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Research Paper

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KNOWLEDGE LEVEL OF THE FARMERS ON ECO-FRIENDLY AGRICULTURAL TECHNOLOGIES IN PADDY CULTIVATION

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ABSTRACT

The introduction and widespread use of high –external input and modern agriculture have caused many problems. Firstly, these problems are socio economic in nature i.e., technologies improved the condition of larger farmers and did not take enough care of small farmers. Secondly, theses problems were encountered in the areas of environmental and health. The magnitude of these problems varied from direct poisoning of farmers by use / misuse of agro –chemicals leads to deterioration in quality of air, water and land. Now, the scientists have realized the hazardous effects of the modern agriculture and thinking alternatives for achieving sustainable agricultural development. The indigenous technologies can only serve as alternatives to this problem. Keeping in view of the importance of eco-friendly technologies, the present study on knowledge level of the farmers on eco-friendly agricultural technologies in paddy cultivation was taken up in Salem district of Tamil Nadu. The sample size consisted of 120 paddy growers. Majority of the farmers had medium level of knowledge on eco-friendly technologies in paddy cultivation.

KEY WORDS: *Knowledge, eco-friendly, agricultural technology, paddy*

INTRODUCTION

Agriculture was started as an activity very close to nature and in harmony with all living and non-living things on earth. It was dependent on the natural cycle of seasons and was sustainable in the past. But, now agriculture is in a crisis. With the development of the technologies, especially after green revolution, things have changed drastically in human life. Man claims to have control over nature. This attitude of ' Almighty power' has crept into all the fields he treads. Agriculture now is decided by man and controlled through agro- chemicals and machines and has lost its sustainability (Vijayalakshmi,1996).

To achieve high yield within the shorter time, chemical fertilizers were applied to the field abundantly. The indiscriminate use of chemical fertilizers and pesticides to combat the increasing menace of insect pest and diseases has caused serious damage to soil, make them saline and less suitable for cultivation. The over reliance on chemical application has created many adverse effects on organisms in the ecosystem. Use of agro- chemicals causes severe environmental pollution problems and human health hazards. Agrochemicals reach the deep layers of soil while ploughing. Besides, they enter into the water supplies and they disrupt the aquatic ecosystem also.

So, to achieve sustainable agricultural development, it is advisable to understand certain indigenous agricultural practices, this will lead to insight about how to improve traditional system or to transfer certain ideas/ practices to modern agriculture. With this point in view, to assess the knowledge level of farmers about eco-friendly technologies in paddy cultivation.

METHODOLOGY

The present research study was designed to measure the knowledge level of farmers on eco-friendly agricultural technologies in paddy cultivation. The study was taken up in Salem district of Tamil Nadu. The sample size consisted of 120 paddy growers who were selected by proportionate random sampling technique. The respondents were interviews personally by a well - structured and pre-tested interview schedule. Percentage analysis, cumulative frequency was used to analysis of the data.

FINDINGS AND DISCUSSION

Overall about an idea or technology which helps an individual to go for adoption. Hence, it is necessary to analyse the knowledge level of the farmers on the recommended eco-friendly agricultural practices in paddy cultivation. The overall knowledge level and practice-wise knowledge level were studied and the findings are presented in the succeeding pages.

Overall knowledge level of the farmers on eco-friendly technologies in paddy

Results of distribution of respondents according to their overall of eco-friendly technologies in paddy are presented in following table 1.

Table 1. Distribution of farmers according to their overall knowledge level

S.No	Category	Respondents	
		Number	Per cent
1	Low	13	25.84
2	Medium	55	45.83
3	High	34	28.33
Total		120	100.00

It could be observed from the data in Table 1, that (45.83 per cent) of the respondents had medium level of knowledge on eco friendly technologies in paddy cultivation followed by (28.33 per cent) of the respondents with high level of knowledge. It is interesting to note that only (25.84 per cent) of the respondents were with low level of knowledge. The reason might be due to the fact that majority of the paddy farmers were educated and medium level of mass media exposure. Mass media viz., news paper, radio and television also played a pivotal role in increasing the knowledge among farmer about eco-friendly cultivation.

Practice wise knowledge level on eco-friendly technologies in paddy

The results on the knowledge level of respondents on the selected eco friendly technologies in paddy are furnished in table 2.

Table 2 Distribution of the farmers according to their practice wise knowledge level on eco-friendly cultivation technologies in paddy

Sl.No	Eco-friendly technologies	Number	Percent
I	**Nursery area**		
A	**Agronomic practices**		
1	Hot water treatment at 50^0C to break seed dormancy	86	71.66
2	Keeping seeds in wet gunny bags in darkness for 24 hours to facilitate sprouting	90	75.00
B	**Nutrient management**		
3	Azospirillum seed treatment	60	50.00
4	Application of FYM/ compost	95	79.16
II	**Main field**		
C	**Transplanting**		
5	Transplanting the seedling at the right age	102	85.00
D	**Bio-fertilizers**		
6	Seedling dip with azospirillum / 5 packets (200 grm each) per hectare	105	87.50
7	Azospirillum broadcast / 10 packets (200 gm each) per hectare	104	95.00
E	**Organic Manure**		
8	Application of FYM/ compost 12.5 tonnes per hectare	120	100.00
9	Application of green manure / 6.25 tonnes per hectare	115	95.83
F	**Water management**		
10	Maintaining 1.5-2.5 cm water depending on seedling height	105	87.50
G	**Weed management**		
11	Usage of clean seeds	110	91.60
12	Proper composting	90	75.00
13	Summer ploughing	105	87.50
H	**Eco-friendly pest and disease management**		
14	Trimming and plastering of field bunds	107	89.16
15	Neem oil spray at 3 per cent	79	65.83
16	Neem kernel extract at 5 per cent	68	56.66
17	Light traps	100	83.33
I	**Rodent management**		
18	T-shaped bird perches	102	85.00
19	Use of bottle in field	50	41.66
J	**Harvest**		
20	Harvesting at 80 per cent grain maturity stage	115	95.83

