EFFECT OF SOME DIFFERENT ROOTSTOCKS ON PERFORMANCE OF SOME STONE FRUIT SPECIES

By

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ABSTRACT

NESMA MOHAMED ALAM El-DEEN FATHY: Effect of some Different Rootstocks on Performance of some Stone Fruit Species. Unpublished M.Sc.Thesis, Horticulture Dept., Faculty of Agriculture, Ain Shams Univ., 2014.

A field trial was conducted during three successive seasons (2010-2011, 2011-2012 and 2012-2013) to study the effect of Okinawa and Nemaguard (*P. persica*) rootstocks on vegetative growth, leaf mineral content, flowering and fruiting of "Sun Wright" nectarine and two peach cultivars namely "Flordaprince and Early swelling". The second experiment applied on two plum cultivars "Celebration and Pioneer" grafted on the previous rootstocks besides "Marianna rootstock (*P. cerasifera* x *P. munsoniana*). The transplants were grown in a sandy soil under drip irrigation system. In peach and nectarine experiment after three growing seasons, the obtained data showed that trees grafted on Nemaguard rootstock had a significant larger tree size and trunk cross sectional area, while no significant differences in tree height, shoot length, number of leaves per shoot and trunk circumference. All cultivars trees on the two rootstocks showed high compatibility among all grown seasons. No differences were observed in leaf mineral content between the two rootstocks. Okinawa rootstock induced an early vegetative bud opening of Early swelling cv., whereas Sun Wright and Flordaprince weren't influenced by both rootstocks. The flowering measurements of all cultivars under the study weren't influenced significantly by both rootstocks. Also, yield, some chemical and physical properties of fruits of all cultivars were not influenced by both rootstocks.

On the other hand the plum experiment showed that Marianna rootstock increased significantly tree height, shoot length, average

number of leaves per shoot, leaf area and had the most homogenous compatibility, while Nemaguard significantly increased number of shoots and TCSA. Both Okinawa and Nemaguard rootstocks presented non homogenous graft compatibility with Pioneer cultivar. No differences were observed in leaf mineral concentration except with iron which had a higher significant concentration with Okinawa rootstock. Vegetative and flower bud break of both plum cultivars budded on Okinawa and Nemaguard were earlier than Marianna. Pioneer was earlier than Celebration in starting and ending flowering. Tress budded on Okinawa had the highest significant flower buds percentage. No yield harvested from the two cultivars may be due to unsuitable environmental conditions during flowering and fruit set or it needs a compatible pollinizer, although literature reported that Pioneer cv. is self-fertile. Additional researches are needed to study the flowering and fruiting of these cultivars under the conditions of the experiment location. The anatomy study of the graft union revealed that Pioneer budded on Okinawa and Marianna rootstock and on the interstock are compatible showed a complete union between the rootstock and the scion in the early stages after budding with observed that xylem vessels are extended in horizontal direction.

Key words: Cultivars, Flowering, Growth, Leaf mineral content, *Prunus*, Rootstock, Yield and Quality.

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