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Study on association between different attributes and major constraints for the adoption of integrated pest management practices of black gram growers in block Shahpura District Jabalpur (M.P.)

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Abstract

The study was conducted in Shahpura block of Jabalpur district to assess study on association between different attributes and major constraints for the adoption of integrated pest management practices of black gram growers. 120 black gram growers were selected and information collected from questionnaire, the study revealed that association between socio-psychological characteristics of black gram growers, the variable education, annual income, land holding, area under black gram bean, farm power, economic motivation, scientific orientation, attitude towards IPM, knowledge level of IPM practices, mass-media exposure and extension contact were found to be significant with adoption of Integrated pest management practices, whereas age, family size, and social participation of black gram growers had showed non-significant association with adoption of Integrated Pest Management practices by black gram growers. This study also revealed that large majority of the black gram growers perceived the constraints i.e. improper technical knowledge about bio-agent and bio-insecticide (87.50%) followed by non-availability of bio-insecticide (86.67%)

Keywords: adoption, constraints, integrated pest management, association

Introduction

Black gram (*vigna mungo l.*) is one of the most important pulse crop, grown across India. The average losses due to insect pests in mung bean and black gram crops were estimated to be 34.7 and 28.7 per cent respectively in different states of India (Asthana *et al.*, 1997) [1]. Lal and Ahmad (2002) [2] reported nearly 60 insect species on mung bean and black gram bean. Among these, 34 insects were serious pests on one or more of these pulse crops. Mung bean is attacked by different species of insect pests. Sucking insect pests (whitefly, jassids, and thrips) are of the major importance. These insect pests not only reduce the vigour of the plant by sucking the sap but transmit diseases and affect photosynthesis as well. Integrated Pest Management, therefore, emphasizes not only reduction in use of chemical pesticide and keeping the level of pest causing economic injury but also facilitates the use of cultural, physical, mechanical and biological method of pest control. Although, IPM is the best strategy in crop production programme, yet this practice could not reach to the farmers' field. The extent of adoption of IPM practices among farmers is not very encouraging. Keeping the above point in mind, it is necessary to study on association between different attributes and major constraints for the adoption of integrated pest management practices

Methodology

The present study was conducted at Shahpura block in Jabalpur district of Madhya Pradesh selected purposively because it has maximum area and low productivity of black gram in the district. A list of black gram growing villages has been prepared with the help of extension officer and 6 villages namely Umariya, Gubrakala, Keolari, Mali, Pipariya and Kaukheda were selected on the basis of larger area under black gram bean. From each selected villages, black gram growers were selected by using proportionate random sampling method to make the total sample size 120. The primary data was collected with the help of pre structured and pre tested interview schedule, which was prepared on the basis of objectives of the study. The data were collected and recorded in the form of interview schedule. Keeping the view of the objectives of the study and to draw logical inferences, statistical tools like frequency, percentage, Chi-square test were used for analyzing and interpretation of data.

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Result and discussion

Table 1: Association between attributes of the Black gram growers and their extent of adoption level of integrated pest management practices.

Characteristics	χ^2 value	Degree of freedom
Age	3.44 ^{NS}	2
Education	11.66*	3
Family size	0.44 ^{NS}	2
Annual income	5.48*	1
land holding	7.37*	2
Area under black gram	11.94**	2
Social participation	5.10 ^{NS}	2
Farm power	9.04*	2
Economic Motivation	25.48**	1
Scientific Orientation	10.84**	1
Attitude towards IPM practices	9.84**	1
Knowledge level	12.31**	1
Mass-Media Exposure	39.03**	1
Extension Contact	8.53**	1

*= significant at 0.05% level probability

**= significant at 0.01% level of probability

The results of chi-square test analysis in the above table revealed that characteristics namely fourteen variables regarding socio-economic, communicational and psychological variables, eleven variables viz. education, annual income, land holding, area under black gram bean, farm power, economic motivation, scientific orientation, attitude towards IPM, knowledge level of IPM practices,

mass-media exposure and extension contact were found to be significant with adoption of Integrated pest management practices, whereas age, family size, and social participation of black gram growers had showed non-significant association with adoption of Integrated Pest Management practices by black gram growers.

Table 2: Constraints perceived by Black gram growers in adoption of integrated pest management practice (N* = 120)

S. No.	Constraints	f	%	Rank
1	Improper technical knowledge about bio-agent and bio-insecticide	105	87.50	I
2	Non availability of bio-insecticide	104	86.67	II
3	Improper knowledge about pheromone trap	98	81.67	III
4	Difficult to remember Economic Threshold Level(ETL)	97	80.83	IV
5	Insufficient fund to purchase useful agriculture inputs	93	77.50	V
6	Improper knowledge about light trap	91	75.83	VI
7	Lack of knowledge about seed treatment	90	75.00	VII
8	Improper knowledge about chemical fertilizer	82	68.33	VIII
9	Non availability of seed of resistant variety	62	51.67	IX
10	Non availability of labors	56	46.67	X

N*= Number of respondents

The data regarding constraints in adoption of integrated pest management practices as reported by black gram growers is presented in Table 2 reveals that large majority of the black gram growers perceived the constraints i.e. improper technical knowledge about bio-agent and bio-insecticide (87.50%) followed by non-availability of bio-insecticide (86.67%), improper knowledge about pheromone trap (81.67%), difficult to remember Economic Threshold Level (ETL) (80.83), insufficient fund to purchase useful agriculture inputs (77.50%), improper knowledge about light trap (75.83%), lack of knowledge about seed treatment (75.00%), improper knowledge about chemical fertilizer (68.33%), non-availability of seed of resistant variety (51.67), non-availability of labors (46.67%).

Conclusion

On the basis of results of this study, it may be concluded that association between socio-psychological characteristics of black Gram growers, the variable education, annual income, land holding, area under black gram, farm power, economic motivation, scientific orientation, attitude towards IPM, knowledge level of IPM practices, mass-media exposure and extension contact were found to be significant with adoption

of Integrated pest management practices, whereas age, family size, and social participation of black gram growers had showed non-significant association with adoption of Integrated Pest Management practices by black gram growers. This study also concluded that large majority of the black gram growers perceived the constraints i.e. improper technical knowledge about bio-agent and bio-insecticide (87.50%) followed by non-availability of bio-insecticide (86.67%) considered to be the major problem in the study area.

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