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## Identification of constraints faced by farmers with respect to pesticides and suggestions to overcome constraints

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### Abstract

The main goal of the study was to analyze constraints faced by farmers in adopting the safe healthy methods of applying pesticides and also quoting the suggestions to overcome the constraints faced by the farmers. This is achieved through realizing some secondary objectives such as identification of constraints faced by the farmers in safe application of pesticides and suggestions to overcome the constraints. The present study was conducted in Nanded district from that district three tahsils namely Mudhked, Himayathnagar, Kinwat were selected, four villages from each tahsil were selected and ten respondents from each village were selected for the study comprising of 120 respondents for the study. Results revealed that Unawareness about effect of pesticides on human health (66.66%), illiteracy (61.66%) and lack of technical guidance (56.66%) were the major problems faced by the growers. Majority of the cotton growers suggested provision of unadulterated chemicals (68.33%), followed by provision of chemicals and pesticides in mixed forms in different combinations and less concentrations (55.00%), provision of plant protection equipment (51.66%), training on plant protection technologies (45.00%).

**Keywords:** illiteracy, training, unadulterated, unawareness, constraints

### Introduction

Pesticides have become an integral part of present day farming, and play a major role in increasing agricultural productivity. However, the indiscriminate and extensive use of pesticides represents one of the major environmental and public health problems all over the world (1, 2). If improperly used, pesticides can lead to secondary pest outbreaks (3), destruction of non-target species(4), soil, water, and air contamination(5,6), and residues in primary and derived agricultural products(7) that endanger both the environment and human health. Farm workers' exposure to pesticides has been associated with adverse health effects like cancer and birth defects resulting in hundreds of fatalities, the majority of which occur in developing countries (8,9). Farmers and especially those directly involved in the handling of pesticides, are at a high risk of exposure to pesticides through contact with pesticide residues on treated crops, unsafe handling, storage and disposal practices, poor maintenance of spraying equipment, and the lack of protective equipment or failure to use it properly(8,10).

These risks may be exacerbated by lack of information on pesticide hazards, the perception and attitude of farmers regarding risk from pesticide exposure, and to lack of education and poor knowledge and understanding of safe practices in pesticide use, including storage, handling and disposal. Higher levels of education gives pesticide users better access to information and more knowledge of the risks associated with pesticides, and how to avoid exposure. While less educated farmers may be hampered in their ability to understand the hazard warnings on pesticide labels, how to avoid exposure, and how to follow recommended safety and application guidelines. For example, illiteracy and lack of knowledge on the extent to which pesticides represent a hazard have been considered the most important barriers for the adoption of self-protective behaviors by farmers, in particular the use of personal protective equipment (PPE). By considering all the above aspects the present study was conducted to identify the constraints faced by farmers in adopting safe handling of pesticides and suggestions to overcome the constraints.

### Materials and methods

The present study was conducted in Nanded district of the Marathwada Region of Maharashtra state. Out of eight districts of Marathwada region, Nanded was selected purposively for the study due to large area under cotton cultivation.

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The district consists of seventeen talukas from these; three talukas were purposively selected based on the large area under cotton cultivation viz. Mudhked, Himayathnagar and Kinwat for the study. Four villages from each selected talukas were selected randomly by random sampling method. From each selected village 10 respondents were selected by n<sup>th</sup> number method random sampling. Thus the final sample comprised of 120 respondents for the study. The data were collected through personal interview method with the help of pre - tested structured schedule consisting of various items concern with the objective of study. An attempt was made to ascertain from the respondents, the problems encountered by them in the use of pesticides in cotton crop. During the interview, the respondents were asked to enumerate the problems faced by them. The problems as expressed by the respondents were tabulated and presented in Table with frequencies, percentages and ranks assigned based on their magnitude.

