RESEARCH ARTICLE

OCCURRANCE OF INSECTS AND DISEASES IN SOLANACEOUS VEGETABLE CROPS AS PERCIVED BY THE FARMERS IN REWA DISTRICT (M.P.)

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Received-12.10.2017, Revised-20.11.2017

Abstract: Cultivation of vegetables is now becoming a viable commercial enterprise with the introduction of liberal trade policies, prospects for export of vegetables. Solanaceous vegetables viz., brinjal, chilli, potato and tomato are grown throughout the year in all parts of the country in an area of 32.98 lakh ha. with the production of 441.7 lakh tonnes. The study was carried out in Rewa district of M.P. to assess the occurrence of insects and diseases in solanaceous vegetable as perceived by farmers. It was found that in solanaceous vegetable crops there was maximum infestation reported by insect shoot & fruit borer, stem borer, hadda beetle, thrips, white fly, mites, cut worm and tuber moth. The study revealed that there was severe incidence reported by phomopsis blight followed by Little leaf, damping off, leaf curl, fruit cracking, late blight. early blight, black heart, anthracnose. The constraint of experienced by the farmers regarding management of insects and diseases may be arranged in descending order as lack of trials/demonstration followed by lack of proper training for management and high cost of insecticides/pesticides. The study suggested that trails and demonstration should be conducted on farmer's field.

Keyword: Occurrence, Insect-diseases, Constraint, Crop, Vegetable

INTRODUCTION

Insects and pests are the major biotic constraints to solanaceous vegetables production in India. Apart from causing direct damage many of them also act as vectors for several viral diseases. In many cases, there is 100 per cent yield loss due to viral diseases vectored by insects. The extent of crop losses in vegetables varies with the plant type, location, damage potential of the pest involved and cropping season. Efforts have been made to increase the production of solanaceous vegetable, by developing appropriate technologies like high yielding & pest and disease resistant crops varieties & plant protection technologies etc. However still, there is a wide gap between current production and potential productivity of solanaceous vegetable crops. The desired benefits of plant protection technologies of solanaceous vegetable crops are yet to be reached to the vegetable growers. Several studies have been conducted on vegetable crops to know the knowledge and adoption of recommended production technologies but very few research studies have been conducted on adoption behaviour of the farmers regarding plant protection technologies of solanaceous vegetable crops. Keeping this in view the present study was undertaken to assess the occurrence of insects & diseases in prominent solanaceous vegetable crops as perceived by the farmers.

METHODOLOGY

The present study was conducted in Rewa district of M.P. It comprises nine blocks. Out of these blocks Gangeo block was selected purposively because in this block the productivity of solanaceous vegetable crops is highest. Ten villages on the basis of larger area under solanaceous vegetable crops were selected for present study. A list of solanaceous vegetable growers was prepared. From this list the farmers was selected from each village through proportionate random sampling method to make a sample of 120 respondents. Finally the sample was consisted of 120 respondents. The data were collected with the help of a pretested interview schedule.

In the present study an attempt has been made to assess insects & diseases in prominent solanaceous vegetable crops as perceived by the farmers .Occurrence is an important factor for assessing the extent of attack of insects and diseases in solanaceous vegetable crops. It is also associated with the infestation and yield losses caused by different insects and pests in the selected solanaceous crops. The occurrence was measured as per the farmers opinion about extent of infestation/incidence of all major insects and diseases of solanaeous vegetable crops namely brinjal, chilli, tomato and potato. Response regarding extent of infestation and incidence of insects and diseases.in each solanaceous vegetable crops as told by respondents were recorded in 3 point continuum as low (< 10 %), medium (10-20%) and high (above 20%) with the score 1, 2 & 3 respectively. Infestation & incidence of each insect & disease was worked out by adding the score given by all the respondents against the each one together. The infestation of each insect was categorised in to the following three categories

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S.No.	Categories	Score
1.	Low level of infestation (<10per cent)	1
2.	Medium level of infestation (10-20 percent)	2
3.	High level of infestation (>20 per cent)	3

Similarly the incidence of each disease was categorised in to the following in three categories

S.No.	Categories	Score
1.	Low level of incidence (<10per cent)	1
2.	Medium level of incidence (10-20 percent)	2
3.	High level of incidence (>20 per cent)	3

RESULT

(1) Occurrence of insects in prominent solanaceous vegetable crops as perceived by the farmers-

Table 1. Occurrence of insects in prominent solanaceous vegetable crops as perceived by the farmers-

Name of crops	Name of Insects	Occurrence			Total score	Mean score
		Level of Infestation (%)				
		Low (10%)	Medium (10-20%)	High (above 20%)		
Brinjal	Shoot and fruit Borer	22	25	73	291	2.42
	Stem borer	33	48	39	246	2.05
	Hadda Beetle	65	30	25	200	1.66
Tomato	Fruit bore	66	24	30	204	1.70
Chilli	Thrips	56	26	38	222	1.85
	Mites	68	32	20	188	1.56
	White fly	63	25	32	209	1.74
Potato	Aphid	32	40	48	256	2.13
	Cut worm	74	27	19	185	1.54
	Tuber moth	54	46	20	206	1.71

The Table presents the infestation caused by different insects in solanceous vegetable as perceived by the respondents. In brinjal crops there was maximum infestation reported by shoot and fruit borer followed by stem borer and hadda beetle. In case of tomato crops maximum infestation of fruit borer was reported by the respondents. As regards chili crops the highest infestation of thrips was observed followed by white fly and mites. As far as a potato crop was concerned there was maximum infestation of aphid as perceived by the farmers followed by cut worm and tuber moth.

