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Full Length Research Article

Knowledge Level of Mango Growers about Recommended Technologies in Mango Cultivation

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A B S T R A C T

In India, mango occupies about 36% of the total area under fruits during the year 2010-11. It comprises of 22.97 lakh hectares, with a total production of 151.88 lakh tonne. Uttar Pradesh and Andhra Pradesh are having the largest area under mango each with around 23% of the total area followed by Karnataka, Bihar, Gujarat and Tamil Nadu. Fresh mangoes and mango pulp are the important items of Agri-exports from India. India's main export destinations for mango are UAE, Bangladesh, UK, Saudi Arabia, Nepal, Kuwait, USA and other Middle East countries with a limited quantity being shipped to European market. Mango offers good scope for commercial marketing. Knowledge on the recommended technologies of mango cultivation is not properly disseminated. Increased productivity is greatly dependent on available technology and extent of adoption by the farmers. An increase in knowledge on latest technologies can increase the adoption of latest technologies. Keeping this point in mind, this research study was undertaken to analyse the existing knowledge level of mango growers about recommended technologies in mango cultivation. The study was taken up at Dindigul, one of the mango predominant districts in Tamil Nadu State. A sample size of one hundred and twenty mango growers were selected based on proportionate random sampling method. This study revealed that more than half of the mango growers had medium level of knowledge, whereas one-fourth of them had high level of knowledge and less than two- fifth of them had low level of knowledge about the recommended mango technologies, respectively.

Key words: Knowledge level, Recommended technologies, Mango growers

Mango (*Mangifera indica*) is one of the most important commercial fruit crops in the country which is belongs to the family Anacardiaceous. It is grown in more than 85 countries of the world with total area coverage and annual production of 3.69 million hectares and 35 million tons, respectively [1]. Mango is a tropical and subtropical fruit crop grown in India [2]. Mango is the national fruit of India and national tree of Bangladesh. It is also called as the king of fruits. India has the richest collection of mango cultivars. A mango is a stone fruit produced from numerous species of tropical trees belonging to the flowering plant genus Mangifera, cultivated mostly for their edible fruit. Most of these species are found in nature as wild mangoes. It has been distributed worldwide to become one of the most widely cultivated fruits in the tropics. Worldwide, there are several hundred cultivars of mango. Depending on the cultivar, mango fruit varies in size, shape, sweetness, skin colour, and flesh colour which may be pale yellow, gold, or orange. It is also known as Aam, and it has been an important herb in Ayurveda and indigenous medical system for over 4000 years.

India ranks first among world's mango producing countries accounting for about 46 per cent of the global area and 40 per cent of the global production. The area and production of mango in Tamil Nadu during 2017-18 was 152,950 ha and 1,234,000 tonnes respectively and in Dindigul district area and production of mango during 2016 -17 was 37,960 ha and 290,900 tonnes respectively [3]. In order to meet the demand on mango production target has to go up from the present level of 6.25 t/ha to the potential level of 8.75 t/ha. It could be possible only by knowing and adopting improved recommended technologies in mango cultivation. Hence, a study was undertaken to assess the knowledge level of mango growers on recommended technologies in mango cultivation.

MATERIALS AND METHODS

The present study was conducted in Dindigul district of Tamil Nadu. Among the fourteen blocks, Natham block was selected based on the maximum area under mango cultivation. From the block, six villages namely Lingavadi, Nadumandalam, Pudur, Punnaipatti, Reddiyappatti and Sathampatti were selected based on the maximum area under mango cultivation. A sample size of 120 mango growers was selected by using proportionate random sampling technique.

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Data were collected using a well - structured and pre - tested interview schedule. Percentage analysis and cumulative frequency were used for analyzing and interpreting the data and the results are tabulated.

RESULTS AND DISCUSSION

Knowledge level of mango growers about recommended technologies in mango cultivation

Knowledge is a pre-requisite for adoption of an innovation, as this enables the farmer to completely understand the recommended technologies, including motivation and their attributes. The analysis of the knowledge level of respondents on recommended technologies in mango cultivation is discussed as given below.

Overall knowledge level

The overall knowledge level of the respondents on recommended technologies for mango was assessed and the findings are given in (Table 1).

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

Category	Number	Per cent
Low	22	18.33
Medium	67	55.83
High	31	25.84
Total	120	100.00

It could be observed from (Table 1) that majority of the respondents (55.83 per cent) possessed medium level of knowledge about the recommended technologies in mango cultivation. This was followed by high level (25.84 per cent) and only 18.33 per cent of the respondents possessed low level of knowledge. As majority of the respondents possessed medium level of extension agency contact, innovativeness, risk orientation, scientific orientation and social participation, they might have gained only medium level of knowledge on mango cultivation. This finding confirms the findings of Gondar *et al*. [4] who reported that majority of the mango growers possessed medium level of knowledge on recommended technologies in mango cultivation.

Technology-wise knowledge level

The technology-wise knowledge level of the respondents on mango cultivation is furnished in (Table 2).

