P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating (2025): 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 9; September 2025; Page No. 246-248

Received: 27-06-2025
Accepted: 29-07-2025

Indexed Journal
Peer Reviewed Journal

Constraints and suggestions given by vegetable growers for improving purchasing behaviour and utilization behaviour of pesticides

[1]Palve YR, [2]Dr. Kolgane BT and [3]Dr. Bagade AS

[1]PG Scholar, Agricultural Extension Education, RCSM College of Agriculture, Kolhapur, Maharashtra, India

[2]Associate Professor of Agricultural Extension Education, RCSM College of Agriculture, Kolhapur, MPKV, Rahuri, Maharashtra, India

[3]Assistant Professor of Entomology, RCSM college of Agriculture, MPKV, Rahuri, Maharashtra, India

DOI: https://www.doi.org/10.33545/26180723.2025.v8.i9d.2407

Corresponding Author: Palve YR

Abstract

Kolhapur district, an agriculturally important region in Maharashtra, is known for its diverse vegetable production, supported by favourable climatic conditions and farmer expertise. However, vegetable growers in the region face numerous constraints in the purchasing and utilization of pesticides. This study, conducted in 2023-24, surveyed 150 randomly selected vegetable farmers across various tahsils of Kolhapur district to analyze their constraints and gather suggestions for improving their pesticide-related behaviours.

The findings highlight several key challenges. In pesticide purchasing, farmers often encounter difficulties such as the high cost of branded pesticides, lack of awareness about registered or recommended products, and dependency on local dealers without proper verification. Utilization behaviour is further hindered by limited knowledge of safe handling, dosage, and waiting periods, leading to indiscriminate or excessive pesticide use. Other constraints include unavailability of protective equipment, poor access to training on integrated pest management (IPM), and concerns about pesticide residues affecting both crop quality and human health.

To address these issues, farmers proposed multiple solutions. They emphasized the need for regular training programs on safe pesticide use, recognition of approved pesticides, and awareness of IPM practices. Suggestions also included strengthening the role of agricultural extension services, establishing village-level pesticide testing and advisory centers, and offering subsidies or incentives for purchasing quality and eco-friendly products. Improved regulation of pesticide dealers and promotion of mobile-based advisory services were also recommended to empower farmers with accurate, timely information.

These insights highlight the urgent need for coordinated efforts by government bodies, agricultural universities, and private stakeholders to enhance the knowledge, access, and behaviour of farmers regarding pesticide use. Implementing the suggested measures could lead to more sustainable, safe, and profitable vegetable cultivation in Kolhapur district.

Keywords: Pesticide behaviour, vegetable farming, farmer constraints, Kolhapur, purchasing issues, utilization, pesticide safety, extension services

Introduction

Vegetable cultivation, a vital component of diversified farming systems in Kolhapur district, plays a crucial role in ensuring nutritional security and generating income for small and marginal farmers. However, the sustainability and profitability of vegetable farming are increasingly threatened by several challenges, particularly in the areas of pesticide purchasing and utilization. Despite the widespread use of chemical pesticides to manage pests and diseases, farmers face numerous constraints that limit the effectiveness, safety, and economic efficiency of their pest control practices.

One of the major issues in pesticide purchasing is the lack of awareness regarding registered and recommended products. Many farmers rely on local agro-dealers or peer suggestions without scientific validation, often leading to the purchase of substandard or inappropriate pesticides. High costs, limited availability of genuine brands, and inadequate guidance from extension services further aggravate the problem. These gaps in knowledge and access not only reduce crop protection efficiency but also pose serious risks to human health and the environment.

Pesticide utilization is equally constrained by insufficient training on safe application practices, such as correct dosage, use of protective gear, and waiting periods. Indiscriminate and excessive use of chemicals, driven by the fear of crop loss, has led to the development of pest resistance, pesticide residues in produce, and declining soil health. Additionally, limited exposure to Integrated Pest Management (IPM) strategies has kept farmers dependent on chemical solutions rather than adopting sustainable alternatives.

