

## TRAINING NEEDS OF LIME GROWERS FOR IMPROVING THEIR MANAGERIAL ABILITY IN FLOOD PRONE ZONE (IIIB) OF RAJASTHAN

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### ABSTRACT

The present study was conducted in Bharatpur and Karauli district of Rajasthan. Two panchayat samities from Bharatpur and one from Karauli were identified on the basis of maximum area and production of lime. Three villages from each selected panchayat samiti were taken for the study and total 200 lime growers were selected from the identified villages. Findings revealed that layout and planting of orchard, well acquaintance with cultivation of lime cultivation technology, identification of damage, symptoms and life history of major pest and diseases of lime orchard, methods of preparation of Bordeaux mixture, different methods of irrigation and their comparative efficiency were most interesting training need areas of lime growers in the study area.

### INTRODUCTION

The ultimate aim of any training is to upgrade the knowledge and the managerial abilities of the participants to enable them to perform their job efficiently. This is much true in the field of horticulture, as the scientific farming is more complex and cumbersome in nature, which demands for sound and specialized skill for its successful operation. There are many ways to measure the outcome and effectiveness of the training. Of them, one indication is to assess the degree of training needs especially for lime crops to improve their managerial abilities of lime growers. The list of competencies for selected subject was prepared, keeping in view the syllabus, opinion of master trainers and scientists' concerned discipline.

The agricultural technology is also changing and developing very fast in the age of technological explosion. Training improves a person's skill, his power of intelligence and develops in him the desired attitudes and values required for his work. The lime grower works as manager on his farm, he performs many functions in carrying out better production. The training and education are life long requirements to improve skills and knowledge for

its betterment in his enterprise. Therefore, the assessment of training needs of lime growers will be helpful for scientific cultivation of lime. For an effective training, a training program must be modelled in such a way that it could meet the needs of the trainees and the organisation in which they serve. Therefore, it is of paramount importance to determine the training needs before organising the training programme.

**In light of the above view, the present study on "Training Needs of Lime Growers for Improving their Managerial Ability in Flood Prone Zone (Iib) of Rajasthan" was undertaken.**

### RESEARCH METHODOLOGY

The Rajasthan state has ten agro-climatic zones, out of which flood prone eastern plain zone (IIIb) was selected purposely for the study purpose because this zone has maximum production under lime cultivation. This zone consist five districts, out of which Bharatpur and Karuli districts were selected because these districts has maximum production of lime. Bharatpur and Karauli districts have 9 and 5 panchayat samities, respectively, out of which two panchayat samities of Bharatpur *i.e.* Bayana and

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Weir and one panchayat samiti of Karauli *i.e.* Nadoti were selected because these panchayat samities occupied maximum area and production in their respective districts. Separate lists of all the lime growing villages from each the selected panchayat samiti was prepared and 3 villages from each panchayat samiti were selected purposely due to having maximum number of lime growers. From the selected villages, a comprehensive list of all lime growers having at least one bigha orchard for last five years were prepared and 30 per cent of lime growers from each of the village and total 200 lime growers from all 9 villages were selected with the help of random sampling technique for the study purpose.

In order to measure the training needs of lime growers, the scale developed by Sharma and Singh (1970) was used with slight modifications. The data were collected by personally interviewing the respondents and were classified, tabulated and statistically analysed, which led to following findings.

## RESULTS AND DISCUSSION

The important areas of competencies in which the training was needed by the lime growers considering their job were finalized. Figure in brackets indicate the number of competencies included in a particular area *i.e.* Horticulture practices (14), plant protection (9), soil and water management in lime and (10) post-harvest technology (6).

### 1. Horticulture Practices:

The data in Table 1 reveal that among the horticulture practices the most needed competency by the lime growers was 'layout and planning of orchard (mean score 2.71) which was perceived 'most necessary' by 75.00 per cent lime growers, 'necessary' by 20.50 per cent lime growers and 'somewhat necessary' by 2.50 per cent lime growers and ranked first. The second most important competency in which training needed by the lime growers was 'well acquaintance with lime production technology' with mean score 2.53 per cent and ranked second in which 70.00 per cent of the respondents needed 'most necessary, while equal number (15.00 per cent) of them opted the requirement of training as 'necessary' and

'somewhat necessary' respectively.

