

# ECO-FRIENDLY TECHNOLOGIES FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT

Dr.DARLING B. SUJI, Dr.M.KAVASKAR & A.M. SATHISH KUMAR

Assistant Professors

Department of Agricultural Extension

Annamalai University

Annamalainagar - 608 002, Tamil Nadu

## Abstract

Green revolution in our country, while ushering the much needed self-sufficiency in food production also paved way for intensive use of chemicals. At present, the concern for environment is increasing and both scientists and farmers are searching for eco-friendly agricultural technologies. The eco-friendly agricultural technologies are recommended by extension workers and practiced by farmers. Eco-friendly agricultural technologies are simple, low cost, and pollution free techniques and operations that are socially and economically accepted. Eco-friendly agricultural technologies have demonstrated their ability not only to produce safer commodities but also to produce bio-diversity at all levels. Hence, the present study was taken up to assess the adoption behaviour and constraints faced by the farmers regarding adoption of eco-friendly technologies. The study reveals that 47.50 per cent of the farmers found to possess medium level of adoption and 32.50 per cent were found to possess low level of adoption. Lack of knowledge to identify the bio-agents was the foremost constraint expressed by majority of the farmers.

**Keywords:** Eco-friendly technologies, sustainable agriculture, organic farming, environmental sustainability, etc.

## 1. Introduction

Eco-friendly knowledge system is a strategy and technique developed by local people to cope-up with the changes in socio-cultural and environmental conditions that the practices are accumulated by the farmers due to the constant experimentation and innovation. Eco-friendly practices are simple, low cost, pollution free techniques and operations that are socially and economically accepted. There is an urgent need to develop farming techniques which are sustainable from environmental, production and socio-economic point of view. The means to guarantee sufficient food production in the next decades and beyond is critical because modern agricultural production throughout the world does not appear to be sustainable in the long-term. The agricultural community is thus setting its hopes on sustainable agriculture, which will maintain the cycles of input-output and ecosystem balance. While sustainable agriculture has become the umbrella under which many of the alternative farming systems fall, it is important to note that sustainable agriculture is really a long-term goal, not a specific set of farming practices. The eco-friendly agricultural practices are alternate solution to sustainable agricultural development. The eco-friendly agricultural practices are invaluable and they are often regulated by western scientific research. In recent years, eco-friendly agricultural practices are gaining significance and a number of scholars have shown considerable interest in the eco-friendly agricultural technologies

of rural people. Keeping in mind, the present study was undertaken to study the eco-friendly agricultural practices followed by the farmers in Salem district of Tamilnadu.

## 2. Methodology

The study was carried out in Salem district. There are ten revenue villages viz. Omalur, Muthunayakanpatti, Sikkampatty, Karuppur, Pannapatti, Tharamangalam, Kadayampatti, Tholsampatti, Periyeripatti and Konagapadi. The lists of farmers in the selected villages were obtained from village extension workers concerned. The total sample of 120 respondents was selected based on random sampling. A well structured interview schedule was used for the data collection. Adoption of eco-friendly technologies was measured in terms of adopted and not adopted score. The overall adoption was classified in to three categories namely low, medium and high. The data were collected from the selected farmers through personal interview. The collected data were analysed by using simple percentage analysis.

## 3. Findings and discussion

### 3.1. Overall adoption of eco-friendly technologies

The overall adoption of respondents on eco-friendly technologies was assessed and the findings are given in Table1.

**TABLE 1**  
**Overall Adoption of Eco-friendly Technologies in Paddy**

S. No	Category	Number of Respondents	Per cent
1	Low	39	32.50
2	Medium	57	47.50
3	High	24	20.00
	Total	120	100.00

Table1 shows that 47.50 per cent of the respondents had medium level of adoption. The respondents under low and higher levels of adoption category were 32.50 per cent and 20.00 per cent respectively. The reason for the respondents under medium level of adoption may be due to the effect of training programme conducted by state department of agriculture which might have motivated the respondents to adopt the recommended eco-friendly technologies in paddy. This finding is in line with the findings of Kabire, et al. 2007.

### 3.2. Constraints experienced by the respondents

This section deals with the constraints as experienced by the paddy farmers for their non-adoption of eco-friendly technologies in paddy cultivation. The constraints experienced by the respondents of various locations are presented under five heads namely, physical constraints, communication constraints, personal constraints, socio-economic constraints, and technological constraints. The results are presented in Table 2

**TABLE 2**

#### Constraints Experienced by the Respondents in Adoption of Eco-friendly Technologies

S. No	Constraints	Per cent	Rank
<b>I.</b>	<b>Physical constraints</b>		
1.	Labour scarcity	85	I
2.	Non-availability of inputs	82	II
3.	Poor quality of inputs	75	III
4.	Lack of advanced planning about the purchase and application	72	IV
<b>II.</b>	<b>Communication constraints</b>		
1.	Lack of training	90	I
2.	Inability to attend training programmes	88	II
3.	Lack of information from change agent	85	III
4.	Weak extension service	80	IV
5.	Details given by change agent could not be understood	45	V
<b>III.</b>	<b>Personal constraints</b>		
1.	Lack of knowledge to identify bio-agents	90	1
2.	Not convinced with the practice	85	II
3.	Lack of knowledge to identify pest & diseases	78	III
4.	Difficulty in using organic manure	69	IV
<b>IV.</b>	<b>Socio-economic constraints</b>		
1.	Lack of credit facilities	93	I
2.	High cost of labour	90	II
3.	High rate of interest	87	III
4.	High cost of inputs	83	IV
<b>V.</b>	<b>Technological constraints</b>		
1.	Lack of technical guidance	81	I
2.	Difficulty in using botanical pesticide	64	III
3.	Difficulty in maintaining traps	45	VI

