

Consumer behaviour in the prediction of postharvest losses reduction for fresh strawberries packed in modified atmosphere packaging

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Postharvest Biology and Technology, Volume 163, May 2020, 111119

Abstract

MAP can maintain the storage life of products and thereby reduce food losses. However, the benefits of MAP for reducing losses is not well quantified, especially in relation with practices in the postharvest chain. This paper proposes an innovative approach, at the intersection between the domains of food engineering, social sciences and humanities and computer science to quantify the real benefit of using MAP in the postharvest chain of fresh strawberries. To take into account the diversity of postharvest storage conditions and consumer practices on reduction of food losses, 132 scenarios for storage of fresh strawberries were investigated with a numerical model and used as inputs to calculate the losses generated in the postharvest chain as a function of product deterioration. Considering the probability of occurrence of each scenario and consumer practices, the use of MAP instead of commercial macro-perforated packaging, would lead to 17% reduction of losses on average. The losses reduction is low because 50% of consumers open the packaging before storing the fruit into the refrigerator, disrupting the benefit of MAP before the fruit is consumed. Losses would be reduced by as much as 74% if all the consumers stored the strawberries in the fridge and kept the MAP intact.