Physiological studies on some citrus cultivars

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The present investigation was undertaken during the two successive seasons of 2008 and 2009 at a private orchard located at Qalyubeia Governorate.This study was carried out on 22-year-old trees of two sweet orange cultivars (Citrus sinensis L. Osbeck) namely Washington navel and Valencia orange Cvs., were the plant material used in this work.Forty bearing trees from each cultivar were carefully selected and devoted for this investigation. All trees were budded on sour orange rootstock, planted at 5 meters apart under flood irrigation system grown in a clay loamy soil.Trees were randomly chosen and approximately healthy, nearly uniform as possible in their growth vigor, free from diseases and received regularly the same horticultural practices as for chemical and organic adopted in this region.This stimulative investigation was conducted to study the effect of different treatments under study on some vegetative growth measurements, fruiting aspects and some fruit characteristics as well as leaf nutritional status of both orange cultivars i.e., ”Washington navel” and ”Valencia orange” trees. Therefore, the investigated treatments were representative of the different nine treatments besides the ordinary treatment (control).Thus the different studied treatments used in this respect were as follows:1-Spraying trees with tap water (control).2-Spraying trees with GA3 at 50 ppm.3-Spraying trees with GA3 at 75 ppm.4-Spraying trees with yeast extract at 150 m1/1.5-Spraying trees with yeast extract at 300 m1/1.6-Spraying trees with Best flowers at 0.5 g/1.7-Spraying trees with Best flowers at 1.0 g/l.8-Spraying trees with Amino power at 0.5 m1/1.9-Spraying trees with Amino power at 1.0 m1/1.10-Spraying trees with GA3 (at 50 ppm) + yeast extract (at 150 m1/1) + Best flower (at 0.5 g/1) + Amino power (at 0.5 m1/1).Spraying trees with all used of these treatments including control treatment during both seasons of study twice firstly at the full bloom and secondly after fruit set about two weeks.Obtained data could be summarized as follows: V.I. Washington Navel orange.V.1.1- Vegetative growth:- Shoot length (cm).The longest of shoot was obtained from 300 m1/1 ”yeast extract” followed by 75 ppm ”GA3” and 150 m1/1 ”yeast extract”. On the other hand, the lowest length of shoot was obtained from ”control” .- Leaf area (cm2).The largest leaf area was obtained from 300 m1/1 ”yeast extract” followed by 75 ppm ”GA3” and 150 m1/1 ”yeast extract”. On the contrary, the lowest leaf area was obtained from ”control”.- Dry weight of leaf (mg.).The highest dry weight of leaf was obtained from 300 m1/1 ”yeast extract” followed by 75 ppm ”GA3”, 50 ppm ”GA3” and150. m1/1 ”yeast extract”. On the other hand, the lowest dry weight of leaf was obtained from ”control”.V.I.2- Leaf mineral composition:- N (%).Concerning leaf nitrogen content, the highest value of leaf nitrogen content was obtained from 75 ppm ”GA3” followed by 300 m1/1 ”yeast extract” and 50 ppm ”GA3”. On the contrary, the lowest value of leaf nitrogen content was obtained from ”control”.1E) (%).The highest value of leaf phosphorus content was obtained from 300 m1/1 ”yeast extract” followed by 1.0 m1/1 ”amino power” and 0.50 g/1 ”best flowers”. On the contrary, the lowest value of leaf phosphorus content was obtained from ”control” followed by 50 ppm ”GA3” + 150 m1/1 ”yeast extract + 0.5 g/1 ”best flower” + 0.5 m1/1 ”amino power”.- K (%).Regarding leaf potassium content, the highest value of leaf potassium content was obtained from 75 ppm ”GA3” followed by 300 m1/1 ”yeast extract”, 50 ppm ”GA3” and 150 m1/1 ”yeast extract”. On the other hand, the lowest value of leaf potassium content was obtained from ”control”.- Ca (%).The highest value of leaf calcium content was obtained from 0.5 m1/1 ”amino power” followed by 50 ppm ”GA3” + 150 m1/1 ”yeast extract” + 0.5 g/1 ”best flower” + 0.5 m1/1 ”amino power” and 0.5 g/1 ”best flowers”. Meanwhile, the lowest value of leaf calcium content in the first season was obtained from 75 ppm ”GA3” followed by 50 ppm ”GA3” and

300 m1/1 ”yeast extract”.