

**RESEARCH ARTICLE :**

# Assessing differential knowledge and attitude level apropos eco-friendly practices (EFP) among the vegetable growers

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**SUMMARY :** Management of eco-friendly farming is focussed on the whole farm system and its interactions with climate, environment, social as well as economic conditions, rather than considering the farm as comprises of individual enterprises. The study was conducted in Indore district of Madhya Pradesh with 120 vegetable growers of 10 villages which were selected randomly. All the selected farmers were interviewed personally using a well-structured interview schedule. For analysis of collected data, descriptive statistics (frequency and percentage) and analytical statistics in this study was used. The finding reveals that the higher percentage of vegetable growers (64.17%) had low knowledge of technology. This may be due to lack of awareness of scientific technology and lack of exposure of about improved technologies in agriculture. Majority 59.16 per cent of vegetables growers were in the category of favourable attitude towards use of eco-friendly management practices.

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**KEY WORDS :**

Knowledge level,  
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## **BACKGROUND AND OBJECTIVES**

The modern farming systems aim at maximizing production through the use of increased quantities of external inputs such as fertilizers and plant protection chemicals without due consideration to their ill effects. Consequently, the traditional agronomic practices such as green manuring, use of farm wastes either as such or after composting and other soil ameliorative measures have not become part of the farming systems. This has resulted in a slow but steady decline in the

productivity of the soil. The use of fertilizer and pesticides is increasing in the process of adopting high yielding varieties (HYV) and hybrids without giving attention towards proper dosages and methods of application and waiting periods. This is gradually leading to many adverse and hazardous effects on environment and human beings. These hazards are of different kinds with different intensity. There are many articles supporting the issue that the pesticide residues are found in every day diet and in the human body which may cause severe health hazards. The

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chemical detrimental effects of fertilizers in plants are reduction in germination, retardation in seedling growth, scorching and increased susceptibility to diseases (Asha *et al.*, 2001). The eco-friendly pest management is viewed as a broad ecological approach to pest control employing several methods and techniques *viz.*, cultural, mechanical, biological and chemical in a compatible manner to keep the pest level below economic threshold. The eco-friendly nutrient management involves the use of bulk organic nutrient base like FYM, press mud, green manure, earthworm meal, plant residues such as coir pith, sugarcane thrash etc., in combination with several agronomic practices.

## RESOURCES AND METHODS

The study was conducted in Indore district of Madhya Pradesh. Indore district comprises of four blocks namely, Depalpur, Saver, Indore and Mahow. An extensive survey was conducted in vegetables growing villages. A sample of 120 vegetable growers was drawn from 10 vegetable growing villages using proportionate random sampling technique. Based on the expert's opinion, recommended vegetable cultivation practices were selected for studying the extent of adoption. All the selected farmers were interviewed personally using a well-structured interview schedule. For analysis of collected data, descriptive statistics (frequency and percentage) and analytical statistics in this study was used.

## OBSERVATIONS AND ANALYSIS

The analyzed data showed that majority (59.17 %) of the respondents were from middle age group (36-50 years). This result reveals in the line of work of Singh and Bhagat (2002); Meena *et al.* (2005) and Pyasi *et al.* (2009). Higher percentage of respondents (60.83%) had low annual income (Up to Rs. 50,000/-), followed by 21.67 per cent growers had medium annual income (Rs. 50,001 to 1,00,000/-), and 17.50 per cent growers had high annual income group (above Rs. 1,00,000/-). This finding has conformity with those of Patel (2007). Majority (62.50%) growers had medium farmers (2.10 to 5.00 ha) of cultivable land under vegetable crops. The highest proportions of the respondents (35.00 %) were can read and write, whereas 21.66 per cent were middle and up to higher secondary, 15.86 per cent were up to 5<sup>th</sup> class,

5.00 per cent were illiterate and only 0.84 per cent were graduate. Majority (36.67%) of vegetable growers were solely engaged in vegetable production as their main occupation followed by 34.14 per cent had done vegetable cultivation + shop keeping. The work of Pyasi *et al.* (2009) is in support with this finding. Out of total vegetable growers, 63.33 per cent were having medium socio-economic status, followed by 20.83 per cent low and 15.84 per cent had high socio-economic status. Majority 58.33 per cent had medium economic motivation, followed by 27.50 per cent had low and 14.17 per cent vegetable growers had high economic motivation. Majority of growers (85.83%) were having low to medium knowledge of vegetable production practices, while only 14.17 per cent were having high knowledge of practices. Majority 52.50 per cent had low market orientation, followed by 30.00 per cent had medium and 17.50 per cent vegetable growers had low market orientation (Table 1).

