Original Research Article

Knowledge level of Litchi growers regarding Integrated Pest Management strategies followed by the litchi growers of Punjab.

Abstract

Present study was carried out in 2021-2022, with the aim of estimating the socio-economics characteristics and the Knowledge level of the Litchi growers regarding Integrated Pest Management (IPM) practices. The study was conducted in Pathankot and Gurdaspur district of Punjab. From each district two blocks were selected having 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. Majority of the respondents were educated. Maximum respondents had attended trainings but had low mass media exposure regarding IPM. More than half of the respondents had medium to high level of knowledge and very few respondents had low level of knowledge.

Key words: Integrated Pest Management, Perception, Pesticides, Respondents, Socio-economic.

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 pest insects (Naranjo et al., 2015).

The average productivity of litchi in the country is 6.1 t ha-1 in 2016-17, which is much lower than the potential productivity of the crop (Sahni *et al.*, 2020). Presently, Punjab occupies an area of about 3142 ha with the 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 (Singh *et al.*, 2022). A number of insects and mite pests are damaging the litchi plants and fruits in the state. For control of diseases and pest in crops many chemicals are used, which are harmful (Anonymous 2021). Litchi

cultivation is affected by the insect pests, which makes loss of not only the production but also the quality of the litchi.

Material and methods

The present study was conducted in Pathankot and Gurdaspur Districts of Punjab. The present study was conducted during the year 2021-22. 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, Sujanpur, Dharkalan, Gharota, Narot Jaimal Singh and Bamial. Out of these blocks 2 were selected from each district purposively having maximum number of litchi growers and from each selected blocks, 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 collection of the data. A knowledge test was prepared to measure the knowledge of the farmers on the various aspects of IPM strategies.

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.

I. Item difficulty index

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

II. Item discrimination index

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

$$E^{1/3} = \frac{(S1+S2)-(S4+S5)}{N/3}$$

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

Results and discussion

Socio-economic characteristics of the respondents:

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

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

The data presented in the table 2 depicts that more than half of the respondents had medium level of knowledge and 37 percent of the respondents had high level of knowledge and very few respondents had low level of knowledge i.e., only seven percent of the respondents. The respondents have medium to high level of knowledge the reason being the maximum number of the respondents were having extension contacts with the extension workers therefore, they were receiving the information on regular basis. Maximum respondents were having the knowledge about recommended varieties of litchi, cultural practices but most of them were unaware of biological control of pests. The findings are in line with Singh *et al* (2009).

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.

The data regarding the relationship between the knowledge level and socio-economic variables is given below in table 3 that represents that education, training attended, extension contacts and mass media exposure has significant and positive correlation at the 0.01 level.

Table 3: Relationship between knowledge level of litchi growers and Socio-economic 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)

Conclusion: The findings revealed that most of the belongs to 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. Maximum number of respondents were having extension contacts with the extension workers. In case of the mass media exposure most of them were having low level of exposure. Most of the respondents had attended the extension programmes organized by the government officials. More than half of the respondents had medium to high level of knowledge and very few respondents had low level of knowledge

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