

Training Needs of Sweet Orange Growers in Marathwada Region

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Abstract

Orange growers are facing a number of problems in aspects related to orange cultivation which include, selection of soil, layout of gardens, training and pruning of plants. Hence they need training and guidance about different practices for successful and efficient use of available technology. The objective of this paper is to study the personal, socio-economic and psychological characteristics of sweet orange growers, identify their training needs and find out the relationship between their personal, socio-economic and psychological characteristics and their training needs.

Introduction

Citrus (*Citrus sinensis*) is one of the important fruit crops grown throughout the world. Sweet orange belongs to the plant family *Rutaceae*, sub family *Aurantiodeae* and contributes 71 per cent of the total citrus fruit production in the world. Citrus fruits have exceptionally good nutritive value and dominate in their contribution in horticultural crops due to their nutritive and commercial value. Orange provides energy of 4 gms calorie per 100 gms and 10.60 per cent carbohydrates. Fruits are gaining increasing popularity not only due to their high economic returns but also due to their nutritive and commercial values. Orange growers are facing a number of problems in areas of orange cultivation viz., selection of soil, layout of gardens, training and pruning of plants. Therefore, they need training and guidance about different practices for successful and efficient use of available technology. Training is one of the commonly used methods to impart knowledge and skill to the trainees. Training is a process by which the desired knowledge, attitude, skills and ideas are fostered and reinforced in an organism. Realizing the need of training for sweet orange growers a study entitled "Training needs of sweet orange growers" was undertaken to understand the training need.

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Objectives

The objectives were:

1. To study the personal, socio-economic and psychological characteristics of sweet orange growers
2. Identify the training needs of sweet orange growers, and
3. To find out the relationship between the personal, socio-economic and psychological characteristics of sweet orange growers and their training needs.

Methodology

The present study was purposively conducted in Nanded district which occupies the highest area under sweet orange. The district consists of 16 talukas, of which Bhokar and Nanded talukas were chosen purposively based on maximum area under cultivation. Six villages from each taluka were selected making it a total of 12 villages selected from the talukas. The respondents were selected from among those having a sweet orange garden which was at least 5 years old. From each village 10 sweet orange growers were selected randomly.

An ex-post facto research design was used and the requisite data were collected from the selected sweet orange growers with the help of a structured schedule in a face to face situation. The questionnaire was prepared with each question having a three point response i.e. most important, important and less important with a score of 3, 2 and, 1 respectively. Considering the mean and standard deviation of the distribution, the sweet orange growers were classified into three levels as low, medium and high.

Results and Discussion

Personal, socio-economic and psychological characteristics of sweet orange growers

1. Education

As regards the education of the respondents, it is clear from Table 1 that (45.84 per cent) of the respondents were educated upto primary level (1-4), while (29.17 per cent) of the respondents could only read and write, followed by (16.17 per cent) of the respondents who were educated upto middle school. A small percentage of the respondents (4.17 per cent) were educated upto secondary school.

2. Land Holding

Table 1 reveals that (8.30 per cent) of the respondents were marginal farmers, while (12.50 per cent) of the respondents were small farmers, followed by (8.30 per cent) and (40.90 per cent) of the respondents who were semi-medium and medium category, whereas, 30.00 per cent of the respondents were large farmers. The probable reason might be that land holding is being reduced continuously due to fragmentation which is why more than forty percent of the respondents were in semi-medium and medium category.

3. Annual Income

It may be noticed in table 1 that most of the respondents (83.33 per cent) had medium annual income, 12.50 per cent of the respondents had higher income, while, 4.17 per cent of the respondents belonged to low annual income category. The table reveals that 83.33 per cent of the sweet orange growers seem to have better income level ranging from Rs. 55,001 to 3, 48,000. This is quite high as compared to other farmers. This might be due to the orchard (sweet orange) giving more returns.

4. Economic Motivation

From Table 1, it is observed that more than half of the respondents 65.83 per cent had medium economic motivation, while 23.33 per cent of the respondents had high economic motivation. Only 10.84 per cent of the respondents had low economic motivation. This indicates that the farmers are becoming more aware and are trying to maximize their income, therefore such findings are noticed.

5. Extension Contact

It may be seen in table 1 that most of the respondents 72.50 per cent had medium extension contact, while 14.17 per cent of the respondents had high extension contact, followed by 13.33 per cent of the respondents who had low extension contact. The reason may be that more than seventy percent of the respondents have medium level of extension contact for obtaining information regarding different schemes and programmes for sweet orange growers.

