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Analysis of adoption level of post-harvest practices and value addition of Arecanut growers in Salem district of Tamil Nadu

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Abstract
Arecanut is a one of the cash crop in India. India accounts 49.74 per cent of its world production and ranks first in terms of production. In the process of harvesting and processing of nuts more than 30,000 farm workers are involved either directly or indirectly. An expost-facto research design was used for the study with a sample size of 120 arecanut farmers by employing proportionate random sampling technique. Four-fifth of the respondents (80.80 per cent) had medium level of overall adoption of post-harvest practices. Most of the respondents (90.83 per cent) assessed the nut maturity by skin colour of the nut. 79.17 per cent of the respondents harvested the nuts by tree climber with sickle and 20.83 per cent of respondents harvested their nuts by employing the local made harvester for harvesting of nuts. The 45.83 per cent of the respondents practiced hapi because it is preferred by traders.

Keywords: Arecanut, Post-harvest practice, value addition, harvesting factor

Introduction
Arecanut (Areca catechu) is an important cash crop. The pre-vedic period forwards arecanut is commonly used for religious rites, nuptical ceremonies, medicinal values and also for chewing, mastification purposes. It is referred as a traditional medicine in an Indian Ayurveda text. The medicinal properties of arecanut are astringent, antihelmentic, narcotics, vermifuge and alkaloids. The major arecanut growing countries in the world are India, China, Myanmar, Indonesia, Thailand and Bangladesh. From this India, China and South East Asia gained commercial and economic importance in arecanut in world. India accounts 49.74 per cent of its world production (FAO (2013) [5]. In India arecanut production is dominant in coastal regions around 400 kilometers. This study was carried out in Tamil Nadu with considering the major arecanut growing districts of Salem, Coimbatore, Namakkal, Erode, Nilgiris and Dharmapuri. From this Salem district accounts first in terms of area (2,421 hectares) under arecanut cultivation so it is purposively selected for study. In this district arecanut is majorly cultivated in Peddanaickenpalayam, Vazhapadi, Gangavalli and Attur blocks constitute 87.28 per cent of the total area under arecanut in this district. In the process of harvesting and processing of nuts more than 30,000 farm workers are involved either directly or indirectly including women. The harvesting of nuts ends on the Tamil month of 'Thai' and spread over six months in carrying out the post-harvest practices and marketing of nuts. The harvest of nuts comes down due to the drought, which leads to unemployment for those who are depending on arecanut harvesting and processing (Ananth, 2016) [1]. The farmers in the study area facing a lack of training on arecanut practices, the improper post-harvest practices affect the quality of nuts. The improper practices deteriorate the quality of nuts that causes the nuts to fetch lower price in the market. The knowledge level of post-harvest practices of arecanut is helps to impart the future trainings and demonstrations on arecanut post-harvest operations. This article explicit the knowledge level of farmers on the post-harvest practices in arecanut cultivation.

