

**RESEARCH ARTICLE :**

# Comparative study on adoption of eco-friendly management practices by vegetable growers

**■ Neerja Patel****ARTICLE CHRONICLE :****Received :**

26.07.2017;

**Revised :**

11.12.2017;

**Accepted :**

27.12.2017

**SUMMARY :** The development of India depends on agriculture and it engages about 70 per cent of its population directly or indirectly. It contributes nearly 37 per cent of the net national product and account for a sizable share of total value of the country's export. The area under vegetable crops in Indore district of Madhya Pradesh was about 33.77 thousand hectares in 2011-12, which increased to 6.23 thousand hectares in 2012-13. The production of vegetable crops in Indore district was about 5993.07 thousand tonne in 2011-12 and further increased to 6290.60 thousand tonne in 2012-13 (Source-State Department of Horticulture, Indore M.P.). The present rate of agriculture production could be doubled if the available technology is appropriately transferred to the farmers for its adoption. It is, however, reported that not more than 30 to 40 per cent of the technologies have gone to the farming communities so far, even though there is strong network of extension mechanism operating for accelerating agriculture production. The investigation was undertaken during the year 2008-09 and 2012-13 in purposively selected Indore block of Indore district of Madhya Pradesh. The profile of the vegetable growers was measured on a number of characteristics such as their age, education, annual income, occupation, social participation, socio-economic status, mass media exposure, extension participation and information seeking behaviour. The dependent variables studied were extent of adoption of eco-friendly management practices. Regarding the higher percentage of the respondents (61.25%) had medium adoption of eco-friendly management practices in 2008-09 whereas higher percentage of the respondents (56.25%) had low adoption of eco-friendly management practices in 2012-13.

**KEY WORDS :**

Agrochemical, Eco-friendly farming, Eco-friendly management practice, Farming communities

**How to cite this article :** Patel, Neerja (2018). Comparative study on adoption of eco-friendly management practices by vegetable growers. *Agric. Update*, 13(1): 32-36; DOI : 10.15740/HAS/AU/13.1/32-36.

## **BACKGROUND AND OBJECTIVES**

Vegetables are grown in India since thousands of years but now a day it has become an important enterprise at national and international level. In recent years, the vegetable has now become an essential requirement of the daily human diet, because of its nutritional value. Regular uses of vegetables provide us most of the essential

health building and protecting substances, such as vitamins and minerals in India, where vegetarianism has been a way life. Since the early days of recorded history, the problem is under nutrition and malnutrition and can only be solved through balanced diet for which vegetables are essential component of the daily diet. In M.P. total area under vegetable cultivation is 663.9 lakh hectares, (2004-2005)

Author for correspondence :

**Neerja Patel**

Krishi Vigyan Kendra  
(RVSKVV), Dewas

(M.P.) India

Email: [neerja.patel1988@gmail.com](mailto:neerja.patel1988@gmail.com)

with a production of 31.84 lakh tonne and in Indore district 22.68 thousand hectares in 1999-2000 which increased to 26.46 thousand hectares in 2003-04 and later reduced to 22.25 thousand hectares in 2004-05 and further increased to 26.48 thousand hectares in 2006-07 (Source-Commissioner, Land Record, M.P.). The production of vegetable crops in Indore district was 6352.50 thousand tones in 2006-07 and further increased to 6423.90 thousand tones in 2007-08. The production of vegetable crops in Indore district was about 5993.07 thousand tonne in 2010-11 and further increased to 6290.60 thousand tonne in 2011-12 (Source- Government Department of Horticulture, Indore).

The modern agriculture has been successful in meeting the increased food needs of alarmingly growing population. But, the problem associated with modern agriculture like, the high cost of inorganic chemical fertilizers and plant protection chemicals, stagnated yield levels over the years and the mounting health and environmental hazards have forced many farmers and scientists to focus attention on ecologically sound, viable and sustainable alternative non-chemical farming. In order to mitigate these health hazards and bring out natural balance and protection of ecosystem, organic movement has started in several parts of the world, in which no chemical fertilizers and plant protection chemicals are used in the cultivation of field crops, vegetables and fruits. It is ascertained that the indiscriminate use of agro-chemicals and pesticides cause adverse changes in the ecological balance. This will call for reorientation towards eco-friendly farming as a remedial measure.

Research in the field of agriculture has identified several environmental friendly technologies, of which mention can be made about eco-farming, eco-friendly nutrient management. The eco-farming utilizes most efficiently the traditional practices of crop rotations with legumes, tillage practices to improve soil texture, application of adequate organic matter to sustain, retain and release soil moisture, nutrient to match crop needs and correlation factors of soil ill health. There were hardly many research studies, which have attempted to investigate the knowledge of farmers about the eco-friendly management practices and the status of eco-friendly practices followed by farmers. Keeping this view in mind the following objective is design for the study.