### Attitude towards use of eco-friendly management practices :

Attitude is one of the important psychological factors. Attitude is one's point of view or way of thinking regarding some phenomenon. Here, this variable was intended to discover whether vegetable growers consider vegetable growing as a profitable and prestigious business or to continue or treat is as an inferior business and are doing it owing to their helplessness.

The data of Table 2 indicates that out of total vegetable growers, 59.16 per cent were in the category of favourable attitude towards use of eco-friendly management practices, followed by 26.67 per cent had unfavourable attitude towards use of eco-friendly management practices. Thus, it may be concluded that higher percentage of vegetable growers (59.16%) had favourable attitude towards use of eco-friendly management practices. The work of Dohare (2007) supports the present study.

### Distribution of respondents according to their knowledge of eco-friendly management practices:

Knowledge level of respondents was determined through direct questions (about recommended improved farm practices and eco-friendly management practices of vegetable cultivation) asked to the respondents by the researcher. The knowledge of eco-friendly management

**Table 1 : Profile of the vegetables growers**

Sr. No.	Variables	No.	Percentage (%)
1.	Age		
	Young (21 to 35 years)	30	25.00
	Middle (36 to 50 years)	71	59.17
	Old (above 50 years)	19	15.83
2.	Annual income		
	Low income (Up to Rs. 50,000/-)	73	60.83
	Medium income (Rs. 50,001 to 1,00,000/-)	26	21.67
	High income (Above Rs. 1,00,000/-)	21	17.50
3.	Land holding		
	Marginal (Up to 1.00 ha)	07	05.83
	Small (1.10 to 2 ha)	11	09.17
	Medium (2.1 to 5 ha)	75	62.50
	Large (above 5 ha)	27	22.50
4.	Education		
	Illiterate	06	05.00
	Can read and write	42	35.00
	Primary School	19	15.85
	Middle School	26	21.66
	Higher Secondary	26	21.66
	College	01	0.83
5.	Occupation		
	Vegetable production + labours	05	04.17
	Vegetable production + Business (Caste occupation + Dairy)	25	20.83
	Vegetable production + Shop keeping	41	34.16
	Solely vegetable production	44	36.67
	Vegetable production +Services	05	04.17
6.	Socio-economic status		
	Low (24 to 36 score)	25	20.83
	Medium (37 to 49 score)	76	63.33
	High (above 49 score)	19	15.84
7.	Economic motivation		
	Low (4 to 6 score)	33	27.50
	Medium (7 to 9 score)	70	58.33
	High (above 9 score)	17	14.17
8.	Knowledge level		
	Low (1 to 5 scores)	77	64.17
	Medium (6 to 10 scores)	26	21.66
	High (above10 scores)	17	14.17
9.	Economic motivation		
	Low (4 to 6 score)	33	27.50
	Medium (7 to 9 score)	70	58.33
	High (above 9 score)	17	14.17
10.	Market orientation		
	Low (1 to 5 score)	63	52.50
	Medium (6 to 10 score)	36	30.00
	High (above 10 score)	21	17.50

practices in vegetable production was analyzed and six practices were delineated for the study *viz.*, cultural control, mechanical control, biological pest control, use of bio-pesticides, application of organic manures, use of inorganic fertilizer in order to ascertain knowledge of eco-friendly management practices in vegetable production, complete knowledge and the results are presented in Table 3.

The data of Table 3 indicated that cent per cent of the respondents had knowledge about summer deep ploughing at ranked I, growing mustard/ marigold/ rapeseed as trap crop at ranked XI (37.50%), crop rotation with vegetable crops at ranked VI (66.66%), inter crop in vegetable at ranked XII (33.33%). Majority of the vegetable growers possessed the knowledge of seed treatments with chemicals as a control measure of

**Table 2 : Distribution of respondents according to their attitude towards use of eco-friendly management practices**

Sr. No.	Categories	Frequency	Percentage
1.	Unfavourable attitude	32	26.67
2.	Neutral attitude	17	14.17
3.	Favourable attitude	71	59.16
	Total	120	100.00

