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بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

INFLUENCE OF FERTILIZER RATES ON VEGETATIVE GROWTH AND MINERAL CONTENT OF VALENCIA ORANGE SEEDLINGS UNDER DIFFERENT IRRIGATION WATER PH LEVELS

By

RASHA ARAFA ANWAR MOHAMED

B.Sc. Agric. Coop. Sci., Agric. Higher Institute for Agric. Coope., 2003
M.Sc.Agric.Sc.(Plant Physiology), Fac.Agric., Cairo University, 2016

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Approval Sheet

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ABSTRACT

Rasha Arafa Anwar Mohamed. Influence of Fertilizer Rates on Vegetative Growth and Mineral Content of Valencia Orange Seedlings under Different irrigation Water pH Levels. Unpublished Ph.D. Thesis, Depart.of Arid Land Agri. graduate studies and Res. Inst. (ALARI), Fac. of Agri., Ain Shams Uni., (2021).

This study was conducted under green house at the Hort. Res. Instit. (HRI) garden - Giza- Egypt, during two successive seasons (2017&2018) respect. Valencia orange scion was grafted on Sour Orange "SO" and Volkamer lemon "VL" stocks grown in polyethylene bags, filled by growing media (amixture from sand + Composte 4:1"v/v"). At seedling translation stage for both Sour Orange or VolkamerLemon stocks under fertilization nitrogenrates: 50, 75 & 100 %(the cont.) of nursery fertilizer protocol were applied to Valencia orange seedlings and irrigated with water at pH (7.8 "the cont." ; 5 ; 7 & 9) for 6 months.Experimentalparameters divided to three main topics: 1- seedlings vegetative growth aspects i.e. :Seedling stem: height & diameter (cm); nu.of: shoots& leaves /seedling;leaf area (cm^2) and root: length & width (cm).2- Seedling physiological parameters i.e.: leaf pigments content (Chl. a & b) and leaf tot.carbohydrates.3- Leaf and root macro & micro-elements contents : N ; P; K ; Ca ; Mg;Na; Iron "Fe"; Zn ; Mn ; Cl and B.

Investigation was planned out as a factorial (three main factors A; B & C plus three inter-actions AB; AC & ABC,in a complete randomized block design with 3 replicates.Statistical analysis of the present data and significant differences among the means of various treatments were established by L.S.D at 5% level of probability andcollected data were analyzed by MSTAT-C. The data were tabulated and represented graphically by Excel program where appropriate.

The aim of the current study was to investigate the effect nitrogen doses and the appropriate water irrigation pH for increasing elements absorption and improving uptake efficiency by nursery plants.

Obtained results indicated that, Valencia orange seedlings on both SO or VL stocks when fertilized with Nitrogen at 50 or 75 % of the control dose and irrigated with water at pH5or7,significantly improved seedlings vegetative growth parameters i.e. (seedling height ,stem dia., nu. of branches& leaves / seedling, leaf area and root distribution). Also, increased leaf : Chl.a &b and total carbohydrates contents .

Finally, improved with significant differences of macro- and micro-elements uptake which reflected on leaf and roots contents when compared to these stocks fertilized with the same N doses but irrigated with water pH 7.8 or 9. In the contrary, both rootstocks when fertilized with nitrogen dose 100% of Nurseryprotocol and irrigated with water at pH9significantly gave the lowest values and the most of seedlings on SO or VL were exposed to physiological injury and dead.

Keywords: Scion, Stocks, Fertilizer doses, Water pH and Physiological Injury.

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