The third most needed area of training by the lime growers was 'maximum and economic return per unit investment in production system (mean score 2.41) in which requirement of training was perceived 'most necessary' by 67.50 per cent lime growers, necessary by 14.50 per cent and 'somewhat necessary' by 11.00 per cent lime growers and it was ranked third among the horticulture.

Similarly the lime growers needed training in the competencies like proper use of agro chemicals (mean score 2.45), precaution against soil health deterioration in orchard (mean score 2.04), estimate/calculation of economics for development of new orchard, (mean score 1.98) and these were ranked fourth, fifth and sixth respectively.

The lime growers least needed training was in the area of adequate attention towards the quality of fruit production technology (mean score 1.38) in which 37.50 per cent and 28.50 per cent lime growers perceived that training is not necessary and somewhat necessary respectively in this area.

### 2. Plant Protection:

The data in Table 2 reveal that among the plant protection practices the most needed competency by the lime growers was 'identification of damage symptoms and life history of major pests and diseases of lime orchard (mean score 2.70), which was perceived 'most necessary' by 71.00 per cent lime growers, 'necessary' by 28.00 per cent lime growers and 'somewhat necessary' by 2.50 per cent lime growers and was ranked first. The second most important area in which training was needed by the lime growers was, 'methods and perforation of Bordeaux mixture, burgundy paste use in lime orchard of specific diseases' (mean score 2.61) in which 65.00 per cent of the respondents had shows training need under 'most necessary' category, while 31.00 per cent and 4.00 per cent of them opted the requirement of training as 'necessary' and 'somewhat necessary' respectively.

The third most needed area of training by the lime growers was 'operation and repairs of various plant protection equipments (mean score 2.53) in which requirement of training was perceived as

Table 1. Training needs of lime growers in different horticulture practices

S. No.	Competencies / practice	Most necessary	Necessary	Some what necessary	Not necessary	Mean score	Rank
1	Site selection for orchard	24 (12.00)	81 (40.50)	46 (23.00)	49 (24.50)	1.40	XIII
2	Layout and planning of orchard	150 (75.00)	45 (22.50)	5 (2.50)	0 (0.00)	2.71	I
3	Knowledge of nursery management	71 (35.50)	44 (22.00)	46 (23.00)	39 (19.50)	1.75	IX
4	Digging of pits (proper time, proper size depth and filling)	26 (13.00)	81 (40.50)	47 (23.50)	46 (23.00)	1.44	XII
5	Proper use of agro chemicals	133 (66.50)	33 (16.50)	24 (12.00)	10 (5.00)	2.45	IV
6	Estimate/ calculation of economics for development of new orchard	47 (23.50)	102 (51.00)	51 (25.50)	0 (0.00)	1.98	VI
7	Well acquaintance with cultivation of lime production technology	140 (70.00)	30 (15.00)	30 (15.00)	0 (0.00)	2.53	II
8	Precaution against soil health deterioration in orchard	110 (55.00)	18 (9.00)	42 (21.00)	30 (15.00)	2.04	V
9	Development of inter cropping model suited to ago-climatic condition	56 (28.00)	58 (29.00)	42 (21.00)	44 (22.00)	1.63	X
10	Interpretation of weather forecast report	41 (20.50)	70 (35.00)	45 (22.50)	44 (22.00)	1.54	XI
11	Adequate attention towards quality of fruit production technology	53 (26.50)	35 (17.50)	47 (23.50)	65 (32.50)	1.38	XIV
12	Use of low-cost and no-cost inputs in lime production.	73 (36.50)	48 (24.00)	41 (20.50)	38 (19.00)	1.78	VIII
13	Knowledge and skill for propagation specially vegetative propagation methods in fruit plant	86 (43.00)	50 (25.00)	0 (0.00)	64 (32.00)	1.79	VII
14	Maximum and economical returns per unit investment in production system.	135 (67.50)	29 (14.50)	22 (11.00)	14 (7.00)	2.48	III

