Madras Agric. J. 92 (1-3) : 132-137 Jan-March 2005
https://doi.org/10.29321/MAJ.10.A00022

Eco-friendly technologies in vegetable cultivation - farmers' awareness, knowledge, adoption and attitude

S.SRI VARA BUDDHIBHUVANESWARI
Ph.D Scholar, Department of Agricultural Extension and Rural Sociology, Tamil Nadu Agricultural University, Coimbatore-641003

Abstract: The study aimed to assess the awareness, knowledge and adoption level of vegetable growers on eco-friendly technologies and to assess the attitude of vegetable growers towards eco-friendly technologies. This study was conducted at two villages namely Karumpattur and Killiyur of Kanyakumari district, with sample size of 46 vegetable growers who adopting eco-friendly technologies. The respondents were interviewed personally by well - structured and pre-tested interview schedule. Suitable statistical techniques were used to analyse the collected data. In this study, crop wise knowledge level *viz.* Brinjal, Bhendi and Gourds (Bitter Gourd, Snake Gourd and Cucumber) were studied along with over all knowledge level on eco-friendly technologies. Majority of respondents had low to medium of overall knowledge on eco-friendly technologies. Three fourth of the respondents had low level of knowledge on eco-friendly technologies of brinjal. About 40 per cent of the respondents possessed high level of knowledge on eco-friendly technologies of bhendi. All the respondents had medium level of knowledge on eco-friendly technologies of gourds. About 46 per cent of respondents had medium level of awareness. A wide majority of the respondents had low to medium level of adoption. About 58 per cent of the respondents had the favourable attitude towards eco-friendly technologies. The steps to be taken to enhance the farmers' awareness, knowledge and adoption level on eco-friendly technologies in vegetable cultivation and to change their attitude towards eco-friendly technologies were also enumerated.

Key words : Awareness, Knowledge, Adoption, Attitude, vegetable growers, eco-friendly technologies, Brinjal, Bhendi and Gourds.

Introduction

The indiscriminate use of chemical fertilizers, pesticides and unplanned use of irrigation water have threatened the sustainability of agricultural production. They increased the health hazards and pollute soil, water and environment (Bhat, 1999).

Reflecting on excessive, unscientific and imbalance use of chemical inputs, agricultural scientists, environmentalists and policy makers are now advocating the introduction of low input sustainable agriculture, ecological farming, eco-friendly agriculture and integrated intensive farming system, which is mainly based on the-principle of integration of both organic and inorganic farming systems so as to acquire the target of agricultural production without causing several environmental problems.

The basic concept of environment friendly agriculture lies between modern chemical and mechanical inputs; in other words it is the blending of both old and new methods and techniques of agriculture in order to complement the effects of each other for ensuring optimum agricultural productivity and environmental safety. It is mainly aimed to achieve optimum agricultural production without posing any severe problem to our environment (Bhat, 1999).

Table 1. Distribution of respondents according to their overall knowledge level and crop wise knowledge level *viz.*, Brinjal, Bhendi and Gourds.

Category	Brinjal		Bhendi		Gourds		Total	
	No	%	No	%	No	%	No	%
Low	34	73.91	13	28.26	00	00.00	20	44.40
Medium	00	00.00	15	32.60	46	100.00	17	37.80
High	12	26.08	18	39.13	00	00.00	09	17.08
Total	46	100.00	46	100.00	46	100.00	46	100.00

Table 2. Distribution of respondents according to their awareness on eco-friendly technologies

Sl.No.	Category	No.	%
1	Low	14	31.10
2	Medium	22	46.60
3	High	10	22.30
	Total	46	100.00

Table 3. Distribution of respondents according to their adoption on eco-friendly technologies

Sl.No.	Category	No.	%
1	Low	16	35.50
2	Medium	29	62.20
3	High	01	02.30
	Total	46	100.00

Table 4. Distribution of respondents according to their attitude towards eco-friendly technologies