In response to these constraints, farmers have suggested several improvements, including regular training programs, subsidies for eco-friendly and quality pesticides, regulation of pesticide sales, and the establishment of local advisory

centers. Strengthening market surveillance, promoting mobile-based advisory services, and creating awareness through mass communication channels are also recommended to improve pesticide-related behaviours. These interventions have the potential to enhance the sustainability, safety, and profitability of vegetable farming in Kolhapur district.

Objective

To study the constraints and suggestions given by vegetable growers for improving purchasing behaviour and utilization behaviour of pesticides.

Methodology

For the present study, 150 vegetable growers were selected from Kolhapur districts in the, Hatkanangagle and Shirol tahsils were selected purposively based on having major vegetable growing belt in Kolhapur district, respondents were selected by purposive random sampling method. The present investigation was conducted to ascertain the purchasing behaviour and utilization behaviour of vegetable growers in Kolhapur district. Therefore, Ex-post facto design of social research was used for the present investigation. A list of farmers who produces vegetables was prepared with the help of Agriculture assistants. Total sample of 150 vegetable growers were took for study randomly. The data from selected 150 vegetable growers were collected by contacting them directly utilizing an interview schedule.

Research findings

1. Constraints Faced by Vegetable Growers

Data pertaining to the constraints experienced by vegetable growers in purchasing behaviour and utilization behaviour of pesticides by vegetable growers were gathered and subsequently analysed. The findings are detailed in Table 1, providing insights into the challenges faced in the purchasing behaviour and utilization behaviour of pesticides.

According to the data showcased in table 1, the main challenge faced by 84.67% of respondents was pesticide cost is high. The availability of duplicate or substandard pesticides 82.67% emerged as the second major challenge. Furthermore, difficulty in understanding pesticide labels and instructions 75.33% was a third issue. Lastly, lack of proper advice on which pesticides to purchase 64.67% demonstrates an information gap, indicating that farmers often rely on input dealers or peers rather than scientific recommendations.

With respect to utilization, the lack of skilled labour for spraying 73.33% was the most severe issue. The second issue was lack of knowledge about usage, repair, and maintenance of plant protection equipment 72.00%**.** The third challenge reported by 64.67%, was the lack of awareness about environmental pollution through pesticide residues. Lack of technical knowledge about usage of bio-control agents was fourth issue, faced by 50.00%. While 38.00% struggled with lack of knowledge about integrated pest management.

Table 1: Constraints faced by vegetable growers in purchasing and utilization of pesticides

Sr. No.	Constraints	Respondents (N=150)		Rank
		Frequency N=150	Percentage (%)	
A. Constraints regarding Purchasing				
1	Pesticide cost is high.	127	84.67	I
2	Availability of duplicate or substandard pesticides in local markets.	124	82.67	II
3	Pesticide labels and instructions are difficult to understand.	113	75.33	III
4	Do not get proper advice on which pesticides to buy.	97	64.67	IV
B. Constraints regarding Utilization				
1.	Lack of skilled labour for spraying of pesticides.	110	73.33	I
2	Lack of knowledge about usage, repair and maintenance of plant protection equipment.	108	72.00	II
3	Lack of awareness about environmental pollution through pesticide residues.	97	64.67	III
4	Lack of technical knowledge about usage of bio-control agents.	75	50.00	IV
5	Lack of knowledge about Integrated pest management.	57	38.00	V

2. Suggestions given by Vegetable Growers

Vegetable growers provided valuable suggestions to improve purchasing behaviour and utilization behaviour.

According to Table 2, the study found that all of the 100.00% respondents recommend the pesticide prices should be controlled or subsidized by the government to make them affordable for small and marginal farmers, making it top suggestion. Following closely, 93.33% suggested original and certified pesticides should be made available in local agro-input shops to avoid fake products. The third suggestion, supported by 90.00%, was for creating awareness among the farmers about hazardous effect caused through pesticide residues in vegetables. Finally, 73.33% suggested to aware the farmers about information given on the bottle or container of pesticides.

