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RESEARCH ARTICLE :

Extent of adoption of integrated pest management practices by the brinjal growers and its correlates

S.K. BANSOD, R.T. KATOLE AND G.B. MORE

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SUMMARY : The present research study was conducted on 120 brinjal growers from 12 villages comprising 6 villages each from Saoner and Katol tahasils of Nagpur district of Vidarbha region of Maharashtra state to ascertain the adoption level of farmers about integrated pest management practices by the brinjal growers. The results revealed that more than half of the respondents (64.14%) were included under medium category of adoption level of integrated pest management practices. As regards to the finding of relational analysis revealed that, among the selected variables education, land holding, area under brinjal, experiences in cultivation of brinjal crop, annual income, sources of information, social participation, risk preference, economic motivation and innovativeness were positively and significantly correlated with adoption of integrated pest management practices of brinjal. Whereas, variable like age did not show any significant relation with adoption by brinjal growers.

KEY WORDS :
Adoption,
Brinjal,
Correlation

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Author for correspondence :
S.K. BANSOD
Department of Extension Education, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOLA (M.S.) INDIA
See end of the article for authors' affiliations

BACKGROUND AND OBJECTIVES

Brinjal (*Solanum melongena* L.) or eggplant, a normally self-pollinated crop is of Indian origin. It has several vernacular names in Sanskrit. It is also known as "Vatta" in Amarkosha a Sanskrit dictionary of 1100A/D.

Brinjal, is native species of South Asian origin is a important vegetable in India. In India it is grown on 711,000 ha. with the production of 13557,000 metric tons whereas grow over 300,00 ha. with the production of 690,000 metric tons and of productivity 23.0 metric tons per ha. In India, West Bengal ranked first in area whereas Maharashtra had seventh rank in area which contributes about 5 per cent in total area (National Horticulture Board, 2013-2014).

The food value of brinjal 97.7 per cent of moisture 1.4 per cent protein, 0.3 per cent of the fat, 0.3 per cent minerals. The study was taken up with specific objectives *viz.*, to study the profile of the brinjal growers, to study the adoption about the integrated pest management practices by brinjal growers and to find out the relationship between selected characteristics of the brinjal growers with their adoption of IPM practices.

RESOURCES AND METHODS

An exploratory design of social research was used for the investigation. The present study was conducted in Saoner and Katol tahasil of Nagpur district in Vidarbha region of Maharashtra state purposively on the basis of higher area under the cultivation of brinjal crop.

A sample of 120 brinjal growers were selected randomly from the twelve villages of two tahsils, from each tahasil 6 villages were selected. The data were collected by personally interviewing the respondent. The statistical method like arithmetic mean, standard deviation and co-efficient of correlationwas used for analysing the data.

OBSERVATIONS AND ANALYSIS

The result obtained from the present investigation has been discussed in the following sub head.

Table 1 : Distribution of the respondents according to their overall adoption level about integrated pest management practices by brinjal growers

Sr. No.	Adoption level	Respondents	
		Frequency	Percentage
1.	Low	07	5.84
2.	Medium	77	64.16
3.	High	36	30.00
	Total	120	100

Table 2 : Distribution of the respondents according to their adoption about integrated pest management practices by brinjal growers

