P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating: 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 7; July 2025; Page No. 476-482

Received: 19-04-2025
Accepted: 21-05-2025

Indexed Journal
Peer Reviewed Journal

A study on extent of adoption of recommended technologies and constraints in mango cultivation by the mango growers in Dharmapuri district of Tamil Nadu

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DOI: https://www.doi.org/10.33545/26180723.2025.v8.i7g.2164

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Abstract

Mango is the primary horticultural crop in this district. Given the area's vulnerability to drought, it's crucial to cultivate perennial fruit crops that can endure such conditions. This district boasts the largest area dedicated to fruit crops, making Dharmapuri one of the key regions for horticultural cultivation and a significant part of the state's horticultural belt. The total area for mango farming here spans 16,509 hectares, accounting for about one-third of the state's mango area and nearly half of its mango yield. The main areas for mango cultivation are Palacode and Karimangalam. To gather data, a proportionate random sampling method was used to select 120 respondents from twelve villages, with six from each of the two blocks. A well-structured and pre-tested interview schedule facilitated the data collection. The study examined fifteen independent variables. The analysis revealed that most respondents had a medium level of adoption of recommended technologies in mango cultivation. Notably, there was a fairly high level of adoption in areas like crop production technologies, planting techniques, intercultural operations, timely harvesting, nutrient management, and plant protection strategies. The variables like educational status, farming experience, innovativeness, risk orientation, scientific orientation, economic motivation, information source utilization and market perception were found to have a positive and significant relationship with the adoption of recommended technologies in mango cultivation. The aim of this study was to assess how well mango growers are adopting the suggested technologies and to identify the constraints encountered by the mango growers in marketing of mango

Keywords: Mango, horticultural crop, Dharmapuri, adoption, constraints

1. Introduction

Mango (*Mangifera indica*), part of the Anacardiaceae family, is one of the most important fruit crops grown in India. Often referred to as the "King of Fruits," the mango is not just a delicious treat but also holds significant cultural and economic value—it's the national fruit of India and the national tree of Bangladesh. With its incredible taste, rich nutritional profile, and versatility in both fresh and processed forms, the mango is a key player in the Indian horticultural landscape. When it comes to nutrition, mangoes are a true powerhouse, packed with essential vitamins and minerals. They are particularly high in Vitamin A and Vitamin C, both vital for boosting the immune system and maintaining overall health. Top-quality mango varieties usually have about 20% total soluble sugars, 0.2 to 0.5% acidity, and roughly 1% protein. Studies indicate that mangoes might even have anticancer properties, thanks to bioactive compounds like polyphenols and carotenoids, which have shown promise in slowing down cancer cell growth and inhibiting tumor development (Hedhili, 2023) [1]. Additionally, the high potassium and low sodium levels in mangoes help regulate healthy blood pressure. The dietary fiber, antioxidants, and polyphenols in mangoes also play a role in enhancing cardiovascular health, lowering the risk of heart disease and stroke.

In Tamil Nadu, fruit crops take up about 20% of the total area dedicated to horticultural cultivation, with mangoes being one of the most popular choices. The Dharmapuri district is particularly notable as a major mango-producing area in the state. Here, mango cultivation spans around 16,509 hectares, making it the leading horticultural crop in the region. This district alone accounts for nearly one-third of the mango cultivation area and almost half of the mango yield in Tamil Nadu. Key mango-growing areas in Dharmapuri include Palacode and Karimangalam, where popular varieties such as Bangalora, Alphonso, Totapuri, Banganapalli, Senthura, Malgova, and others thrive. India has a tremendous opportunity to boost mango productivity and production by embracing better agricultural technologies. However, the way these recommended practices are adopted varies widely among farmers. To truly understand how these technologies are being used, it's

crucial to identify any knowledge gaps, obstacles, and areas that need attention. This understanding can empower agricultural extension workers and policymakers to create effective strategies that promote better practices and ultimately lead to higher yields.

The Specific objectives of the study were,

1. To study the extent of adoption of recommended technologies in mango cultivation by the mango growers.
2. To find out the relationship between profile characteristics with their extent of adoption of mango growers.
3. To identify the constraints encountered by the mango growers in marketing of mango.

2. Research methodology

2.1. Selection of district

Dharmapuri district in Tamil Nadu was purposively selected for the study due to the following reasons.