Sl.No.	Category	No.	%
1	Low	14	31.10
2	Medium	27	57.70
3	High	05	11.20
	Total	46	100.00

The difference between the recommended eco-friendly technologies in vegetables and its actual adoption by the vegetable growers is wider (Lakra, 2002). Keeping above said points in mind, the present study was conducted with the following objectives:

1. To assess the overall knowledge and crop wise knowledge level *viz.* Brinjal, Bhendi and Gourds of vegetable growers on eco-friendly technologies
2. To assess the awareness and adoption level of vegetable growers on eco-friendly technologies.
3. To assess the attitude of vegetable growers towards eco-friendly technologies.

Methodology

This study was conducted at two villages namely Karumpattur and Killiyur of Kanyakumari district,with sample size of 46 vegetable growers. From each village Twenty three respondents who were adopting eco-friendly practices were selected by-using simple random sampling technique. In this study, crop wise knowledge level on Brinjal, Bhendi and Gourds (Bitter Gourd, Snake Gourd and Cucumber) were studied along with their overall knowledge level on eco-friendly technologies. In this study eco-friendly technologies were documented after perusing seven research studies in which eco friendly agricultural practices were given prime importance. For this study 16 eco-friendly technologies have been selected by discussing with scientists and they were listed in the Table 5. The respondents were interviewed personally by well-structured and pre-tested interview schedule. Suitable statistical techniques such as Percentage analysis, Mean and Standard deviation were used to analyse and interpret data.

Findings and Discussion

Knowledge level of vegetable growers on eco-friendly technologies

It could be inferred from the table 1, that 44 per cent of the respondents had low level of overall knowledge on eco-friendly technologies, followed by medium (38.00%) and high being 17 per cent. It could be concluded that majority of respondents had low to medium (82.00%) of overall knowledge on eco-friendly technologies.

Efforts were made to find out the knowledge level of vegetable growers crop wise *viz.* brinjal, bhendi and gourds. It could be inferred from the table that three fourth of the respondents had low level of knowledge on eco-friendly technologies of brinjal, followed by high (26.00%). This finding is in accordance with Namboodiripad (2000). About 40 per cent of the respondents possessed high level of knowledge followed by medium (32.00%) and low (28.00%) level of knowledge on eco-friendly technologies of bhendi. This finding is in line with the findings of Deepa (2003). All the respondents had medium level of knowledge on eco-friendly technologies of gourds.

Awareness of vegetable growers on eco-friendly technologies

It is seen from the table 2, that about 46 per cent of respondents had medium level of awareness followed by low (31.00%) and high level (22.00%).

Adoption of vegetable growers on eco-friendly technologies

It could be observed from the table 3, that a wide majority (77.00%) of the respondents had low to medium level of adoption and meagre percentage of respondent's fall under the high level of adoption category. This finding is in accordance with Velusamy (1997).

Table 5. Eco-friendly technologies selected for this study.

Sl.No.	Eco-friendly technologies
1.	Selection of Resistant / Tolerant / Responsive variety
2.	Seed treatment with i) Bio-fertilizer ii) Botanicals
3.	i) Adoption of ideal plant population ii) Adoption of ideal planting pattern.
4.	Application of FYM
5.	i) Application of green leaf manure ii) Application of green manure - in situ corporation
6.	Crop rotation
7.	Bio-fertilizer application
8.	Application of Neem cake / Neem oil
9.	Irrigation i) Intermittent supply ii) Continuous submergence
10.	Integrated weed management
11.	ETL based pest management
12.	Using traps i) Pheromone trap ii) Light trap iii) Yellow sticky trap.
13.	Introduction of bio-agents
14.	Application of bio-pesticides
15.	Conservation of natural enemies
16.	Collection and destruction of pest and disease affected plant.