6. Social participation

Table 1 indicates that most of the respondents (60.00 per cent) had medium social participation, 35.83 per cent of the respondents had low social participation while, 4.17 per cent of the respondents were found in high social participation. The probable reason might be that the respondents being farmers are always engaged in farming and they find comparatively less time to participate in different formal and informal organizations.

Table 1. Distribution of the Respondents

S.No.	Category	Frequency	Percentage
A)	Education		
1	Illiterate	05	4.17
2	Only read and write	35	29.17
3	Primary education	55	45.84
4	Middle school	20	16.17
5	Secondary school	5	4.17
B)	Land holding		
1	Marginal (upto 1.00)	10	8.30
2	Small farmers (1.01 to 2.00)	15	12.50
3	Semi medium (2.01 to 4.00)	10	8.30
4	Medium (4.01 to 10.00)	49	40.90
5	Large farmers (10.01 and above)	36	30.00
C)	Annual income		
1	Low (Upto Rs. 55,000)	5	4.17
2	Medium (Rs. 55,001 to 3,48,000)	100	83.33
3	High (Rs. 3,48,001 and above)	15	12.50
D)	Economic motivation		
1	Low	13	10.84
2	Medium	79	65.83
3	High	28	23.33
E)	Extension contact		
1	Low	16	13.33
2	Medium	87	72.50
3	High	17	14.17
F)	Social participation		
1	Low	43	35.83
2	Medium	72	60.00
3	High	5	4.17
G)	Sources of information		
1	Low	17	14.16
2	Medium	76	63.34
3	High	27	22.50
H)	Risk preference		
1	Low	11	9.16
2	Medium	87	72.50
3	High	22	18.34
I)	Market orientation		
1	Low	10	8.34
2	Medium	89	74.16
3	High	21	17.50

K) Farming experience			
1	Low (Upto 15 years)	17	14.16
2	Medium (16 to 37 years)	76	63.34
3	High (38 years and above)	27	22.50
L) Age of orchard			
1	5 to 10 years	13	10.84
2	11 to 15 years	80	66.66
3	16 years and above	27	22.50

7. Sources of Information

From Table 1 it is revealed that a majority of the respondents (63.34 per cent) were in medium category of use of sources of information whereas, 22.50 per cent of the respondents were in high category of use of sources of information, while 14.16 per cent of the respondents were in low category of use of sources of information. This could be due to the availability and easy access to the different sources of information like personal, personal cosmopolite and mass media.

8. Risk Preference

It is manifested from Table 1 that majority of the respondents (72.50 per cent) had medium risk preference whereas 18.34 per cent of the respondents had high risk preference followed by 9.16 per cent of the respondents with low risk preference. It means that farmers are better prone to take moderate risk and face challenges to get maximum returns.

9. Market Orientation

Table 1 concludes that a majority of the respondents (74.16 per cent) had medium market orientation, while 17.50 per cent of the respondents had high market orientation. Only 8.34 per cent of the respondents had low market orientation. The farmers with more market information are more prone towards the market and market prices, in order to get maximum returns. This information is useful for taking decisions.

10. Farming Experience

Table 1 reveals that most of the respondents (63.34 per cent) had medium farming experience, 22.50 per cent of the respondents had high farming experience, whereas, 14.16 per cent of the respondents were found in low farming experience category. Majority of the respondents are having medium level of experience in farming.

11. Age of Orchard

It is noticed from Table 1 that most of the respondents (66.66 per cent) were having 11-15 year old orchard, 22.50 per cent of the respondents were having above 16 years old orchard, 10.84 per cent were having 5-10 years old orchard. This might be due to sweet orange orchard giving maximum returns to the farmers and hence most of the respondents were having 11-15 years old orchard.

Training Needs of Sweet Orange Growers

1. Preparatory Tillage

In preparatory tillage practices, information about preparatory tillage for sweet orange and geographical area of land was found to be an important area of training as opined by (70 per cent) of respondents. The reason might be that the farmers being familiar with these practices from generation to generation might have felt these practices are easily understandable.

