

Title Postharvest quality of integrated and organically produced apple fruit
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Abstract

Apple cv. 'Jonagold' fruit were picked in three different regions of Belgium. In each region one organic and one integrated orchard with identical climatic and soil characteristics was sampled. Fruit were stored in air and under CA conditions (1% O₂, 2.5% CO₂) at 1 °C for 6 months. The acoustic stiffness, firmness, soluble solids contents, acid and sugar contents, and the aroma profile were measured. Quality parameters were analysed right after harvest and storage. At both times an additional shelf-life experiment was carried out to simulate the conditions in the commercial chain.

The quality attributes of apples coming from different regions and different production systems did not differ significantly, neither at harvest nor after storage. There was a considerable softening during storage in air and shelf-life, but not under CA conditions. Immediately after harvest, high malic acid, quinic acid and sucrose contents were observed, while glucose and citric acid contents were higher after storage. The aroma profile changed during shelf-life, except for apples stored in air, which even immediately after storage already had an aroma profile comparable to that after shelf-life. The volatile responsible for the typical apple aroma (2-methylbutyl acetate) had the highest relative abundance after CA storage and subsequent shelf-life, followed by apples immediately after CA storage. The effect of storage conditions on the quality of the apples was in general much larger than that of the possible effects of the production system. Aroma profiles of air-stored and CA-apple converge during shelf-life conditions.