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# Effects of Different Nitrogen, Phosphorus, Potassium Rates on the Quality and Quantity of Citrus Trees, Variety Navel Orange (*Citrus sinensis* L.) under Irrigated Conditions

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**Abstract**

Citrus species are the most widely produced fruit crops in the world. Balanced fertilisation ensures application of the appropriate amount and proportions of nitrogen (N), phosphorus (P), potassium (K) and trace elements based on crop requirements and soil fertility performance. The objective of the present study was to find out the proper combination of fertiliser nutrients N-$P_2O_5$-$K_2O$ that promotes better fruit yield and quality (juice content, sugar content, acidity and maturity index) of citrus trees of Navel orange grafted onto sour orange (*Citrus aurantium* L.) in field condition of Tadla region (Morocco). The study was carried out at the farmer's field during 2011–2012 and 2012–2013.Treatment consisted of four different levels of nitrogen (N: 0, 28, 111, 250 kg • ha–1 • year–1), phosphorus ($P_2O_5$: 0, 11, 44, 100 kg • ha–1 • year–1) and potassium ($K_2O$: 0, 27, 107, 240 kg • ha–1 • year–1) in an incomplete factorial randomised block design. N-$P_2O_5$-$K_2O$ fertilisation significantly affected the quality and quantity parameters of Navel orange trees, indicating the significance of NPK fertilisation for citrus production.The results indicated the optimum rate of N-$P_2O_5$-$K_2O$ which would result in the greatest fruit yield and quality under irrigated conditions. The optimum fertilisations resulted by this experiment include N at 111 kg • ha–1 • year–1, $P_2O_5$ at 11 kg • ha–1 • year–1and $K_2O$ at 107 kg • ha–1 • year–1. This result seem to be an efficient N, P, K, fertiliser programme for producing an economic yield and fruits with fairly good quality of Navel orange trees (*Citrus sinensis* (L.)) grown into sour orange rootstock in the field conditions of Tadla region (Morocco).

Keywords: Effects of N, P, K, yield, fruit quality, citrus.

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