2. Selection of Variety

In selection of variety, how to prepare seedlings and selection of sweet orange variety were found to be important areas of training as opined by (50.84 per cent) and (47.5 per cent) of respondents respectively. This might be due to their effects on production of sweet orange

Table 2. Distribution of Respondents according to their Training Needs

S. No.	Practices	Most important		Important		Less important	
		Freq.	%	Freq.	%	Freq.	%
A	Preparatory tillage						
1	Preparatory tillage	7	5.84	84	70.00	29	24.16
B	Selection of variety						
1	Preparation of seedlings	21	17.5	61	50.84	38	31.66
2	Care to be taken at the time of budding	22	18.34	48	40.00	50	41.67
3	Selection of variety	15	12.5	57	47.50	48	40.00

C Land preparation							
1	Number of plants per hectare	26	21.67	74	61.67	20	16.66
2	Planting distance	44	36.67	58	48.33	18	15.00
D Water management							
1	Use of drip irrigation	52	43.34	56	46.66	12	10.00
2	Different methods of irrigation	45	37.5	56	46.67	19	15.83
3	Irrigation interval	43	35.83	68	56.67	9	7.5
E Intercultural operation and fertilizer dose							
1	Care to be taken at the time of intercultural operations	32	26.67	71	59.17	17	14.16
2	Use of different growth regulators	45	37.5	60	50.00	15	12.5
3	Care to be taken at the time of application of chemical fertilizer	43	35.84	61	50.83	16	13.33
4	Use of chemical fertilizers	44	36.67	63	52.5	13	10.83
5	Use of organic fertilizers	35	29.17	62	51.67	23	19.16
F Pest management							
1	Black or white fly, citrus psylla, bark eating caterpillar etc.	38	31.67	76	63.33	6	5.00
2	Preparation and application of nimboli ark against fruit borer	37	30.83	78	65.00	5	4.17
3	Selection of plant protection method against severe attack of pest	64	53.34	49	40.83	7	5.83
4	Spraying of pesticide	22	18.34	89	74.16	9	7.5

G Disease management							
1	Protection against viral disease	47	39.17	63	52.5	10	8.33
2	Protection from dieback	54	45.00	61	50.84	5	4.16
3	Use of fungicides	66	55.00	47	39.16	7	5.84
4	Preparation of bordeaux mixture	53	44.17	62	51.67	5	4.16
5	Application of bordeaux mixture	54	45.00	58	48.33	8	6.67
H Handling of insecticides and chemicals							
1	How to spray	42	35.00	55	45.84	23	19.16
2	Side effect of pesticides	29	24.17	66	55.00	25	20.83
3	Use of weedicide	54	45.00	45	37.5	21	17.5
4	Use of power spray	26	21.67	64	53.33	30	25.00
I Bahar treatment							
1	Training and pruning of plant	39	32.5	68	56.67	13	10.83
2	Fruit drop	36	30.00	69	57.5	15	12.5
3	Bahar treatment	35	29.17	70	58.34	15	12.49
4	Use of NAA	41	34.17	59	49.16	20	16.67
5	Taking care while selecting bahar	30	25.00	61	50.83	29	24.17
J Post harvest technology							
1	Processing of sweet orange	17	14.17	74	61.66	29	24.16
2	Storage of sweet orange	17	14.17	56	46.67	47	39.17
3	Improving shelf life of fruits	18	15.0	41	34.17	61	50.83
4	Care at the time of transport	9	7.5	41	34.17	70	58.33

3. Land Preparation

In land preparation practices, most of the respondents (61.67 per cent) had given preference to number of plants per hectare. Crucial practices might have been expressed to be important by the respondents as far as subjecting them to training is concerned.

4. Water Management

In water management, 43.34 per cent of sweet orange growers expressed training need about use of drip irrigation system, while 56.67 and 46.67 per cent of sweet orange growers expressed training need on practices like irrigation interval and different methods of irrigation respectively. The reason might be that these practices are very important for sweet orange cultivation.

5. Intercultural Operation and Fertilizer Doses

In intercultural operation and fertilizer doses, most of the respondents particularly preferred training on practices, like care to be taken at the time of intercultural operation, as well as, balanced use of inorganic fertilizers and care to be taken at the time of application of fertilizers which were perceived as important areas of training by 59.17 per cent, 52.50 per cent and 50.83 per cent of the respondents, respectively. These operations are the second most important and hence these preferences have been given for imparting training.

6. Pest Management

In plant protection measures, majority of the respondents (74.16 per cent), (65.00 per cent), (63.33 per cent) gave the highest preference to practices like spraying of monocrotophos, endosulfan and phosphomidon, as well as, preparation and application of nimboli ark against fruit borer and attack of pest like black or white fly, citrus psylla, bark eating caterpillar, etc. Such training needs are logical and natural as the fate of higher production is dependent upon these practices hence more number of respondents have given the preference.