The study revealed that 96.67% of respondents suggested that, there should be regular awareness programs about the safe use of pesticides. Second, 93.33% recommended to create awareness among the farmers for disposal of empty containers or bottle safely to avoid exposure to human as well as to avoid contamination of the environment. Additionally, 76.67% supported training on use of pesticides, maintenance and repair of plant protection equipments.

Table 1: Suggestions given by vegetable growers regarding purchasing and utilization of Pesticides

Sr. No.	Suggestions	Respondents (N=150)		Rank
		Frequency N=150	Percentage (%)	
A. Suggestions regarding Purchasing				
1	Pesticide prices should be controlled or subsidized by the government to make them affordable for small and marginal farmers.	150	100.00	I
2	Original and certified pesticides should be made available in local agro-input shops to avoid fake products.	140	93.33	II
3	Create awareness among the farmers about hazardous effect caused through pesticide residues in vegetables.	135	90.00	III
4	Aware the farmers about information given on the bottle or container of pesticides.	110	73.33	IV
B. Suggestions regarding Utilization				
1.	There should be regular awareness programs about the safe use of pesticides.	145	96.67	I
2	Create awareness among the farmers for disposal of empty containers or bottle safely to avoid exposure to human as well as to avoid contamination of the environment.	140	93.33	II
3	Training should be imparted to the farmers regarding the use of pesticides, maintenance and repair of plant protection equipments	115	76.67	III

Conclusion

The constraints faced by vegetable growers in purchasing of pesticides are high cost of pesticides, the availability of duplicate or substandard products**,** difficulty in understanding labels and instructions, and the lack of proper advice on selection, all of which hinder farmers' ability to make informed and effective purchasing decisions. The major utilization-related constraints were the lack of skilled labour for spraying**,** limited knowledge on usage and maintenance of plant protection equipment**,** poor awareness of environmental pollution from pesticide residues, along with inadequate technical knowledge about bio-control agents and Integrated Pest Management (IPM), which collectively restrict the safe and sustainable use of pesticides.

The suggestions offered by vegetable growers in purchasing of pesticides, that pesticide prices should be controlled or subsidized by the government to ensure affordability for small and marginal farmers, while original and certified pesticides must be made available in local agro-input shops to prevent the sale of counterfeit products. Additionally, there is a strong need **to** create awareness about the hazardous effects of pesticide residues in vegetables and to educate farmers on the importance of information provided on pesticide labels and containers for safe and effective use. For utilization, it is essential to conduct regular awareness programs on the safe use of pesticides, along with educating farmers about the safe disposal of empty containers to minimize human exposure and environmental contamination. Moreover, practical training on pesticide application, as well as maintenance and repair of plant protection equipment**,** should be provided to enhance safe and effective utilization.

References

1. Damalas CA, Khan M. Farmers' practices and perceptions on pesticide use in cotton. Pest Manag Sci. 2016;72(1):60-6.
2. Desai R, Joshi N. Market linkages and pesticide use in vegetable farming. Maharash J Ext Educ. 2021;40:102-8.
3. Muhammad A, *et al*. Problems of pesticide use among smallholder farmers. Asian J Agric Rural Dev. 2019;9(1):1-7.
4. Patel D, Mehta K. Constraints and suggestions in pesticide use: A study in Gujarat. Indian J Ext Educ. 2018;54(2):45-9.
5. Reddy S, Verma A. Role of extension services in pesticide utilization among vegetable growers. J Agric Ext Manag. 2019;20(1):19-27.
6. Victor M, *et al*. Assessment of pesticide exposure and health effects in vegetable growers. J Environ Sci. 2015;12(4):205-10.
7. Yeasmin L, *et al*. Knowledge and practices of pesticide use among vegetable farmers. Int J Agric Sci. 2018;10(4):5303-6.