Study and comparison of vegetative propagation methodes (Layring, Catting) of Malling and Malling Merton rootstocks (MM106, M26)

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Apple is one of the most improtant fruit trees in Iran. Now most of the apple trees in Iran are on the seedling rootstocks.

With regards to the necessity for establishment of monotonous apple orchards in order to reach high production yield and also to minimize production and harvesting cost, use of this rootstocks is nessesery. For this porpose this study was done on the planted rootstocks in the Kalardasht and Damavand region during 2 years. In fall seedlings were brought out of the soil and rooted seedling were separeted and transformed to suitable bed and different factors were studied including shoot diameter, number of roots, dry weights of roots, length of roots, length of shoot and maximum length of roots. The results indicated that M26 rootstocks had higher percentage when compared with MM106 and other preperties in M26 are higher. Also propagation method via cutting in which we used treatment hormones, IBA. and NAA, and different time (soft wood, semi hard wood, hard wood) Showed that the rooting ability of cutting was different.

This research showed that cutting semi hardwood MM106 rootstocks have higher rooting percentage when compared with M26.

requirements in such areas of the country where the soiol is calcareous, and where the irrigation water is bicarbonated, rather the chemical characteristics of the fruit itself will be necessary for fertilizer recommendations. The fruit crops yield improved significantly at 1% level. Low level applications of zinc sulphate of its broadcast appliation had no significant effect lowering the scald incidence preventing development of clorosis leaves. Foliar application however, improved the yield and quality of the apple under calcareous conditions.

Zinc is one of the essential elements in plant growth and it is knuwn to be deficient in most of the calcareous soils of Iran. Zinc fertizers was not recommended in the past for unknown reasons. Obviously, foods obtained from such areas are low in zinc. Those who consume such products will suffer from zinc deficiency and its consequences. The main role of zinc in crop production, can be summarized as improvement in yield, quality, palatability, enrichment of the product, prevention of the browning of the peded apples caused maybe through antioxidants($Zn-Zn+2e$), prevention of toxicity of boron, cadmium, and lead, synergistic interaction with potassium, increasing plants resistance to environmental stresses i. e. salinity, drought, water deficit, cold, etc, and activation of the large numbers of plant enzymes. The role of zinc in human safety can be summarized as imporoving body immunity, improving pica syndrome, control hair fall and body odor. white spots on finger nails, fatigue, prostate development, improvig eyesight, increasig IQ, curing more than 200 kinds of diseases, activating more than 300 enzymes, and reducing toxicity from lead, cadmium and nitrate ingestion. Foliar application of calcium and zinc not only imporoved the apple yield and texture firmness), but also its palatability, so that even 60 hours after peeling, it did not turn brown, because of the presence of antioxidants. Another interesting observation was the higher concentration of zinc in trees which showed zinc deficiency symptoms as compared with healty trees. In other words, under a balanced fertilization, concentration of micronutrients in healthy trees will be lower than those of the deficient trees.