7. Handling of Insecticides and Chemicals

In handling of insecticides and chemicals, 55.00 per cent and 45.00 per cent of the respondents had given their preference as important and most important to practices like side effect of pesticides and use of weedicide respectively. This might be due to the local ways of measuring the quantity of chemicals and fertilizers.

8. Disease Management

In plant protection measures, most of the respondents (55.00 per cent), (53.34 per cent) and (49.17 per cent) expressed training need in areas namely use of fungicide like trichoderma, spreading of fungal diseases like gummosis and root rot, etc. as well as, spreading of viral diseases like greening and triesteza as most important preferences. The reason might be that these practices have more effect on production of fruits.

9. Fruit Bearing

In these practices, most of respondents (56.67 and 50.83 per cent) wanted training in areas of training and pruning of plant and taking care while selecting bahar, respectively. This is also a matter of enlightenment.

10. Fruit Management and Marketing

Lastly, most of the respondents, (58.33 per cent) and (50.83 per cent) have given less preference to practices namely taking at the time of transport and improving shelf life of fruits, as areas of training. This implies that farmers are still to be convinced about these paramount operations.

Overall Training Needs of Sweet Orange Growers

From Table 3, most of the respondents (63.33 per cent) are found in medium level of training needs. This might be due to satisfactory level of knowledge and skill of the respondents about sweet orange plantation.

Table 3. Distribution of the Respondents according to their Level of Training Needs

S.No.	Category	Frequency	Percentage
1	Low	21	17.50
2	Medium	76	63.33
3	High	23	19.17
	Total	120	100.00

While assessing training needs of sweet orange growers the most important training needs perceived by majority of the respondents were observed in preparation of Bordeaux (51.67 per cent), spraying of monocrotophos, endosulphon, phosphomidon (74.16 per cent), as well as, use of fungicide like trichoderma (55 per cent), black or white fly, citrus psylla, bark-eating caterpillar (63.33 per cent), spreading of fungal disease like gummosis and root rot (53.34 per cent), spreading of viral diseases like greening and tristeza, as well as, training and pruning of plants (56.67 per cent), use of power spray, application of bordeaux paste (48.33 per cent) and how to protect from citrus dieback (50.84 per cent).

Training needs perceived as important by the respondents were in the areas of preparatory tillage practices (70 per cent) for spraying endosulphan and application of 'Nimboli ark' against fruit borer (65 per cent), number of plants per hectare (61.67 per cent), as well as, uses and processing of sweet orange, moisture stress at the time of bahar (50.83 per cent), use of NAA to avoid flower and fruit drop (49.16 per cent), care to be taken at inter cultural operations (59.17 per cent) and use of weedicide (45 per cent) etc.

Information about different uses and processing of sweet orange (61.66 per cent), taking care at the time of transport, how to improve shelf life of fruits (50.83 per cent), how to store sweet orange (46.67 per cent), care to be taken at the time of planting, at the time of selection of sweet orange variety (47.50 per cent), more information about the best variety (44.46 per cent) and irrigation (55.84 per cent) were found as less important areas of training needs.

At the overall level, most of the respondents (63.33 per cent) had medium level of training needs.

Relationship between Training Need and Personal Socio-Economic and Psychological Characteristics of Sweet Orange Growers

From Table 4 it is observed that out of eleven independent variables, education, age of orchard, sources of information, farming experience had negative and significant relationship with training need at 0.01 level of probability. The variables like extension contact, land holding, annual income, risk preference, economic motivation, social participation and market orientation had positive but non significant relationship with training needs.

Table 4. Relation between Training Needs and Personal, Socio-Economic and Psychological Characteristics of Sweet Orange Growers

S.No.	Independent variables	Correlation
1	Education	-0.308**
2	Land holding	0.017
3	Age of orchard	-0.295**
4	Farming experience	-0.368**
5	Annual income	0.103
6	Social participation	-0.088
7	Extension contact	0.010
8	Sources of information	-0.311**
9	Risk preference	0.125
10	Market orientation	-0.051
11	Economic motivation	0.033

** Significant at 0.01 level of probability

Implications

The findings of the present investigation would be helpful to the planners, progressive farmers, extension workers and research workers to fill up the gap which exist between knowledge and adoption of practices. For improvement of agricultural practices the needs of orchard growers must be taken into account in order to develop a future strategy to exploit their potentialities as well as ensure full use of all the resources which would lead to effective utilization of sweet orange cultivation.

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