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Adoption level of the of Banana growers of cuddalore District in Tamil Nadu

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Abstract

Banana is also the fourth most important commodity at global level next to rice, wheat, and dairy products. Banana ranks third in importance among the fruits of the world. In India, banana is predominant and popular among people as both poor and rich like it. It is widely grown in India and has great socio-economic significance. It is a dessert fruit for millions and is also used as staple food. It is a good source of carbohydrates, vitamins, and minerals. Banana is a very popular fruit due to its low price and high nutritive value. It is consumed in fresh or cooked form both as ripe and raw fruit. Banana is a rich source of carbohydrate and is rich in vitamins particularly vitamin B. It is also a good source of potassium, phosphorus, calcium, and magnesium. The fruit is easy to digest, free from fat and cholesterol. Banana powder is used as the first baby food. It helps in reducing risk of heart diseases when used regularly and is recommended for patients suffering from high blood pressure, arthritis, ulcer, gastroenteritis, and kidney disorders. When it came to the degree of implementation of suggested technology in banana production, the majority of responses were in the medium range. Variety adoption rates were found to be fairly high, as were recommendations for watering each plant, planting depth, using FYM, filling pits with materials, and creating pits.

Key words : Banana cultivation, Nutritional value, Socio-economic importance, Technology adoption, India, Vitamin B, Pit preparation, Farmyard manure (FYM), Variety selection, Health benefits.

Banana (*Musa paradisiaca*) is one of the most important fruit crops of tropical countries like India, China, Brazil, Philippines etc., belongs to Musaceae family and *Musa* genus of the order *Zingeberales*. The word banana itself comes from the Arabic word

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"banyan" which means "finger" and the genus contains numerous species. Banana is native to tropical South and South East Asia. They are cultivated primarily for their fruit and to a lesser extent to produce fibre and as ornamental plants. As the banana plants are normally tall and fairly study, they are often mistaken for trees, but their main or upright stem is a pseudostem (literally). Banana is called the 'health fruit' as it contains vitamins C, D and E which are powerful interest elements. It also has -carotene and vitamin-A and then it is ideal for women over 40 years old who are looking for a younger skin. It is worth to mention the presence of some minerals like K, Mg, Zn, Fe and rich in carbohydrates. Bananas are particularly a good source of potassium. The yellow and orange-fleshed bananas are also rich in provitamin and other carotenoids.

Banana varieties for dessert purpose include Grand Naine, Robusta, Dwarf Cavendish, Rasthali, Vayal vazhai, Poovan, Nendran, Red Banana, Karpooravalli, Udhayam, CO_1, Matti, Sannachenkadali and Ney poovan. Cavendish groups are generally preferred to export. For culinary purposes include Monthan, Nendran, Vayal vazhai, Ash Monthan and Chakkia. In hilly areas Virupakshi, Sirumalai, Namarai, Red Banana, Manoranjitham (Santhana vazhai) and Ladan are most common. For the preparation of the manuscript relevant literature1-5 has been consulted.

The present study was conducted in Cuddalore district of Tamil Nadu. The respondents were selected from 6 villages of two blocks namely, Cuddalore and Kurinjipadi of Cuddalore district. Proportionate random sampling procedure was followed for select the respondentd from the following 6 villages. Thus, a total of 120 respondents were selected as a sample for the study. The data were collected with the help of well-structured and pre-tested interview schedule.

In this study, adoption is denoted as the adoption level of farmers about the Recommended technologies for banana cultivation. To measure the adoption level of respondents on banana cultivation, a teacher made Adoption test was developed for this study. Following the approach, fourteen

Table-1. Village wise distribution of selected respondents

S. no.	Name of the block	Name of the villages	Total number of Banana growers	Number of respondents selected
1	Cuddalore	Ramapuram	220	32
		Vellakarai	152	22
		Annavalli	139	20
2	Kurinjipadi	Vazhuthalampattu	124	18
		Vanniyarpalayam	100	15
		Anukampattu	92	13
		Total	**827**	**120**

headings with sub heads were selected for testing the adoption level was dichotomized into adopted and not adopted responses with the scores of two and one. Maximum score one could obtain in the test was 76 and the minimum score was 38, Maximum score would indicate High level of adoption of the respondents. The respondents were categorized based upon the available score into low, medium, and high by using cumulative frequency method.

