

## Fruit yield, soil properties and available nutrient status of young acid lime orchards of Nellore district of Andhra Pradesh, India

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### ABSTRACT

The survey study was carried in sixteen young acid lime orchards grown under Alfisols and Vertisols in semi-arid tract of Nellore district of Andhra Pradesh. Data on fruit yield of young trees (below 8 years old) were recorded in one season. Soil samples (0-30 cm) were collected and analysed for soil properties and available nutrient status. Based on third quartile method twelve orchards were classified as low yielding capacity and rest four orchards as high yielding capacity. The over all yield of young orchards ranged between 0.81 to 2.36 t ha<sup>-1</sup> with a mean of 1.37 t ha<sup>-1</sup>. The highest fruit yield (2.36 t ha<sup>-1</sup>) was found in orchard no.6 followed by orchard no.3 (2.24 t ha<sup>-1</sup>) and lowest in orchard no. 11 (0.81 t ha<sup>-1</sup>). The soils are very slightly to alkaline reaction, moderate to highly calcareous nature with very low to medium in organic content. Regarding available N, P, K<sub>2</sub>O low to medium and sulphur below critical limit in general. The available Zn is more deficient followed by Fe in case of orchards under Vertisols as compared to Alfisols. Where as Cu and Mn are above critical limits irrespective of soil type and yield of orchard.

**Key words :** Acid lime, Available macro nutrients, Available micronutrients, Fruit yield, Soil properties.

Citrus cultivation particularly of acid lime cv. KAGZI lime (*Citrus aurantifolia*) has become quite popular and remunerative fruit crop of Nellore district in Andhra Pradesh. Nearly 50 per cent area and production come from Nellore district alone as compared to rest of all districts in Andhra Pradesh. Quality wise the acid lime fruits produced from this district is very superior and there is a lot of demand from North Indian states. The productivity of acid lime depends on many factors such as climate, site, variety, fertilization, irrigation soil management practices, pests and diseases control.

Among many factors adequate supply of nutrients and good physical properties with suitable soil is very important in regulating the quality of fruits. Similar observation were also recorded by Srivastava and Singh (2001). Very meager information is available on yield bearing capacity, soil properties and nutrient status of young acid lime orchards in particular under semi arid region of Nellore district of Andhra Pradesh. Therefore, the present studies were under taken to determine the nutritional status and to estimate soil properties as well as yield bearing capacity of acid lime orchards.

### MATERIALS AND METHODS

The survey of acid lime orchards was carried out

during year 2001-02 in major acid lime growing tracts located in Nellore district. Studies were conducted in sixteen young orchards acid lime orchards grown under both Alfisols and Vertisols in different villages of the district. Within the villages the orchards were selected at random covering similar range of management practices. Orchards having less than eight years considered as young orchards. In each orchard four pits were dugged in four directions (N-E-W-S) and composite surface soils samples were collected in the month of May at a depth of 0-30 cm from underneath perimeter I order to find out physico-chemical properties and available nutrient status of soil. The soil samples were analysed following standard procedures and methods adopted by different parameters (AOAC, 1980).

Depending up on local market, 3-4 pickings were done in the season from April to June. At each picking the weight of harvested fruits recorded with the consent of the farmer concerned. Based on this average fruit yield from 25 trees in each orchard was computed. Fruit yield per hectare for one season was estimated depending upon the spacing adopted in the orchard. Computation of yield level was done to delineate high and low yielding capacity which was obtained by adopting the procedure of third quartile method (Rao, 1983). The total number of selected orchards were sixteen. The yield levels were arranged in ascending order. The third quartile is  $\frac{3N+1}{4} = 12.25^{\text{th}}$  value,

Where