

Effect of Potassium Sulfate Fertilization on Vegetative Growth, Yield, Fruit Quality and Leaf Mineral Composition of Some Pomegranate Cultivars

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ABSTRACT. This investigation was carried out during 1997 and 1998 growing seasons to study the effect of potassium sulfate as soil application (at rates of 0, 1, 1.5 and 2 kg/tree/year) on the vegetative growth, yield, fruit quality and leaf mineral composition of Mellasy, Taeifi and Khob El-Jamil pomegranate cultivars grown at Dirab Experimental and Research Station, College of Agriculture, King Saud University.

The results revealed that the vegetative growth of Mellasy and Taeifi pomegranate cultivars slightly affected by potassium sulfate treatments. Whereas, Khob El-Jamil cultivar, data showed that trunk diameter, in the second season, and tree circumference, in both seasons, were significantly increased in trees received 1.5 kg of potassium sulfate comparing to the control. However, the tree height did not affect by the different potassium sulfate treatments.

In general, increasing the rate of potassium sulfate applications up to 2 kg/tree/year markedly increased the yield and the most of physical and chemical fruit properties. In addition, results indicated that higher rates of potassium sulfate gave not only increase in fruit yield, but also higher leaf potassium content. Furthermore, number, weight of fruits and the yield per tree responded positively to the different potassium sulfate applications in the second season than in the first one.

The results also showed that there were no correlation could be observed between potassium sulfate application and leaf nitrogen and phosphorus contents. Meanwhile, leaf iron, zinc, manganese and copper contents were slightly affected by the potassium applications.