Statistical tools used :

The following statistical tools were used for the analysis: 1. Mean 2. Percentage analysis 3. Cumulative frequency

Findings and Discussion :

Adoption of Recommended Technologies in Banana Cultivation by the Banana Growers:

The results of the analysis regarding overall adoption and technology-wise adoption are presented as follows:

Overall Adoption Level :

The distribution of respondents according to their overall adoption is given in table-2.

Table-2. Distribution of respondents according to their overall adoption level of recommended banana cultivation technology

(n=120)

S.no.	Category	Number	Per cent
1	Low	25	22.50
2	Medium	67	53.33
3	High	28	24.17
	Total	**120**	**100.00**

It could be understood from Table-2 and Fig. 5 that most of the respondents (53.33 per cent) had a medium level of adoption of recommended banana technologies followed by 24.17 per cent of the respondents with a high level of adoption. Only 22.50 per cent of the respondents fell under a low level of adoption. A medium level of experience in banana cultivation, innovativeness, risk orientation, scientific orientation and economic motivation would have been the reasons for most of them to belong to the medium level of adoption category. These findings in line with the findings of Divyabharathi (2021).

Technology wise Adoption Level :

The technology-wise adoption level of respondents on banana cultivation is presented in table-3.

It is observed from table 3 that a high level of adoption was found in applying the recommended varieties by 100 per cent of the respondents respectively.

Sucker Treatment :

Under the sucker treatment, more than ninety per cent of them adopted the fungicide used for sucker treatment (91.67 per cent) and the quantity of fungicide required for treating sucker per acre (76.67 per cent), the quantity of water suckers per acre (95.83 per cent).

Season and Planting :

Planting seasons and the depth at which the seedlings must be kept inside the pit fell under the major category of planting

Table-3. Distribution of respondents according to their technology-wise adoption level

(n=120)

S. No.	Category	Number	Per cent
1	**Varieties**		
	Recommended Banana variety in your area	120	100
2	**Sucker Treatment**		
	a) Fungicide for sucker treatment	110	91.67
	b) Quantity of fungicide required for treating		
	sucker per acre.	92	76.67
	c) Quantity of water for treating suckers per acre	115	95.83
	Mean percentage		**88.05**
3	**Season and Planting**		
	a) Season of planting	104	86.67
	b) Recommended pit size	114	95.00
	c) Recommended depth of planting	82	68.33
	Mean percentage		**83.33**
4	**Irrigation management**		
	a) Recommended time of irrigation	115	95.83
	b) Forming irrigation channels	64	53.33
	c) Drip irrigation	50	41.67
	d) Recommended quantity of water per tree	108	90.00
	Mean percentage		70.20
5	**Manures and Fertilizers**		
	a) Nitrogen	114	95.00
	b) Phosphorous	90	75.00
	c) Potash	83	61.17
	Mean percentage		77.05
6	**Weed management**		
	a) Recommended Herbicides per acre	89	74.17
	b) Recommended number of hand weeding	96	80.00
	c) Recommended quantity of herbicide	92	76.67
	Mean percentage		76.94
7	**Plant growth regulators**		
	a) Recommended plant growth regulators	68	56.67
8	**Inter cultivation**		
	a) Desuckering	114	95.00
	b) Earthing up	79	65.83
	c) Bunch covering	65	54.17
	d) Pruning of leaves	82	68.33
	e) Propping	75	62.50

Mean percentage			69.16
9	**Symptoms of pest**		
	a) Banana aphid	64	53.33
	b) Stem borer	78	65.00
	c) Nematode	47	39.17
Crop Improvement Practice (Varieties)			
Mean percentage			52.5
10	**Symptoms of diseases**		
	a) Leaf spot	52	43.33
	b) Panama wilt	40	33.33
Mean percentage			38.33
11	**Harvesting**		
	a) Optimum time of harvest	115	95.83

technique. The majority of the respondents had adopted the proper pit size (95.00 per cent) and more than four-fifths of them adopted the recommended planting seasons (86.67 per cent) and recommended depth of planting (68.33 per cent), this technology is the major component in enhancing the productivity of the banana.

Irrigation Management :

The recommended water requirement per tree, forming the irrigation channel, drip irrigation system, recommended time of irrigation are the sub-items present here. More than 95.83 per cent of the respondents had adopted the recommended time of irrigation per tree. This was followed by the recommended quantity of water per tree (90.00 per cent), forming irrigation channels (53.33 per cent) and drip irrigation was adopted by less than half of the respondents (41.67 per cent).

