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## Constraints experienced by the green chilli growers regarding the use of pesticides and seek suggestions from green chilli growers to overcome environmental risk in use of pesticides application in Vidarbha region

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### Abstract

The present research was undertaken on topic 'Perception of green chilli growers regarding environmental risk in use of pesticides in Vidarbha region of Maharashtra state' conducted purposively in two district viz, Amravati and Buldana as it considered as a progressive agricultural belt, best suited climate, soil, irrigation facilities, skill and intensive cultivation practices adopted by the green chilli growers and maximum area under green chilli crop. Ex-post facto research design was used for the present research. Out of two districts, two talukas and 20 villages had maximum area under green chilli were selected i.e Total 300 green chilli growers constitute the sample size. The findings of the research study revealed that majority (cent percent) of the green chilli growers reported that Infestation of Leaf curl disease (Churdamurda) on chilli crop, majority (90.00%) of the green chilli growers were facing the problem lack of knowledge about as per label claim recommended pesticides followed by (84.00%) green chilli growers had reported that low cost of produce and high cost of pesticides regarding the use of pesticides application in green chilli crop.

**Keywords:** Constraints, pesticide application, green chilli

### Introduction

With the growing demand for enhancing food grain production to feed more than 121 crore people at one end and increasing yield losses due to pest infestation on the other, the farmers of India till recently have been relying on pesticides and chemical fertilizers. It is estimated that about thirty percent of the potential of food production is lost due to insect pests, diseases, weeds, rodents and birds. In terms of money, it is estimated that every year crops worth Rs.6000 crore are lost due to pests. India, being a predominantly agricultural country, the foundation for the prosperity lies on agricultural production. Since, the task of feeding the large population, which is growing at phenomenal rate of 2.3 per year, is main problems of Indian agriculture to maintain per capita net availability of food grains which is admittedly inadequate. On the other hand there is huge loss of food grains due to damage caused by insect-pests, diseases and rodents. In India, the annual loss in food products by insect pests was estimated to the tune of 50 per cent amounting Rs. 90,000 crores. (Dureja& Gupta, 2009) [5]. In the light of this, it is evident that the yield of crop can be increased significantly by adopting integrated pest management approaches. Technologically, chemical control is still the most effective method of controlling most of the insect pests, diseases and weeds, despite intensive researches into alternative methods and is still remain the powerful tools for pest management in spite of recent popular pressure to control and limit their use (Smith and Pimentel, 1978) [14]. Exposure to pesticides both occupationally and environmentally causes a range of human health problems. It is estimated that nearly 10,000 deaths annually due to use of chemical pesticide worldwide, with about three-fourths of these occurring in developing countries. Horrigan, *et al.* (2006) [8]. Chilli is one of the most valuable crop of India. Pungency in chillies is due to the active constituent "Capsaicin", an alkaloid, is extracted from chillies and is used to medicine. The fruit is actually called 'Chilli' and is used as a spice in a variety of cuisines all over the world in different forms as green chilli, dried red chilli (Jagtap, 2012)

[10]. In a country like India where farming is a family affair, the problem of reaching the target group gets further compounded. The farming family as a whole needs to be educated, then only the damages could be checked or at least minimized to a safe level. Only when they start to understand and appreciate the risks involved in the use of pesticides, then only changes can take place in the desired direction i.e. IPM.

## Material and Methods

### Locale of the study

The present study was undertaken in purposively selected, Amravati and Buldana districts of Vidarbha region of Maharashtra state. Total two talukas namely Morshi and Chikhali were purposively selected for this study. For this study, Ex-post-facto research design was applied. Thus, from two talukas and 20 villages' 300 green chilli growers constitute the sample size.

### Selection of respondents

The green chilli growers were selected from the list obtained from Taluka Agriculture Officer of Morshi and Chikhli taluka of Amravati and Buldana district. The farmers, who cultivated chilli crops for consecutive last three years, using pesticides and having minimum area 0.40 ha. under chilli cultivation, 15 green chilli growers were selected from each selected village by random sampling. Thus, from two talukas and 20 villages' 300 green chilli growers constitute the sample size. The whole sample was considered as respondents and they were interviewed for collection of data.

### Measurement of constraints faced by the green chilli growers and suggestions to overcome the constraints experienced by the green chilli growers

The Oxford dictionary meaning of the word constraints is confinement, restriction of liberty or compulsion of

circumstances or compulsion put upon the behavior Reading (1971) defined constraints as use of force to influence or prevent an action or quality or state of being compelled to do or not to do something. In this study the measuring constraints faced by green chilli growers in pesticide application, a simple frequently system was applied. The green chilli growers were asked to give the information about the constraints encountered by them in pesticide application in green chilli crop was ascertained. The frequencies obtained were from highest to lowest and on that basis percentages were calculated. Considering the constraints faced by the green chilli growers and to overcome the same in pesticide application successfully in green chilli crop, they were asked to give their valuable suggestions. The suggestions offered were ranked on the basis of number and percentage of green chilli growers who reported respective suggestions.

## Results and Discussion

### Constraints faced by green chilli growers in use of pesticides

In the present study there might be numbers of constraints in use of pesticides. The constraints may be personal, technological, service and supply, infrastructural, economical and institutional one. These constraints faced by the green chilli growers hinder the progress of development and hence desired results could not be achieved. Therefore, it was felt necessary to identify constraints faced by the green chilli growers in use of pesticides. The green chilli growers were asked to mention the constraints faced by them in use of pesticides in green chilli crop. The constraints expressed by them were noted and it was arranged as based on the frequencies, intensity of particular constraint was converted in to percentages and presented in table 1.

