Title The first research on CA-storage of apples in Estonia

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Abstract

Fruit storage capacities are at low technical and technological level in Estonia. Majority of fruit storage warehouses were built in 1960-1980 and are currently amortized for the moment. Modern cold storage facilities are only at Polli Horticultural Research Centre, where fruit cold storage warehouse were reconstructed in 2007/2008. Controlled atmosphere (CA) storage experiments have not been carried out so far in Estonia.

The main task of investigation is to find out storage recommendations for local commercial cultivars. Cultivars 'Talvenauding', 'Antey', 'Alesya', 'Auksis', 'Krista', 'Cortland', 'Sinap Orlovsky' and 'Ligol' were tested in 2008/2009. Fruits were stored at 2 °C in air (NA) and controlled atmosphere conditions, namely, standard CA (3% O2+5% CO2) and ULO (1.5% O2+ 1.5% CO2). After 3 and 5 months of storage (plus one week shelf-life at 18°C) fruit firmness, soluble solids and ascorbic acid were measured.

As expected, significant differences in firmness retention of fruits stored in NA, CA, and ULO were observed. For 'Talvenauding', 'Krista', 'Sinap Orlovski' and 'Ligol' fruit stored in ULO conditions, higher values of optimum firmness were found than for normal atmosphere stored apples. For 'Cortland' and 'Auksis' fruit such differences were not observed. According to the preliminary results it could say that cultivars 'Sinap Orlovski', 'Ligol', 'Krista' and 'Antey' were the most suitable for long storage under controlled atmosphere conditions.