1. A large area is available under mango cultivation in Dharmapuri district.
2. The presence of the Krishi Vigyan Kendra at Papparappatty in Dharmapuri district is offering more training programmes to mango growers.
3. Majority of the farmers and agricultural labourers are directly or indirectly involved in mango cultivation which forms the basis for the agrarian economy of Dharmapuri district.
4. The researcher's familiarity with the local dialect and culture of the people as he belongs to this district that might help him maintain rapport and collect the data objectively.

2.2. Selection of blocks

Dharmapuri district consists of ten blocks *viz*., Dharmapuri, Nallampalli, Pennagaram, Harur, Morappur, Pappireddipatti, Karimangalam, Palacode, Kadhathur, Eriyur. In these ten blocks, Karimangalam and Palacode blocks were selected based on the major areas under the mango crop.

2.3. Selection of villages

A list of villages for the selected block was collected from the Department of Statistics. From the list of villages, six villages were selected from each block where the maximum number of farmers engaged in mango cultivation. The six villages from Karimangalam block were Annamalaihalli, Jittandahalli, Mahendramangalam, Pikkanahalli, Karukkanahalli, Thimmarayanahalli and the other six villages were Chekkodi, Chikkarthanahalli, Chinnegoundanahalli, Gandenahalli, Samanur and Thirumalavadi under the Palacode block were selected. Thus, a total of twelve villages were identified for the study.

2.4. Selection of Respondents

A sample size of 120 was fixed for the study considering the limitations of time and other resources. The list of farmers identified in each village were mango growers. A total of 120 samples were selected from the twelve villages by using proportionate random sampling.

2.5. Selection of variables

By reviewing various relevant literature and having discussions with extension scientists, a list of 24 independent variables that could possibly influence the dependent variables was prepared. The list of variables was sent to 45 judges, consisting of the extension scientists working in the various agricultural universities, to ascertain the degree of relevance of each variable for the study. The responses were obtained from thirty judges. The responses of the judges were assigned by scores of 3, 2, 1 for more relevant, relevant and irrelevant responses respectively.

The variables with an 80.00 per cent relevancy score and above were selected. A total of 15 variables were selected for this study. They are age, educational status, occupational status, annual income, farm size, area under mango cultivation, farming experience, social participation, innovativeness, risk orientation, scientific orientation, economic motivation, information source utilization, market perception and decision-making ability.

2.6. Statistical tools

Arithmetic Mean, Percentage analysis, Cumulative frequency method, Zero-order correlation coefficient and Multiple linear regression analysis were the statistical tools used for the study.

3. Findings and discussion

3.1. Overall adoption level by the Mango Growers.

Table 1: Distribution of respondents according to their overall adoption level on recommended mango cultivation technologies (n=120)

S. No.	Category	Number	Per cent
1	Low	35	29.17
2	Medium	55	45.83
3	High	30	25.00

It could be understood that half the proportion of the respondents (45.83 per cent) had medium level of adoption on recommended mango technologies, followed by 29.17 per cent of the respondents with low level of adoption. Only 25.00 per cent of the respondents fell under high level of adoption. Medium level of experience in mango cultivation, innovativeness, risk orientation, scientific orientation and economic motivation would have been the reasons for majority of them who belonged to medium level of adoption category.

3.2. Technology-wise adoption level

The practice-wise adoption of recommended crop production technologies may vary from individual to individual. Hence, an attempt was made to analyse the adoption of recommend mango cultivation technologies as perceived by mango growers and the results are given.

Table 2: Distribution of respondents according to their technology-wise adoption level (n=120)