**Table 3 : Distribution of respondents according to their knowledge of eco-friendly management practices**

Sr. No.	Practices	Frequency	(%)	Rank
1.	<b>Cultural control</b>			
	Summer deep ploughing	120	100.00	I
	Growing mustard/marigold/rape seed as trap crop	45	37.50	XI
	Crop rotation with vegetable crops	80	66.66	VI
	Inter crops in vegetable	40	33.33	XII
	Seed treatment with chemicals	75	62.50	VII
	Disease resistant varieties/hybrid in vegetable	55	45.83	VIII
2.	<b>Mechanical control</b>			
	Hand pecking of larvae	22	18.33	XVI
	Monitoring of pest	48	40.00	X
	Uprooting alternate host plant	50	41.66	IX
	Use of pheromone traps	13	10.83	XIX
	Use of light traps	15	12.50	XVIII
3.	<b>Biological pest control</b>			
	Conservation and encouraging of predators	04	3.33	XXIV
	Conservation and encouraging of parasitic wasps	05	4.16	XXIII
	Use of NPV and concentration of spray	12	10.00	XX
	Introduction of bio-control agents	20	16.66	XVII
4.	<b>Use of bio-pesticides</b>			
	Knowledge about neem seed kernel extract	25	20.83	XV
	Preparation of seed kernel extract	10	8.33	XXI
	Concentration seed kernel extract	08	6.66	XXII
	Frequency of spraying neem seed kernel extract	27	22.50	XIV
5.	<b>Application of organic manures</b>			
	Farm yard manure/green manure/vermi compost	110	91.66	III
	Press mud/seed cake	35	29.16	XIII
6.	<b>Use of inorganic fertilizer</b>			
	Application of recommended dose	85	70.83	V
	Time of application	90	75.00	IV
	Method of application	115	95.83	II

pest at ranked VII (62.50%), disease resistance varieties/ hybrids in vegetables at ranked VIII (45.83%), hand picking of larvae at ranked XVI (18.33%), monitoring of pest at ranked X (40.00%), uprooting alternate host plant at ranked IX (41.66%), use of pheromone trap at ranked XIX (10.83%), use of light trap at ranked XVIII (12.50%), conservation and encouraging of predators at ranked XXIV (03.33%), conservation and encouraging of parasitic wasps at ranked XXIII (04.16%), use of NPV and concentration of spray at ranked XX (10.00%), introduction of bio-control agents at ranked XVII (16.66%), knowledge about neem seed kernel extract at ranked XV (20.83%), preparation of neem seed kernel extract at ranked XXI (08.33%), concentration of neem seed kernel extract at ranked XXII (06.66%), frequency of spraying neem seed kernel extract at ranked XIV (22.50%), farmyard manure/ green manure/ vermin compost at ranked III (91.66%), press mud/seed cake at ranked XIII (29.16%), application of recommended dose at ranked V (70.83%), time of application at ranked IV (75.00%) and method of application at ranked II (95.83%).

The Table 3 concluded that deep summer ploughing, application of farmyard manure/ green manure/ vermicompost and method of application were well known to all the farmers. Whereas, majority of the farmers know about knowledge of seed treatments with chemicals as a control measure of pest, time of application of inorganic fertilizers, application of recommended dose of inorganic fertilizers, crop rotation with vegetable crops and disease resistance varieties/ hybrids in vegetables. The practice of components which are technically skill orientated were less known to farmers namely pheromone traps, light traps, biological pest control measures, which consisted of conservation and encouraging predators and parasitic wasps and introduction of bio-control agents. Similar work related to the present investigation was also carried out by Suman (2011); Veer *et al.* (2011); Rai *et al.* (2014) and Singh *et al.* (2014).

It is logical to derive from the above discussion that practices, which are complex and difficult to remember, are least known to farmers, on the other hand the practices which are simple and are being practiced by forefathers are known to most of the farmers. The findings support with the work of Bhople and Sinde (2001); Chapke (2001); Darling and Vasanthkumar (2004); Noorjehan and Ganesan (2004); Raj *et al.* (2009)

and Shashidhara and Manjunath (2008).

### Conclusion :

The finding reveals that the higher percentage of vegetable growers (64.17%) had low knowledge of technology. This may be due to lack of awareness of scientific technology and lack of exposure of about improved technologies in agriculture. Summer ploughing, application of farmyard manure/ green manure/ vermicompost and method of application were well known to all the farmers. Whereas, majority of the farmers knew about knowledge of seed treatments with chemicals as a control measure of pest, time of application of inorganic fertilizers, application of recommended dose of inorganic fertilizers, crop rotation with vegetable crops and disease resistance varieties/ hybrids in vegetables. The practice of components which are technically skill orientated were less known to farmers namely pheromone traps, light traps, biological pest control measures, which consisted of conservation and encouraging predators and parasitic wasps and introduction of bio-control agents. The government needs to create awareness, encourage and ensure full community participation through effective propagation of relevant information, necessary institutional arrangements. There is a need to create awareness among the farmers about eco-friendly management practices in vegetables cultivation through various extension methods. It is recommended that greater emphasis should be given to educate the farmers about complete package of practices about eco-friendly practices *i.e.* use pheromone trap, light trap, sticky trap, neem oil, neem cake, bio-pesticide, cropping system, green manuring, compost etc.

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