

Study on Regional Adaptation Studies, Growth Traits and Yield of Virus Free Imported Graft Combinations of Apple

M. Pirmoradian, H. Hajnajari* and Gh. Hassani¹

Viral diseases affect tree vegetative traits, yield and fruit quality. To shorten the import process of new apple cultivars for establishment of mother orchards, a group of virus-controlled scion-rootstock combinations imported from Italy were transferred and cultivated in Semirom Hort. Station (Isfahan), after the end of quarantine. This project was achieved for the regional adaptation trial investigating qualitative and quantitative characteristics and also comparing imported virus controlled combinations and infected Red Delicious and Golden Delicious on M9. In the present study, the comparison of growth related traits in each cultivar- rootstock combinations at 94, 95 and 96 years, and yield and quality traits of fruit were measured in 94, 95 years. The experiment was carried out based on randomized complete block design with three replications. Each combination was taken as a treatment, also combined with two and three years of data analysis. Assuming growth traits of annual branch growth, tree height, crown width, trunk diameter and leaf length and width it was shown that Jonagold and Gala on M9 had the highest growth. The results showed that the highest tree height was attributed to Jonagold, Red Chief and Gala on M9 in a descendant order but the least height was seen in Red Delicious-M9 combination. The most prominent crown width were observed in two combinations of Jonagold-M9 and Golden Delicious-MM106 with the least presented by Red Delicious and Golden Delicious on M9. Highest leaf chlorophyll content (SPAD) was found in Jonagold-M9 and Red Chief-M9, but the least rates was registered in the leaves of Golden Delicious and on Red Delicious on M9. Virus control combinations have higher values of vegetative properties compare to the contaminated combinations.

Keywords: Apple, Regional adaptation, New cultivars, Scion-Rootstock Combinations, Healthy plant, Yield.

1. Assistant Professor, Horticultural and Crop Resaerch Department, Isfshan Agricultural and Natural Resources Research and Education Center, AREEO, Isfahan, Associate Professor, Temperate and Cold Fruit Research Center Horticulture Sciences Research Institute, (Karaj), AREEO and Assistant Professor, Horticultural crop Resaerch Department, Azarbayjan Agricultural and Natural Resources Research and Education Center, AREEO, Azarbayjan, Iran, respectively.

* Corresponding author, Email: (hassanhajnajari@yahoo.com).