An investigation to identify nutritional status (microelements) of citrus orchards in east of Mazandaran

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Because of direct effects of nutritional factors on quality and quantity of citrus fruits, soil fertility and nutritional status of citrus orchards have special importance. The aim of nutritional management programs is supporting trees from nutrition points of view, so that to enable the trees to produce high quality and quantity fruits. The state of soil fertility and nutrition of orchards have special importance for avoiding deficiency and toxicity and also to correct fertilization planning of orchards. In this study, soil and leaf samples were collected from 146 citrus orchards, and Fe, Mn, Zn and Cu (DTPA - extractable) contents in soil and concentration of these elements in leaf dry matter were measured. Soil testing showed that hte soil of about 41% of orchards have Fe content less than 9 $mgkg^{-1}$, 33% Mn less than 3 $mgkg^{-1}$, 35% Zn less than 1 $mgkg^{-1}$ and 6.2% Cu less than $mgkg^{-1}$. Leaf samples were analysed and results showed that 3.8% orchards had Fe less than 80 $mgkg^{-1}$ in leaf dry matter (deficiency) , 19% between 80-115 $mgkg^{-1}$ and about 77% more than 115$mgkg^{-1}$. 61% orchards had Mn less than 30 $mgkg^{-1}$(defieiency), 19.4% between 30-50 $mgkg^{-1}$ and 19.6% more than 50 $mgkg^{-1}$ in leaf dry matter. 4.2% orchards Zn less than 30 $mgkg^{-1}$ (deficiency) , 53.2 between 30-40 $mgkg^{-1}$ (Low) and 43.6% more than 40 $mgkg^{-1}$. Cu concentration in leaf dry matter 21.8% orchards less than 15 $mgkg^{-1}$, 76.4% between 15-30 and 1.8% more than 30 $mgkg^{-1}$. Therefore it could be concluded that Mn and Zn deficiency is spreaded more than other microelements in this area and this situation makes a limiting factor for the product development.