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Awareness level of vegetable growers on Plant protection management in Krishnagiri District

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Abstract

The vegetable plays a vital role in the daily supplement of food. Frequency of the pesticides spray is higher in the vegetable crops. In order to optimize the use of pesticide and proper PPE usage plant health engineering practices will help to overcome this. The present study was conducted in the Hosur and Kelamangalam blocks of Krishnagiri district of Tamil Nadu with 300 respondents. A well constructed interview schedule was used to collect data. The findings reported that vegetable growers had moderate level of awareness about the plant health engineering practices. But nearly 40.00 per cent of the respondent were not awareness about the recommended and quantity of chemical. Lack of awareness about the toxicity levels, measuring device for pesticide quantity, recommended chemical for pest and diseases in brinjal and tomato.The agricultural engineering department should be directed to evolve specified nozzles for the various pest and disease should be well educated to the farmers and the applicators. Nozzle type should be well explained to the farmers by conducting the exhibition or demonstration with the help of private agencies. Since most of the farmers and applicators does not service the equipment frequently. It is necessary to service the equipment for effective use.

Key words : Awareness, vegetable crops, plant health engineering, pesticide application.

Exposure to pesticides affects the human health severly. Since they are not degradable it affects the environmentally by reducing the soil fertility, mortality of natural enemies, drainage of residues into canals there by increase in water pollution etc. In recent times, use of the pesticides in vegetables increased dramatically which shows the need to reduce the pesticide residue in the vegetable food since they are the rich source of nutrients. The reason for this due to the low level of awareness among the farmers of selecting the

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correct pesticides by observing the pest and disease problems and also the quantity of the pesticides is not known to them as recommended by the department of horticulture and agriculture.

Considering the all the above negative effects of pesticides on human and environments and their drawbacks it is very necessary to should the trend towards the optimum use of pesticides and the correct time of using it. Hence, the study of awareness level of pest management among the vegetables growers in Krishnagiri district of Tamil Nadu.

The study area was conducted in Krishnagiri district of Tamil Nadu, India. In this district Hosur and Kelamangalam blocks were selected based on the higher area under vegetable cultivation. There were 300 respondents were selected for this study. Among them 150 tomato and 150 brinjal farmers were selected based on the proportionate random sampling technique. Data were collected with the help of structured and pre-tested interview schedule. The collected data were analysed using cumulative frequency distribution method and percentage analysis.

The survey measures the main aspects is the awareness level of vegetable growers on pest and disease management. The respondents were asked to select the correct and appropriate answers for the questions on awareness. A total of two points are given to the aware (2 score) and not aware (1score).

Findings

Overall awareness level of vegetable growers on plant health engineering :

The relevant data regarding the overall awareness level of vegetable growers on plant health engineering were presented in Table-1.

Table-1. Distribution of the respondents according to their awareness level on plant health engineering

(n=300)

S.No.	Category	Number	Per cent
1	Low	50	16.67
2	Medium	225	75.00
3	High	25	8.33
	Total	300	100

It can be observed from the Table-1, that three-fourth of the respondents (75.00 per cent) had medium level of awareness on plant health engineering practices among vegetable growers. About 16.67 per cent and 8.33 per cent of the respondents had low and high levels of awareness on plant health engineering. From the results, it was observed that seventy-five per cent of the respondents fell under medium level of awareness about the plant health engineering. This might be due to the fact that majority of the respondents had educated and medium level of farming experience. Which is resulted in increased in their awareness level of vegetable grower on plant health engineering.

This finding is supported by the findings of Rajapandi[3] who also found that majority of the respondents had medium level of awareness level.

Awareness level of vegetable growers on plant protection management :

The findings on the awareness level about pest and diseases management in

vegetable cultivation are discussed from the Table-2 to 3.

Awareness level of vegetable growers on pest management in brinjal cultivation :

The awareness level of vegetable growers on pest management in brinjal cultivation. The data was collected and analysed and the results are presented in Table-2.