Materials and Methods

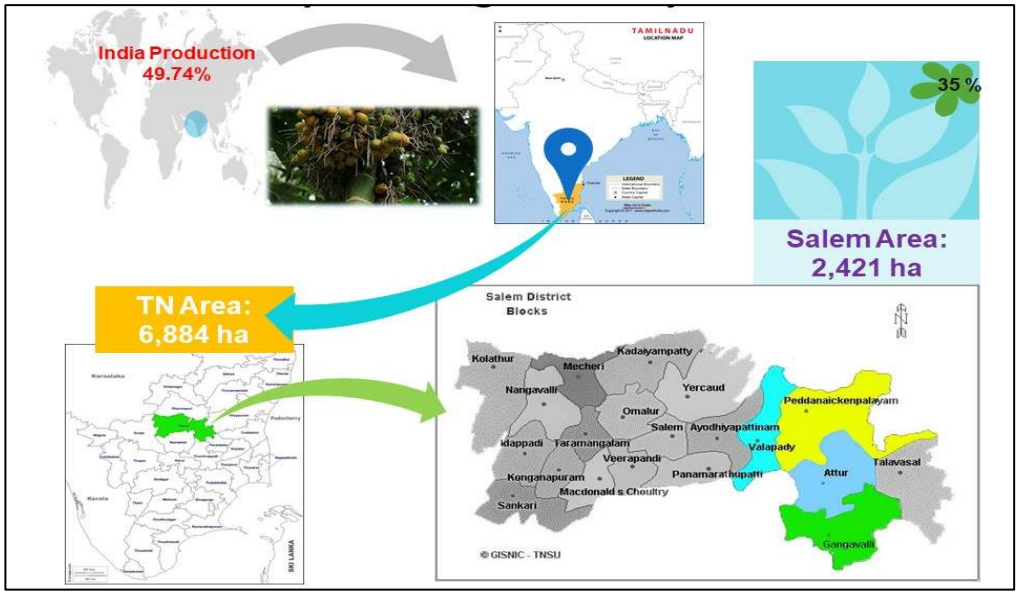

Fig 1: Map showing the study area

The Tamil Nadu was divided into seven horticulture zones with this north western zone has maximum production area under arecanut. In this zone comprises of Dharmapuri, Krishnagiri, Salem and Namakkal (Part). The maximum production area of arecanut was shared by Salem district with 2421 hectares of area with the annual production of 3445 tones. In Salem district Peddanackanpalayam, Valapady, Gengavalli and Attur blocks covers the area of 87.28 per cent under arecanut cultivation were purposively selected for the study. The total number of arecanut growers was collected from the concerned Assistant Director of Horticulture and respondents were selected from the four blocks by proportionate random sampling technique. The sample size of 120 arecanut farmers was selected for the study by using proportionate random sampling technique.

Table 1: Distribution of arecanut growers in the selected blocks

District	Blocks	Number of arecanut growers	Samples selected
Salem	Peddanackenpalayam	1050	52
	Valapady	715	36
	Gengavalli	420	21
	Attur	220	11
	Total	2405	120

***Source*:** Assistant Director of Horticulture office Peddanackenpalayam, Valapady, Gengavalli, Attur

The data was collected by well-structured and pre tested interview schedule. For statistical analysis percentage analysis were employed for analysis and interpretation of marketing pattern of arecanut growers.

Results and Discussion

Post-harvest practices of arecanut growers: Post-harvest practice is important for arecanut and the steps in post-harvest starts from the harvest to final consumption of the products and by-products.

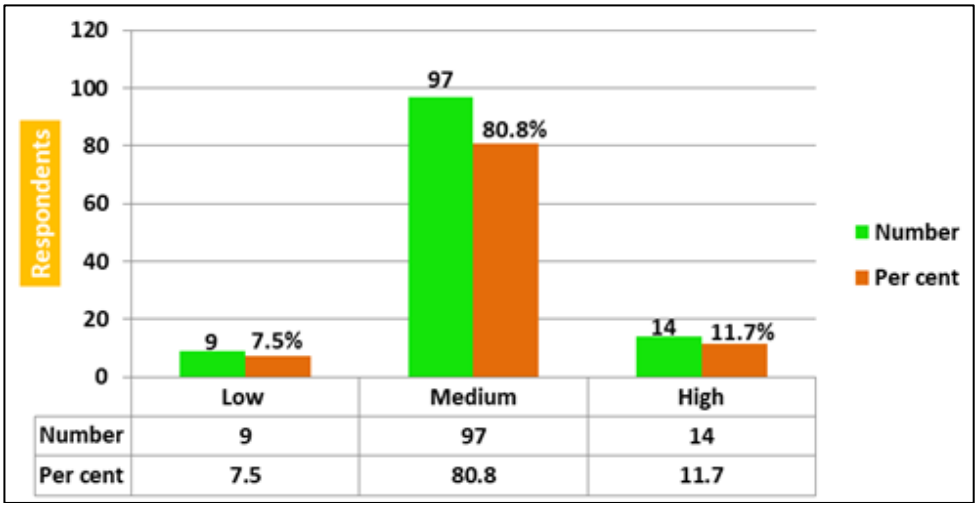

Chart 1: Overall adoption level of post-harvest practices

In the post-harvest practice of adoption, four-fifth of the respondents (80.80 per cent) had medium level of overall adoption of post-harvest practices followed by 11.70 per cent of respondents had high level of overall adoption of post-harvest practices and remaining 7.50 per cent of respondents had low level of overall adoption of post-harvest practices in the arecanut.

