

**RESEARCH ARTICLE :**

Knowledge of recommended lime cultivation practices

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06.09.2017;**Revised :**
12.09.2017;**Accepted :**
29.09.2017

SUMMARY : Fruit growing or pomology is of special value in the industrialization of a country and it serves as the mother of many industries because it is as old as human civilization itself. Fruits are man's oldest food and are the chief source of vitamins, minerals and proteins which are necessary to maintain proper health and acquire resistance to diseases. Kagzi lime (*Citrus aurantifolia* Swingle) is cultivated extensively on commercial scale and is more popular than lemon. The present investigation was conducted in Vijayapura and Kalaburagi district of Northern Karnataka in the year 2013-14. A sample size of 140 respondents who have minimum one acre of lime orchard and who have at least five years and above old orchard were selected randomly. The data were collected through personal interview method with the help of structured interview schedule. indicated that majority of the lime growers had correct knowledge of recommended varieties, suitable soil, plant spacing, ideal size of pit, fertilizer application and irrigation method, majority (53.58 %) of lime growers had medium knowledge level followed by high (30.71 %) and low (15.71 %) level of knowledge.

How to cite this article : Attar, Jameer R. and Aski, S.G. (2017). Knowledge of recommended lime cultivation practices. *Agric. Update*, 12(4): 619-622; DOI : 10.15740/HAS/AU/12.4/619-622.

KEY WORDS :

Knowledge, Citrus fruits, Lime growers

BACKGROUND AND OBJECTIVES

Fruit growing or pomology is of special value in the industrialization of a country and it serves as the mother of many industries because it is as old as human civilization itself. Fruits are man's oldest food and are the chief source of vitamins, minerals and proteins which are necessary to maintain proper health and acquire resistance to diseases. Citrus fruits have a prominent place among popular and extensively grown tropical and sub-tropical fruits. Citrus fruits possess greater adaptability to different climatic conditions. Lime provides vitamins (vit-C), minerals and

many other essential substance which are required for human health. In our country, Kagzi lime (*Citrus aurantifolia* Swingle) is cultivated extensively on commercial scale and is more popular than lemon. Bijapur in Karnataka is major lime growing district with an area of 1600 ha producing 24000 t. It is yet to exploit its potentiality for growing lime in extensive scale. The average yield per plant is 800 fruits, which is very less compared to the estimated yield of 1000-2000 fruits per plant per year. So, there is lot of scope for increasing the production of lime. Acid lime crop is extensively grown in Vijayapura

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district. There is always high volatility of market prices leading to uncertainty, however, there are instances where producer making huge profit and also incurring losses. Under these circumstances economic analysis of acid lime cultivation would help in knowing income and employment potential. The economic performance of a crop is assessed on the basis of cost of production and net returns obtained per unit area. The empirical data on physical inputs and net returns per unit area would be extremely useful to farmers and policy makers to augment the productivity and production of this crop enterprise. There is a need to study cost and returns of acid lime and it is also essential to analyze the wide seasonal fluctuations, or variations in prices of acid lime and the relationship between the arrivals and prices. The different institutional or non-institutional marketing channels involved in marketing of acid lime along with the price spread in different channels of marketing and the new marketing practices also warrant an in-depth analysis. There appears to be a potential for establishment of processing units by utilizing the base material that is lime in the study area. The study will be able to provide basic information to such propositions. Similarly, identification of different problems faced by the farmers with respect to production and marketing of acid lime helps in devising appropriate strategies to support and stabilize producer income. In view of this, there is good scope for making comprehensive study in this regard which would help the farmers to have first hand prior knowledge of profitability of lime cultivation.

RESOURCES AND METHODS

The study was conducted in the purposively selected Vijayapura and Kalaburagi district of Northern Karnataka in the year 2013-14 on basis of largest cultivated area under lime (Anonymous, 2014a). Among the five taluks of Vijayapura district, Indi taluk had the maximum area under lime (3564 ha) followed by Vijayapura (1464 ha) taluk (Anonymous, 2014b). Similarly among seven taluks of Kalaburagi district, Afzalpur taluk (315 ha) had maximum area followed by Aland (235ha) taluka (Anonymous, 2014b). Hence, Indi taluk in Vijayapura district, and Afzalpur taluk from Kalaburagi district were purposively selected for the study. The list of villages having highest area and production in the Taluk was obtained from the Department of Horticulture and villages having highest area and production were selected for

the study. From each taluk seven villages were selected and from each village 10 lime growers who have minimum one acre of lime orchard and who have at least five years and above old orchard were selected randomly. Thus, the total sample size of the respondents is 140 for the study. In the present investigation, *Ex-post-facto* research design was used.

The purpose of fixing the criteria of five years and above old orchard was that the lime requires more than five years to harvest good crop, so in five years one can harvest at least one crop which facilitates to study the knowledge and adoption of lime grower. The data were collected by using pre-structured schedule prepared in consultation with scientists of University and State Department of Horticulture. The data were analysed by using suitable statistical tools frequency, percentage and correlation co-efficient.

