

Short Communication

Nutrient status and soil properties of calcareous soils of young acid lime orchards of Nellore district of Andhra Pradesh

M. A. Aariff Khan* and Hameedunnisa Begum

Acharya N.G.Ranga Agricultural University, Agricultural Research Station, GARIKAPADU (A. P.) INDIA

Acid lime (*Citrus aurantifolia*) is grown in 30,000 ha area under semi-arid regions in Nellore district of Andhra Pradesh. It is more remunerative than sweet orange and cultivation practices are easier and there is a demand from North Indian states, hence sweet orange is being replaced by acid lime in recent years in Nellore district. The productivity of acid lime depends on many factors such as climate, site, varieties, fertilization, irrigation, soil management practices, pests and disease control. Among the factors adequate supply of nutrients seems to be very important factor in regulating cropping and quality of fruits. It requires adequate supply of nutrients not only for development of vegetative structures and flowers but also give regular harvest of high quality fruits. Srivastava and Shyam singh (2001) reported that 20 t/ha Nagpur mandarin orange fruits removed 116-136 N, 5.6-6.8 P₂O₅, and 60.4-62.6 K₂O kg/ha respectively. Inadequate plant nutrition besides un suitable soil causes serious disorder in acid lime and may eventually lead to early decline of the orchard. In order to achieve high yield and quality fruits as well as longevity of orchards, sufficient nutrient content in soil should be maintained to ensure adequate sustained supply of nutrients to trees.

Major acid lime growing tracts located in Nellore

district were covered in the study. Sixteen young acid lime orchards grown under both Alfisols and Vertisols in different villages of the district were selected. Within the village the orchards were selected at random covering the similar range of management practices. Orchards having plants less than eight years age were considered as young orchards. In each orchard four pits were dugged at random and composite surface soil samples were collected at a depth of 0.30 cm from underneath perimeter in order to find out the physico-chemical properties and available nutrient status of soil. The soil samples were analysed following standard procedures and methods adopted for different parameters.

The results on soil pH (Table 1) revealed that soils are slightly alkaline to alkaline in reaction. The lowest being in orchard no.3(7.61) and highest in orchard 11(8.78). The reason could be attributed to be accumulation of bases and corresponding increase in calcium carbonate content (Aariff khan *et. al.*, 2005) The organic carbon content was very low to medium ranged from 0.15 - 0.45 %. The reason might be due to less application of organic manures coupled with semi-arid conditions, the applied organic manures to soils get mineralizes very fast (Durgesh, 1994). Almost all orchards soils had shown lime concretions except one

Table 1: Soil properties (0-30cm) of young acid lime orchards

Orchard No	Soil Type	pH	HCO ₃ (ppm)	CaCO ₃ (%)	O.C (%)
1	Alfisols	8.53	226	10.0	0.19
2	Alfisols	8.58	378	19.6	0.15
3	Alfisols	7.61	232	12.5	0.45
4	Alfisols	7.84	232	13.2	0.34
5	Alfisols	7.88	244	11.7	0.42
6	Alfisols	7.43	110	10.1	0.45
7	Alfisols	8.25	192	12.8	0.33
8	Alfisols	8.13	281	12.2	0.43
9	Alfisols	7.88	287	15.8	0.28
10	Alfisols	8.15	213	14.8	0.32
11	Alfisols	8.78	323	18.5	0.12
12	Alfisols	8.16	244	13.5	0.38
13	Vertisols	8.60	330	20.0	0.28
14	Vertisols	8.42	305	18.8	0.22
15	Vertisols	7.84	186	11.8	0.52
16	Vertisols	8.43	268	17.2	0.25

* Author for corresponsence.