**Physical constraints:** Agriculture labourers being seasonal, there is a shortage of labour during peak season. The migration of the labour from agriculture to other occupations and to other sectors has also contributed the labour problem. Hence, majority of the respondents have ranked it as the most serious constraints. Regarding the physical constraints, labour scarcity (85 per cent) was the primary constraint expressed by most of the respondents and ranked first followed by non-availability of inputs (82 per cent), planning about the purchase and application of inputs (75 per cent) and poor quality of inputs (72 per cent).

**Communication constraints:** Lack of training (90 per cent) was the most seriously felt communication constraints expressed by majority of respondents followed by inability to attend training programmes (88 per cent), lack of information from change agent (85 per cent), weak extension service (80 per cent) and details given by change agents could not be understood (45 per cent). Lack of training was the most important physical constraints. While conducting trainings to community purely eco-friendly paddy cultivation was limited. This finding is in line with the finding of Ganapathisankaran (1997). Only few training were conducted by state department of agriculture in the village itself, majority of the programmes were held at distance places and also involvement in field operations due to lack of labour, coincidence of training with peak seasons, etc. would have made it difficult for majority of the respondents to attend the training programmes. Lack of information from change agent was another most important communication constraint. Majority of the respondents expressed that they did not come across any extension worker from the government department. Some of the paddy cultivators had occasions to meet the extension personnel of agricultural department their office rarely. Lack of adequate staff and their occasional visits to the villages would have made the respondents to report this as one of the major constraints.

**Personal constraints:** Lack of knowledge to identify the bio-agents (90 per cent) was the foremost personal constraints expressed by majority of the farmers followed by not convinced with the practice (85 per cent) and lack of knowledge to identify the pest and diseases (78 per cent). This finding is accordance with the findings of Guna (2013). Majority of the respondents had lack of knowledge on the bio-control agents and no proper orientation by way of training has been given for their benefit. Eco-friendly agriculture is more depends on the locally available practices with the use of locally and freely available raw material and inputs. Eco-friendly approaches took greater gestation period and with hidden benefits. So, majority of the yield of paddy may reduce and given a great economic loss to them. Hence, they are not convinced about the eco-friendly practices. This might be the reason for lack of conviction about the eco-friendly agriculture practices. Eco-friendly agriculture inputs like organic manure, green manure, and green leaf manures required in large quantities, when compared to chemical fertilizer create the problem of difficulty in using organic manure by the trained paddy farmers.

**Socio-economic constraints:** Lack of credit facilities (93 per cent) was the major socio-economic constraint followed by high cost of labour (90 per cent). High rate of interest (87 per cent) and high cost of inputs (83 per cent) were felt as the other socio-economic constraints by the respondents. This finding is in line with the findings of Vijayalan (2001). Most of the paddy farmers obtained the money from moneylenders and from big farmers only. Absence of adequate institutions like agricultural banks, co-operative society, etc. and rigid rules and regulations might be the reason why farmers could not get money when they needed. Labour scarcity was a very serious constraint in the locale particularly during agricultural operations like transplanting and harvesting. The farmers therefore to hire labourers at any cost demanded by them, which often matched those wages provided in the secondary and tertiary sectors. This may be the reason for high cost of labour being felt as the major socio-economic constraint.

**Technological constraints:** Lack of technical guidance (81 per cent), difficulty in using botanical pesticides (64 per cent) and difficulty in maintaining traps (45 per cent) were the major technological constraints expressed by majority of the farmers. Inadequate visits by the extension workers might have been the reason for lack of technical guidance. The farmers have developed some wrong notions about bio-agents and their effectiveness when compared to chemical control methods.

#### 4. Conclusion

Most of the farmers (47.50 per cent) belonged to medium level of adoption followed by low (32.50 per cent) and high adoption (20 per cent). Hence, it is suggested that the effective utilization of mass media like radio, television, newspaper and farm magazine are the source for creating wider dissemination of the eco-friendly agricultural practices. These findings on adoption of the farmers would help the extension system to formulate strategies for the adoption of eco-friendly technologies.

#### 5. Reference

- Ganapathisankaran, S. (1997). Impact of Integrated Watershed Development Programme on Farmer Beneficiaries. Unpublished M.Sc. (Ag.) Thesis, AC & RI, Madurai.
- Guna, B. (2013). A Study on Knowledge and Adoption of Eco-friendly Practices in Rice at Sirkali Taluk. Unpublished M.Sc. (Ag.) Thesis, Annamalai University, Annamalainagar.
- Kabir, M.S., Haque, M.E., & Uddin, H. (2007). Constraints in Adoption of Eco-friendly Rice Farming Practices. *Journal of Extension Education*, 20, 133-137
- Vijayalan, R. (2001). A Study on Awareness, Knowledge and Adoption of Eco-friendly Agricultural Practices in Rice. Unpublished M.Sc. (Ag.) Thesis, Tamilnadu Agricultural University, Coimbatore.