Figures in parentheses indicate percentages

Table 2. Training needs of lime growers in different plant protection practices

S. No.	Competencies/ practices	Most necessary	Necessary	Some what necessary	Not necessary	Mean score	Rank
1	Identification of damage, symptoms and life history of major pest and diseases of lime orchard	142 (71.00)	56 (28.0)	2 (1.00)	0 (0.00)	2.70	I
2	Preparation and safe use of different pesticides and fungicides in lime orchard.	118 (59.00)	56 (28.00)	22 (11.00)	4 (2.00)	2.44	VI
3	Methods of preparation of Bordeaux mixture, Burgundy paste etc. and use in lime orchard of specific diseases.	130 (65.00)	62 (31.00)	8 (4.00)	0 (0.00)	2.61	II
4	Operation and repairs of various plant protection equipments	127 (63.50)	62 (31.00)	11 (5.50)	0 (0.00)	2.53	III
5	Favourable weather conditions for the quick population build up of different pests in lime orchard.	78 (39.00)	70 (35.00)	24 (12.00)	28 (14.00)	1.99	IX
6	Suitable weather condition for the quick population build up different disease in lime orchard	118 (59.00)	55 (27.50)	19 (9.50)	8 (4.00)	2.41	VIII
7	Knowledge of different insects /pests control and their management	123 (61.50)	54 (27.00)	23 (11.5)	0 (0.00)	2.45	V
8	Residual effect and tolerance limit of pesticides.	86 (43.00)	104 (52.0)	10 (5.00)	0 (0.00)	2.38	VII
9	Integrated control measures of insects, pests and diseases	134 (67.00)	28 (14.00)	34 (17.00)	4 (2.00)	2.46	IV

Figures in parentheses indicate percentages

'necessary' by 31.00 per cent and 'somewhat necessary' by 5.50 per cent lime growers among the plant protection practices.

The lime growers' least needed training was in the area of 'favourable weather conditions for the quick population build up of different pests in lime orchard' (mean score 1.99) in which 39.00 and 35.00 per cent lime growers perceived that training is 'most necessary' and 'necessary' whereas, about equal number (12.00 and 14.00 per cent) of them opted the requirement of training as 'somewhat necessary' and 'not necessary' in this area respectively.

### 3. Soil and water management:

The data in Table 3 indicate that among the different soil and water management practices the most needed competency by the lime growers was 'different methods of irrigation and their comparative efficiency' (mean score, 2.71) which was expressed, 'most necessary' by 71.00 per cent and 'necessary' by 29.00 per cent lime growers, respectively and was ranked first. The second most important competency in which training was needed by the lime growers was 'installation and repairs of sprinkler/ drip irrigation set' (mean score 2.66) in which 69.00 per cent of the respondents fell under the 'most necessary' training need category while 28.00 and 3.00 per cent of them opted the requirement of training as 'necessary' and 'somewhat necessary', respectively.

The third most needed area of training by the lime growers was 'information on soil fertility status (mean score 2.50) in which requirement of training was perceived as 'most necessary' by (54.00 per cent lime growers, 'necessary' by 43.00 per cent and by as low as 2.00 and 1.00 per cent lime growers 'somewhat necessary' and not necessary' among the soil and water management practices, respectively.

The lime growers' least needed training in the area of 'soil texture distribution of soil and its determination in *situ*' (mean score 0.40) in which 73.00 and 16.00 per cent of lime growers perceived that training was 'not necessary' and 'somewhat necessary', respectively, whereas 9.00 and 2.00 per cent of them expressed the requirement of training

as necessary and most necessary in this area respectively.

It can be concluded that there was not a single competency in which training was not needed by the lime growers. In some competencies the intensity of needed training was high, whereas in others was low. This might be due to the reason that the all the competencies enlisted were important from the lime growers' point of view and the lime growers were not fully trained in performing the operations relating to these competencies.

