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Research Note

Plant Protection Measures use Behaviour of Vegetable Growers in Punjab State

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ABSTRACT

Vegetables are short duration crops and they provide handsome income to meet the day to day need. Vegetable farming is important for the small farmers as 80 per cent of farmers in our country are small and marginal farmers and it addresses the nutrition security issue. Major share of the input cost in vegetable production is spent on pesticides. The judicious use of these pesticides can increase the farmer's income as most of the respondents face the problems of insects/pests, diseases and weeds. The study conducted on 200 vegetable growers in Jalandhar and Moga districts of Punjab state showed that most of the respondents were potato growers and more than half of the total respondents faced problem of insect/pest in potatoes. Respondents had very less awareness about spray uniform and antidotes. All the respondents washed hands after the spray of insecticide/pesticide.

Keywords: Awareness, Disease control, Insect/pest, Pesticide, Vegetables

INTRODUCTION

Vegetables provide handsome income to meet the day to day need. There is need to upscale the Nutritional Gardening in rural areas with nutrition education in order to promote increased consumption of diverse and nutrient rich food (Singh *et al*., 2019). India is one of the foremost countries for large scale use of pesticides to control insect pests and diseases. The major share of the input cost in vegetable production is spent on pesticides. Pesticides are inputs which are used to control pests when producing a crop (Kateregga, 2012; Skevas *et al.*, 2013; Jansen and Dubois, 2014). These chemicals have made a great impact on human health. With their introduction, a revolutionary change has lead to incredible possibility that hunger can be vanished from country. At the same time, excessive use of agro-chemical causes pesticidal residue effects. The contamination of food material is one of the major problems confronting man. The consumer runs the greatest risk of exposure to pesticides through the contaminated food and overemphasis on the indiscriminate use of pesticides by the farmers lead to excessive chemicalisation of agriculture with multitude of consequences i.e. development of resistance to the pesticides in the target pest species, resurgence of pests, secondary pest outbreaks, residue in food, feed etc. Farmers use heavy fertilizers for little tolerance for pest infestation. The public sector also encourages use of pesticides, eco friendly pest control measures and IPM (MoA, 2013; Mengistie *et al.*, 2014; Damte and Tabor, 2015). Integrated farming system reduces the cost of production by recycling the residues in the field and also helps to conserve water, soil health and nutrients which decrease their dependence on excessive chemicals (Singh *et al*., 2017). But, farmers are not using practice the eco friendly pest control measures. With this background

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the present study was conducted to know the utilization pattern of pesticides by vegetable growers of Punjab.

METHODOLOGY

The study was conducted in two districts of Punjab State i.e. Jalandhar and Moga by selecting 200 farmers. A list of vegetable growers of all the selected villages having minimum one acre of land under vegetable cultivation was prepared and a sample of two hundred vegetable growers was selected proportionately on the basis of total numbers of vegetable growers in the villages. An interview schedule was prepared for the collection of data. Data regarding the nature of pesticides that are being used on different vegetable crops were collected. Each of the selected respondents was personally interviewed. Appropriate statistical tools used to analyse the data to draw findings from the study.

RESULTS AND DISCUSSION

A perusal of data in Table 1 indicates that 53.5 per cent of the respondents had grown potato crop in their field and majority of them faced the problems of insect/ pest, disease and weeds. Other vegetable crops grown by the respondents were peas (46.5%), tomato (39.5%), chilli (38.5%), vine crops (33.0%) and cauliflower (31.5%). All the respondents faced the problem of insect pests in potato and okra, whereas 98.14 per cent of brinjal growers faced same problem. In cabbage, chilli and radish 88.63, 88.05 and 84.78 per cent of the growers were face the weeds problem respectively. About 83.33 percent of the garlic growers faced the problem of insect pest in garlic crop.

The results from study concludes that 26.58 per cent of the respondents used indofil, 18.99 per cent of the respondents used copper oxychloride and 54.43 per cent had not used any chemical for the control of early blight in case of potato. In case of late blight indofil used by 39.24 per cent, copper oxychloride used by 24.05 per cent, 8.86 per cent used kavach, ridomil used by 8.86 per cent and 18.89 per cent had not used any chemical for the control of late blight in case of potato. In case of black scurf moncoren used by 10.13 per cent, emisan used by 21.51 per cent, 35.45 per cent used bavistin and 32.91 per cent had not used any chemical for the control of black scurf in case of potato. In tomato crop the problem of early blight was controlled

Table 1: Distribution of the respondents according to different vegetable grown at their farm and faced the problems of insect pest, diseases and weeds (n=200)

