

Development of knowledge test and Constraints faced by mango-growers in adoption of improved mango cultivation technology

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INTRODUCTION

Mango is one of the most ancient fruits of India. It is a national fruit. Mango has an important place in the country considering its area, production, nutritive value and popularity. In India, it is grown in 12.33 lakh hectares, producing 103.5 lakh tonnes of mango per year. It earns foreign exchange of Rs. 46.29 crores from the export of mango fruits and its processed items. The important mango growing states in India are U.P., Bihar, A.P., Karnataka, Orissa, Maharashtra and Gujarat. In Gujarat, Junagadh is a leading mango producing district occupying 6902 hectares area and producing 75000 m. tonnes of mango per year.

In the process of Agricultural development, the prime mover is considered to be the improved farming technology. The benefit of such technology is actually desired only when it efficiently utilized by farmers in their local situations. The farmers are very much eager to get maximum benefits from the agricultural technology. However, many of them could not do so, because they did not know and adopt the improved mango production technology due to lack of technical knowledge. Ratnakar

and Reddy (1991) revealed that majority of mango growers (56.9 per cent) had medium level of knowledge with respect to mango cultivation. The low level of adoption is also due to number of constraints coming in way, creating large adoption gap, calminating in low yield of mango in the area.

Thus, to bring change in knowledge level, it is necessary to know "What is?" and "What ought to be?" in terms of knowledge level and to understand and overcome the constraints, while developing strategies for enhancing the yield, the study was undertaken with following objectives.

OBJECTIVES

1. To develop a standardize knowledge test to measure the knowledge level of mango growers
2. To identify the constraints faced by the mango growers in adoption of improved mango cultivation practices.
3. To seek suggestions from the mango growers to overcome the constraints in improved mango cultivation practices.

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METHODOLOGY

A knowledge test on improved mango cultivation practices was standardized following the prescribed procedure. First of all 92 items were selected. In selecting the items, the procedures were followed the lines laid down by Lindquist (1951), Jaiswal (1965), and Moulik (1965). The collected items were administered to the 48 respondents selected at random from the four villages of Talala and Vanthali talukas of Jungadh district. To study the constraints faced by the mango growers and to seek suggestions from them a sample of 100 mango growers was drawn from six villages of Talala and Vanthali taluka by using multistage and proportionate random sampling method. Considering the objectives, an interview schedule was prepared, pretested and modified. The data were collected by personal interview. They were tabulated, analysed and interpreted in the light of objectives. The statistical measures like frequency, percentage and rank order were used.

RESULTS AND DISCUSSION

a. *Standardize knowledge test :*

Total 25 items were selected for final format (Appendix I). The validity and reliability of the test were 0.84 and 0.92 respectively.

b. *Constraints faced by the mango growers :*

The difficulties or problems faced by mango growers while adopting the improved cultivation practices in their orchard conditions are considered as constraints. The findings pertaining to constraints are depicted in Table 1.

The data presented in Table 1 clearly indicate that the important constraints expressed by majority of the respondents were : Irregular and insufficient electric power supply (89.0 per cent), lack of modern spraying equipments (76 per cent), lack of awareness of recommendations about insect/pest control (71 per cent), high prices of fertilizers (69 per cent), high prices of fungicides (68 per cent) and lack of awareness of recommendations about use of chemical fertilizer (60 per cent). Therefore, these are the major obstacles which held responsible for low adoption of improved mango cultivation technology. Hence, necessary remedies may be taken to overcome these problems to upgrade the adoption rate of mango production technology. The results were in line with Chavda (1981).

c. *Suggestions to overcome the constraints :*

The ways and means or opinions as perceived by the mango growers to overcome the constraints are given in Table 2. The data of Table 2 clearly

Table 1 : Practicewise constraints perceived by mango growers in adoption of mango production technology.

N=100

Sr. No.	Practicewise constraints	percentage of the respondents
1	2	3
Tillage		
1	Lack of improved agricultural implements	59.00
2	Lack of skilled labourers	42.00
3	High loabour wages	23.00
Variety		
1.	Unavailability of certified graft plants	50.00
2.	Lack of finance facility	19.00
Planting distance		
1.	Lack of awareness about recommendations	40.00
2.	Do not want to change traditional pattern	8.00
3.	Lack of technical guidance	15.00
Organic manure		
1.	High price of organic manure	52.00
2.	Unavailability of organic manure in time	47.00
3.	Lack of technical know-how	49.00
Chemical fertilizer		
1.	Lack of awareness about recommendations	60.00
2.	High prices of fertilizers	69.00
3.	Unavailability of fertilizers in time	37.00
4.	Fertilized crop become more susceptible to diseases and pests	31.00
Irrigation		
1.	Irregular and insufficient electric power supply	89.00
2.	Lack of awreness of recommendation	35.00
3.	Afraid of flower and fruit dropping	12.00
4.	Lack of sufficient irrigation facility	17.00

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1	2	3
Insect/pest control		
1.	High prices of insecticides/pesticides	58.00
2.	Lack of awareness of recommendation	71.00
3.	Lack of modern spraying equipments	76.00
4.	Lack of finance	10.00
Disease control		
1.	High price of fungicides	68.00
2.	Difficulty in spraying	48.00
3.	Lack of skilled labourers	24.00
4.	Lack of technical know-how	57.00
5.	Ineffectiveness of fungicides	51.00
Intercropping		
1.	Sheding effect on inter crop	9.00
2.	Difficulty in interculturing	36.00
3.	Increase weed problem	14.00

indicate that out of 14 suggestions given by the respondents to overcome the constraints in adoption of improved mango cultivation practices, 6 suggestions were expressed by 70 per cent or more respondents. They are :

1. Regular electric power supply should be made available (87 per cent).
2. Crop insurance scheme should be introduced (85 percent).
3. Effective control measures of pests and diseases should be evolved (80 per cent).
4. Priority should be given to mango

growers for getting electric connections (78 per cent).