Attitude of vegetable growers towards eco-friendly technologies

The results presented in Table 4 indicate that 58 per cent of the respondents had the favourable attitude, followed by 31 per cent with less favourable attitude and 11 per cent had more favourable attitude towards eco-friendly technologies. This finding is in line with the findings of Sriram (1997), Dixit and Veerabhadraiah (1999) and Rai and Srivastava (2001).

From the results we can infer that three-fourth of the respondents had low level of knowledge on eco-friendly technologies of brinjal. About 40 per cent of the respondents possessed high level of knowledge on eco-friendly technologies of bhendi. All the respondents had medium level of knowledge on eco-friendly technologies of gourds. But we can conclude as 70 per cent of the respondents were young to middle aged and educated upto secondary school, they had low to medium level of overall knowledge on eco-friendly technologies. About 46 per cent of respondents had medium level of awareness. Because they possessed low to medium level of social participation, extension agency contact and information seeking behaviour which influences awareness level. Due to risky nature of the technological components, inadequate extension service, non availabilty of labours and lack of awareness of various technologies, a wide majority of the respondents had low to medium level of adoption. Meagre percentage of respondents fall under the high level of adoption category, because they had high level of innovativeness and risk orientation than others which determines adoption behaviour. About half of the respondents had the favourable attitude, followed by less favourable attitude and 11 per cent had most favourable attitude towards eco-friendly technologies. Hence we can infer that half of the respondents wanted to protect environment and conserve natural ecosystem for future generation.

Conclusion

The knowledge and adoption level of vegetable growers on eco-friendly technologies was low to medium. This finding brought out an insight into the farmers understanding of the various eco-friendly technologies and their benefits which is the need of the hour.

The indepth analysis on the adoption that existed with respect to eco-friendly technologies threw light us to what extent the vegetable growers are adopting a particular technology which in turn may give an idea of a set of technologies fully disseminated by the extension functionaries. A careful probing into the attitude of vegetable growers towards eco-friendly technologies has given a clear idea that meagre precent of vegetable grower had a concern over the environmental issues

Evolving less risky technologies, disseminating the eco-friendly technologies with a focus on skill packages, enhancing the periodicity of visits to problem location, conducting front line demonstration and skill training, focussing information through media including extension workers and increasing the awareness of various eco-friendly technologies through print and mass media are the steps to be taken to enhance the farmers' awareness, knowledge and adoption level on eco-friendly technologies in vegetable cultivation and to change their attitude towards eco-friendly technologies.

References

Bhat, S. (1999). Organic Farming for Eco-friendly Agriculture. Kisan World, **26**: 20-22.

Deepa, M.K. (2003). Technological Gap in the Adoption of Eco-friendly Vegetable Cultivation. Unpub. M.Sc.(Ag.) Thesis, TNAU, Coimbatore.

Dixit and V.Veerabhadriah. (1999). Social Forestry Programme: Knowledge, Attitude, and Adoption. Agrl. Extn. Review, **2**: 29-31.

Lakra, P.C. (2002).Yield Gap Analysis of Major Crops in Teral Zone of West Bengal. Unpub. M.Sc.(Ag.) Thesis, TNAU, Coimbatore.

Namboodiripad, P. (2000). A Study on Commercial Vegetable Cultivation in Oddanchathiram Area and its Socio-economic Impact on the Growers. Unpub. M.Sc.(Ag.) Thesis, TNAU, Coimbatore.

Rai, D.P. and Srivastava. (2001). Relationship Between Attitude and Adoption Behaviour of Gram Growers. Agrl. Extension Review, **13:** 18-20.

Sriram, N. (1997). Ecofriendly Agricultural Practices in Cotton Cultivation : Farmers Awareness, Attitude and Adoption. Unpub. M.Sc.(Ag.) Thesis, TNAU, Coimbatore.

Velusamy, R. (1997). Farmers Awareness and Adoption Towards Biocontrol Agents and Biopesticides. Unpub. Ph.D. Topical Research, TNAU, Coimbatore.

(Received : Sept. 2004; Revised : Oct. 2005)