Importance of fruit variability in the assessment of apple quality by sensory evaluation - DTU Orbit (07/12/2018)

**Importance of fruit variability in the assessment of apple quality by sensory evaluation**

The assessment of produce quality is a major aspect of applied postharvest biology. Horticultural researchers working on organoleptic quality of fruit need objective methods for the evaluation of sensory properties. The development of sensory methodologies specifically for apples highlighted the problem of handling variation due to fruit variability and assessor differences. The aim of this study was to investigate the weight of within-batch variability in sensory evaluation of apples and to propose a methodology that accounts for this variability. Prior to sensory analysis, for three apple cultivars, apples were sorted into homogenous acoustic firmness categories within each cultivar. The discrimination ability of the trained panel was observed not only between cultivars but also within each cultivar for crunchiness, firmness, juiciness and acidity. Following these results, a mixed hierarchical model for the analysis of the sensory data was proposed to measure the contribution of fruit variability to the variability of sensory scores. The results showed the efficiency of the model in quantifying within-batch variability. Fruit sampling and presentation methods as well as data handling procedures are suggested for obtaining reliable sensory results in the assessment of apple quality.

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