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KNOWLEDGE OF RECOMMENDED CULTIVATION PRACTICES AMONG SWEET LIME GROWERS

S.S. Walde[1*], V.V. Tayde[2], S.S. Bhople[1] and P.A. Sakhare[3]
[1]Department of Extension Education, College of Agriculture, Latur, Maharashtra, India
[2]Department of Extension Education, College of Agriculture, Ambagojai,Maharashtra, India
[3]Department of Extension Education, College of Agriculture, Parbhani,Maharashtra, India
*Corresponding author Email id: saurabhwalde789@gmail.com

ABSTRACT

A sample of 120 respondents was drawn randomly from 12 villages. From each village 10 sweet lime growers were chosen from selected villages. Ex post facto research design was followed in the present investigation. The present investigation was carried out in Chhatrapati Sambhaji Nagar district of Marathwada region and found that the progressive growers of the village were found to be the most credible source of information for the sweet lime growers. The soil testing recommendation; loosening of soil; use of recommended rootstock; user of recommended variety; planting method; plantation of seedling in pit; plant to plant distance; proper age of the graft; application of FYM and recommended dose of fertilizer and micronutrients; method of irrigation; training and pruning; weed management and pest management and disease management were the practices partially had knowledge by more than half of the sweet lime grower, along with the information about variables namely knowledge of recommended cultivation practices among sweet lime growers.

Finding revealed that, majority (76.67%) of sweet lime growers belonged to the medium level category of knowledge, whereas 14.17 per cent and 09.17 per cent sweet lime growers belong to low and high level of knowledge, respectively about recommended cultivation practices of sweet lime.

Keywords **:** Knowledge, sweet lime growers, recommended cultivation practices, Marathwada region, *Citurs limon*

Introduction

Horticulture plays an important role in Indian economy. It is a branch of agriculture concerned and intensively cultured parts directly used by man for food and aesthetic purposes. Horticulture accounts for about 30% of India's agricultural GDP from 13.08% of cropped area. Share of horticulture in agricultural production was more than 33%. Citrus is one of the most important fruit crops of the world grown in more than 100 countries.

Sweet lime (*Citrus limetta*), alternatively considered to be a cultivar of Citrus Limon, C. Limon 'Limetta', is a species of citrus along with other fruits such as mandarins, lemons, grape fruits and limes. Sweet lime is native to South Asia and South-East Asia and also cultivated in the Mediterranean Basin. Sweet lime commonly known as mousambi, mosambi or musambi in north India and musambi in Kannada and Malayalam, Bathaya Kaayalu/Cheeni Kaayalu in Telugu, and Sathukudi in Tamil. Sweet lime accounts for the highest value share of total citrus produced, followed by grapefruits, lemons, mandarins and limes.

Sweet lime tree is distinctive in appearance, medium-large in size and of spreading but irregular growth habit, with thick, thorny branches and medium-dense foliage. The fruits are small, round to slightly oblong and have a thin, smooth rind with prominent oil glands. At maturity, the rind is pale green to orange-yellow and flavor is insipid due to lack of acidity in the fruit, pulp is pale yellow, tender and juicy.

It is commercially propagated by budding method in India, as the progeny is true-to-type and mortality of budded seedlings is also less and are free from virus. Generally, 4-5 years are required for first fruiting. It is also cheapest and easiest method of propagation. Disease free nursery stock is the prerequisite for establishing a viable and productive orchard. National Research Centre for citrus, selection of mother plants for seed is the most crucial part of production of disease-free planting materials. The best season of planting the seedlings is June to August.

Materials and Methods

The present study was regulated in the Chhatrapati Sambhaji Nagar district of the Marathwada region of Maharashtra state. From this region Chhatrapati Sambhaji Nagar district was purposively selected for research purpose due to largest area of sweet lime growers. From Chhatrapati Sambhaji Nagar district out of nine tehsils, only three tehsils i.e. gangapur, vaijapur and kannad have been purposively selected because their tehsil constituted maximum area under sweet lime cultivation. From each selected tehsil four villages were randomly selected. Thus, total 12 villages were selected for the study. From each village 10 respondents were selected randomly. Thus, a total of 120 respondents were selected as sample respondents for this study. These selections were done by using a simple random sampling method.

The ex-post-facto research design used for present study. An interview schedule was prepared in view of the objective of the study and data were collected by personal interview of the selected sweet lime growers at their home or farms. The collected data was organized, tabulated and analyzed with the help of statistical tools like frequency, mean, percentage, standard deviation, correlation of coefficient (r), and multiple regression.