I. Nursery area

1. Agronomic practices

A glance at the table shows that the knowledge on eco-friendly nursery technologies was widespread. About 71.66 per cent of the respondents had knowledge on the technology of breaking seed dormancy. Around 75.00 per cent of the respondents had knowledge on the technology of facilitating seed sprouting. Facilitating seed sprouting by way of soaking seeds in wet gunny bags and breaking seed dormancy using hot water being age old and recommended practices might have been the reason for majority of the respondents to know about it. This finding is in accordance with the findings of Janakirani (2004).

2. Nutrient management

About 79.16 percent of the respondents had knowledge about the quantity of FYM to be used in nursery area. Around (50.00 per cent) of the respondents had knowledge on the biofertilizer to be used in the nursery. The importance and utility of farm yard manure/ compost for paddy crop is widely recognized by way of their own experience and this might be the reason for the respondents to have good knowledge on it.

II. Main Field

1. Transplanting

About 85.00 per cent if the respondents had knowledge about the right stage of transplanting. The trail plot on the eco-friendly agricultural practices in paddy laid by the state department of agriculture in the villages was acted as major source for gaining knowledge for the neighbouring farmers. During transplanting time they gathered all the paddy farmers and conducted demonstrations at trail plot. Thus, majority of the paddy farmers had knowledge about it.

2. Biofertilizers

A vast majority (87.50 per cent) of the respondents had knowledge about the azospirillum root dip method, and quantity for broadcast found a correct response (95.00 per cent) of the respondents. State Department of Agriculture and NGOs laid down many trial plots among the farmers field on eco-friendly paddy cultivation. The neighboring farmers also brought together and shown each and every practice involved in eco-friendly paddy cultivation. This paved the way for gaining more knowledge on use and recommended quantity of azospirillum for broadcast. The effort taken by the private agency and mass media in dissemination of these practices were also considered as contributing factor for the increase in knowledge level of paddy farmers.

3. Organic manure

Cent percentage (100.00 per cent) of the respondents gave a correct response to the quantity of the FYM to be applied while 95.83 per cent responded had correct knowledge about the quantity of green manure required.

4. Water management

(87.50 per cent) more than of the respondents had knowledge about the level of water to be maintained in the main field. The state department of agriculture supplied adequate literatures to the paddy farmers on the management of water, nutrients and weeds. Also they organized field day and campaigns to popularize eco-friendly technologies.

5. Weed management

About (91.60 per cent) of the respondents had knowledge on the importance of clean seeds in preventing weeds in the field. About 75.00 per cent of the respondents had knowledge about the importance of proper composting in preventing prevalence of weeds. A majority of (87.50 per cent) of the respondents recognized the importance of summer ploughing in reducing weeds. Though the summer ploughing and farm yard manure application were the traditionally followed practices, the advantage of these practices were intensively educated by the extension workers of the development departments, which increased the knowledge level of majority of the paddy farmers.

6. Pest management

Majority (89.16 per cent) of the respondents had knowledge about trimming and plastering of bunds. The knowledge about the quantity of neem oil to control leaf bight was possessed by (65.83 per cent) of the respondents. About 83.00 percent of the respondents had knowledge of light traps. The recommended quantity of neem kernel extract to be applied to control paddy leaf folder was known only to (56.66 per cent) of the respondent because only some of the farmers were practicing this technologies in their field.

Whenever the pest and disease problems occur, the extension workers disseminate the plant protection technologies regularly through direct contact, radio and news paper besides supplying leaflets and booklets on plant protection in paddy. This helped the paddy farmers to acquire more knowledge in mechanical protection methods of practices in paddy. The importance of neem product in controlling most of the pest and diseases and as enrich nutrient was realized by most of the farmers by their own experience. In recent years, neem products were getting popular among the farmers by government development departments. The private companies also promoting the neem product through campaigns, meeting, seminars and trainings. These factors influenced the knowledge gain of the paddy farmers.

7. Rodent management

T-shaped bird perches and mechanical traps were known by (85.00 per cent) of the respondents, while the idea of not leaving any spacing in the border rows was known to only (41.66 per cent) of the respondents. To promote rodent management technologies, specified campaigns were organized by the extension workers every year during the crop maturity stage. This created adequate knowledge on rodent management among paddy farmers.

8. Harvest

The knowledge level on the right stage of harvest of paddy crop was a high (95.83 per cent). Thus the knowledge level of the respondents regarding eco-friendly technologies was very high. To prevent the loss of paddy grains at the time of harvest, demonstration was conducted by the extension workers to educate the farmers on the right stage of harvest, which contributed, for correct knowledge with majority of the respondents.

CONCLUSION

Most of the farmers (45.53 per cent) belonged to medium level of knowledge and seventy five per cent of the farmers possessed knowledge on application of FYM/ compost 12.5 tonnes per hectare. The effective utilization of mass media like radio, television, and newspaper and farm magazine is extent there for creating wider dissemination of the eco-friendly agricultural practices. The findings on knowledge level of the farmers would help the extension system to formulate

additional messages on use of rational eco-friendly technologies.

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