

Title Effect of 1-MCP on storage life and fruit qualities by treatment of attached apple fruit
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Citation Abstracts of 27th International Horticultural Congress & Exhibition (IHC 2006), August 13-19, 2006, COEX (Convention & Exhibition), Seoul, Korea. 494 pages.
Keywords 1-MCP; ethylene; Jonagold; Fuji

Abstract

1-Methylcyclopropene (MCP) is remarkably effective as a preservation reagent of apple and flowers. It has been used in the U.S.A. and other countries. Its effect is recognized on the storage life and fruit qualities of 'Jonagold' and 'Fuji', the main apple cultivars grown in Japan. However, because ripening of apple fruit is completed on the tree, it is desirable for apples to remain attached to the tree for as long as possible, but the storage life of the ripened fruit is inferior to that of fruit harvested at a mature stage of development. This study investigated the effects of MCP treatment applied to attached fruits, on maturation at harvest, storage life, and fruit quality. (Treatment 1) A branch bearing 5-7 apples was covered tightly with a plastic bag 3 weeks before harvest in 'Jonagold' and 'Fuji'; MCP was applied to the branch within the bag in the evening and maintained overnight, and the bag was removed the subsequent morning. Treated fruits were harvested along with the untreated fruit. The MCP treatment reduced ethylene production and maturation of fruits similarly to the treatment with harvested fruit. (Treatment 2) Twenty attached fruits were treated individually with 1-MCP by bagging them five days before harvest in 'Jonagold'. Maturation and fruit quality of harvest fruits were not suppressed; only ethylene production was reduced. Moreover, these fruits maintained their storage life and fruit quality for more than two months. These results indicate that 1-MCP treatment of attached fruit before a harvest is sufficient to maintain storage life and fruit qualities of high-quality fruit.