Table-2. Awareness level of vegetable growers on pest management in brinjal cultivation

(n=300)

S.No.	Pest Management	Awareness	
		Number	Per cent
1	**Fruit and shoot borer**		
	I) To know the pest	275	91.66
	II) To know the symptom	260	86.66
	III) To know the recommended insecticide	200	66.66
	IV) To know the quantity of chemical	180	60.00
2	**Whitefly**		
	I) To know the pest	270	90.00
	II) To know the symptom	255	85.00
	III) To know the recommended insecticide	175	58.33
	IV) To know the quantity of chemical	156	52.00
3	**Aphids**		
	I) To know the pest	260	86.66
	II) To know the symptom	252	84.00
	III) To know the recommended insecticide	170	56.66
	IV) To know the quantity of chemical	156	52.00

On perusal of data from Table-2, that more than ninety per cent of the respondents (91.66 per cent) had awareness about the pest of fruit borer in brinjal cultivation followed by to know the symptom (86.66 per cent), to know the recommended chemicals (66.66 per cent) and to know the recommended quantity of chemicals (60.00 per cent) From the results on awareness level of whitefly management in pest management practices in Table-2, it could be state that ninety per cent of the brinjal growers (90.00 per cent) were awareness about to know the pest. More than four - fifth of the respondents (85.00 per cent) were awareness in the know the symptom followed by recommended chemical (58.33 per cent) and to know the recommended quantity (52.00 per cent).

In case of awareness level of brinjal cultivation farmer with regards to aphids plant protection measures. Regarding to know the pest 86.66 per cent of the respondents were awareness followed by symptoms (84.00 per cent), recommended insecticide (56.66 per cent) and recommended quantity (48.33 per

cent).

From the results, it could be interpreted that more than 75.00 per cent of the respondents had awareness about pest management in brinjal cultivation. This might be due to the reason that 66.66 per cent of the respondents were aware about the recommended chemicals (Profenphos 40% + Cypermerthin 4%) for fruits and shoot borer and 60.00 per cent of the respondents were aware about the recommended quantity also. With regards to whitefly 58.33 per cent of the brinjal growers were aware about the recommended chemical, (Malathion 50EC) and 56.66 per cent of the respondents were awareness about the recommended chemical of aphids (Dimethoate 30 EC). Whereas, 52.00 per cent of the respondents to know the recommended quantities of insecticides in both whitefly and aphids. More than 90.00 per cent of the farmers were aware about the pest and symptoms. Hence majority of the brinjal growers had high level of awareness about the pest management.

The finding is in parallel with the findings of Revathi[5] who also reported that majority of the respondents had high level of awareness in vegetable cultivation.

Awareness level of vegetable growers on pest management in tomato cultivation :

The information on awareness level of vegetable growers on pest management in tomato cultivation and the results were collected and presented in Table-3.

Table-3. Awareness level of vegetable growers on pest management in tomato cultivation

(n=300)

S.No.	Pest	Awareness	
		Number	Per cent
1	**Fruit and shoot borer**		
	I) To know the pest	270	90.00
	II) To know the symptom	260	86.66
	III) To know the recommended insecticide	170	56.66
	IV) To know the quantity of chemical	150	50.00
2	**Whitefly**		
	I) To know the pest	265	88.33
	II) To know the symptom	258	86.00
	III) To know the recommended insecticide	182	60.66
	IV) To know the quantity of chemical	151	50.33
3	**Thrips**		
	I) To know the pest	272	90.66
	II) To know the symptom	268	89.33
	III) To know the recommended insecticide	172	57.33
	IV) To know the quantity of chemical	146	48.66

There are three major pest were identified in tomato cultivation viz., fruits and shoot borer, whitefly and thrips. Among the three pest, the three fourth of the respondents had awareness about pest management practices.

It could be ascertained from Table-3, that 90.00 per cent of the tomato growers were awareness in to know the pest of fruits and shoot borer followed by symptom of the pest (86.66 per cent), to know the recommended chemical (56.66 per cent) and recommended quantities of insecticides (50.00 per cent). This may be due to the fact that the tomato growers were aware about the recommended chemical (Malathion 50 EC) and also the quantity of insecticides for controlling fruits and shoot borer. This finding is in line with the findings of Rajapandi *et al*.,[3].

Regarding the pest of whitefly, 88.33 per cent of the respondents were awared about the pest followed by symptoms caused by whitefly (86.66 per cent). Wheares, 60.66 per cent of the tomato growers were aware about the recommended chemical (Malathion 50 EC) and 50.33 per cent of the growers had awareness about the recommended quantities of insecticides.

