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ADOPTION OF RECOMMENDED TECHNOLOGIES IN ARECANUT CULTIVATION IN SALEM DISTRICT OF TAMILNADU

V. MOHANRAJ[1], R. VELUSAMY[2] & K. MAHANDRAKUMAR[3]

[1]Department of Agricultural Extension and Rural Sociology, Agricultural College & Research Institute, TNAU, Madurai, Tamil Nadu, India

[2]Associate Professor, Department of Agricultural Extension and Rural Sociology, Agricultural College & Research Institute, TNAU, Madurai, Tamil Nadu, India

[3]Professor, Department of Agricultural Extension and Rural Sociology, Agricultural College & Research Institute, TNAU, Madurai, Tamil Nadu, India

ABSTRACT

Arecanut (Areca catechu) is one of the important cash crops grown in India. It is used in Hindu religious rites, medicinal value of alkaloids extracted from nuts, chewing and mastication with betel leaves. India accounts 49.74 per cent of its world production of arecanut. In Tamil Nadu north western zone has maximum area under arecanut cultivation. The study was conducted in Salem district and it occupies first in area and production in arecanut in Tamil Nadu. The study was conducted with 120 arecanut growers. The results revealed that only 15.83 per cent of respondents were adopted recommended varieties and rest of the respondents were adopted the local variety due to good nut size, suitability to climatic conditions, trader's preferability and long life of palms. The adoption of crop production technologies and manure fertilizers were tending to be the maximum adoption of recommended technologies in arecanut cultivation. The plant protection technologies were low to medium category of adoption due to organic practices followed in the study area.

KEYWORDS: Adoption, Arecanut, Chewing, Alkaloids & Recommended Technologies

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Original Article

INTRODUCTION

Arecanut (*Areca catechu*) is one of the important cash crops in India. From the evidence of pre-Vedic period, arecanut is extensively used in Hindu religious rites of birth and marriage, offered to guests to mark their hospitality and also offered to the gods for the veneteration in the form of tamboola. The Indian Ayurveda text refers arecanut as a traditional medicine. It is widely used for chewing and mastication with betel leaves. India occupies first in area and production of arecanut and it accounts of 49.74 per cent of its world production. (FAO Statistics, 2013) The major arecanut growing countries in the world are India, China, Myanmar, Indonesia, Thailand and Bangladesh (Nagappa, Sukanya, & Mamatha, 2016). In India area under arecanut is around 4 lakh hectares with a production of around 4.78 lakh tonnes. In India the major arecanut growing states are Karnataka, Kerala, Assam, Meghalaya, West Bengal, Mizoram and Tamil Nadu (Hegde & Deal, 2014). Among these states Karnataka and Kerala together accounts 70 percent of production of arecanut under plantations (Ramappa & Manjunatha, 2013). In Tamil Nadu arecanut is cultivated in Salem, Coimbatore and area under arecanut cultivation is 6,884 ha and Salem

district alone constitutes 35 per cent of area under arecanut cultivation in Tamil Nadu

More than 30,000 farm workers, including women also engaged directly or indirectly in farming operations like harvesting and post-harvest practices of nuts (Ramappa, 2013). The harvesting of nuts starts on the Tamil month of 'Thai' and spread over six months in carrying out the post-harvest practices and marketing of nuts. Central Plantation crops Research Institute, Kasaragod, Kerala released varieties and technologies in arecanut cultivation. The state government has implemented several schemes to arecanut farmers to increase the arecanut area and production. It is important to know the adoption level of recommended technologies in arecanut cultivation for arecanut production and generating employment. Keeping this in view the present study was undertaken to estimate the adoption of recommended technologies in arecanut cultivation.