5. Agricultural inputs should be subsidised (72 per cent).
6. Training should be imparted to the fruit growers regarding the best orchard management (70 per cent).

The results were in line with that of Lokhande and Wangikar (1991).

CONCLUSION AND IMPLICATIONS

A standardise knowledge test having 25 items was developed. It will be useful to researchers and extension workers for measuring the knowledge of

Table 2 : Suggestions from the mango growers to overcome the constraints in adoption of improved mango cultivation practices

N=100		
Sr. No.	Suggestions	percentage of the respondents
1	2	3
1.	Regular electric power supply should be made available	87.00
2.	Crop insurance scheme should be introduced	85.00
3.	Effective control measures of pests and diseases should be evolved	80.00
4.	Priority should be given to mango growers for getting electric connections	78.00
5.	Agricultural inputs should be subsidised	72.00
6.	Training should be given to the fruit growers in relation to the best orchard management	70.00
7.	Remunerative support prices should be fixed by the Government	66.00
8.	Prices of pesticides and fertilizers should be low	61.00
9.	Bank should provide adequate loan for agricultural crops	55.00
10.	Government should provide certified mango grafts of improved variety to the farmers	49.00
11.	Required pesticides and fertilizers should be made available in time	46.00
12.	Co-operative society for mango should be started	39.00
13.	Supply and transport facilities should be easily available	35.00
14.	Extension workers should regularly contact the farmers to disseminate latest mango production technology	33.00

improved mango cultivation technology of mango growers.

The major constraints faced by mango growers were : irregular and insufficient power supply, lack of modern

spraying equipments, lack of awareness of recommendations about insects/pest control, high prices of fertilizers and fungicides etc.

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The most important suggestions offered by mango growers were : Regular electric power supply should be made available, crop insurance scheme should be introduced, effective control measures for pest and diseases should be evolved, agricultural inputs should be subsidised and technical know-how should be provided to mango growers. These should be considered by the policy makers and agricultural scientists at the appropriate level in development and research strategy.

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APPENDIX I

Final format of the knowledge test for measuring mango growers' knowledge about improved mango cultivation practices

1. Before monsoon, manures should be mixed with soil and pits should be filled with it.
(Yes/No.)
2. For medium spreading variety on less fertile land, 10 x 10 m planting distance is sufficient.
(True/False)
3. For establishing the mango orchard, only certified graft plants should be used.
(Yes/No.)
4. How many plants can be planted at a distance of 12 x 12 m in 1 ha of land ?
(60/70/80)
5. Before two or three months of planting, arrangement should be made to obtain graft plants of selected variety.
(Yes/No)
6. Jamadar is an important variety of Saurashtra, developed from seed stone of Alphonso.
(Right/Wrong)
7. Planting should be done in cloudy atmosphere at evening time when there is drizzling rain.
(True/False)
8. How much graft union should be kept above the ground level while planting?
(15 to 20 cm/21 to 25 cm/26 to 30 cm)
9. Three important interculturing operations should be done i.e. before monsoon, after monsoon and during November-December in mango orchard.
(True/False)
10. Is pre-monsoon ploughing desirable to reduce soil erosion to maximize water percolation?
(Yes/No)

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11. Ploughing in November-December is helpful in controlling mealy bugs.
(True/False)
12. How much fertilizer is to be applied to an adult tree? Tick mark on correct statement.
(1) 100 kg FYM, 3.750 kg ammonium sulphate, 1.00 kg super phosphate and 1.250 kg murate of potash.
(2) 50 kg FYM, 2 kg ammonium sulphate, 1.5 kg super phosphate and 1.0 kg murate of potash.
13. Newly planted graft plants should be irrigated at an interval of 7-10 days in winter.
(Right/Wrong)
14. Is green manuring beneficial to improve physical condition and soil fertility of mango orchard?
(Yes/No)
15. Over crowded branches should be pruned so that remaining branches receive sufficient sunlight, good flowering and fruiting and there is less disease and insect attack.
(Yes/No)
16. For the control of fruit fly, spray 10 ml fenthion in 10 litres of water at 15 days interval in the month of May.
(True/False)
17. To control mealy bugs, apply 5% Aldrin or 10% BHC powder in the soil while digging the land.
(Yes/No)
18. To control shoot borer, cut the branch with initially damaged flower-buds and destroy them.
(True/False)
19. To control black canker, 2-3 gm, of Agromycin should be mixed with 10 litres of water and sprayed.
(Yes/No)
20. To control red rust, 6:6:50 Bordeaux mixture should be sprayed.
(True/False)

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21. To solve the problem of alternate bearing in mango, hybrid varieties which are regular in bearing should be grown.
(Yes/No)
22. To control mango malformation, infected flower bunch along with the branch should be cut and burnt after harvesting the fruits.
(Right/Wrong)
23. For controlling the mango malformation, 2 gm NAA should be dissolved in 10 litres of water and sprayed in October.
(Yes/No)
24. During which stage the fruit dropping causes maximum reduction in mango production?
 - a) Sorghum sized fruits
 - b) Pepper sized fruits
 - c) Arecanut sized fruits.
25. Fruits should not be harvested during the hot hours from 10 A.M. to 4 P.M.
(Yes/No)