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Some Factors Affecting on Determination and Measurement of Tomato  
Firmness

Ali BATU

Gaziosmanpaşa University, Agriculture Faculty, Food Engineering Department, 60100,  
Tokat-TURKEY

 [Keywords](#)  
 [Authors](#)



[agric@tubitak.gov.tr](mailto:agric@tubitak.gov.tr)

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**Abstract:** Firmness is one of the most important factor for determination of tomatoes quality. Destructive measurement of tomato firmness is one of the evaluation methods of fruit firmness. The Universal Instron is most common used machine for measurement of most adequate fruit firmness. During destructive measurement of firmness consideration of force or deformation values as a firmness of fruits could give incorrect result and taking epicarp strength over deformation values is more accurate to concern the firmness of tomato. Two of possible minimum firmness limits were suggested for tomato fruits at the point of retail marketing or using at home. All 100% marketable fruits should have firmness values above 1.45 N mm<sup>-1</sup> but the Instron values of the tomato mainly consuming stage at home, should have higher than the 1.28 N mm<sup>-1</sup>. The firmness of tomatoes is closely associated with acceptability levels of the fruits. Subjective evaluation scores based on finger feel highly and positively correlated 0.96 and 0.98 with epicarp strength and firmness values, respectively. A negative and highly significant correlation (-0.97) exists between deformation values of subjective evaluation scores of Liberto variety, but this correlation slightly lower for Criterium and that was -0.89. Cutting the skin of mature green tomatoes did not affect on firmness but removing the skin highly effect on it. Both cutting and removing of the skin affected measurement of the firmness of tomatoes harvested at pink stage of maturity.

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