The thrips pest management analysis from the data in Table-3, indicated that more than ninty per cent of the respondents (90.66 per cent) were aware about the pest followed by 89.33 per cent of the tomato growers were awareness about symptoms of thrips, nearly sixty per cent of the respondents (57.33 per cent) to know the recommended insecticides and 48.66 per cent of the respondents to know the quantity of chemicals to controll the thrips in tomato farming. The findings regarding awareness level of tomato growers on plant protection measures had high level of awareness.

This findings derives support from that of Revathi[5] who also reported that majority of the respondents had medium to high level of awareness in her study of insects pest management practices of farmers in vegetable crops.

Awareness level of vegetable growers on diseases management in brinjal :

The awareness level of vegetable growers on plant protection management have been analysed individually and discussed. Further, to know the disease, symptom, recommended fungicide and quantity of fungicide for the crop viz., brinjal and tomato and the results are presented in Table from 4 and 5.

Awareness level of vegetable growers on diseases management in brinjal cultivation:

The information on the awareness level of brinjal growers in disease management and the results were collected and presented in Table-4.

It could be noticed from the Table-4, that 83.33 per cent of the brinjal cultivators to know the little leaf of brinjal disease followed by the know symptom (79.33 per cent), to know the recommended fungicide for controlling the little leaf of brinjal (60.00 per cent) and quantity of fungicide (48.66 per cent). It is noticed that most of them even aware about the whitefly but they were not aware

Table-4. Awareness level of vegetable growers on diseases management in brinjal cultivation

(n=300)

S.No.	Diseases	Awareness	
		Number	Per cent
1	**Little leaf of brinjal**		
	I) To know the diseases	250	83.33
	II) To know the symptom	238	79.33
	III) To know the recommended fungicide	180	60.00
	IV) To know the quantity of fungicides	146	48.66
2	**Damping off**		
	I) To know the diseases	245	81.66
	II) To know the symptom	240	80.00
	III) To know the recommended insecticide	175	58.33
	IV) To know the quantity of fungicides	150	50.00
3	**Alternaria leaf spot**		
	I) To know the diseases	260	86.66
	II) To know the symptom	248	82.66
	III) To know the recommended fungicide	186	62.00
	IV) To know the quantity of fungicides	138	46.00
4	**Root knot nematode**		
	I) To know the diseases	220	73.33
	II) To know the symptom	216	68.66
	III) To know the recommended fungicides	160	53.33
	IV) To know the quantity of fungicides	130	43.33

that whitefly only causes little leaf of brinjal. This finding is in line with the findings of Rajapandi[3].

On perusal of data the Table-4, showed that more than eighty per cent of the respondents (81.66 per cent) were aware about the damping off diseases. Wheares is 80.00 per cent of the brinjal growers to know the symptom of damping off followed by recommended fungicide (62.00 per cent) and recommended quantity of fungicides (50.00 per cent). The reason for this might be due to the fact the farming experience had medium to high levels, so they know the disease and symptoms. Wheares is in case of to know the fungicide and quantity of the fungicide were less than fifty per cent of the respondents to know the chemical (Copper Oxychloride at 2.5 g/l). This finding falls in line with the findings of Revathi[5].

With regards to *Alternaria* leaf spot disease, 86.66 per cent of the respondents to know the disease followed by 82.66 per cent of the brinjal growers were aware about the

symptom. About 62.00 per cent and 46.00 per cent of the respondents had awareness about recommended fungicide and quantity of the fungicide respectively in alternaria leaf spot disease. Less than two-third of the respondents were aware about the recommended chemical and quantity of the fungicide (Mancozeb @ 2g/ litter of water) for controlling of alternaria leaf spot.

