

Short Communication

Influence of components of INM on plant growth of acid lime

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In Andhra Pradesh, the important citrus species are both acid lime (*Citrus aurantifolia*) and sweet orange (*Citrus sinensis*). Acid lime is grown in arid and semi-arid regions of many districts. Due to more remunerative price, new acid lime plantations are raised in less suitable soils like calcareous soil, which need special attention in nutrition otherwise growth and productivity of orchards is reduced. In recent years, citrus farmers are habituated in using the readily and easily available chemical fertilizers regularly with decreased use of organic manures viz., FYM, compost, oil cakes and green leaf manure due to shortage of their availability in bulk quantities as well as transport and labour cost (Aariff Khan, 2001).

Among the organic inputs, press mud as a waste product of sugar factory is a source of many nutrients and organic carbon. There are nearly fifteen sugar factories operating in and around the state. Iron pyrites a waste product in iron and coal mines is most useful for calcareous soils as it is a cheap source of both iron and Sulphur could be effectively utilized for improving the citrus productivity under calcareous soils. Vesicular arbuscular mycorrhizae (VAM) is most important biofertilizer suitable for citrus orchards as it has strong affinity with citrus roots, In view of the increased availability of press mud and dwindling supply of FYM, investigations have thus become imperative to assess their combinations and dosages levels of all possible organic, bio

fertilizer input with and with out iron pyrites as inorganic input.

MATERIALS AND METHODS

Field experiment was conducted on 3 years old acid lime seedlings cultivar kagzi lime for 2 consecutive years in 1997-98 and 1998-99 at citrus research station, Petlur, Nellore district, Andhra Pradesh. The experiment was laid out with 19 treatments replicated thrice by following randomized block design. Well decomposed farm yard manure at 2 levels @ 25 and 50 kg/plant, press mud at 2 levels @ 4 and 8 kg/plant as organic source, iron pyrites as inorganic source at 3 levels @ 100, 200 and 300 g/plant and VAM as biofertilizer @ 150 g/plant is used for the present study. In addition to a recommended dose of N, P₂O₅, K₂O (1125-450-600 g/plant for three year aged and 1500-600-800 g/plant for four year old) in 2 split doses i.e. in January and July were applied uniformly to all plants. Out of the recommended dose of nitrogen, 50% was supplied through urea and the remaining through organic manure i.e. 25% N each through FYM and neem cake. Where as entire dose of P₂O₅ and K₂O were supplied by super phosphate and muriate of potash respectively.

The experimental surface and sub soil is slightly alkaline (8.25-8.69), non-saline (0.24-0.32 d S/m) and calcareous nature (CaCO₃ 16.5-20.5%) with very low organic carbon content (0.28-0.12%). Growth parameters such as height, girth and volume were recorded

Table 1: Plant growth characters of acid lime as influenced by Integrated Nutrient Management

Tr No.	Treatment	Initial Height (----- m -----)	First Year (----- m -----)	Second Year (----- m -----)	Initial Volume (----- m ³ -----)	First Year (----- m ³ -----)	Second Year (----- m ³ -----)
T ₁	Contro	2.10	2.42	2.94	4.90	6.10	8.87
T ₂	Iron Pyrites (IP) 100 g/plant	2.08	2.59	3.26	5.18	7.27	11.25
T ₃	Iron Pyrites (IP) 200 g/plant	2.04	2.73	3.40	5.05	7.58	11.68
T ₄	Iron Pyrites (IP) 300 g/plant	2.03	2.84	3.59	5.02	7.96	12.25
T ₅	FYM 25 kg /plant	2.10	2.95	3.66	5.02	8.20	12.63
T ₆	FYM 50 kg/plant	2.00	3.20	4.02	5.01	8.77	13.62
T ₇	Press mud (PM) 4 kg/plant	1.98	2.92	3.60	5.00	8.12	12.30
T ₈	Press mud (PM) 8 kg/plant	2.02	3.11	3.90	4.91	8.69	13.47
T ₉	FYM 25 kg + IP 100 g/plant	2.06	3.00	3.76	4.87	8.28	12.82
T ₁₀	FYM 25 kg + IP 200 g/plant	1.97	3.16	3.94	5.03	8.74	13.36
T ₁₁	PM 4 kg + IP 100 g/plant	2.04	2.93	3.63	5.01	8.22	12.45
T ₁₂	PM 4 kg + IP 200 g/plant	2.05	3.09	3.73	5.04	8.50	12.97
T ₁₃	FYM 12.5 kg + PM 2 kg + IP 100 g/plant	2.01	2.95	3.74	5.10	8.08	12.02
T ₁₄	FYM 12.5 kg + PM 2 kg + IP 200 g/plant	2.04	3.11	3.82	5.05	8.27	12.76
T ₁₅	FYM 25 kg + PM 2 kg + IP 100 g/plant	2.03	3.04	3.85	4.86	8.31	13.03
T ₁₆	FYM 25 kg + PM 2 kg + IP 200 g/plant	2.00	3.20	3.99	4.80	8.78	13.78
T ₁₇	VAM 150 g/plant	2.02	2.58	3.24	4.90	7.20	11.06
T ₁₈	VAM + IP 100 g/plant	1.98	2.72	3.32	5.00	7.39	11.44
T ₁₉	VAM + IP 200 g/plant	2.03	2.80	3.48	5.02	7.88	12.18
Mean		-	2.91	3.62	4.99	8.02	12.31
SE (M)±		-	0.10	0.13	-	0.28	0.61
C.D at 5%		-	0.29	0.37	-	0.80	1.70

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