**Table 1:** Distribution of the green chilli growers according to constraints faced in use of pesticides (n=300)

Sl. No.	Constraints	Frequency	Per cent	Rank
1	Infestation of Leaf curl disease (Churdamurda)	300	100.00	i
2	Lack of knowledge about label claim recommended pesticide.	270	90.00	ii
3	High cost of pesticides and Low cost of Produce	252	84.00	iii
4	Lack of knowledge about usage, repair and maintenance of plant protection equipment.	207	69.00	iv
5	High labour charges at the time of pesticide spraying on chilli crop.	192	64.00	v
6	Non availability of labour for spraying.	180	60.00	vi
7	Lack of knowledge about recommended doses of pesticide.	145	48.33	vii
8	Non availability of recommended pesticides	138	46.00	viii
9	Lack of skill for preparation of solution.	121	40.33	ix
10	Non availability of spray pump at proper time	120	40.00	x
11	Non availability of plant protection chemicals at village place	103	34.33	xi

It was observed from Table 1 that, cent percent of the green chilli growers reported that Infestation of Leaf curl disease (Churdamurda) on chilli crop, majority (90.00%) of the green chilli growers were facing the lack of knowledge about as per label claim recommended pesticides followed by (84.00%) green chilli growers had reported that low cost of produce and high cost of pesticides, further, it was reported that (69.00%) green chilli growers expressed lack of knowledge about usage, repair and maintenance of plant protection equipment, 64.00 per cent green chilli growers were facing the high labour charges at the time of pesticide spraying on chilli crop, (60.00%) non-availability of labour for spraying, (48.33%) green chilli growers had reported lack of knowledge about recommended doses of pesticide, further it was also reported

that Lack of skill for preparation of solution (40.33%), Non availability of spray pump at proper time (40.00%) and Non availability of plant protection chemicals at village place (34.33) are faced by green chilli growers in pesticide application in green chilli crop. *Suggestions offered by the green chilli growers to overcome the constraints in use of pesticides.*

An attempt was made to ascertain suggestions from green chilli growers to overcome various constraints faced by them in pesticide application. The green chilli growers were requested to offer their valuable suggestion against difficulties faced by them in use of pesticide. The data were collected and summarized in table 2.

**Table 2:** Suggestions offered by the green chilli growers to overcome the constraints (n=300)

Sl. No.	Suggestions	Frequency	Percent
1	Providing SAUs virus resistant hybrid variety of chilli crop.	300	100.00
2	Knowledge about selection of the correct pesticides and its recommended dose as per label claim should be provide timely.	270	90.00
3	Minimum price/ income should get on the basis of expenditure incurred on the production of green chilli.	252	84.00
4	Training should be imparted to the farmers regarding the use of pesticides and maintenance of plant protection equipment's before starting the season	245	81.66
5	Knowledge about usage, repair and maintenance of plant protection equipment's should be provided.	237	79.00
6	Repairing facility of plant protection equipment's should be established at nearby place.	214	71.33
7	Plant protection chemicals should be made available at village place.	209	69.66
8	Publication on pesticides as per label claim recommended dose and application methods should be published regularly.	193	64.33
9	Cost of pesticides should be reduce/subsidy	137	45.66
10	Quality plant protection appliances should made available at nearby place.	117	39.00

It can be seen from the Table 2 that, cent per cent of the green chilli growers had suggested providing SAUs virus resistant hybrid variety of chilli crop, majority (90.00%) of the green chilli growers suggested that knowledge about selection of the proper pesticides and its recommended dose as per label claim should be provided timely, whereas (84.00%) of the green chilli growers suggested that minimum price/ income should get on the basis of expenditure incurred on the production of green chilli crop, further it is noted (81.66%) of the green chilli growers suggested that training should be imparted to the farmers regarding the use of pesticides and maintenance of plant protection equipment's before starting the season followed by (79.00%) of the green chilli growers had suggested knowledge about usage, repair and maintenance of plant protection equipment's should be provided, repairing facility of plant protection equipment's should be established at nearby place (71.33%), further, it was suggested that the plant protection chemicals should be made available at village place (69.66%), publication on pesticides as per label claim recommended dose and application methods should be published regularly (64.33%), cost of pesticides should be reduce/ subsidy (45.66%) and quality plant protection appliances should made available at nearby place (39.00%) are the suggestions seeks by green chilli growers to overcome the constraints. This finding is in the line with finding of Girnale (1987) <sup>[6]</sup>, Salame (2000) <sup>[13]</sup>, Mutukule, (2001) <sup>[12]</sup>, Hanumanaikar (2006) <sup>[7]</sup>, Badhe (2012) <sup>[3]</sup> and Amle (2016) <sup>[1]</sup>.

### Conclusion

Summing up the constraints analysis, It is concluded that these pesticide application practices are not adopted because of cent percent of the green chilli growers faced that infestation of leaf curl disease (Churdamurda) on chilli crop, lack of knowledge about as per label claim recommended pesticides, low cost of produce and high cost of pesticides. The green chilli growers had less knowledge about identification of pests, selection of pesticides and their recommended doses and for that, they primarily depend on Krishi Seva Kendra's (agro service providers). So, Subject Matter Specialists, Agricultural Extension Officers, extension workers, should focus on these topics and conduct training programmes / campaigns to guide them on pesticide applications to minimize the environmental risk. Farmers should be made aware regarding the use of label claim pesticides and its application in field using proper protection measures through mass communication and training programmes.

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