Annotation

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Storage ability of Golden Delicious apples treated with ethylene inhibitor after picking, depending on harvest date and type of orchard

The duration of storage of Golden Delicious apples restrict weight loss, functional disorders and fungal diseases. Post-harvest handling with 1-MCP supports fruit sustainability of this variety, prevents the development of functional disorders and fruit rot. Specific requirements of products from varying intensity orchards need to improve post-harvest handling and storage of the crop.

Golden Delicious apple fruits were selected in Vinnytsia region from an intensive orchard on dwarf (M.9) and a traditional orchard on middle-vigorous (MM.106) rootstocks in two terms – at the beginning of harvest maturity (mass picking) and a week later (late harvesting). Fruits were cooled at temperature of 5 ± 1 °C, and the next day half of the products were treated with 1-MCP on the recommendation of the producer of the drug Smart Fresh. After 24-hour exposure, control and processed fruits were placed in a storage chamber at of 2 ± 1 °C and relative humidity of 85–90 %.

It was found out that reasonable storage time of Golden Delicious apples from an intensive orchard at 2 ± 1 °C with 90 % level of marketable products does not exceed six months and no more than five months – for the late harvested fruits from a traditional orchard. The best-performance after six or seven months of storage is shown by the products from an intensive orchard.

Postharvest treatment with 1-MCP provides high marketable output (91.2–94.5 %) within seven months of storage with a positive effect for the fruits from a traditional apple orchard.

A higher level of natural losses was found for the fruits from a traditional orchard. Postharvest treatment with 1-MCP reduces natural losses by 1.1–1.4 times during the seven-month storage. Late harvesting apples from both types of the orchards were more significantly affected with fruit rot. The post-harvest treatment with 1-MCP reduced the degree of losses from fruit rot to the level of 0.9–3.8 %.

Keywords: *Golden Delicious, 1-Methylcyclopropene, 1-MCP, Smart Fresh, rootstock, harvest date, storage, product quality*.