NUTRIENT STATUS OF CITRUS ORCHARDS IN PUNJAB

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ABSTRACT

Macro and micronutrient status of citrus was determined by analyzing leaves and associated soils from 34 orchards of Sargodha, 41 of Sahiwal and 34 of Faisalabad district. Almost all orchards of Sargodha, 63% of Sahiwal and 88% of Faisalabad contained marginal to deficient Zn content. However, this widespread Zn deficiency indicated that international criteria may not be precisely appropriate for the local data. Potassium was deficient in 29% orchards of Sargodha, 12% of Sahiwal and 6% of Faisalabad. Copper was inadequate in 6% orchards of Sargodha and 9% of Faisalabad. Nutritional status for Fe was not determined in this extensive investigation. However, a separate study revealed Fe deficiency in the citrus orchard.

INTRODUCTION

Citrus, one of the major fruit crops of the country, is primarily grown in central Punjab and some areas of NWFP. The soils under semi-arid conditions, as in most citrus grown orchards of the Punjab, are generally alkaline, calcareous and, depending on topography, may contain excess salts.

Growers experience, appearance of deficiency symptoms and some nutrient field experiments indicate the prevalence of nutritional disorders like those of N, Zn, Fe, K and/or P. Catara (1987) also confirmed Fe, Zn, Mn

1:1 ratio. Organic matter was determined by the modified Walkley-Black procedure (Nelson and Sommers, 1982) and $CaCO_3$ by the acid neutralization method (Cottenie, 1980). Extractable soil P was determined by $NaHCO_3$ test (Olsen et al., 1954) and K, Ca, Mg and Na by NH_4OAc method (U.S. Salinity Laboratory Staff, 1954). Zinc, Cu, Fe and Mn were determined by DTPA (diethlenetriamine pentaacetic acid method (Lindsay and Norvell, 1987).

Citrus leaves were sampled from 5-7 month old spring flush immediately above the node (Embleton et al., 1973). Leaves were collected from 8-10 random plants in an orchard and a total of 50 leaves were collected for each sample. All the leaves were sampled from non-fruiting twigs 3-6 feet above the ground level. No citrus plant was sampled from the border lines. About half samples of leaves were collected from high yielding citrus orchards and the rest half were collected from the orchards apparently showing Zn deficiency symptoms on leaves (winter chlorosis). The samples of each variety wewre collected separately. Leaf samples were washed with distilled water, dried at 70 °C and ground. Leaf samples were digested with a nitric-perchloric acid mixture (2:1).