It could be noticed that from Table-4, that nearly three - fourth of the respondents (73.33 per cent) were aware about the root knot nematodes and little more than two - third of the brinjal growers (68.66 per cent) were awareness about the symptom. Whereas, little more than half of the respondents (53.33 per cent) had awareness about to know the recommended fungicide and 43.33 per cent of the respondent were aware about the quantity of fungicides. More than fifty per cent of the respondents do not aware about the quantity of the fungicide. This might be due to the fact that majority of the brinjal growers having awareness and knowledge in production technologies only and they do not know which

Table-5. Awareness level of vegetable growers on disease management in tomato cultivation

(n=300)

S.No.	Diseases	Awareness	
		Number	Per cent
1	**Early blight**		
	I) To know the diseases	250	83.33
	II) To know the symptom	235	78.33
	III) To know the recommended fungicide	182	60.66
	IV) To know the quantity of fungicide	156	52.00
2	**Damping off**		
	I) To know the diseases	246	82.00
	II) To know the fungicide	231	77.00
	III) To know the recommended insecticide	175	58.33
	IV) To know the quantity of fungicide	152	50.66
3	**Fusarium wilt**		
	I) To know the diseases	230	76.66
	II) To know the symptom	216	72.00
	III) To know the recommended fungicide	160	53.33
	IV) To know the quantity of fungicide	142	47.33
4	**Tomato leaf curl virus**		
	I) To know the diseases	265	88.33
	II) To know the symptom	246	82.00
	III) To know the recommended fungicide	180	60.00
	IV) To know the quantity of fungicide	156	52.00

the fungicide to control of root knot nematode (Carbofuran 3 G@ 10 g/M^2). The result is in agreement with the results of Rajapandi *et al.*,[3] who also reported that majority of the respondents had less awareness in recommended fungicide and quantity of the fungicide.

Awareness level of vegetable growers on disease management practices in tomato cultivation :

The relevant data regarding the awareness level of vegetable growers on disease management in tomato cultivation were presented in Table-5.

It could be depicted from the Table-5, that more than eighty per cent of the respondents (83.33 per cent) had awareness about the early blight disease in tomato followed 78.33 per cent of the respondents were aware the symptoms, 60.66 per cent of the tomato growers were aware to know the recommended fungicide and 52.00 per cent to know the quantity of fungicide. Majority of the respondents to know the disease and symptom but they did not know the recommended fungicide and quantity of fungicide (hexaconazole 5 % SC @ 1 ml/litter or propiconazole 25/ EC @ 1ml/ litter and spraying 50 days after planting).

Regarding the damping off disease in tomato, 82.00 per cent of the respondents to knew the disease and 77.00 per cent of the respondents to know the symptom. While, 58.33 per cent and 50.66 per cent of the respondents were aware about the recommended chemical and quantity of the chemical respectively. The awareness level was found to be high in knowing the disease and symptom, but they did not much aware about fungicide and quantity of the fungicide (Copper oxychloride at 2.5 g/litter). This finding of this study is in line with Revathi[5].

It could be noticed from the Table-5, showed that more than three - fourth of the respondents (76.66 per cent) were aware about the fusarium wilt disease followed by symptom (72.00 per cent), recommended fungicide (53.33 per cent) and quantity of the fungicide (47.33 per cent). It was gratifying to noticed that less than fifty per cent of the respondents were awareness about the quantity of fungicide (Dimethoate 30 EC @1 ml/ litter or Malathion 50 EC @ 1.5 ml/litter or Methyl demeton 25 EC @ 1.0 ml/ litter).

Regarding the tomato leaf curl virus, 88.33 per cent of tomato growers had awareness on the disease followed by symptom (82.00 per cent), recommended fungicide (60.00 per cent) and recommended quantity of fungicide (52.00 per cent) were aware about the technology. From the above findings most of the tomato growers had awareness in disease and symptoms, but nearly half of the respondents to know the fungicide and quantity of the fungicide. The finding is in conformity with the findings of Rajapandi (2020) Who also found that similar findings in their study.

The findings revealed that majority of the vegetable growers had medium level of awareness about plant health engineering practices. The agricultural engineering department should be directed to evolve specified nozzles for the various pest and disease should be well educated to the farmers and the applicators. Nozzle type should be well

explained to the farmers by conducting the exhibition or demonstration with the help of private agencies. Since most of the farmers and applicators does not service the equipment frequently. It is necessary to service the equipment for effective use. Only megar percentage of the farmers knowns about the calibration and the swath width so step by step pesticide spray operations with explanation of the calibration of the sprayer including the swath width should be demonstrated to the farmers and the pesticide applicators.

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