

Use of insecticides and indigenous practices on cabbage crop by vegetable growers of Ludhiana district (Punjab)

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SUMMARY

The study was conducted to know the use of insecticide and indigenous practices on cabbage crop by vegetable growers. Sample of 150 vegetable growers having at least one acre area under vegetable cultivation in Ludhiana district was selected for the investigation. Data regarding use of insecticide and indigenous practices on cabbage were collected with help of specially prepared interview schedule. Study findings revealed that cabbage crop was infested by stem borer, diamond back moth and aphid insects, for controlling of stem borer about 53 per cent of infested area was treated with recommended insecticides. About 75 per cent of area infested by aphid and diamond back moth was treated with non recommended insecticides. Out of this only 11, 22 and 27 percentage of the area was treated with recommended doses to control stem borer, diamond back moth and aphid respectively. Majority of cabbage growers used non recommended number of sprays and time interval between sprays of insecticide on their crop. All cabbage growers were not observing the recommended waiting period for picking the crop after spraying, which is very alarming figure from health point of view. Only negligible percentage (1.58) of vegetable growers was using indigenous practice *i.e.* ash for controlling aphid on their crop. Whereas on other vegetables like brinjal and okra, the use of neem spray was observed. It is necessary that these insecticides should be used very judiciously and safely. So, cabbage growers should be educated through various extension strategies about recommended doses, number of sprays, time interval between sprays and waiting period for picking fruit after treatments. Research Scientists engaged in production of vegetable crops should search and validate indigenous practices effective for successful growing of organic cabbage.

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India is the second largest producer of cabbage crop. Cabbage is an excellent source of vitamin C. Cabbage head is widely consumed raw, cooked and preserved in a great variety of dishes. But major problem of its production is of insects, which affect the crop on large scale. For controlling these insects there is practice of indiscriminate use of insecticide by growers. These insecticides should be used very judiciously and safely taking into account the environmental and health concerns. So there is a need to educate vegetable growers about recommendations of cabbage crop and indigenous practices that spare the nature and non target organism. Keeping in view of these points, a study on use of insecticides and indigenous practices on cabbage crop by vegetable growers of Ludhiana district was undertaken with the following objectives to know extent of use of insecticides on cabbage crop by vegetable growers, to know level of use of insecticides in

cabbage crop by vegetable growers, to identify different indigenous practices and their level of use on cabbage crop by vegetable growers for controlling insects.

MATERIALS AND METHODS

Study was conducted in four blocks of Ludhiana district *i.e.* Ludhiana, Mangat, Pakhowal and Samrala. Two villages from each block were selected randomly. A list of 150 vegetable growers having minimum one acre area under vegetable cultivation was prepared. From the list of all cabbage growers (63) were selected. Data were collected from cabbage growers through personal interview method.

Operationalisation of concepts:

Extent of use of insecticides:

It referred to proportion of area (acres) under cabbage crop treated with recommended and non-recommended insecticides and doses, it was expressed in percentage

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Level of use of insecticide:

It referred to identification of insects, use of recommended insecticides with respect to dose, time, number of applications and time gap observed by vegetable growers for picking the crop after treatments, it was expressed in percentage

Level of use of indigenous practices:

It referred to used dose of indigenous material, its numbers of treatments and waiting period observed by cabbage growers for picking the crop after treatment.

RESULTS AND DISCUSSION

The findings of the present study as well as relevant discussion have been presented under following sub heads:

Extent of use of insecticides was measured to see how much affected area treated with recommended insecticides and doses. In this regard data recorded in Table 1 indicated that 124.50 acres of area was infested with stem borer in cabbage crop. Out of this, the recommended insecticide were used on 53.01 per cent area and non-recommended insecticides on 46.99 per cent. Out of 53.01 per cent, only 11.24 per cent area was treated with recommended insecticide dose, while 41.77 per cent of area was treated by non-recommended dose. Similar trend of results were also noted in studies of Jayathilake and Bandara (1989) Nahar (1993) Arora and Dhaliwal (1996) Khangura (2002).

Level of use of insecticides in cabbage:

To study the level of insecticide in cabbage crop the data were collected regarding different insects which attacked cabbage crop and various insecticides with their doses and crop stage for spraying. The level of insecticides was also studied in terms of number of sprays, time interval between sprays and waiting period for picking crop after spraying. The level of insecticides in cabbage presented in Table 2 revealed that out of 63 cabbage growers, 51

faced the problem of stem borer and 27 of them used recommended insecticides *i.e.* Sevin 50WP(22) and Thiodan 35EC(5). Twenty four respondents used non recommended insecticides *i.e.* Rogor 30EC and Basudin 20EC. The table further showed that 50 per cent of the respondents used less than recommended doses and 50 per cent used more than recommended doses of Sevin 50WP. While all respondents used recommended dose of Thiodan 35EC to control stem borer.

The data further shows that majority (86.37 per cent) of the cabbage growers used Sevin 50WP at fruiting stage and Thiodan 35EC at flowering stage, respectively, which is recommended. Twenty nine farmers faced the problem of diamond back moth, out of which 8 respondents used recommended Thiodan 25EC (3) and Ekalux 25EC (5) insecticides, respectively, whereas 21 farmers used non-recommended insecticides *i.e.* Metasystox 25EC and Nuvacron 36SL.