### 4. Post harvest technology:

The data in Table 4 indicate that among the post harvest technology the most needed competency by the lime growers was 'packing and marketing of lime fruits' (mean score, 2.78) which was expressed, 'most necessary' by 78.00 per cent lime growers, 'necessary' by 28.00 per cent lime growers. The second most important competency in which training was needed by the lime growers was 'storage and handling of lime fruits' (mean score 2.56) in which 56.00 per cent of the respondents fell under 'most necessary' need training category while 41.00 and 3.00 per cent of them opted the requirement of training as 'necessary' and 'somewhat necessary', respectively.

The third most needed area of training by the lime growers was 'value addition in lime (mean score 2.48) in which requirement of training was perceived 'most necessary' by 46.00 per cent lime growers, 'necessary' by 39.00 per cent and by 12.00 and 3.00 per cent lime growers as 'somewhat necessary' and not necessary' among the post harvest technology, respectively.

The lime growers' least needed training was in the area of 'post harvest management in lime' (mean score 1.52) in which 32.00 per cent lime growers perceived that training is 'necessary' and (25.00 per cent) of the respondents expressed the requirement of training as 'somewhat necessary' and about equal number 21.00 and 22.00 per cent of lime growers opted the requirement of training as 'most necessary' and 'not necessary', respectively.

It can be concluded that there was not a single competency in which training was not needed by

**Table 3 : Training needs of lime growers in different soil and water management practices (n=200)**

S. No.	Competencies/ practices	Most necessary	Necessary	Some what necessary	Not necessary	Mean score	Rank
1	Soil texture distribution of soil and its determination <i>in situ</i> .	4 (2.00)	18 (9.00)	32 (16.00)	146 (73.00)	0.40	X
2	Cultural management of light and heavy soils.	36 (18.00)	58 (29.00)	52 (26.00)	54 (27.00)	1.38	IX
3	Moisture measurement and management	42 (21.00)	68 (34.00)	36 (18.00)	54 (27.00)	1.47	VIII
4	Macro-levelling of the plots	102 (51.00)	52 (26.00)	46 (23.00)	0 (0.00)	2.28	IV
5	Water quality in relation to soil properties.	72 (36.00)	82 (41.00)	22 (11.00)	24 (12.00)	2.01	VI
6	Information on soil fertility status	108 (54.00)	86 (43.00)	4 (2.00)	2 (1.00)	2.50	III
7	Installation and repairs of sprinkler/drip irrigation set	138 (69.00)	56 (28.00)	6 (3.00)	0 (0.00)	2.66	II
8	Different methods of irrigation and their comparative efficiency	142 (71.00)	58 (29.00)	0 (0.00)	0 (0.00)	2.71	I
9	Use of mulch for water use efficiency	64 (32.00)	56 (28.00)	62 (31.00)	18 (9.00)	1.83	VII
10	Amelioration of salt affected soils	96 (48.00)	62 (31.00)	26 (13.00)	16 (8.00)	2.19	V

Figures in parentheses indicate percentages

**Table 4 : Training Needs of lime growers in different post harvest technology of lime (n = 200)**

S. No.	Competencies/ practices	Most necessary	Necessary	Some what necessary	Not necessary	Mean score	Rank
1	General principles of PHT in lime crop	54 (27.00)	68 (34.00)	34 (17.00)	44 (22.00)	1.61	V
2	Storage and handling of lime fruits	112 (56.00)	82 (41.00)	6 (3.00)	0 (0.00)	2.56	II
3	Post harvest management in lime	42 (21.00)	64 (32.00)	50 (25.00)	44 (22.00)	1.52	VI
4	Value addition in lime	92 (46.00)	78 (39.0)	24 (12.00)	6 (3.00)	2.48	III
5	Packing and marketing of lime fruits	156 (78.00)	44 (22.0)	0 (0.00)	0 (0.00)	2.78	I
6	Knowledge regarding the use of machinery and equipments in value addition in lime fruits <i>i.e.</i> mechanized /sorting, wax treatment and grading of lime fruits	68 (34.00)	106 (53.00)	26 (13.00)	00 (0.00)	2.21	IV

Figures in parentheses indicate percentages

the lime growers. In some competencies the intensity of need of training was high whereas in others it was low. This might be due to the reason that all the competencies enlisted were important from the lime growers' point of view and the lime growers were not fully trained in performing the operations relating to these competencies.