(2) Occurrence of diseases in prominent solanaceous vegetable crops as perceived by the farmers-

Table 2. Occurrence of diseases in prominent solanaceous vegetable crops as perceived by the farmers

Name of crops	Name of Diseases	Occurrence			Total score	Mean score
		Level of Incidence (%)				
		Low (10%)	Medium (10-20%)	High (above 20%)		
Brinjal	Phomopsis blight	53	47	20	207	1.73

	Little leaf	44	36	40	235	1.96
	Dumping off	75	26	19	184	1.53
Tomato	Leaf curl	32	40	48	256	2.13
	Early blight	41	53	26	225	1.87
	Damping off	72	28	20	188	1.56
	Fruit cracking	67	34	19	192	1.60
Potato	Late blight	61	38	21	200	1.66
	Early blight	40	44	36	236	1.96
	Black heart	80	21	19	179	1.49
Chilli	Damping off	78	27	15	177	1.47
	Anthracnose	53	39	28	215	1.79
	Leaf curl	24	45	51	267	2.05

The Table Exhibits the intensity of incidence of different diseases in solanaceous vegetable crops as perceived by the farmers. In brinjal crops there was highest incidence of phomopsis blight reported followed by little leaf and damping off. It was found that in case of tomato crops the incidence of leaf curl was highest followed by early blight, fruit cracking and damping off. Regarding chilli crop there was maximum incidence of leaf curl followed by anthracnose and damping off. As far as potato crop was concerned the incidence of early blight was most severe followed by late blight and black heart as reported by the farmers.

Similarly ODA (2012) found that prevalence of various insect pests such as aphid, thrips, whitefly, leaf miner, insects belonging to the Coccidae and Miridae families, and cotton bollworm were observed. The water- saving cultivation had little influence on the occurrence of insect pests compared with conventional cultivation.

Similarly Kataria and Kumar (2012) were found that Observed that occurrence of insect pests was observed in the month of September till April in all the three consecutive years in the agro ecosystem of Vadodara.

(3) Constraints faced by the farmers regarding management of insects and diseases in solanaceous vegetable crops

In the present study the respondents were asked to mention their problems in faced by the farmers regarding management of insects and diseases in solanaceous vegetable crops.

Table 3. Constraints experienced by the farmers in management of insects and diseases of solanaceous crops

S. No.	Constraints	Frequency	Percent	Rank
1	Unavailability of NPV and Bt. At local level	75	62.50	VI
2	Lack of knowledge about insect and diseases resistant variety	76	63.33	V
3	Unavailability of NSKE at local level	60	50.00	VIII
4	Lack of technical literature related to integrated management of insects and diseases of solanaceous crops	49	40.83	IX
5	Unavailability of light trap, pheromone trap and yellow sticky	45	37.50	X
6	Lack of trials/ demonstration on integrated management practices of insects and diseases	118	98.33	I
7	Lack of knowledge to identify insects, diseases and predators	30	25.00	XI
8	Lack of proper training for management of insects and diseases of solanaceous crops	115	95.83	II
9	High cost of insecticides and pesticides	112	93.33	III

10	Lack of knowledge about the appropriate dose of insecticides/ pesticides	69	57.59	VII
11	Non-availability of quality product (bio-insecticides and bio agents)	90	75.00	IV

The Data regarding problems in management of integrated insects and diseases management practices as experienced by the farmers is presented in Table 3, reveals that majority of the farmers faced the major constraints as lack of trials/ demonstration of integrated management practices of insects and diseases (98.33%), followed by lack of proper training for management of insects and diseases of solanaceous crops (95.83%), high cost of insecticide and pesticide (93.33%), non-availability of quality product (bio-insecticide and bio agents) (75.00%), lack of knowledge about insects and diseases resistant variety (63.33%), unavailability of NPV and Bt. at local level (62.50%), Lack of knowledge about the correct dose of insecticide/ pesticide (57.59%), unavailability of NSKE at local level (50.00%), lack of technical literature related to management of insects and diseases of solanaceous crops (40.83%), unavailability of light trap, pheromone trap and yellow sticky (37.50%) and lack of knowledge to identify predators (25.00%).

Similarly Sharma (2014) found that high cost of chemicals, non-availability of disease free seeds, non-availability of chemicals, lack of labour, lack of time, lack of technical knowledge, financial problem, poor shelf life, inadequate supply of storage material, lack of marketing facilities, less support price and price fluctuation were the main constraints encountered by the vegetable growers in the adoption of recommended farm practices of major vegetable crops.

Similarly Kerketta et al (2015) revealed that the majority (91.66%) of the respondents reported, non-availability of bio-agents (NPV, parasites etc.), followed by Non-availability of inputs at a time (bio-pesticides, traps, herbicides etc.) (90.00%) and lack of proper training conduct for IPM practices by extension agent or agencies (80.83%) are considered as major constraints.

CONCLUSION

The study was carried out in Rewa district of M.P. to assess the occurrence of insects and diseases in solanaceous vegetable as perceived by farmers. It was found that in solanaceous vegetable crops there was maximum infestation reported by insect shoot & fruit borer, stem borer, hadda beetle, thrips, white fly, mites, cut worm and tuber moth. The study revealed that there was severe incidence reported by phomopsis blight followed by Little leaf, damping off, leaf curl, fruit cracking, late blight, early blight, black heart, anthracnose. The constraint of experienced by the farmers regarding management of insects and diseases may be arranged in descending order as lack of trials/demonstration followed by lack of proper training for management and high cost of insecticides/pesticides. The study suggested that trails and demonstration should be conducted on farmer's field.

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