## Results and discussion

**Table 1:** Problems perceived by respondents in use of pesticides

SNo.	Problems	Respondents		
		F	%	Rank
1.	Unawareness about effect of pesticides on human health	80	66.66	I
2.	Illiteracy	74	61.66	II
3.	Lack of technical guidance	68	56.66	III
4.	Lack of pesticide application equipment	58	48.33	IV
5.	Adulterations and poor quality of chemicals	46	38.33	V
6.	Inability to identify pesticide adulterations	34	28.33	VI
7.	Less awareness in compatibility of pesticides and mixing of chemicals	26	21.66	VII
8.	Lack of timely availability of plant protection chemicals	20	16.67	VIII
9.	Inaccessibility of source of getting eco-friendly technology	15	12.50	IX

n=120

It is evident from the Table 1 that, unawareness about effect of pesticides on human health (66.66%), illiteracy (61.66%) and lack of technical guidance (56.66%) were the major problems faced by the growers. Other problems indicated by the cotton growers were, lack of pesticide application equipment (48.33%), adulterations and poor quality of chemicals (38.33%), inability to identify pesticide adulterations (28.33%), less awareness in compatibility of pesticides and mixing of chemicals (21.66%), lack of timely availability of plant protection chemicals (16.67%) and inaccessibility of source of getting eco-friendly technology (12.50%).

The probable reason for the above problems might be due to the lack of sufficient training programmes, demonstrations, meetings, field trips, kisan melas and group discussions etc., had shown the impact on the awareness of farmers on health effects of pesticide usage. Few socio economic factors also show influence on the awareness level such as low economic motivation, less extension contact, low social participation, low mass media exposure will result in the low awareness level.

**Table 2:** Suggestions offered by respondents to overcome the problems encountered in use of pesticides

SNo.	Suggestions	Respondents		
		F	%	Rank
1.	Provision of unadulterated chemicals	82	68.33	I
2.	Provision of chemicals and pesticides in mixed forms in different combinations and less concentrations	66	55.00	II
3.	Provision of plant protection equipment	62	51.66	III
4.	Training on plant protection technologies	54	45.00	IV
5.	Increasing the radio broadcasts and telecasts on pesticide usage and health hazards due to indiscriminate use of pesticides	42	35.00	V
6.	Educate the growers to identify adulterations	34	28.33	VI
7.	Conducting different programmes and demonstrations regarding integrated pest management	30	25.00	VII
8.	Timely availability of plant protection chemicals	20	16.66	VIII
9.	Improving the accessibility of source of getting eco-friendly technologies.	10	8.33	IX

n=120

It is evident from Table 2 that majority of the cotton growers suggested provision of unadulterated chemicals (68.33%), followed by provision of chemicals and pesticides in mixed forms in different combinations and less concentrations (55.00%), provision of plant protection equipment (51.66%), training on plant protection technologies (45.00%), increasing the radio broadcasts and telecasts on pesticide usage and health hazards due to indiscriminate use of pesticides (35.00%), educate the growers to identify adulterations (28.33%), conducting different programmes and demonstrations regarding integrated pest management (25.00%), timely availability of plant protection chemicals (16.66%), improving the accessibility of source of getting eco-friendly technologies (8.33%) to overcome the constraints faced by the farmers. These aforesaid suggestions help in taking remedial measures and formulating suitable policy options. Given due consideration to their suggestions, there is very possibility for a very favorable atmosphere to encourage growers to go for greater adoption of plant protection measures for maximum production.

## Conclusion

Occupational pesticide exposure is common among farmers. Therefore, interventions that facilitate knowledge and compliance with safety behaviors can be effective in decreasing farmers' exposure to pesticides, and should become a priority. Promoting the development and facilitation of lifelong learning related to pesticide use should be a priority for minimizing risks to human health and the environment. It should be kept in mind that the problem is not whether a farmer receives training or not, but whether he receives the right training. Therefore, the levels of literacy among farmers and appropriate communication schemes should be considered for a wide range of recipients. Findings of this study may enable regulatory agencies to make better-informed decisions and policy recommendations for reducing potential hazards associated with pesticides. It is recommended that there is a great need to initiate the awareness generating programmes by the government. Increased social participation, extension contacts-and mass

media exposure could be given due importance by extension agencies to enhance the eco-friendly and healthy agriculture in years to come, which is really the need of the new millennium.

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