Manures and Fertilizers :

There were three sub-items in fertilizer management. It could be seen from Table 20 that many of the respondents (95.00 per cent) had applied nitrogen 200gm/tree followed by nearly three-fourths of the respondents (75.00 per cent) had applied phosphorous 60 gm/tree and followed by 61.17 per cent of the respondents reported the application of potash 50 gm /tree.

Weed Management :

It consists of three sub-items namely recommended herbicide per acre, recommended number of hand weeding and recommended quantity of herbicide. More than three-fourths of the respondents had adopted the recommended number of hand weeding (80.00 per cent) and more than seventy per cent of the respondents had adopted the recommended number of herbicides per acre (74.17 per cent) followed by little more than three-fourths of the respondents had adopted recommended quantity of herbicide (76.66 per cent). The respondents had adequate knowledge in these practices.

Inter Cultivation :

Filling materials like soil and FYM used in the pits, Chemical material used in the plant, de-suckering, earthing up, bunch covering, pruning of leaves and propping were the activities involved in inter cultivation. 95.00 per cent of the respondents involved in de-suckering and 65.83 per cent of the respondents adopted earthing up practices, followed by bunch covering (54.17 per cent) and 68.33 per cent of the respondents involved in adopting pruning of leaves used in the plant followed by propping (62.50 per cent).

Plant Protection Technologies :

Under plant protection, there were three major sub-items namely plant growth hormone, pest, and disease management. More than half of the respondents (56.67 per cent) had adopted the growth hormone for controlling the fruit and flower drop. In the study area, three major pests affected the banana crop and the respondents used plant protection measures for controlling of banana aphids (53.33 per cent), stem borer (65.00 per cent) and nematode (39.17 per cent) respectively.

In the case of disease management, it could be seen from Table 20 that most of the respondents had applied dithane M-45WP and other recommended fungicides for controlling the leaf spot disease (43.33 per cent) followed by nearly one-third of the respondents (33.33 per cent) had adopted controlling measures of Panama wilt.

Harvesting Technology :

From Table-3, it could be seen that most of the respondents (91.67 per cent) had adopted the correct time of harvesting. The banana growers are well aware of the right time of harvest. This finding is in line with the findings of Sujaivelu (2002).

It could be concluded in Table-3 that the adoption rate is less in aspects like 'management of leaf spot', 'using drip system of irrigation', 'management of nematode' and 'management of Panama wilt'. However, a fairly high rate of adoption is observed on aspects like 'varieties of banana,' 'correct time of harvesting,' 'recommended water per plant,' 'recommended depth of planting,' 'application of NPK,' 'filling materials used in the pits' and 'forming apit in correct size.'

Nearly half (48.33 per cent) of the respondents had medium level of knowledge of eco-friendly farming practices followed by (35.00 per cent) of the respondents with high level of knowledge. It is interesting to note that only 16.67 per cent of the respondents were with low level of knowledge.

Most of the respondents (97.49 per cent) had knowledge level about the main field preparation, followed by harvest (96.66 per cent), transplanting (88.69 per cent), nursery management (85.69 per cent), weed management (79.16 per cent), organic manure (78.53 per cent), Water management (77.49 per cent), post-harvest management (63.67 per cent), Rodent management (63.33 per cent), bio fertilizers (57.08 per cent),Eco friendly pest and disease management (52.26 per cent) . As per the above statement, main field preparation, harvest, transplanting in main field, nursery management, water management, weed management, organic manure was found

to be more than the overall mean percentage (71.46 per cent). Remaining technologies viz., post-harvest management, rodent management, bio fertilizers, eco-friendly pest and disease management were found to be less than overall mean percentage (71.46 per cent). It could be the inferred that almost all the respondents possessed adequate knowledge in the recommended cultivation practices due to well farming experiences and frequent contact with the state Agricultural department.

According to the results of the study, the majority of farmers are fairly educated about the suggested practices. Even so, the farmers' level of knowledge should be raised through additional training, field trips, demonstrations, and frequent visits from government represen-tatives. To enhance their understanding of eco-friendly farming practices of paddy, the extension official's relationship with farmers should be deepened and expanded.

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