Abstract

According to FAO statistics, in 2000, Italy was the second largest hazelnut (*Corylus avellana*, L. 1753) producer in the world. The price of the stock depends on the nut quality (kernel/nut ratio, nut and seed defect, percentage of peeling, and taste panel scores). The evaluation of peeling efficiency after toasting is generally conducted by trained operators in sight on 100 kernels. This work tests two alternative objective methods of after toasting peeling evaluation based on image analysis. Eleven hazelnut cultivars were analyzed and results were compared with the ones assessed by trained operators. Images were analyzed with two statistical approaches: fixed values of RGB thresholding and trained K Nearest Neighbors (KNN). Root mean squared error (RMSE), estimating the comparison between operators and the two image analysis-based techniques, shows better results for KNN (6.6) with respect to fixed threshold (15.9).

<http://www.springerlink.com/content/k5j46771q62w3185/fulltext.pdf>