

Title Effect of different CA storage conditions on storability and fruit quality of organically grown 'Uta' pears

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Abstract

Fruit from 5-year-old *Pyrus communis* L. 'Uta' trees on rootstock 'Kirchensaller' were harvested in 2007 at two different stages of maturity from the same transitional organic orchard. After harvest, fruit of each stage of maturity (ca. 80 kg) were stored for approximately 6 months under different storage conditions: standard controlled atmosphere (SCA) and dynamic controlled atmosphere (DCA). Recommended SCA conditions were used as a reference (1.0°C, O₂ 2.5%, CO₂ 1.0%) and DCA was based on the fruit fluorescence response to low oxygen stress, with O₂ set at 0.4 to 0.6% plus 1.0% CO₂. After storage and a 7-day shelf-life period at 20°C fruit quality was assessed automatically with the 'Pimprenelle' laboratory device. Browning disorders (cavities, flesh and brown core) and storage diseases were evaluated visually. DCA storage maintained firmness and total soluble solids at higher levels than SCA. DCA storage technology reduced browning disorders by more than 44% and fungal decay by 41% compared to fruits stored only in normal CA. Neither low O₂ nor external CO₂ injury was observed in DCA. All results taken into account, the percentage of marketable fruits was highest after nearly 6 months storage when fruit were picked at their optimal stage of maturity and stored in DCA conditions.