Further the Table showed that majority of the farmers used recommended dose of Thiodan 25EC and Ekalux 25EC respectively. Thiodan 25EC was used at fruiting stage by 66.67 per cent, while Ekalux 25EC was used at flowering stage by 60 per cent of cabbage growers at recommended stage to control diamond back moth.

Fifty one growers faced the problem of aphid, out of which 17 used recommended insecticides *i.e.* Malathion 50EC and 34 used non-recommended Sevin 50WP and Metasystox 25EC. Eighty two per cent of the respondents used recommended dose of Malathion 50EC at flowering stage, which is recommended to control aphid.

Number of sprays, time interval and waiting period for use of insecticides in cabbage crop:

Table 3 revealed that 27 per cent of the respondents practised the recommended number of sprays and time interval between sprays of Sevin 50WP insecticide to control stem borer. It is further revealed from the Table 3 that in case of Thiodan 35EC all the respondents used

Table 1 : Distribution of area according to extent of use of insecticides in cabbage crop

Sr. No.	Name of insect and infested area (acres)	Treated area acres (%)	Dose applied	
			Recommended acres (%)	Non-recommended acres (%)
1.	Stem borer 124.50			
	Recommended insecticides	66(53.01)	14(11.24)	52(41.77)
	Non recommended insecticides	58.50(46.99)	–	58.50(46.98)
2.	Diamond back moth 69.00			
	Recommended insecticides	21(30.43)	15(21.73)	6(8.69)
	Non recommended insecticides	48(69.57)	–	48(69.58)
3.	Aphid 112.00			
	Recommended insecticides	40(35.71)	30(26.79)	10(8.93)
	Non recommended insecticides	72(64.29)	–	72(64.28)

Table 2 : Distribution of respondents according to insecticides dose used at different crop stages in cabbage

Sr. No.	Name of insect and insecticides used	Dose used	f	(%)	Crop stage f (%)	
1.	Stem borer (a) Sevin 50 WP n = 22	Less than recommended	(100g)	11	(50.00)	Fruiting 19(86.37)
		Recommended	(150 g)			
		More than recommended	(200-300g)	11	(50.00)	Flowering 3 (13.63)
	(b) Thiodan 35 EC n=5	Less than recommended	(Nil)			Fruiting 1 (20.00)
		Recommended	(100 ml)	5	(100.00)	Flowering 4 (80.00)
		More than recommended	(Nil)			
	(c) Rogor 30 EC* n=1		(300 ml)	1	(100.00)	Fruiting * 1(100.00)
	(d) Basudin 20 EC* n=23		(124-400 ml)	23	(100.00)	Fruiting* 13 (56.63)
						Flowering* 10 (43.47)
	2.	Diamond back moth (a) Thiodan 35 EC n=3	Less than recommended	(Nil)		
Recommended			(200-400 ml)	3	(100.00)	
More than recommended			(Nil)			Flowering 1 (33.33)
(b) Ekalux 25 EC n=5		Less than recommended	(Nil)			Fruiting 2 (40.00)
		Recommended	(200-400 ml)	3	(60.00)	
		More than recommended	(700 ml)	2	(40.00)	Flowering 3 (60.00)
(c) Metasystox 25*EC n=10			(100-400 ml)	10	(100.00)	Fruiting* 3 (30.00)
						Flowering* 7 (70.00)
(d) Nuvacron 36 SL* n=11			(300-400 ml)	11	(100.00)	Fruiting * 6 (54.55)
						Flowering* 5 (45.45)
3.	Aphid (a) Malathion 50 EC n=17	Less than recommended	(Nil)			Fruiting 2 (11.77)
		Recommended	(250-500 ml)	14	(82.36)	
		More than recommended	(700 ml)	3	(17.64)	Flowering 15 (88.23)
	(b) Sevin 50 WP* n=6		(150-300 g)	6	(100.00)	Fruiting* 2 (33.33)
						Flowering* 4 (66.67)
	(c) Metasytox 25 EC* n=28		(100-500 ml)	28	(100.00)	Fruiting* 11 (39.29)
					Flowering* 17 (60.71)	

non-recommended practices to control diamond back moth and stem borer. 33 per cent of the respondents used recommended number of sprays and kept recommended time interval between sprays of Thiodan 25EC and in case of Ekalux 25EC insecticide only 20 per cent of the growers used the recommended number of sprays and interval between sprays to control diamond back moth. To control aphid, only 17 per cent of the growers used recommended number of sprays of Malathion 50EC and only few of them kept recommended time interval between sprays. All cabbage growers had not followed the recommended waiting period for picking the fruit after spraying.

Level of use of indigenous practices:

It was observed from the data in Table 4 that only one indigenous practice was identified *i.e.* dusting of ash for controlling aphid and jassid insects on cabbage crop. Dusting of ash was used by 1.58 per cent of cabbage growers and dose of ash was applied between 15-25 kg/

acre with 10-12 numbers of treatments after the time gap of 6-9 days. Findings are in line with those of Suresh and Hedge (2001) and Sanadhya *et al.* (2002) who observed that the farmers were using the ash and neem spray for controlling the insects on their crops.

Conclusion:

– Majority of vegetable growers used recommended insecticide with non recommended doses, number of sprays and time interval between sprays of insecticides. So vegetable growers should be educated through various extension strategies about recommended doses, number of sprays, time interval between sprays and waiting period for picking after treatments.

Research Scientists engaged in production of vegetable crops should search and validate indigenous practices effective for successful growing of organic cabbage.