



Knowledge Level of Punjab Litchi Growers about Integrated Pest Management Strategies

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The present study was carried out in 2021-2022, to estimate the socio-economic characteristics and the Knowledge level of the Litchi growers regarding Integrated Pest Management (IPM) practices. The study was conducted in the Pathankot and Gurdaspur districts of Punjab in India. From each district, two blocks were selected having the maximum number of litchi growers and from each selected, 25 respondents were selected randomly from the procured list of litchi growers from the horticulture department to make a sample size of 100 respondents. Results revealed that respondents above the age group of 50 years are more involved in litchi growing. The majority of the respondents were educated. Maximum respondents had attended training but had low mass media exposure regarding IPM. More than half of the respondents had a medium to high level of knowledge and very few respondents had a low level of knowledge.

Keywords: *Integrated pest management; perception; pesticides; respondents; socio-economic.*

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1. INTRODUCTION

“Integrated Pest Management (IPM) is an effective and environment-friendly pest management system. The focus of IPM is to protect and encourage natural predators of pests insects” [1].

“The average productivity of litchi in the country is 6.1 ton ha⁻¹ in 2016-17, which is much lower than the potential productivity of the crop” [2]. “Presently, Punjab occupies an area of about 3142 ha with a production of 51504 MT and productivity of 16.4 MT/ha. The major litchi growing districts of Punjab are Pathankot, Hoshiarpur, and Gurdaspur, and these districts are contributing nearly 57.4, 14.3 and 13.9% respectively of the total area in the state. Dehradun and Calcuttia are the leading cultivars of litchi in these zones” [3]. “A number of insects and mite pests are damaging the litchi plants and fruits in the state. For control of diseases and pests in crops many chemicals are used, which are harmful” [4]. Litchi cultivation is affected by insect pests, which makes loss of not only the production but also the quality of the litchi.

2. MATERIALS AND METHODS

The present study was conducted in the Pathankot and Gurdaspur Districts of Punjab. The present study was conducted during the two years 2021 and 2022. Gurdaspur and Pathankot districts were selected purposively from Punjab state as they are major litchi growing districts of Punjab. Gurdaspur district has 11 blocks namely Batala, Dera Baba Nanak, Dhariwal, Dinanagar, Dorangla, Fatehgarh churian, Gurdaspur, Kahnuwan, Kalanaur, Quadian and Shri Hargobindpur and Pathankot district is divided into six developmental blocks namely Pathankot, Sujampur, Dharkalan, Gharota, Narot Jaimal Singh and Bamial. Out of these blocks, 2 were selected from each district purposively having a maximum number of litchi growers, and from each selected block, 25 respondents were selected randomly from the procured list of litchi growers from the horticulture department to make a sample size of 100 respondents. The interview schedule was prepared for the collection of the data. A knowledge test was prepared to measure the knowledge of the farmers on the various aspects of IPM strategies.

2.1 Construction of Knowledge Test

In all 13 questions about recommended varieties of Litchi, recommended methods for adoption of

IPM strategies. The responses were dichotomized as correct/ incorrect with scores of 1 and 0 respectively.

2.1.1 Item difficulty index

The difficulty has been presumed to be linearly related. When any respondent correctly responded to any item, it was presumed that the item was less difficult than the ability of the respondent to cope with it. In the present investigation, the item with p values of more than 20 was considered for the final test.

2.1.2 Item discrimination index

For this study, the $E^{1/3}$ technique was used and those items with $E^{1/3}$ values above 0.20 were considered for inclusion in the final test.

$$E^{1/3} = \frac{(S_1+S_2)-(S_4+S_5)}{N/3}$$

Here,

$E^{1/3}$ = phi-coefficient

S_1, S_2, S_4, S_5 = frequencies of correct answers in groups

N = total number of respondents

3. RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics of the Respondents

The information pertaining to the socio-economic characteristics of the respondents is given in Table 1.

The data presented in the Table 2 depicts that more than half of the respondents had a medium level of knowledge and 37 percent of the respondents had a high level of knowledge and very few respondents had a low level of knowledge i.e., only seven percent of the respondents. The respondents have a medium to a high level of knowledge the reason being the maximum number of the respondents were having extensive contact with the extension workers, therefore; they were receiving the information regularly. Maximum respondents were knowing recommended varieties of litchi, and cultural practices but most of them were unaware of the biological control of pests. The findings are in line with Singh et al. [5].

The data regarding the relationship between the knowledge level and socio-economic variables is

given below in Table 3 which represents that education, training attended, extension contacts and mass media exposure have significant and positive correlation at the 0.01 level.

Table 1. Socio-economic characteristics of the respondents (n=100)

Parameters	Categories	Frequency	Percentage
Age	Below 35	05	05.00
	35-50	30	30.00
	Above 50	65	65.00
Education	Primary	07	07.00
	Middle	10	10.00
	Matric	24	24.00
	High school	43	43.00
	Graduate	13	13.00
	Post graduate	03	03.00
Family type	Nuclear	72	72.00
	Joint	28	28.00
Family size	Small (2- 5)	44	44.00
	Medium (5-8)	35	35.00
	Large (> 8)	21	21.00
Operational land holding	Small (1 – 2 acre)	15	15.00
	Semi-medium (2-4 acre)	20	20.00
	Medium (4-10 acre)	29	29.00
	Large (10 acre and above)	36	36.00
Gross income	Low (6-37 lakh)	95	95.00
	Medium (37-69 lakh)	04	04.00
	High (69 lakh- 1 crore)	01	01.00
Extension contacts	Yes	67	67.00
	No	33	33.00
Subsidiary occupation	Yes	80	80.00
	No	20	20.00
Training attended	Yes	57	57.00
	No	43	43.00
Mass media exposure	Low (below 3)	100	100
	Medium (3-6)	0	00.00
	High (above 6)	0	00.00

Table 2. Distribution of respondents according to their knowledge level: (n=100)

Knowledge level	Frequency (%)	Average knowledge level (Mean+S.D)
Low (3-6)	07 (07.00)	7.89(±2.63)
Medium (6-9)	56 (56.00)	
High (9-12)	37 (37.00)	

Relationship between knowledge level of litchi growers and Socio-economic variables

Table 3. Relationship between knowledge level of litchi growers and socioeconomic variables

Socio economic variables	Correlation coefficient (r-value)	p-value
Age	0.155	0.123
Education	0.453**	0.000
Training attended	0.623**	0.000
Extension contacts	0.614**	0.000
Mass media exposure	0.623**	0.000

** Correlation is significant at the 0.01 level (2- tailed)

4. CONCLUSION

The findings revealed that most of the belong to the age group of more than 50 years of age. Most of the respondents were qualified up to high school. Most of the respondents were having large operational land holdings. The maximum number of respondents was having extensive contact with the extension workers. In case of the mass media exposure, most of them were having a low level of exposure. Most of the respondents had attended the extension programs organized by government officials. More than half of the respondents had a medium to the high level of knowledge and very few respondents had low level of knowledge.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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