

O-66 (51)**PRODUCTION OF QUALIFIED APPLE SAPLINGS BY SEED ROOTSTOCKS IMPROVEMENT AS GENETIC PURITY**

Assoc. Prof. Hassan Hajnajari, Cold Temperate Fruit Research center, Hort. Science Research Inst (HSRI). Ag. Res. Edu., Extension Org (AREEO). Karaj Express way. , Mahdasht road. Shahrake BazroNahal. (Karaj), Iran; hassanhajnajari@yahoo.com (Presenting author)

Iranian apple cultivated area 230.000 ha with 3.937000 ton production, gained highest level of production among main 7 fruit crops, in 2014. Though high advantages of stocks, inhibiting factors like slope topography, splitted orchards and high primary investment, they were not harbored by fruit growers. Residuals of fruit processing industry make the main seed source for nurseries. Lack of seed genetic purity derived from high number of diffused cultivars in the waste material leads to saplings disuniformity of morphological traits. The genetic amelioration program started in 2003 by parent selection in the national Apple Collection focused on peculiar traits including weak tree vigor, long flowering period, high levels of bloom intensity, fruit set, seed per fruit, seed germination and seedling-scion affinity. Individuated self compatible parents were also used as seed sources. The Half-Sib seeds of the single parents were collected as the main treatment together with the 1st and 2nd grade market seeds (thesis). "Granny Smith", "Gala", "Golden Delicious", "Red Delicious" and native "Golab Kohanz" were grafted on the pure mass seeds of the selected maternal parents "Azayesh", "Morabbaei", "Zinati", "Golden Karaj" and native "Northern Spy" and two market thesis. The two-Year-Old trees grown in MeshkinAbad Horticulture Research Station (Karaj) were evaluated for vegetative traits tree height; rootstock, trunk and graft point diameters; branch number, mean branch length, number of total root suckers and its mean length. In 2016, the seed progenies induced flowering to the grafted trees except the controls. ANOVA analysis by SPSS software demonstrated significant differences between selected seed source treatments related to controls at 1% of probability, for most of the studied traits. The mean comparisons by Duncan Test showed that the self compatible maternal parents gave place to the seeds that induced weakest tree vigor, branch length and the least number of root suckers with significant difference compared with controls and other seed sources.

Keywords: breeding, seed rootstock, seed source, genetic purity, tree uniformity.