Results and Discussion

Knowledge of sweet lime growers about recommended cultivation practices

Table 1: Distribution of growers according to their knowledge of recommended cultivation practices of sweet lime

SL. No.	Statements	Information			
		Yes		No	
		Freq.	Per Cent	Freq.	Per cent
1	Soil testing recommendation	120	100.00	00	0.00
2	Mechanization - Loosening of soil with rotavator	120	100.00	00	0.00
3	Use of recommended rootstock - Light - Medium soil - Jamberi Heavy black cotton soil - Rangpur lime	60	50.00	60	50.00
4	Use of recommended variety - (Nucellar, Phule Mosambi, Satgudi, Katol gold)	86	71.67	34	28.33
5	Planting Method - (Ridge and furrow, Raised bed)	72	60.00	48	40.00
6	Plantation of seedlings in pit - Pit size (60X60X60 cm)	48	40.00	72	60.00
7	Plant to plant distance (Recommended Spacing) - (4X4m)	66	55.00	54	45.00
8	Age of Graft (3 months)	65	54.17	55	45.83
9	Application of FYM to tree - 50kg FYM + 5kg Neemcake	86	71.67	34	28.33
10	Fertigation - Application of fertilizer as per recommendation (600gN, 200gP,100gK)	69	57.50	51	42.50
11	Application of micronutrients ($CuSO_4$, $MnSO_4$, $ZnSO_4$, $MgSO_4$) to tree- Soil application -100g/pl each Spraying-0.2% each	67	55.83	53	44.17
12	Method of Irrigation - Single ring method to irrigate	74	61.67	46	38.33
13	Double ring method to irrigate- In summer 8-10 days and in winter 12-15 days interval	73	60.83	47	39.17

14	Drip Irrigation to irrigate	109	90.83	11	9.17
15	Bordeaux paste application- 1% Bordeaux paste:1kg lime +1kg $CuSO_4$+10 lit water Twice in a year Before monsoon: Feb-Mar After monsoon: Oct-Nov	78	65.00	42	35.00
16	Training and Pruning (Deadwood removal)	109	90.83	11	9.17
17	After training and deadwood removal application of fungicide over it	90	75.00	30	25.00
18	Production of 800-1200 fruit as per recommendation to per plant for better quality	77	64.17	43	35.83
19	Weed Management-Diuron/ Gramoxone	112	93.33	08	6.67
20	Choice of Mrig Bahar (June -July)	76	63.33	44	36.67
21	Choice of Ambia Bahar (Jan. - Feb.)	76	63.33	44	36.67
22	Pest management				
A	Application to control measures for citrus psylla (Spraying the plant with phosphomidon (0.025%) and parathion (0.05%)	89	74.17	31	25.83
B	Application to control measure for Bark eating caterpillar as per recommendation-Close the bore with wet soil after filling it by the solution of Monocotophos 36% or Dichlorvas 76 % with the help of droper, twice or thrice in year	91	75.83	29	24.17
C	Application to control measure for Fruit sucking moth as per recommendation-Dissolve 100 g jiggery + Malathionin 20ml + 1 lit water. Put the solution in jag at hang over the tree.	75	62.50	45	37.50
23	Fruit thinning by hand/Ethrel	117	97.50	03	2.50
24	Disease Management- (Gummosis - Painting 1 m of the stem above the ground level with Bordeaux paste)	120	100.00	00	0.00
25	Post-harvest Management	33	27.50	87	72.50

Knowledge is an important variable which determines the use and application of recommended sweet lime production technology. From the above Table 1 it is revealed that, cent per cent (100%) of the growers had knowledge about soil testing recommendation and mechanization of loosening of soil with the help of rotavator.

It was also observed that 50.00 per cent of growers know about recommended rootstock and soil for rootstock like Jamberi and Rangpur lime. It was also observed that 50.00 per cent of growers had no knowledge about rootstock and recommended soil for rootstock. Also 71.67 per cent growers know about the recommended varieties like Nucellar, Phule Mosambi, Satgudi, Katol gold and 28.33 per cent had no knowledge about these varieties.

It was noticed that, most 60.00 per cent of the growers had knowledge about planting method of sweet lime and 40.00 per cent growers had no knowledge about it, and vice versa 40 per cent of growers were having knowledge about pit size and 60 per cent growers had no knowledge about pit size, also 55.00 per cent growers had knowledge regarding recommended spacing and 45.00 per cent growers had no knowledge about recommended spacing of sweet lime.

