

Impact of potassium fertilization and bunch thinning on Zaghloul date palm

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ABSTRACT

The present study was carried out during 2000, 2001 and 2002 growing seasons of Zaghloul date palm (*Phoenix dactylifera L*) growing on sandy soil in private orchard at Rosetta region, Egypt. The aim of the present study is to evaluate the effect of potassium fertilization and bunch thinning on growth, yield, fruit quality and leaf elemental contents. Potassium fertilization added in 4 rates namely; 0, 1, 2, and 3 kg/palm as potassium sulfate (48% K₂O) at two doses. While the thinning done by two methods, the first without thinning and the second with removal of 25% of the strands number from bunch center, three weeks after pollination. The results showed that potassium fertilization lead to increase the number of new growing leaves and number bunches/palm. The thinning has a same trend. Increasing the potassium fertilization increased the fruit yield, while the thinning showed a decrease effect in fruit yield. Increasing potassium fertilization increased the percent of grade A and B fruits, while decreased the grade C fruits. The thinning increased the percent of grad A fruits and decreased the grade C, while the grade B did not affected. Potassium fertilization and thinning treatment lead to improve the fruit physical and chemical characteristics, especially with high levels of potassium fertilization (weight and volume of fruit, length and diameter of fruit, TSS, acidity and reducing, non-reducing and total sugars). Increasing potassium fertilization increased the pinnae contents of N, P, K, Fe, Mn, Cu and Zn while the Ca and Mg contents were significantly decreased. The thinning showed significant increase in N, P, K, Ca and Fe, but other elements were showed variable effects. Thus, it is recommended to apply 2 Kg K₂SO₄ /palm/year with 25% bunch thinning to improve the growth and to obtain best yield with good fruit quality of Zaghloul date palm grown under the present conditions.

Keywords: Date palm- K fertilization- bunch thinning– fruit quality- TSS- total sugars- acidity- pinnae elemental contents.