# Determining mineral nutrition requirments in Golden delicious apple based on leaf and fruit analysis

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Appilcation of leaf and fruit mineral analysis is used to determine nutritional requirments of horticulturl crops as well as diognosis of physiologyical such as bitter pit, fruit breakdown and fungi disease and quality parameters like TSS, pH, color , titrable acidity and firmness.

Forthy 18-years old Golden delicious apple trees grafted on MM106 rootstocks were randomly selected from "Kowsar" orchards in Dasht Ghazvin.

Leaf and fruit samples from each tree were carfully collected for mineral analysis N,P,K,Ca,Mg,Mn,Cu,Fe,Zn. during 1992 and 1993.

Parameters of fruit quality such as TSS, pH, colour, firmness, t.acidity , were also measured at the beginning and end of storage life. Mg and Mn in the leaves and K in the fruit had the most fluctuations during growth season.

The concentration of N in the leaves was higher than mean level, but the concentration of K in the fruit was lower than normal level.

The amount of N and P in the laves was decreased , however the concentration of Ca and Mg was increased in the same year.

Comparing the rate of elements with standard norms, showed that the amount of P:Zn in leaves was equivalent to 62:50, the antagonistic effects of P on the absorbtion of Zn in trees did not exist.

Index of N: Ca in fruit was resulted at the rate of 6.06 demonstrateel that Ca in fruit overall wellabsorbed.

According to this results, the quality and appearance of apple fruit in 1992 was better than the same in 1993.

(at least 2 plans per meter of row) at all irrigation levels and no unirrigated soils for all species for both years, except for unirrigated jojoba in 1992. Lack of large differences in available soil water precluded precise determination of the significance of physiological and morphological characteristics for drought tolerance during seedling establishment of thses species. However, rapid and high seedling emergaence and root growth of paloverde, mesquite, and acacia make these species good selections for abandoned farmland revegetation.

A possible establishment strategy for these 3 species on simolar soils in the Sorona desert would be to irrigate either pre or post-sowing in July to bring the upper 40-60 cm of soil profile to field cappacity, then irrigate daily for about a week until sedlings emerge. Irrigation could then be discontinued and seedlings should survive on subsurface soil moisture. Establishment of jojoba might require longer irrigation periods. A more rigorous comparison of the drought tolerance of these species with the LSSIGS would be to sow and irrigate them on an initially dry soil profile.