Ss. No.	Technologies	Number	Percent
I	**Crop improvement practices (Varieties)**		
	Early bearing varieties (Alphonso, Banaganapalli)	73	60.83
	Regular bearing varieties (Totapari, Neelum, Bangalora)	84	70.00
	High yielding varieties (Mallika, Ratna, Amrapalli)	98	81.67
	Mean per cent		70.83
II	**Crop production technologies (Preparation of main field)**		
	Designing a layout for mango garden	57	47.50
	Forming a pit (Size:1m×1m×1m Top soil mixed with 10 kg of FYM and is distributed 100g per pit)	109	90.83
	Mean per cent		69.16
III	**Methods of propagation**		
	Grafting (June-July)	94	78.33
	Inarching (June - Dec	102	85.00
	Seedlings (May-June)	89	74.16
	Mean per cent		79.16
IV	**Planting technique**		
	Planting seasons (July - December)	92	76.66
	Recommended depth (10 cm)	111	92.50
	Recommended spacing (1m×1m×1m)	105	87.50
	Mean percent		85.53
V	**Irrigation management**		
	Recommended water requirement per tree (Fruit bearing mango requires 50-120 litres per day	98	81.67
	Forming irrigation channels (Basin System, Ring System, Furrow System, Flood System)	79	65.83
	Drip irrigation system	73	60.83
	Time of irrigation (Once in a week)	95	79.17
	Mean per cent		71.87
VI	**Intercultural Operations**		
	Pruning (After harvest before second week of June)	114	95.00
	Mulching (Rice straw, Rice husk, Saw dust, Fresh coir)	82	68.33
	Inter cropping (Fodders, Farm crops, Vegetables, Pulses, Papaya, Banana, Turmeric, Groundnut)	94	78.33
	Weed management (one spray of atrazine or diuron @2kg a.i./ha as pre- emergent treatment to soil and one spray of post emergent spray on paraquat @3kg a.i./ha, six months after the soil treatment.	102	85.00
	Mean per cent		81.66
VII	**Nutrient Management**		
	FYM (30 kg / tree)	95	79.17
	Urea (600 g/tree) + Super phosphate (500gm/tree) + Potash (600gm/tree)	105	87.50
	Plant growth regulator (Ethephon, Paclobutrazol, Alpha Naphthyl acetic acid)	109	90.83
	Mean per cent		85.33
VIII	**Plant protection technologies (Management of Pests and Diseases)**		
	Mango stem borer (Swab coal tar +Kerosene @1:2 or Carbofuran 3G 5g per hole and plug with mud)	94	78.33
	Mango hoppers (Spray two rounds of acephate 75SP@1g/lit	54	45.00
	Mango nut weevil (Phasalone 35EC 2ml/lit)	98	81.67
	Anthracnose (Spray *P.floroscens* (FP 7) @3 weeks interval, 5-7 sprays on flowers and bunches.	82	68.33
	Powdery Mildew (Dusting the plants with fine sulphur (250-300 mesh) @0.5kg /tree soon after flowering. After 15 days spray with wettable sulphur (0.2%)	53	44.17
	Sooty mould (Spraying Methyl demeton, spraying of starch solution (1kg starch /maida in 5 litres of boiled water and dilute with 20 litres of normal water)	89	74.16
	Mean per cent		65.27
IX	**Harvesting technology**		
	Correct time of harvesting (45 days after flowering)	115	95.83
	Manual harvest	98	81.66
	Mechanical harvest	28	23.33
	Size and shape of the fruits for harvest (flat shoulder at stem end)	100	83.33
	Mean per cent		71.03

3.2.1. Selection of varieties

There are three different varieties *viz*., early, regular and high yielding under this category. It could be ascertained that 81.67 per cent of the mango growers adopted high yielding varieties *viz*., Amarapalli, Ratna, Mallika, followed by regular bearing varieties *viz*. Neelam, Bangalora (70.00 per cent) and early bearing varieties *viz*., Alphonsa and Banganapalli (60.83 per cent) respectively. Most of the farmers prefer to cultivate Neelum, Bangalora, Ratna, Amrapalli etc., As majority of the farmers came to know about the suitability and market preference of early varieties like Alphonsa and Banganapalli recently, they just started to cultivate these varieties.

3.2.2. Crop production technologies

Under main field preparation, there are two activities namely designing a layout for mango garden and forming a pit of required size. It could be observed that the majority of

the respondents adopted the practice of forming pit in correct size (90.83 per cent) and less than half of the respondents properly designed the layout for a mango garden (47.50 per cent). The designing of layout requires adequate knowledge and skill and also require high labour force. Hence there was not very high adoption.

3.2.3. Method of propagation

Mango is propagated by farmers through three methods *viz*., grafting, inarching and seedlings. It could be observed that majority of the respondents were adopting inarching (85.00 per cent) followed by three-fourth of the respondents had adopted grafting (78.33 per cent) and 74.16 per cent of the respondents adopted seedling method of propagation. Most of the farmers used grafting and inarching for propagation as the success rate is very high (80-90%), whereas the seedling method was least preferable due to its delayed bearing. The respondents had adequate knowledge on all these practices.

3.2.4. Planting techniques

In planting season, depth of planting and spacing were the activities which fell under the major category of planting techniques. It could be observed that majority of the respondents had adopted the recommended depth of planting of 10cm (92.50 per cent), followed by 87.50 per cent of the respondents had adopted the proper spacing of 1m×1m×1m and 76.66 per cent of respondents adopted the recommended planting season (July-December). As these technologies are the crucial components in enhancing the productivity of mango, most of the respondents would have adopted those practices.