MATERIALS AND METHODS

In Tamil Nadu among the seven horticulture zones of Tamil Nadu, the north western zone has maximum area under arecanut cultivation. North west zone comprises of Dharmapuri, Krishnagiri, Salem and Namakkal (Part) and among this districts, Salem district has maximum area under arecanut cultivation. Salem district accounts 35 per cent (2421 ha) of area under arecanut cultivation in Tamil Nadu. Salem district is selected for the study based on the maximum area under arecanut cultivation in Tamil Nadu. In Salem district Peddanaickenpalayam, Vazhapady, Gengavalli and Attur blocks covers 87.28 per cent of area under arecanut. Based on the area under arecanut cultivation Peddanaickenpalayam, Vazhapady, Gengavalli and Attur blocks were selected for this study. The respondents of 120 arecanut growers were selected in these blocks based on the proportionate random sampling method as follows

Table: 1

S.No	Name of Blocks	Number of Arecanut Growers	Proportionate Sample Size Selected
1	Peddanackenpalayam	1050	52
2	Vazhapady	715	36
3	Gengavalli	420	21
4	Attur	220	11
Total		**2405**	**120**

Source: Assistant Director of Horticulture office, Peddanaickenpalayam, Vazhapady, Gengavalli and Attur blocks.

The production technology from seedling, planting to harvest of nuts and processing of nuts were collected based on the recommendation and the adoption level was measured among 120 arecanut growers.

RESULT AND DISCUSSIONS

Adoption Level of Recommended Technologies in Arecanut Cultivation

Adoption of recommended technologies is the prime factor to improve the farming operations, as it is developed by the multi scientists, by considering location specific factors. By Utilization of these technologies may increase the farmer's production, may directly or indirectly increase the farm income. The adoption level of recommended arecanut cultivation technologies were measured and presented in the table 1.

Adoption Level of Crop Improvement Technology

It is observed from the table 1 that the only 15.83 per cent of farmers were adopted the recommended varieties, namely Mongolia, sumangala and majority of the arecanut farmers (84.17 per cent) were adopted the local variety the findings are in accordance with the findings of (Devi, 2015). The farmers were adopted the local variety due to the arecanut trader's preference, good nut size, suitability to climatic conditions and long life of palms.

Adoption Level of Crop Production Technology

Cent per cent of the farmers were adopted the seedling selection of 1 to 2 years old and practicing the earthing up practices. The pit size and irrigation schedule of arecanut were adopted by 98.33 per cent of farmers respectively. Only a meager percentage of farmers were adopted the spacing (7.50 per cent) and seedling rate (6.67 per cent). The majority of the farmers are adopting 6 x 6 ft. spacing and 7 x 7 ft. spacing and they expressed that less spacing intrudes the less penetration of sunlight, easy carrying out the intercultural operations and reduces the evaporation rate in soil as reasons for adopting the lesser spacing when compared to recommended spacing. The majority (83.33 per cent) of farmers adopted the direction of rows in arecanut cultivation for reducing the direct sun rays. Almost all the farmers were adopted the (99.16 per cent) intercropping in the arecanut plantations. They are cultivating banana, agathi, turmeric as intercrops in arecanut plantations.

Adoption Level of Manures and Fertilizers

It could be seen from the table 2 that, cent per cent of the farmers were adopted the FYM/Green leaf manure recommended level and followed the recommended application method for manures and fertilizers. The application of recommended NPK level was adopted by 45.83 per cent of respondents and half of the farmers were not adopted the recommended fertilizer dose. They expressed that non availability of straight fertilizer during season time and they are adopting complex fertilizer. Nearly three fifth of farmers (59.16 per cent) were followed the recommended fertilizer application time. Two fifth (40.84 per cent) of farmers were adopted application of fertilizer in mid-November to December months i.e., karthigai pattam in Tamil. After harvesting of nuts the farmers were applied manures and fertilizers like goat manures, green leaf manures, organic cakes and FYM in addition to NPK fertilizers.

ADOPTION LEVEL OF PLANT PROTECTION TECHNOLOGIES

Adoption of Pest Control Measures

Regarding the adoption of pest control measures, 38.33 per cent of respondents were adopted the control measure for mite attack and 22.50 per cent of respondents adopted the control measure for the spindle bug attack. The inflorescence caters pillar control measure adopted by 35.83 per cent of respondents and nematode infestation control measures were adopted by 45.00 per cent of respondents. The control measure for scale attack, mealy bug and arecanut borer were adopted by 24.16, 12.50 and 21.67 per cent of farmers respectively. The snail attack was less in the study area and the farmers in the study area not adopted any control measures for snail attack. The root grub infestation is more in this area and the farmers were adopted the recommended pesticide (96.67 per cent) and pentatomid bug control measure was adopted by 15.83 per cent of respondents.

