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EFFECT OF INM ON AVAILABLE NUTRIENT STATUS OF YOUNG ACID LIME (*Citrus aurantifolia* swingle) ORCHARDS OF A.P., INDIA

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ABSTRACT

A field experiment was conducted at Citrus Research Station, Petlur, Andhra Pradesh for two successive years of 1997-98 and 1998-99 on young acid lime (*Citrus aurantifolia* Swingle) orchards in calcareous soils to find out the effect of components of INM as individual and combinations on soil available nutrient status. Application of individual higher dose of FYM @ 50 kg plant^{-1} and conjoint use of iron pyrites @200 g along with FYM 25 kg + PM 2 kg plant^{-1} were superior treatments and significantly increased the available nutrient status of N, P, K and S in both the years over control.

Key words : INM, Citrus, Acid lime, Macronutrients

Acid lime (*Citrus aurantifolia Swingle*) is one of the most important citrus species grown in arid and semi-arid areas of Andhra Pradesh. Most of the acid lime orchards are grown on both red and black calcareous soils which are actually unsuitable with reference to economic production and longevity of orchards. In general, calcareous soils are poor in physical properties and contain high level of bicarbonate, free $CaCO_3$ and low organic carbon contents which are undesirable for acidlime growth at younger stage (Aariff Khan, 2001). If proper care is taken from planting onwards in nutrition management by using both organic manures and inorganic fertilizers the nutritional problems may not arise. Keeping in view of this problem an attempt was made to find out the effect of INM on soil available nutrient status of young acid lime orchards.

MATERIALS AND METHODS

A field experiment was carried for two consecutive years 1997-98 and 1998-99 at Citrus Research Station Petlur, Andhra Pradesh. The soil was sandy clay loam to sandy loam and calcareous in nature (Table 1). The experiment was laid in randomized block design with treatment combinations each replicated thrice. The treatments consists of two levels each of FYM @ 25 and 50 kg plant^{-1}, Press mud (PM) @ 4 and 8 kg plant^{-1}, three levels of iron pyrites. The treatments consists of two levels each of FYM@ 25 and 50 kg plant^{-1}, Press mud (PM) @ 4 and 8 kg plant^{-1}, three levels of iron pyrites (IP) @ 100, 200 and 300 g plant^{-1} and biofertilizer (VAM) @ 150 g plant^{-1}. The treatments were imposed along with normal recommended dose of N, P_2O_5 and K_2O @ 1125-450-600 and 1500-600-900 g plant $^{-1}$ for 3rd and 4th year aged plants. The fertilizers were applied in two split doses in the month of January and August. Half of the N was supplied through urea and the remaining through FYM and neem cake. The initial soil samples were collected at 0-30, 30-60 and 60-90 cm depth and final samples at 0-30 cm depth in both first and second year of the experiment are analyzed for available nutrient status by following the standard methods (AOAC, 1980).

Table 1: Initial soil characteristics of experimental site

Soil properties	Depth (cm)		
	0-30	30-60	60-90
pH	8.30	8.50	8.70
EC (dSm-1)	0.24	0.25	0.32
OC (%)	0.28	0.21	0.12
HCO_3 (mg kg-1)	310	323	345
$CaCO_3$ (mg kg-1)	16.50	19.80	20.50
Available N (kg ha^{-1})	201.40	165.80	147.50
Available P_2O_5 (kg ha $^{-1}$)	27.70	21.50	13.80
Available K_2O (kg ha $^{-1}$)	339.60	286.50	200.80
Available S (kg ha $^{-1}$)	8.60	6.60	3.80

RESULTS AND DISCUSSION

Available N:

The results revealed that there was significant effect by different treatments over control (Table 2). Among