

THE INFLUENCE OF ROAD CONDITION ON THE SHELF-LIFE OF TOMATOES

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ABSTRACT

A significant amount of fresh market produce is sold at lower profit margins or is not marketable at all due to mechanical damage. Vehicle-Pavement interaction is an important factor that contributes to tomato damage during the transportation component of the supply chain. The amount of damage to produce is directly influenced by the road condition. The percentage produce loss of tomatoes can be estimated by considering the roughness value of the roads travelled as well as the speed of the vehicle during transportation.

Three different stages of tomato maturity (green, pink and red) were examined for damage. Colour changes on the tomatoes were monitored at fixed positions where stresses related to different vibrations were applied, and these data compared to stress measurements obtained in situ during transportation of tomatoes on the range of different road conditions.

The possible output of this study is a model relating the maturity of the fruit, the riding quality of the road and the speed of the vehicle with the deterioration of the quality of the product. Models of this nature would assist transport operators to balance costs and benefits in determining the optimal route for travelling to get produce from grower to retailer.