OBSERVATIONS AND ANALYSIS

The findings of the present study as well as relevant discussion have been summarized under following heads:

Knowledge of individual recommended cultivation practices of lime :

An appraisal of Table 1 indicated that majority of the lime growers had correct knowledge of recommended varieties, suitable soil, plant spacing, ideal size of pit, fertilizer application and irrigation method.

The reason to use recommended variety Kagzi lime may be due to the fact that only variety Kagzi lime is available for cultivation by all lime growers and Kagzi lime is one of the existing best local variety. Use of recommended variety is prerequisite for lime cultivation and therefore, they might have acquired knowledge to the fullest extent.

Correct knowledge about suitable soil, spacing, opening of pits and irrigation method can be explained by simplicity of these practices and easy to remember the information obtained from different sources. There was a considerable percentage of consultation with various informal sources like friends, relatives and neighbours by the respondents. In turn, these sources might have passed on the information to other growers. The tendency of farmers was that they prefer to contact successful farmers and try to know as much as possible. Such horizontal flow of information is a common feature among the farmers.

Possession of correct knowledge about carbaryl, NSKE, Bordeaux mixture and carbendazim application and control of various pests and diseases of lime is due to the fact that these lime cultivation practices are similar to that of other fruit cultivation practices. The above results are in accordance with the findings of Amruthrao

(2009), Hinge (2009) and Rajashekhar (2009).

Overall knowledge level of recommended cultivation practices of lime

A perusal of data in Table 2 indicates that, majority (53.58 %) of lime growers had medium knowledge level

Table 1 : Distribution of respondents based on knowledge level of individual recommended cultivation practices of lime (n = 140)

Sr. No.	Recommended practices	Frequency	Percentage
1.	Recommended lime variety: Kagzi	115	82.14
2.	Suitable soil : Loam and sandy loam	140	100.00
3.	Plant spacing : Inter and Intra Row (6 m x 6 m)	132	94.29
4.	Ideal size of the pits for planting (75 cm x 75 cm x 75 cm)	128	91.43
5.	Fertilizer management		
	FYM dose per ha (8.40 t/ha/year)	122	87.14
	Chemical fertilizer: NPK (kg/ha) (N: 138 kg/ha, P: 83 kg/ha, K: 138 kg/ha)	76	54.29
6.	Irrigation system (Drip irrigation)	123	87.85
7.	Major diseases and control measures		
	Name of the diseases (Citrus canker, Die back)	140	100
	Bordeaux mixture, Carbendazim	71	50.71
	Concentration: 10 g @ 1 %/1 ltr. Water (@ 15 days interval) and @ 0.1 % 1 ltr. Water (@ 10 days interval), respectively	66	47.14
8.	Major pest and control measures		
	Name of the pest (Citrus butterfly and Leaf minor)	140	100
	Carboryl, NSKE (Neem Seed Kernal Extraction).	79	56.43
	Concentration: 50 WP /1 ltr. Water (@ 10 days interval) and @ 5 % (@ 15 days interval), respectively	72	51.43
9.	Harvesting of lime		
	Ideal stage of harvesting (Dark Green to Yellow)	140	100
	Method of harvesting (Handpicking)	140	100

Table 2 : Distribution of respondents based on the overall knowledge level of the recommended cultivation practices of lime (n = 140)

Sr. No.	Category	Frequency	Percentage
1.	Low (<12.79)	22	15.71
2.	Medium (12.79 to 12.90)	75	53.58
3.	High (>12.90)	43	30.71
	Mean = 12.85 SD = 1.18		

Table 3 : Relationship between personal and socio-economic characteristics of lime growers with their knowledge level (n = 140)

Sr. No.	Variables	Correlation
1.	Age	0.213**
2.	Education	0.254**
3.	Family size	0.037
4.	Land holding	0.029
5.	Annual income	0.027
6.	Extension contact	0.246**
7.	Mass media participation	0.165*
8.	Experience in lime cultivation	0.238**
9.	Economic motivation	0.182*
10.	Organization participation	0.102

* and ** indicate significance of values at P=0.05 and 0.01, respectively

followed by high (30.71 %) and low (15.71 %) level of knowledge.

The reasons might be due to the fact that more number of the lime growers were educated and exposed themselves to different mass media which provided the information about different technology. In addition, it is very clear from the results that the variables like extension contact, organisation participation and economic motivation might have influenced the knowledge level of farmers about cultivation practices of lime crop.

Relationship between personal and socio-economic characteristics of the respondents and knowledge level of lime growers :

The results indicated in Table 3 revealed that the variables namely, age, education, experience in lime cultivation, mass media participation, economic motivation and extension contact had positive and significant relationship with the knowledge level of lime growers. Similar findings were reported by Gomase *et al.* (1998) and Katole *et al.* (2013).

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