To compare the extent of adoption of eco-friendly management practices by vegetable growers during 2008

and 2012.

## RESOURCES AND METHODS

The present study was conducted in Indore district of M.P. From Indore district, Indore block was purposively selected based on maximum area under vegetable crop. There are 16 RAEOs circles in Indore block. Out of 16, 5 RAEOs circles were selected randomly for this study. Two villages from each selected RAEO circle were selected randomly. Their selection was made from the list of villages prepared for each selected RAEOs circle through simple random sampling method. A list of vegetable growers was prepared separately from each of the selected village. Selection of villages and respondents are given in following Table A.

Sr. No.	RAEO circle	Village	No. of respondent farmers
1.	Tillour khurd	Tillour khurd	8
		Bihariya	8
2.	Rala mandal	Kalout kartal	8
		Mirzapur	8
3.	Dudiya	Badiyakeema	8
		Dev gudariya	8
4.	Asrawat	Asrawatbhujurg	8
		Ambamalya	8
5.	Pibdai	Nignauti	8
		Pibdai	8
Total			80

From this prepared list, eight vegetable growers were selected randomly for each village irrespective of total number of farmers in that village. Thus, the sample size comprised of 80 vegetable growers. The data were collected through personal interview methods with the help of structured schedule, which was pre tested also. The purpose of the data collection was fully explained to every respondent before they were asked to answer. The collected data were scored, tabulated and subjected to suitable statistical analysis.

### Null hypothesis ( $\mu_0$ ) :

There is no significant difference between adoption of eco-friendly management practices by vegetable growers during the year 2008 and 2012.

## OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

### Extent of adoption of eco-friendly management practices by vegetable growers during 2008 and 2012:

The distribution of the respondents according to their extent of adoption (overall) of selected eco-friendly management practices is shown in Table 1.

It was observed from the data presented in Table 2 during the year of 2008 that majority (61.25%) of the respondents belonged to medium adoption category, whereas, 23.75 and 15.00 per cent of them in high and low adoption categories of eco-friendly management

practices, respectively. Again it is observed that in the year 2012 majority (56.25%) of the respondents belonged to low adoption category, whereas, 17.50 and 26.25 per cent of them in medium and high adoption categories of eco-friendly management practices, respectively. The work of Kalirajan and Kanagasabapathi (2008) and Natya (2011) is in support of this finding (Fig. 1).

The 't' test was used for testing the significant difference of mean score of adoption of eco-friendly management practices by vegetable growers during the year 2008 and 2012 in relation to their eco-friendly management practices adopted by the respondents.

Table 2 reveals that the obtained value of 't' test is 10.028 is highly significant at .01 level of probability. Hence, the Null hypothesis was rejected. This result indicate that respondent of 2008 and 2012 significantly

**Table 1 : Distribution of the respondents according to their extent of adoption (overall) of selected eco-friendly management practices**

Sr. No.	Practices	2008		2012	
		Frequency	(%)	Frequency	(%)
1.	Cultural control				
	Summer deep ploughing	70	87.50	75	93.75
	Growing mustard/marigold/rape seed as trap crop	33	41.25	30	37.50
	Crop rotation with vegetable crops	63	78.75	60	75.00
	Inter crops in vegetable	31	38.75	35	43.75
	Seed treatment with chemicals	46	57.50	42	52.50
	Disease resistant varieties/hybrid in vegetable	41	51.25	39	48.75
2.	Mechanical control				
	Hand picking of larvae	12	15.00	10	12.50
	Monitoring of pest	30	37.50	26	32.50
	Uprooting alternate host plant	32	40.00	35	43.75
	Use of pheromone traps	10	12.50	08	10.00
	Use of light traps	08	10.00	09	11.25
3.	Biological pest control				
	Conservation and encouraging of predators	01	1.25	01	1.25
	Conservation and encouraging of parasitic wasps	01	1.25	02	2.50
	Introduction of bio-control agents	03	3.75	04	5.00
4.	Use of bio-pesticides				
	Knowledge about neem seed kernel extract	41	51.25	35	43.75
	Preparation of seed kernel extract	09	11.25	07	8.75
	Concentration seed kernel extract	07	8.75	06	7.5
5.	Application of organic manures				
	Farmyard manure/green manure/Vermin compost	70	87.50	64	80.00
	Press mud/seed cake	20	25.00	17	21.25
6.	Use of inorganic fertilizer				
	Application of recommended dose	62	77.50	60	75.00
	Time of application	55	68.75	60	75.00
	Method of application	53	66.25	51	63.75

**Table 2 : Distribution of vegetable growers according to their extent of adoption of eco-friendly management practices**