It was observed from the table that, about 54.17 per cent of growers had knowledge about recommended age of the graft and 45.83 per cent of growers had no knowledge about age of the graft for sowing. The sweet lime crop a high valued crop need to adopt the improved technologies. It was noticed that 71.67 per cent growers had knowledge about the FYM and Neem cake and 28.33 per cent growers had no knowledge about it, also 57.50 per cent growers had knowledge about the recommended fertigation and 42.50 per cent growers had no knowledge about recommended fertigation. It was noticed that about 55.83 per cent growers had knowledge about the

recommended application of micronutrients and 44.17 per cent growers had no knowledge about the recommended application of micronutrients.

There were some methods of irrigation in sweet lime cultivation like single ring method, double ring method and drip irrigation. It was observed that about 61.67 per cent growers had knowledge about single ring method and 38.33 per cent growers had no knowledge about single ring method. About 60.83 per cent growers had knowledge about double ring method and 39.17 per cent growers had no knowledge about double ring method. One of the best method of irrigation is drip irrigation whereas about 90.83 per cent growers had knowledge about drip method of irrigation and 9.17 per cent growers had no knowledge about drip method of irrigation.

It was revealed that about 65.00 per cent growers had knowledge about application of Bordeaux paste and 35.00 per cent growers had no knowledge about application of Bordeaux paste as fungicide. The other important practices namely, training, pruning and deadwood removal. It was observed that about 90.83 per cent growers had knowledge about training and pruning and only 09.17 per cent growers had no knowledge about training and pruning method. There were 75.00 per cent had knowledge about application of fungicide after training and deadwood removal and about 25.00 per cent had no knowledge about application of fungicide after training and deadwood removal.

It was observed that about 64.17 per cent had knowledge about production of 800-1200 fruits per plant as per recommendation for the better quality and 35.83 per cent of growers had no knowledge about it. The other major practice known by the sweet lime growers were method of application of weedicides, about 93.33 per cent of growers had knowledge about weed management and 6.67 per cent of growers had no knowledge about recommended knowledge of weed management. Also sweet lime crops may had two bahars like mrig bahar and ambia bahar, about 63.33 per cent of growers had knowledge about recommended time and method of harvesting of both mrig bahar and ambia bahar and about 36.67 per cent of growers had no knowledge about it.

One of the major operation in sweet lime cultivation is pest management. It was observed that about 74.17 per cent, 75.83 per cent and 62.50 percent of growers had knowledge and 25.83 per cent, 24.17 per cent and 37.50 per cent of sweet lime growers had no knowledge about recommended application of control measure for citrus psylla, bark eating caterpillar and fruit sucking moth respectively.

It was also noticed that about 97.50 per cent of growers had knowledge about fruit thinning by hands or use of ethrel and only 02.50 per cent growers had no knowledge about fruit thinning. Again one of the important operation is disease management and it was noticed that 100 per cent of sweet lime growers had knowledge about disease management of gummosis with the help of Bordeaux paste. Also it was noticed that about 27.50 per cent of growers had knowledge about post-harvest management and 72.50 per cent of growers had no knowledge about post-harvest management.

Table 2: Distribution of sweet lime growers according to their overall knowledge of recommended cultivation practices of sweet lime

SL. No.	Category	Frequency	Percentage
1	Low (Up to 40)	17	14.17
2	Medium (from 41 to 51)	92	76.67
3	High (52 and above)	11	09.17
	Total	**120**	**100.00**

The data pertaining in Table 2 represents that majority (76.67%) of sweet lime growers belonged to the medium level category of knowledge, whereas 14.17 per cent and 09.17 per cent sweet lime growers belong to low and high level of knowledge, respectively.

The results deduced that, majority (76.67%) of the growers belonged to medium category of knowledge about recommended cultivation practices of sweet lime. The potential reason for the above fact could be that the sweet lime growers had medium extension contact which results in medium participation in various training programme. Due to medium level of participation the knowledge about the improved cultivation practices of sweet lime was at medium level.

These findings are in line with the findings of Atar (2012), Kadu (2016), Vithalakar (2021) and Hiwarale (2022).

Conclusion

It is concluded that from the present study that majorities of the sweet lime growers were having medium level farming experience, education and medium level of family size, occupation and annual income respectively. Further it could be observed that majority of the respondents had medium level of land holding, area under orchard, extension contact, market orientation and innovativeness. It is clearly observed that, majority of the respondents had a favourable knowledge of sweet lime production technology.

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