3.2.5. Irrigation management

The practices *viz*., recommended water requirement per tree, forming irrigation channels, drip irrigation, and time of irrigation were the sub-items included under the major area of irrigation management. It could be observed that majority (81.67 per cent) of the respondents adopted correct quantity of water for irrigation. This was followed by 79.17 per cent of the respondents who adopted right time of irrigation. The rest of the practices *viz*., forming irrigation channels (65.83 per cent) and drip irrigation (60.83 per cent) were adopted by around sixty percent of the respondents. The respondents were not serious about these technologies as they involve economic considerations and hence, there was low level of adoption.

3.2.6. Inter cultural operations

Pruning, mulching, intercropping and weed management are the inter cultivation operations carried out in mango plantation.It could be observed that the pruning is usually done after harvest preferably before second week of june had been adopted by a vast majority of the respondents (95.00). The weed management practices *viz*., one spray of atrazine or diuron @ 2kg a.i./ha as pre- emergent treatment to soil and one spray of post emergent spray of paraquat @ 3kg a.i./ha, six months after the soil treatment were adopted by 85.00 per cent of the respondents, Inter cropping with Fodders, Farm crops, Vegetables, Pulses, Papaya, Banana, Turmeric and Groundnut was adopted by (78.33 per cent) of the respondents. The practices of mulching with rice straw, rice husk, dried weed lopping, saw dust, fresh coir dust was adopted by 68.33 per cent of the respondents. The Inter-cropping with Vegetables and Groundnut might be due to the fact that the growers had adequate knowledge about the technologies and they were aware that these technologies would increase their profit significantly and so most of the farmers had adopted these practices.

3.2.7. Nutrient management

The application of FYM, urea, super phosphate, potash are the practices carried out in Nutrient management. It could be revealed from the Table.19 that the majority of the respondents (90.83 per cent) adopted applying of plant growth regulators. This was followed by 87.50 per cent of the respondents who had adopted applying of urea + super phosphate + potash and 79.17 per cent of the respondents adopted applying of FYM @ 30 kg /tree. Hence, there was a high adoption for application of plant growth regulators like alpha napthyl acetic acid for enlargement of fruit size and increasing the quality and yield of fruits. Paclobutrazol for promoting flowering and fruiting and Ethephon for the accelerated fruit ripening and improving of fruit colour. Most of the farmers adopted these practices as they were aware of these nutrient management practices which would increase their production and profit significantly.

3.2.8. Plant protection technologies

Pest management and disease management are the practices comes under plant protection technologies. Under pest management, majority of the respondents (81.67 per cent) adopted phasalone 35EC 2ml/lit for the control of mango nut weevil. This is followed by 78.33 per cent of the respondents who adopted swab coal tar + Kerosene @ 1:2 or carbofuran 3G (5g) per hole and plug with mud for the control of mango stem borer. Less than half of the respondents (45.00 per cent) adopted spraying of two rounds of acephate 75SP 1.5g/litre.

Under disease management, spraying of methyl demeton and spraying of starch solution for the control of sooty mould were adopted by majority (74.16 per cent) of the respondents. This was followed by 68.33 per cent of the respondents who adopted spraying of *P.florescens* FP 7 @ 3 weeks interval, 5-7 sprays on flowers and bunches for the control of anthracnose and less than half of the respondents (44.17 per cent) had adopted dusting the plant with fine sulphur @ 0.5 kg /tree soon after flowering and spraying with wettable sulphur (0.2%) after 15 days for the control of Powdery mildew. The reason behind the less adoption of pest management practices for mango hoppers and disease management practices for powdery mildew was due to the less incidence of these pests and diseases in the study area.

3.2.9. Harvesting Method

With regard to harvesting, majority of the respondents (95.83 per cent) adopted the correct time of harvesting, followed by 83.33 per cent of the respondents who identified right harvesting symptoms based on size and shape of the fruits. Manual harvesting was done by 81.66 per cent of the respondents and only 23.33 per cent of the respondents had adopted mechanical harvesting methods. The reason for the low adoption of mechanical harvest

practice is due to the fact that there was no precise judgement for optimal maturity and selective harvesting of matured fruits. Mechanical damage during harvesting becomes a serious problem as injuries predispose the fruits to decay and leads to quick deterioration. Manual harvest was most preferred so as to minimize the damages in mango harvesting.