**5. Multiple regression analysis of training needs of lime growers with their managerial ability about recommended cultivation of lime:**

It may not be enough to know that a particular characteristic is associated or not associated significantly with the managerial ability of the

farmers. The comparative influences of each of the interacting factors also need to be known. For this purpose multiple regression technique was applied to know the over all influence of all the four selected independent variables ( $x_1, \dots, X_4$ ) on the managerial ability of the lime growers about recommended cultivation of lime (Y). All the four selected independent variables along with the dependent variables (*i.e.* managerial ability of lime growers) were put in the multiple regression equation. The results have been presented in Table 5.

From the data in Table 5 it is clear that the managerial ability of lime growers about recommended cultivation of lime was positively and

**Table 5. Multiple regression analysis of selected training needs (four independent variables) of lime growers with their managerial ability about recommended cultivation of lime**

(n = 200)

S. No.	Variables	Regression coefficient (byx)	S.E. of byx	't' value
1	Horticulture practices $X_1$	0.5131	0.1671	3.07*
2	Plant protection practices $X_2$	0.2972	0.1412	2.10*
3	Soil and water management practices $X_3$	0.0741	0.0922	0.81 NS
4	Post harvest technology $X_4$	0.0112	0.3921	2.96*

Determination coefficient  $R^2 = 0.75$ ; Multiple correlation  $R = 0.89$ ;  $F - \text{calculated} = (4, 195) = 18.27$   
 \* Significant at 0.05 level of probability

significantly associated with their training needs in horticulture practices ('t' value 3.07\*) and post harvest technology ('t' value 2.96\*) at 0.01 level of probability with their training needs in plant protection practices ('t' value 2.10\*) at 0.05 level of probability, whereas their training needs in soil and water management practices ('t' value 0.81) was non-significantly associated with their managerial ability of recommended cultivation of lime.

It means the training needs of lime growers about horticulture practices, plant protection practices and post harvest technology have exerted a significant influence on their managerial ability about recommended cultivation of lime, whereas their training needs in soil and water management practices have not exerted a significant influence on their managerial ability. This might be due to the reason that the horticulture practices, plant protection practices and the practices related to post harvest technology require a significant amount of

managerial ability for their effective conduction and implementation as compared to soil and water management practices hence, these might have exerted a significant influence on the managerial ability of lime growers about recommended cultivation of lime.

It is explicit from the data in Table 5 that all the four independent variables taken together explained the variation in the managerial ability of lime growers to the extent of 79.21 per cent. The respective 'F' value (18.27) was (significant at 1 per cent level) at 4 and 195 degree of freedom. Thus, the results showed that all the four selected independent variables had accounted for a significant amount of variation in managerial ability of lime growers about recommended cultivation of lime.

Further, the 't' test of significance indicated that coefficient of regression (b value) was found positively significant at 1 per cent level of probability for the training needs in Horticulture practices ( $x_1$ ),



Plant protection practices ( $x_2$ ) and Post harvest technology ( $x_4$ ) was found positively significant at 1 per cent level of significance.

The depth analysis of the relationship between dependent and independent variables like horticulture practices, plant protection practices and post harvest technology of the farmers were the most important variables among all the four independent variables in the study which were predictors of managerial ability of lime growers about recommended cultivation of lime.

### CONCLUSION

From the above discussion it can be concluded that majority of the lime growers were interested in receiving of training regarding various aspects of cultivation of lime in agro-climatic zone III b of Rajasthan.

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