Adoption category	Eco-friendly vegetable growers			
	2008		2012	
	Frequency	Per cent	Frequency	Per cent
Low (< 24.22)	12	15.00	45	56.25
Medium (24.22 – 31.48)	49	61.25	14	17.50
High (> 31.48)	19	23.75	21	26.25
Total	80	100.00	80	100.00
Mean	24.34		27.85	
SD	3.63		3.87	

't' = 10.028\*\*

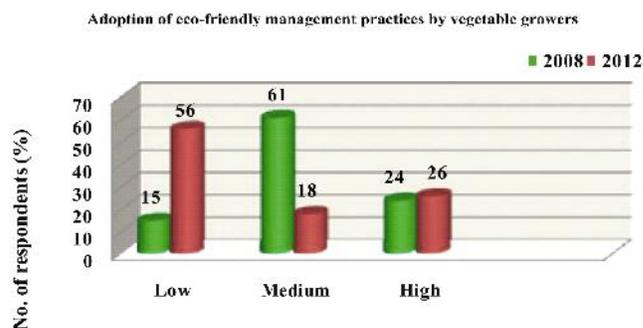
Significant at 1% level of probability

differed from each other. Again it is observed that the mean score of adoption of eco-friendly management practices by vegetable growers is deteriorated.

The plausible reason for medium adoption of eco-friendly technologies might be that the eco-friendly management practices adopted by vegetable growers is relatively a new concept to many farmers and still in the stage of acceptance by farmers and hence they might have felt it was complex practice. This implies that farmers need to be educated regarding benefits and advantages of eco-friendly technologies for their adoption. Thus, it could be inferred that technologies involving low/no cost were adopted by majority of the respondents. Whereas, the technology involving knowledge, skill, high cost and inadequate availability of input were found to be adopted by relatively lesser proportion of the respondents.

The finding of the study during 2012 clearly shows that there was less percentage of respondents who had complete adoption practices of eco-friendly management practices by the vegetable growers. Higher percentage of farmers partially adopted the simple practices like field preparation, seed rate, sowing time and method, manures and fertilizers management and irrigation management, while as regard to complex practices, majority of the farmers had low adoption of disease management, weed management, insect and pest control. The data clearly indicate that the high gap may be due to nature of the particular technology and poor extension services in the area. The practices which contributed major part of the gap were precaution in using chemicals, insect-disease control and seed treatment practices which require careful attention of extension workers through making appropriate extension strategies for grass root level. The reason for this gap in the five year looking very dangers

views that is eco-friendly management practices by the vegetable growers are not very much interested towards the nature and they want only economic gain by applying other practices. This result reveals in the line of work of Patel (2007), Kalirajan and Kanagasabapathi (2008) and Natya (2011). Similar work related to the present investigation was also carried out by Bhople *et al.* (2001); Chupke (2000); Darling and Vasanthakumar (2004) and Sasane *et al.* (2010).



**Fig. 1 : Categorization of respondents according to their adoption**

## REFERENCES

- Bhople, R.S.**, Shinde, P.S. and Dhule, S.S. (2001). Knowledge and adoption of bio-control pest management in cotton. *Maharashtra J. Extn. Edu.*, **20**:18-21.
- Chupke, Rajendra** (2000). Knowledge and adoption of farmers about biocontrol measures. *Maharashtra J. Extn. Edu.*, **19**: 41-47.
- Darling, B. Suji** and Vasanthakumar, J. (2004). Knowledge and adoption of botanical pesticides. *J. Extn. Edu.*, **15**(2&3): 3655-3658.
- Kalirajan, V.** and Kanagasabapathi, K. (2008). Extent of adoption of eco-friendly agricultural practices in sugarcane cultivation.

*Agric. Update*, **3** (3/4) : 384-385.

**Natya, V.K.** (2011). A study on adoption of eco-friendly management practices by vegetable growers in Panagar Block of Jabalpur district (M.P.) M.Sc. (Ag.) Thesis, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.) India.

**Parthasarathi, S.** and Santha Govind (2006). Adoption of IPM practice by trained and untrained farmers. *Indian J. Extn. Edu.*, **42** (1 & 2): 103-105.

**Patel, G.P.** (2007). A study on adoption of organic farming

technology among the farmers of selected block of Damoh District (M.P.). M.Sc.(Ag.)Thesis, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.) India

**Sasane, G.K.**, Jagdale, U.D. and Khule, R.P. (2010). Knowledge and adoption of brinjal management practices by the farmers. *Agric. Update*, **5** (3/4) : 495-497.

**Sources :**

State Department of Horticulture, Indore M.P.

Commissioner, Land Record, M.P.

★ ★ ★ ★ ★ **13<sup>th</sup>** Year of Excellence ★ ★ ★ ★ ★