Crop improvement technology (varieties)

It is observed from the Table 2 that 95.00 per cent, 94.17 per cent and 98.33 per cent of mango growers had knowledge about the recommended early bearing varieties, regular bearing varieties and high yielding varieties respectively [5-7].

Crop production technologies

From the (Table 2) it is observed that an overwhelming majority of the respondents possessed knowledge about recommended depth of planting (97.50 per cent), filling materials used in the pits (96.67 per cent), suitable soil type for mango cultivation (95.83 per cent), recommended water requirement per tree (95.83 per cent), forming a pit (95.00 per cent), required quantity of FYM (95.00 per cent), recommended time of irrigation (93.33 per cent) and ideal planting seasons (90.83 per cent). Further it is also observed from the (Table 2) that 78.33 per cent, 85.83 per cent, 81.67 per cent of the respondents knew the recommended methods of propagation namely grafting, inarching and seedlings respectively [8-10].

Majority of the respondents possessed knowledge about application of potash (85.00 per cent), designing a layout for mango garden (81.67 per cent), application of superphosphate (81.67 per cent), recommended spacing (80.83 per cent), pruning (77.50 per cent) and weed management (75.83 per cent). More than sixty per cent of the respondents possessed knowledge about chemical materials used in the plant (68.33 per cent) and intercropping (65.83 per cent). Exactly three-fifth of the respondents (60.00 per cent) had knowledge about forming irrigation channels and a little more than half of the respondents (51.67%) had knowledge about drip irrigation [11].

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

Category	Number	Percent
Crop improvement practices		
Varieties		
a. Early bearing varieties	114	95.00
b. Regular bearing varieties	113	94.17
c. High yielding varieties	118	98.33
Crop production technologies		
Preparation of main field		
a. Designing a layout for mango garden	98	81.67
b. Forming a pit	114	95.00
c. Suitable soil	115	95.83
Methods of propagation		
a. Grafting	94	78.33
b. Inarching	103	85.83
c. Seedlings	98	81.67
Planting technique		
a. Ideal planting seasons	109	90.83
b. Recommended depth at which the graft has to be kept inside the pit	117	97.50
c. Recommended spacing	97	80.83
Irrigation management		
a. Recommended water requirement per tree	115	95.83
b. Forming irrigation channels	72	60.00
c. Drip irrigation system	62	51.67
d. Recommended time of irrigation	112	93.33

Inter cultivation		
a. Filling materials used in the pits	116	96.67
b. Chemical materials used in the plant	82	68.33
c. Intercropping	79	65.83
d. Weed management	91	75.83
e. Pruning	93	77.50
Manures and fertilizers		
a. FYM (10 kg /tree)	114	95.00
b. Super phosphate (50 gm / tree)	98	81.67
c. Potash (50 gm/tree)	102	85.00
Plant protection technologies		
a. Using growth hormones	75	62.50
b. Pests of mango		
Symptoms and management		
i. Mealy bug symptoms	81	67.50
ii. Mealy bug management	73	60.83
iii. Mango leaf hopper symptoms	103	85.83
iv. Mango leaf hopper management	98	81.67
v. Fruit fly symptoms	62	51.67
vi. Fruit fly management	54	45.00
c. Diseases of mango		
Symptoms and management		
i. Mango powdery mildew symptoms	75	62.50
ii. Mango powdery mildew management	62	51.66
iii. Mango sooty mould symptoms	54	45.00
iv. Mango sooty mould management	43	35.83
Harvesting technology		
a. Correct time of harvesting	118	98.33

Plant protection technologies

Pest management

It is observed from (Table 2) that majority of the respondents (85.83 per cent) were found to possess knowledge on mango leaf hopper symptoms. More than three-fourth of the respondents (81.67 per cent) knew about the management of mango leaf hopper. More than sixty per cent of the respondents had knowledge on mealy bug symptoms (67.50 per cent), using growth hormones (62.50 per cent) and management of mealy bug (60.83 per cent). Further it could be seen from (Table 2) that slightly more than half of the respondents (54.17 per cent) had knowledge on fruit fly symptoms and slightly less than half of the respondents (45.00 per cent) knew about the management of fruit fly [12-15].

Disease management

Majority of the respondents (62.50 per cent) were found to possess knowledge on mango powdery mildew symptoms. Little more than half of the respondents (51.66 per cent) knew the management of powdery mildew disease. Less than half of the respondents (45.00 per cent) had knowledge on sooty mould symptoms, whereas 35.83 per cent of the respondents knew the management of sooty mould [16-17].

Harvesting technology

It is understood that almost all the respondents (98.33 per cent) possessed knowledge about correct time of harvesting. The high knowledge level might be due to their experience in mango cultivation for several years [18-19].

CONCLUSION

It is concluded that knowledge level is fairly poor in 'management for fruit fly', 'identifying symptoms of sooty mould' and 'management of mango sooty mould'. However, it is interesting to note that mango growers possessed fairly high level of knowledge on aspects like 'varieties of mango', 'correct time harvesting', 'recommended depth of planting', 'filling materials used in the pits', 'suitable soil', 'recommended water requirement per tree', 'forming a pit', 'FYM application', 'recommended time of irrigation' and ideal planting seasons.

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