

Abstract:

The influence of storage conditions and harvest date on firmness retention and sensitivity to disorders of 'Elstar' apples were investigated in five years experiment. Fruits from two orchards, harvested on four picking dates each season (at one week intervals), were cold stored at +3 °C in air (NA) and controlled atmosphere conditions, namely, standard CA (5%CO₂ + 3%O₂) and ULO (1.5%CO₂ + 1.5%O₂). Quality parameters of apples after one week shelf life, at +18 °C, were evaluated each season. Additional shelf life, extending up to three weeks after storage, and the influence of storage conditions on volatile production of apples were also evaluated in the last three seasons of this experiment.

As expected, significant differences in firmness retention of fruits stored in NA, CA, and ULO were observed. Controlled atmosphere storage of Elstar apples, especially standard CA, generated higher level of storage disorders, mainly CO₂ injury. Severity of disorders correlated positively with delayed harvest date. ULO storage was superior in terms of better fruit firmness retention and lower sensitivity to storage disorders, however substantial reduction of volatiles production was noticed.