Sr. No.	Integrated pest management practices	Adoption (n=120)		
		Complete adoption	Partial adoption	Non - adoption
1.	**Cultural practices**			
	Optimum spacing (75x60 cm or 75x70 cm. For hybrid variety 90x75 cm)	74 (61.66%)	20 (16.66%)	28 (23.33%)
	Use of recommended / resistant varieties (Aruna, Manzari Gota, Pusa Purple Round, Pusa Purple Cluster, Pragati, Ruchira, Pusa Purple Long, Pusa Kranti, Phule Harit, AKLB-9, Krushna)	29 (24.16%)	28 (23.33%)	63 (52.50%)
	Seed treatment (Use of *Trichoderma viridi* @4g / kg. or Carbendazium or Thirum@ 3 g / kg. of seed in case of nursery sowing).	29 (24.17%)	36 (30.00%)	55 (45.33%)
2.	**Mechanical methods**			
	Erection of yellow sticky traps for sucking pest.(@ 15 - 20 / ha)	4 (3.33%)	19 (15.83%)	97 (80.83%)
	Use of pheromone traps for shoot and fruit borer male moth(@ 10-12 / ha).	4 (3.33%)	43 (35.83%)	73 (60.33%)
	Clipping of infested shoot due to shoot and fruit borer. (at weekly interval)	4 (3.33%)	59 (49.16%)	57 (47.50%)
	Collection and destruction of infested plant parts and fallen fruits (at regular interval)	22 (18.33%)	15 (12.50%)	83 (69.16%)
3.	**Biological methods**			
	Use of plant products			
	Neem oil (@ 2% at the early infestation stage of sucking pest or shoot and fruit borer)	18 (15.00%)	54 (45.00%)	48 (40.00%)
	Neem seed extract (@ 5% for both sucking pest and shoot and fruit borer)	19 (15.83%)	35 (29.16%)	66 (55.00%)
	Use of biocontrol agent (Release of *Crysoperla carnia* @ 10000 eggs or pupae / ha for sucking pest control)	1 (0.83%)	43 (35.83%)	76 (63.33%)
4.	**Chemical methods**			
	Soil application of insecticides (Phorate 10 G @ 25 g per sq.mt. in nursery beds during sowing of seeds)	19 (15.83%)	35 (29.16%)	76 (63.33%)
	Seed treatment (Use of *Trichoderma viridi* 4g/ kg.of seed and thirum or carbendazium @ 3 g / kg of seed at the time of nursery sowing)	29 (24.16%)	36 (30.00%)	48 (40.00%)
	Treatment of seedlings with insecticide before planting (Use of dimethoate 30EC solution @ 10 ml. in 10 lit water for dipping of leaf portion of seedling prior to planting in case, if phorate 10 lit is not applied in nursery beds)	0	28 (23.33%)	92 (76.66%)
	Spraying of insecticides			
	Control of sucking pests (Application of diamethiote 30EC 10 ml. or quinalphos 25EC 20 ml. or thiometon 25EC 10 ml in 10 lit of water 15 days after planting)	29 (24.16%)	61(50.83%)	30(25.00%)
	Control of shoot and fruit borer (Application of carbaryl 50 WP 40 g. or cypermethrin 25 EC 2.4 ml in 10 lit of water at economic threshold of the pests)	12 (10.00%)	39 (32.50%)	69 (57.50%)
	Economic threshold level for shoot and fruit borer.(5 % shoot infestation or fruit damage per meter row length or 10 moth catches per pheromone trap per day consecutively for three days)	5 (4.16%)	47 (39.16%)	68 (56.66%)

Table 3 : Co-efficient of correlation of characteristics of the respondents with their adoption

Sr. No.	Variables	"r" values
1.	Age	-0.06695
2.	Education	0.20364*
3.	Land holding	0.20197*
4.	Area under brinjal crop	0.19988*
5.	Experience in cultivation of brinjal crop	0.20170*
6.	Annual income	0.21188*
7.	Social participation	0.23960**
8.	Sources of information	0.28867**
9.	Extension contact	0.21676**
10.	Risk preference	0.22657**
11.	Economic motivation	0.20607*
12.	Innovativeness	0.21415**

* and ** indicate significance of values at P=0.05 and 0.01, respectively

Adoption index :

The distributions of respondent according to level of adoption in Table 1 revealed that (64.16%) of respondents were included under medium category of adoption level of integrated pest management practices, followed by high level of adoption (30.00%) and only 5.84 per cent of the farmers were found in low level of adoption of integrated pest management practices. This finding is in conformity with the findings of Desai (2005); Shete (2006) and Kurhade (2011).

The adoption of various integrated pest management practices connecting with brinjal growing by the respondents was further ascertained (Table 2). The majority of respondents completely adopted some integrated pest management practices like, optimum spacing (61.66%), use of recommended /resistant varieties (24.16%), control of sucking pests (24.16%). However, it is observed that the majority of the respondents partially adopted the integrated pest management practices like control of sucking pests (50.83%), clipping of infested shoot due to shoot and fruit borer (49.16%), use of plant product like *Neem* oil (45%), use of pheromone traps for shoot and fruit borer male moth (35.83%), seed treatment (30.00%).

It is also found that majority of respondents not adopted the integrated pest management practices like erection of yellow sticky traps for sucking pest (80.83%), treatment of seedlings with insecticide before planting (76.66%), collection and destruction of infested plant parts and fallen fruits (69.16%).

Relational analysis :

It could be seen from Table 3 among the selected variables education, land holding, area under brinjal crop, experience in cultivation of brinjal crop, annual income and economic motivation were positively and significantly correlated with adoption at 0.05 level of probability. Therefore, the Null hypothesis was rejected for these characteristics.

The variables such as social participation, sources of information, extension contact, risk preference and innovativeness were positively and significantly correlated with adoption at 0.01 level of probability. Therefore, the Null hypothesis was rejected adopted by farmers about integrated pest management practices of brinjal. It could be, therefore, be interpreted that the brinjal growers with higher level of education with moderate social participation and medium sources of information and higher level of economic motivation will to develop deeper insight and possessed the adoption in respect to integrated pest management practices of brinjal.

Authors' affiliations :

R.T. KATOLE AND G.B. MORE, Department of Extension Education, College of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOLA (M.S.) INDIA

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