1. Post-harvesting of arecanut

Harvesting plays an important role in post-harvest of arecanut. In this study the factors were assessed based on nut maturity, harvesting factor, stage of harvesting, time of harvesting, method of harvesting and dehusking were studied and the results are presented below.

Table 2: Distribution of respondents according to their post-harvest practices (n=120*)

S. No	Post-Harvest practices	Number	Per cent
I	**Assessment of Nut maturity**		
1.	Skin colour of the nut	109	90.83
2.	Days from blooming	11	9.17
II	**Harvesting factors**		
1.	Nut maturity	113	94.17
2.	Calendar date	0	0.00
3.	Season	7	5.83
III	**Time of harvesting**		
1.	Morning	120	100.00
2.	Afternoon	0	0.00
3.	Evening	0	0.00
IV	**Method of harvesting**		
1.	Local made harvester	25	20.83
2.	Tree climber with sickle	95	79.17
V	**Method of Dehusking**		
1.	CPCRI tool	0	0.00
2.	Dehusker machine	3	2.50
3.	Knife	110	91.67
4.	Blade	7	5.83
VI	**Factors influencing Grading**		
1.	Broken nuts	57	47.50
2.	Type of nut	50	41.67
3.	Skin color of the nut	1	0.83
4.	Size of nut	12	10.00

(*) Multiple responses obtained

1.1 Assessment of nut maturity

A perusal of the above table 2 reveals that most of the respondents (90.83 per cent) assessed the nut maturity by skin colour of the nut and remaining 9.17 per cent assessed the nut maturity by days from blooming of the nut. The visual method of assessing the nut maturity is important in knowing the ripen stage there by harvesting of nuts.

1.2 Harvesting factor

The above table 2 reveals that 94.17 per cent of respondents harvested the nuts based on nut maturity followed by very meager percentage of respondents (5.83 per cent) based on season of harvest.

1.3 Time of harvesting

The above table 2 reveals that cent per cent of the respondents harvest their production in morning time. The morning time is suitable for the labours to harvest the nuts effectively to sorting out of nuts and to carry out for processing in the afternoon time.

1.4 Method of harvesting

It is inferred from the above table 2 which reveals that nearly four-fifth of the respondents (79.17 per cent) harvested the nuts by tree climber with sickle and remaining one-fifth of the respondents (20.83 per cent) harvested their nuts by employing the local made harvester for harvesting of nuts. The local made harvester is made of long bamboo stick with cutting blade and circular ring with collection bag attached to the stick. In the study area local made harvester was employed to harvest when the age of tree is below 10 years. When it exceeds above 10 years of age, tree climber with sickle was used for harvesting of nuts. Most of the palms in the study area were more than 10 years of life and there by harvesting are carried out by tree climber with sickle.

1.5 Method of Dehusking

Dehusking in arecanuts is done by the following methods *viz*., CPCRI tool, Dehusker machine, knife and blade. It is inferred that majority of the respondents (91.67 per cent) in the study area were dehusking their nuts by using knife followed by a meager percentage of respondents (5.83 per cent) using blade for the dehusking of nuts. Only a meager percentage of respondents (2.50 per cent) in the study area were dehusking nuts by using dehusker machine and they are the pre-harvest contractors in that area. The respondents in the study area were not aware of CPCRI tool for dehusking the nuts.

