

Title Effect of 1-MCP from SmartFreshSM on apple quality and storage ability in Ukraine
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Abstract

Apples of Idared, Jonagold, Golden Delicious and Reinette Simirenko varieties were picked at the optimum harvest date and half of them were treated with 1-methylcyclopropene (1-MCP from SmartFreshSM) for 24 h at 50C. Then both groups were placed in common cold storage at the temperature of 20C for 7 months. Fruit quality was assessed at 2-month intervals, beginning from the first two months of storage, immediately after storage or after 7 and 14 days of shelf life at room temperature. The post-harvest treatment of fruits with 1-MCP with the subsequent common cold storage reduced the intensity of respiration along with softening and chlorophyll degradation, inhibited occurrence of senescent breakdown and fruit rot, especially during the shelf life at room temperature, reduced the loss in fresh weight during storage. The post-harvest treatment of apples with 1-MCP facilitates the maintenance of flesh firmness, higher acidity, dry soluble content, juiciness and level of green coloring, slows down the process of over-ripening and also prevents the occurrence of superficial scald, for example on variety Reinette Simirenko, in the cold storage and subsequent shelf life at room temperature. As a result, the storage time may increase as well as the marketability of the produce. In the conditions of CA storage at 2% CO₂ and 1.8% O₂, the post-harvest treatment of variety Golden Delicious with 1-MCP favors the maintenance of flesh firmness, inhibits the processes of over-ripening (higher acidity, dry soluble content, juiciness and level of green coloring), including the time when fruits are in shelf life at room temperature.