Vegetables	Frequency	Faced the problem		
	(%)	Insect/pest (%)	Diseases (%)	Weed (%)
Potato	107 (53.5)	107 (100.00)	79 (73.83)	107 (100.00
Onion	38 (19.5)	11 (28.94)	13 (34.21)	33 (86.84)
Tomato	79 (39.5)	61 (77.21)	68 (86.07)	73 (92.40)
Brinjal	54 (27.0)	53 (98.14)	21 (38.49)	47 (87.03)
Cauliflower	63 (31.5)	49 (77.78)	21 (33.33)	57 (90.47)
Cabbage	44 (22.0)	36 (86.81)	19 (43.18)	39 (83.63)
Okra	57 (28.5)	57 (100.0)	12 (21.10)	54 (94.73)
Chilies	67 (38.5)	17 (25.37)	45 (67.16)	59 (88.05)
Peas	93 (46.5)	33 (35.48)	76 (81.72)	74 (79.56)
Vine crops (cucurbits)	66 (33.0)	44 (66.67)	40 (60.61)	51 (77.27)
Reddish	46 (23.0)	12 (26.08)	13 (28.26)	39 (84.78)
Turnip	22 (11.0)	10 (45.45)	8 (36.37)	19 (86.36)
Carrot	49 (24.5)	13 (26.53)	17 (34.69)	36 (73.67)
Garlic	12 (6.0)	10 (83.33)	7 (58.33)	8 (66.67)

*Multiple responses

Table 2: Different chemicals used for the control of disease

Crop	Disease	Chemical	Percentage
Potato	Early blight	Indofil	26.58
		Copper oxychloride	18.99
		No Chemical	54.43
		Total	**100**
	Late blight	Indofil	39.24
		Copper oxychloride	24.05
		Kavach	8.86
		Ridomil gold	8.86
		No Chemical	18.99
		Total	**100**
	Black scurf	Moncoren	10.13
		Emisan	21.51
		Bavistin	35.45
		No Chemical	32.91
		Total	**100**
Tomato	Early blight	Thiram	36.76
		Indifil	45.59
		No chemical	17.65
		Total	**100**
	Mosaic and	Dimethoate	27.94
	leaf curl	Rogor	41.18
		No Chemical	30.88
		Total	**100**
Pea	Powdery	Karathane	35.53
	mildew	Sulfex	34.21
		No Chemical	30.26
		Total	**100**
	Rust	Indofil	36.84
		Karathane	48.69
		No Chemical	14.47
		Total	**100**

by thiram and indifil by 36.76 and 45.59 per cent of the respondents. About 17 per cent of the respondents had not used any chemical for the control of early blight in case of tomato. For the control of mosaic and leaf curl in tomato crop 27.94 per cent of respondents used dimethoate, 41.18 per cent of the respondents used rogor and 30.88 per cent had not used any chemical for the control of mosaic and leaf curl. In pea crop powdery mildew was mainly controlled by treating with karathane (35.53%) and sulfex (34.21%) whereas 30.26 per cent had not used any chemical for the control of powdery mildew. To control rust in pea 36.84 per cent were used indofil and karathane was used by 48.69 per cent respondents. About 14.47 per cent of the respondents had not used any chemical for the control of rust in pea crop. Sasane *et al*. (2012) found that 37.50 per cent of respondents had adopted recommended plant protection measures for controlling pest, 57.50 per cent of respondents had partially adopted and 5.00 per cent of them had not adopted recommended plant protection measures.

Data given in Table 3 depicts that 24.5 per cent respondents were aware about use of spray clothes. Only 14 per cent respondents wear gloves at the time of spraying insecticide/pesticide and 86 per cent were not wearing gloves. More than 30 per cent respondents wear plastic boots whereas, wearing face shield was practiced by only 9 per cent. All the respondents washed hands after the spray of insecticide/pesticide. Only 7 per cent respondents were aware about the antidotes out of total respondents. Symptoms associated with pesticide use in a study conducted by Karunamoorthi *et al*. (2012) found that farmers and farm workers were facing symptoms like headache (58.8%), salivation and vomiting (38.2%), nausea (36.5%), and sneezing (12.5%). Manunayaka *et al*. (2019) stated that Sixty per cent of the vegetable growers were undecided whether to spray agricultural chemicals in the opposite direction of wind or along the direction of wind.

Table 3: Protective measures used by Vegetable growers for pesticide/insecticide spray (n=200)

Observation	Aware (%)
Awareness about use of Spray uniform (clothes)	24.5
Wear gloves	14.0
Wear boots	30.5
Wear face shield	09.0
Wash hands after Use	100.0
Awareness About Antidotes	7.0

CONCLUSION

Majority of the vegetable growers cultivated potato with using recommended pesticides for the control of insect, pests and diseases. But it was found that some farmers did not use any pesticide. Very less were aware about precautions taken at the time of pesticide spay. All the respondents washed hands after the spray of pesticide/insecticide spray. Intensive efforts should be made to make aware the farmers about adverse affect of these pesticides.

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