3.3. Relationship of Profile Characteristics of Mango Growers with Their Extent of Adoption

This section gives the association and contribution of the independent variables with the dependent variables. Zero-order correlation and multiple regression analysis were computed to know the relationship between characteristics of the respondents with their extent of adoption.

Table 2: Relationship of characteristics of the respondents with their extent of adoption of recommended mango cultivation technologies (n=120)

Variable number	Variables	'r' value	Standardized regression co-efficient	Standard error	't' value
X_1	Age	-0.064NS	-0.063	2.129	-0.651NS
X_2	Educational status	0.267**	0.512	1.478	2.641**
X_3	Occupational status	0.161NS	-0.110	5.797	-0.606NS
X_4	Annual income	-0.086NS	-0.080	2.826	-0.652NS
X_5	Farm size	-0.047NS	0.020	2.936	0.156NS
X_6	Area under mango cultivation	0.145NS	0.045	5.077	0.185NS
X_7	Farming experience	0.297**	0.291	0.742	2.549**
X_8	Social participation	0.138NS	-0.272	4.579	-1.335NS
X_9	Innovativeness	0.233*	0.100	0.196	1.960*
X_{10}	Risk orientation	0.207*	0.136	0.261	1.919*
X_{11}	Scientific orientation	0.185*	0.972	1.716	1.716*
X_{12}	Economic motivation	0.197*	0.356	0.772	2.168*
X_{13}	Information source utilization	0.239*	0.071	0.142	2.000*
X_{14}	Market perception	0.212*	0.266	0.562	2.112*
X_{15}	Decision making ability	0.149NS	0.102	2.064	0.977NS

R^2= 0.562, a = 2.346, F= 7.416**

* Significant at 5.00 per cent level ** Significant at 1.00 per cent level NS-Non-Significant

Out of 15 independent variables studied, only eight variables, *viz*., educational status, farming experience, innovativeness, risk orientation, scientific orientation, economic motivation, information source utilization and market perception were found to have a positive and significant relationship with the extent of adoption of mango technologies.

Results of multiple regression analysis indicated that all the independent variables together explained 56.20 per cent of the variations towards extent of adoption, only eight variables, *viz*., educational status, farming experience, innovativeness, risk orientation, scientific orientation, economic motivation, information source utilization and market perception were found to have a positive and significant contribution with the extent of adoption of mango technologies.

Hence, it may be concluded that a unit increase in educational status, farming experience, innovativeness, risk orientation, scientific orientation, economic motivation, information source utilization and market perception would increase the adoption level by 0.512, 0.291, 0.100, 0.136, 0.972, 0.356, 0.071 and 0.266 units respectively.

Hence, it could be inferred that the adoption level of mango growers would be significantly influenced by their educational status, farming experience, innovativeness, risk orientation, scientific orientation, economic motivation, information source utilization and market perception. The prediction equation is as follows

$$Y= 2.346 - 0.063X_1+ 0.512X_2 - 0.110X_3 - 0.080X_4 + 0.020X_5 + 0.045X_6 + 0.291X_7 - 0.272X_8 + 0.100X_9 + 0.136X_{10} + 0.972X_{11} + 0.356X_{13} + 0.071X1_3 + 0.266X1_4 + 0.102X_{15}$$

3.4. Constraints encountered by the mango growers in marketing of mango

Table 3: Constraints Encountered by the Mango Growers in Marketing of Mango (n=120)

S. No	Constraints	Number	Per cent
1	Price fluctuation	116	96.66
2	Exploitation by middleman	114	95.00
3	Lack of knowledge on value addition	112	93.33
4	Difficulty in transporting produce to distant markets/export to other countries	101	84.17
5	Lack of cold storage facilities	100	83.33
6	Lack of timely marketing information	96	80.00
7	Lack of remunerative price	91	75.83
8	No immediate returns	83	69.17
9	High cost of transportation	81	67.50
10	Lack of organized marketing structure	77	64.17
11	Lack of skill in grading of produce	63	52.50

Price fluctuations in market was the predominant constraint in marketing as expressed by a vast majority of the respondents (96.66 per cent). There is a seasonal fluctuation of pricesfor mango before and after harvest seasons. During the peak season, farmers get only lower prices for their produce due to the heavy arrival of produce in the market. They may get remunerative prices during the high demand. This might have been prompted the respondents to feel the seasonal price fluctuations as the constraint in marketing of mango.

