Effect of Cultivars, Irrigation and Spray on the growth Dulzee catalyst in the characteristics of quality fruits and yield of Date Palm (Phoenix dactylifera L.)

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Summary

The present study has been conducted during the growing season of 2016 at Al-Bida Date palm Station ,Shtra District, North Dhi-Qar Governorate, under authority of Date Palm Directorate, Ministry of Agriculture. The study evaluate the effect of the irrigation quantity of water (0, 70 and 140) Liter^{-1}/date palm tree^{-1}/ week^{-1} with spraying the tree with the-growth catalyst 'Dulzee' (0,2 and 4 ml/L^{-1}) on some physical, chemical, and physiological characteristic of fruits and leaves of two date palm cultivars Shwethee and Khadrawi. Study also carry out the effect of various treatments on total productivity of two cultivars under investigation.

We can summarize the results as follow:

1- The findings revealed that the cultivars variations, irrigation quantities and spraying with the- growth catalyst have a significant positive effect on improvement of physical, chemical, physiological characteristic and total tree productivity during the khalal and Ratab stage.

2- The cultivar Shwethee significantly superior in fruit weight and flesh, fruit size, length and diameter. The same cultivar significantly superior in leaves' chlorophyll and total carbohydrate content, sugar percentage , the time of fruit ripening (Rutab stage), bunch weight and tree yield in comparative with cultivar Khardawi. However, no significant differences between to cultivars have been recognized in rate seed weight and the surface leaf area.

3- The irrigation treatment (140 L/tree^{-1}/week^{-1}) significantly superior on the two control's treatments (distilled water). Whereas the heights (fruit weight and flesh, fruit size, length and diameter) obtained on two stages of ripening (Khalaal and Rutab), leaf area and (the percentage of soluble solid comprise and reducing sugar, total sugar and leaves' chlorophyll and carbohydrate content) characteristic obtained when palm trees

irrigated with140 L/tree^{-1}/week^{-1} . Also, this treatment was significantly superior in increase the rate or percentage of fruit ripening, Furthermore this treatment significantly superior in the rate of whole bunch weight and tree yield in comparative with control and 70L tree/week treatments.

4- The findings revealed that the spraying with the growth catalyst (4ml/L^{-1}) significantly superior on other treatments. This treatment gave rise the heights fruit physical characteristics that included (fruit weight and flesh, fruit size, length and diameter)and (the percentage of soluble solid comprise and reducing sugar, total sugar and leaves' chlorophyll and carbohydrate content). Also, this treatment significantly superior in the surface leaf area.Furthermore this treatment significantly superior in the rate of whole bunch weight and tree yield in comparative with other treatments (control and 2 ml/L^{-1}).

5- The results shows that there is an prominent impact between the interactions of Shwethee cultivar and the irrigation treatment (140 L/tree^{-1}/ week^{-1}), whereas it gave rise the highest significantly superior in fruit weight and flesh, fruit size, length and diameter, surface leaf area, chlorophyll percentage, carbohydrate percentage and the rate of bunch weight and tree yield . Moreover, less fruits falls, and less sucrose . Whereas the results also revealed that the interactions of Khadhraawi cultivar and the irrigation treatment (140 L/tree^{-1}/ week^{-1}) gave rise the significantly increased in rate of seed weight, percentage of total soluble comprise, reducing sugar, total sugar, percentage of fruit ripening and reduction in time needs for rutab formation in comparative with other interactions treatments under study.

6- The results shows that there is an prominent impact between the interactions of Shwethee cultivar and spraying with the-growth catalyst

treatment (4ml/L^{-1})and (140 L/$tree^{-1}$/$week^{-1}$+4 ml/L^{-1} whereas it gave rise the highest significantly superior in fruit weight and flesh, fruit size, length and diameter, surface of the leaf area, chlorophyll percentage, carbohydrate percentage and the rate of bunch weight and tree yield. Moreover, less fruits falls, and less sucrose . Whereas the results also revealed that the interactions of Khadhraawi cultivar and the spraying treatment (4mL/L^{-1}) gave rise the significantly increased in rate of seed weight, percentage of total soluble comprise, reducing sugar, total sugar, percentage of fruit ripening.

7- The triple interaction treatments between Shwethee cultivar, irrigation treatment (140 L/$tree^{-1}$/$week^{-1}$) and the growth catalyst (4 ml/L^{-1}) significantly superior in (weight of fruit, weight of fruit flesh, seed weight, fruit size and fruit length and diameter) in two stages (khlaal and rutab) and surface of leaf area. Also, a highest significantly superior(the percentage of soluble solid comprise and reducing sugar, total sugar and leaves' chlorophyll and carbohydrate content). In addition it significantly superior in increasing the percentage of fruit ripening Also, this treatment significantly superior in the bunch weight and tree yield. Whereas the triple interaction treatments between Khadhaawi cultivar, irrigation treatment (140 L/$tree^{-1}$/$week^{-1}$) and bio-growth promoter (4 ml/L) gave rise the significantly increased in rate of seed weight, percentage of total soluble comprise, reducing sugar, total sugar, percentage of fruit ripening in comparative with other interactions treatments under study.