1.6 Factors influencing Grading

The grading of nuts is done by the following factors *viz*., broken nuts, type of nut, skin colour of the nut and size of the nuts. It is evident from the above table 2 that nearly half of the respondents (47.50 per cent) graded their production by broken nuts followed by 41.67 per cent of respondents graded by type of nuts and 10.00 per cent of respondents graded their production by size of nuts. A very meager percentage of respondents (0.83 per cent) graded their nuts by skin colour of the nut. The farmers graded their production by broken nuts and type of nuts like Kotapak, hapi and kalipak. These graded nuts fetch high price in the market.

2. Value addition of arecanut

Value addition is the adding value to the production that makes the production in converting into other forms. The value addition of arecanuts were enquired and presented in the following.

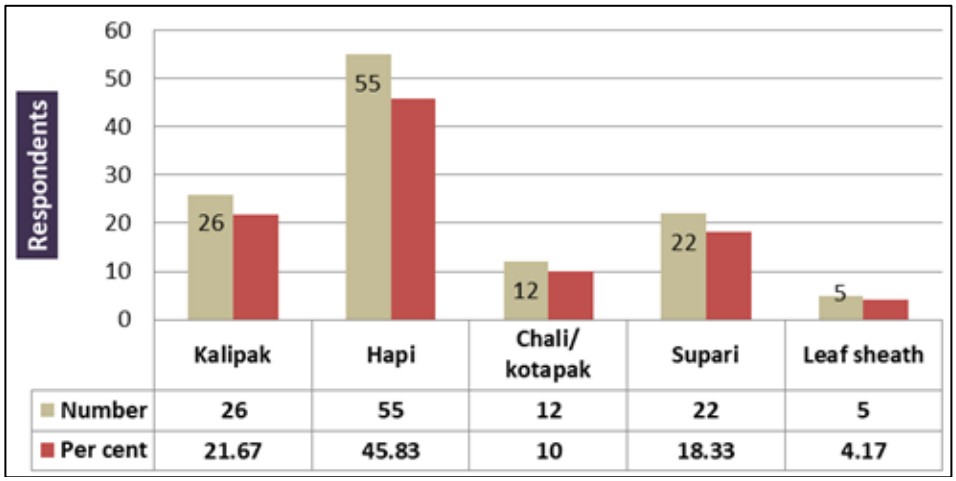

Chart 2: Value addition of arecanut

The 45.83 per cent of the respondents practiced hapi followed by kalipak with 21.67 per cent and one-tenth of the respondents (10.00 per cent) practiced chali/kotapak. The hapi type of nuts is preferred by the traders so the most of the respondents adopted and followed the hapi type of nuts. The farmers adopted the kalipak, hapi and kotapak when the price of nuts is low and they practice the processing and sold it in the markets. If the production and price is ideal farmers, they sold the raw nuts to the pre-harvest contractors in turn they carried out the value addition and sold in the market. It is evident that nearly one-fifth of respondents (18.33 per cent) practiced suparis and 3.33 per cent of farmers in the study area were converting the areca leaf sheath into areca plates. They procured the arecanut leaf sheath in nearby areas at cost of 1- 1.50 rupee per sheath for making areca leaf plate.

Plate 1: They procured the arecanut leaf sheath in nearby areas at cost of 1- 1.50 rupee per sheath for making areca leaf plate

Conclusion

The post-harvest practice and value addition of an arecanut are the two major determinants in type, quality and grade of nuts in marketing. In this study area there were 30,000 farm families depend on the post-harvest practices of an arecanut. It significantly influences the livelihood of the farmers. The state department officials and stakeholders are also working to strengthen the post-harvest and value addition to raise the income of the families. They are giving trainings and method demonstrations on the post-harvest and value addition practices. Because the price of the nut is mainly decided by the quality, so the post-harvest and value addition plays a major role in arecanut production. In this area the post-harvest practices and value additions are done in the cottage industries and the farms. When the production of nuts is low the farmers themselves value added the nuts and sell it in the nearby markets. From this we concluded that the majority of farmers following the post-harvest practices and value addition based on climatic condition and marketing influence of the nuts. This article pictures out the adoption level of post-harvest practices and the value added practices in arecanut.

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