Exploitation by middlemen by charging heavy rate of commissions, brokerage etc., was also reported as the constraint by majority of the mango growers (95.00 per cent). The producers have to pay a variety of incidental

charges like brokerage, commissions etc., which reduce the profit. Since the keeping quality of the fruits is poor, farmers are forced to sell their produce immediately after the harvest and hence they need to depend middlemen for marketing. These are the possible reasons to feel the middlemen exploitation.

Lack of knowledge on value addition as the constraint reported by majority of the respondents (93.33 per cent). Mango has wider scope for value addition and has good scope for marketing. The value-added products like jam, jelly, squashes, juices, candies etc., can be prepared from mango. Therefore, if the farmer desires to become an entrepreneur, he should possess the knowledge on value addition. The respondents revealed that they were not having adequate knowledge on these value- added products due to the lack of technical information followed by difficulty in transporting produce to distant markets/export to other countries (84.17 per cent) respectively.

Lack of cold storage facilities was the another constraint mentioned by 83.33 per cent of the respondents. In order to get remunerative prices, the farmers need to store their produce and sell it when the demand is more. But they do not have adequate facilities for storing their produce at village level. During peak season, they do not get space for storage in regulated markets. It would have necessitated them to sell their produce immediately for lower prices. This in turn would have enabled the respondents to mention 'inadequate storage facilities' as their constraint.

Lack of timely marketing information was expressed by majority (80.00 per cent) of the respondents. They reported that they do not have adequate knowledge on consumer segmentation, price fixing criteria, market news etc. They were unaware of the market prices prevailed in other districts and states. Hence, they might have expressed this as their constraint.

Lack of remunerative price was the constraint expressed by 75.83 per cent of the respondents. The respondents felt that they could not get remunerative prices for their produce due to high fluctuation of prices in the market before and after harvest seasons. Sometimes the farmers could not even get nominal prices to meet out the production cost.

No immediate returns was the constraint expressed by 69.17 per cent of the respondents. They further expressed delayed payment from buyers as a constraint. Almost all the farmers used to sell their produce in regulated markets and agriculture producers co-operative societies. The farmers who sell their produce in Agriculture Producers Co-operative society will get the immediate cash soon after sales. While for the farmers who sell their produce at regulated markets, sometimes the payment will be delayed due to some administrative reasons. Because of this delayed payment, the farmers could not plan for future farming activities.

High cost of transportation was the constraint as stated by 67.50 per cent of the respondents. The farmers with small farm size usually face this kind of problem because they produce only little quantity and they could not make exclusive transport arrangements. They have to pay the full charges for transport irrespective of the quantity transported. This in turn would result in high cost for transport followed by lack of organized marketing structure (64.17 per cent) and lack of skill in grading of produce (52.50 per cent) respectively.

4. Conclusion

The Horticulture sector has become one of the major drivers of growth as it is more remunerative than the agricultural sector. This sector provides employment possibilities across primary, secondary and tertiary sectors. Mango output will need to increase in order to meet the nation's expanding population's demand. Adopting all advised mango farming practices might make this feasible. Therefore, the goal of the current study is to evaluate the producers' level of adoption of suggested mango technologies. The overall adoption was found to be medium, the State department of horticulture may arrange to conduct various extension activities like demonstrations, discussions and information needs on mango production technology. The extension agents of state department of horticulture may disseminate technical information through mobile apps, social media sources like YouTube, WhatsApp etc. The printed materials in the form of leaflets, folders, pamplets may also be distributed to the farmers for their reference. The adoption of plant protection measures was found to be moderate. This could be promoted by imparting adequate knowledge on pest and disease management through training programmes, leaflets, pamplets and through social media. The plant protection measures with required skills may be imparted through method demonstration.

Fixation of price by commission agents, price fluctuation, lack of remunerative price, inadequate market intelligence were also reported as the constraints. It suggested that necessary arrangements are to be made to fix the fair price for mango and the same should be informed to the farmers through media. The mango Growers Association should take intensive efforts to avoid the middle men in price fixation. Inadequate transport facilities was the constraint faced by majority of the respondents. It is suggested that the Government may arrange for loans with lower interest rate to farmers for purchasing vehicles such as tempos, mini lorries etc., to enhance quick transportation of their produce to market their produce to nearby centres to market their produce and to get higher prices. Lack of storage facilities was the constraint reported by aty per cent of the respondents. It is recommended that adequate old storage facilities must be made available in important marketing centers to enable the farmers to store the produce when the price is not remunerative.

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