Evaluation of nutritional conditions of rose flower in rose farms of northern Khuzestan

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Abstract

North Khuzestan, with 245 ha under rose flower cultivation, produces 36% of out-season, cut-flower roses of Iran. In order to evaluate the nutritional status of rose farms and their problems, 34 rose flower greenhouses were inspected and samples of irrigation water, soil, leaf and flower were taken. Chemical characteristics of irrigation water, physico-chemical characteristics of soils, leaf mineral concentrations and qualitative indices of flowers were determined. Based on these qualitative indices, the sampled rose farms were divided into two groups: rose farms with high quality and low quality flowers. Leaf mineral concentrations and qualitative indices of flowers of both groups were compared based on *t* test. The results showed that the irrigation water was in class C_2S_1, which has no salinity and sodium problems. Average electrical conductivity and pH of the soils under rose cultivation was 1.16 dS/m and 7.7, respectively. Improper application of phosphorous fertilizers by farmers has resulted to an increase in available phosphorus content of soils up to 28.2 mg/kg. While, lack of potassium fertilizers and continuous cultivation has resulted in reduction of available potassium in studied soils to 120 mg/kg, and this problem has lowered the qualitative indices of rose flowers in the region. Average concentration of available micronutrients (including Fe, Mn, Zn and Cu) was 7.9, 4.5, 1.5 and 2.1 mg/kg, respectively, which all were at optimum level, except Mn, for rose flower production. The results revealed that there was a significant increase ($P<0.01$) in potassium concentration of leaf, fresh weight of flower, length and diameter of flower in high-quality flower farms as compared to low-quality flower farms. Concentrations of other leaf nutrients were not significantly different in the two groups.

Keywords: Qualitative indices, Micronutrients, Ornamental plants.

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