

Practical Ways to Improve fruit Yield and Quality on the Calcareous Soils of Iran

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Apple is one of the strategic crops of Iran. Currently the average yield per hectare is about 13.6 tons, which is very low mainly due to the imbalance use of fertilizers. It is planned to improve its quality and increase its yield to 35 tons/ha in the near future. To achieve this goal, first we should identify the apples nutritional problems. This experiment was carried out in 1997 and 1998 at Chenaran, Semyrom, and Damavand apple orchards. Five fertilizer treatments including T₁ (farmers conventional method), T₂ (foliar application of 1.5% solution of urea, zinc sulphate and boric acid) for fruit set, T₃ (foliar application with calcium chloride), T₄ (soil application of all nutrients with deep placement), and T₅ (a combination of T₂, T₃, and T₄). Physical and chemical properties of studied soils, irrigation water, studied apple leaves, yield, and quality were determined. At Damavand, there were no significant differences in the effects of foliar application on the fruit development among treatments. The lack of yield response, at Damavand, was perhaps due to factors such as off-year and spider mite invasion during the study. However, there were a significant differences in calcium, copper, iron, magnesium, sulfur, and zinc concentrations in the treated leaves compared with the control. The results of the tests at Chenaran, Khorasan, showed that potassium and zinc concentrations in apple leaves were quite low but iron and manganese levels were normal. However, leaf iron deficiency was widespread in the control plots, pointing to the bicarbonates in irrigation water and to the low activity of iron in the leaves apoplast. The apple yields were 25.5 Tons/ha

was %121.

1- Although expenses of instalation and expenses and incomes of first 7 years of this garden are not considered in this research but as it seems the efficiency (%121) which has obtained from using the annual currency is very high. It is 6 times more than the same BANK long term investment (%18.5) and is more beneficial than many other jobs and even industrial works and it shows the effects of applying scientific and technical methods in division of horticulture in IRAN.

2- High expenses of pesticides in Iranian fruit gardening and its high and serious danger for public health and environment leads us to apply biological pest control as soon and serious as possible.