Adoption of Disease Control Measures in Arecanut Cultivation

The bud rot/mahali disease attack control measure was adopted by 15.83 per cent of respondents, foot rot/anabe and yellow leaf disease control measures was adopted by 97.50 and 98.33 per cent of respondents respectively. The farmers were adopted the control measures for leaf spot and inflorescence dieback infestations with 30.00 and 35.00 per cent respectively and only 8.33 per cent of respondents adopted the control measure for bacterial leaf stripe. The farmers were followed mostly organic practices to reduce the effect of disease attack in these areas. The spraying of neem oil, panchakavya, soap oil and application of neem, groundnut and castor cake were applied to reduce the effect of foot rot diseases.

Adoption of Control Measure for Disorders in Arecanut Cultivation

Arecanut crop is more sensitive to sunlight and wind. The farmers were followed Agathi as border crop to reduce the sunlight damage in the corner side of field and also they used to tie the dried leaves in the bottom of the palm to reduce the stem crack. The 17.50, 98.33 and 83.33 per cent of respondents in the study area adopt the recommended practices to avoid the disorders of nut crack, stem breaking and band/hidimundinge disorders.

Table 2: Distribution of Respondents According to their Adoption Level on Arecanut Cultivation (n=120)*

S.No	Technology	Number	Per Cent
I	**Crop Improvement Technology**		
1	Varieties	19	15.83
II	**Crop Production Technologies**		
1	Seedling selection	120	100.00
2	Pit size	118	98.33
3	Spacing	9	7.50
4	Seedling rate	8	6.67
5	Direction of rows	100	83.33
6	Irrigation	118	98.33
7	Intercropping	119	99.16
8	Earthing up	120	100.00
III	**Manures and Fertilizers**		
1	FYM/ Green leaf manure	120	100.00
2	NPK	55	45.83
3	Fertilizer Application time	71	59.16
4	Application method	120	100.00
IV	**Plant Protection Technologies**		
1	Control measure for mite	46	38.33
2	Control measure for spindle bug	27	22.50
3	Control measure for Inflorescence caterpillar	43	35.83
4	Control measure for Nematode	54	45.00
5	Control measure for scale	29	24.16
6	Control measure for Mealy bug	15	12.50
7	Control measure for arecanut borer	26	21.67
8	Control measure for snails	0	0.00
9	Control measure for root grub	116	96.67
10	Control measure for pentatomid bug	19	15.83
11	Control measure for bud rot/mahali	19	15.83
12	Control measure for foot rot/anabe	117	97.50
13	Control measure for yellow leaf disease	118	98.33
14	Control measure for leaf spot	36	30.00

Table 2: Contd.,			
15	Control measure for inflorescence dieback	42	35.00
16	Control measure for bacterial leaf stripe	10	8.33
17	Control measure for nut crack	21	17.50
18	Control measure for stem breaking	118	98.33
19	Control measure for band/hidimundige	100	83.33

(*) Multiple responses obtained

OVERALL ADOPTION OF RECOMMENDED ARECANUT TECHNOLOGIES

By using the cumulative frequency method the farmers were categorized as low, medium and high level of adoption of the recommended technologies in arecanut cultivation.

Table 3: Distribution of Respondents According to Their Overall Adoption of Recommended Technologies in Arecanut Cultivation (n=120)*

S.No	Level of Adoption	Number	Per Cent
1	Low	26	21.67
2	Medium	68	56.66
3	High	26	21.67

From the table 2 shows that the more than half of the respondents fall under the category of medium level of adoption with 56.66 per cent followed by 21.67 per cent of respondents had low and high level of adoption category respectively.

The crop production technologies and application of manures and fertilizers have medium to high level of adoption by the farmers in the study area. The crop improvement technologies and plant protection measures have the overall adoption from low to medium level of adoption.

CONCLUSIONS

The adoption of recommended technologies is highly important for crop improvement in agriculture. The majority of farmers (78.33 per cent) fall under low to medium level of adoption of recommended technologies in Arecanut cultivation. Farmers were adopted the crop production technologies and application of manures and fertilizers have fully adopted and adoption of variety and plant protection technologies adopted with modification. To get a higher percentage of adoption and yield, the extension workers have to conduct demonstrations and training in arecanut cultivation.

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