

### Abstract

For two seasons (2003-2005) apple fruit produced in the central and southern zones in Russia was studied for the effect of 1-MCP on fruit storage in air and CA. Fruit of Antonovka obyknovennaya, Severnyi Sinap, Martovskoye, Sinap Orlovsky, Zhigulyovskoye, Orlovskye polosatoye, Renet Chernenko, Idared, Golden Delicious, Red Delicious, Granny Smith, Jonagold, Braburn, Red Chief, Renet Simireko, Korey was treated with 0.14% 1-MCP ( $1 \text{ g m}^{-3}$ ). 1-MCP is confirmed to inhibit internal ethylene accumulation in fruit, delayed synthesis of  $\alpha$ -farnesene and products of its oxidation. Elimination or sharp reduction of scald development was observed in cultivars susceptible to this disorder. Soft scald, senescence breakdown, core browning, fungal rot, Gloeosporium and Alternaria in particular were considerably reduced by 1-MCP application. 1-MCP use results in prolongation of storage, retention of firmness and commercial quality during storage and the period of shelf-life. Fruit quality in many winter cultivars 4-5 months stored in air remains as good as in CA. Late harvesting and unacceptable date of treatments reduce 1-MCP efficiency.  $\text{CO}_2$  superficial injuries can be observed in Renet Simireko, Sinap Orlovsky, Zhigulyovskoye treated with 1-MCP and stored in CA. 1-MCP use probably requires modification of atmosphere in the initial stage of storage in particular. 1-MCP is considered to be efficient for many cultivars and this technology is worth practical implication.