

## Constraints faced in production and marketing of arecanut in Karnataka

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**Abstract:** The arecanut is one of the most important crops grown in Karnataka and the state's area under arecanut cultivation has nearly doubled in the last 15 years. Shivamogga, Davanagere, Chikkamagaluru, Dakshina Kannada, Tumkur and Uttara Kannada are the major arecanut producing districts of Karnataka, the accounting for a sizable share of 60 per cent of the area and 65 per cent of arecanut production in the state. The random sampling method was used for selection of arecanut growers and four districts were selected namely Dakshina Kannada, Chikkamagaluru, Davanagere and Shivamogga. Each districts two talukas were selected based on highest area and production of arecanut, each talukas six villages were selected and four farmers from each village were chosen for the study. Thus a total of 192 arecanut farmers were selected. To analyse the problems faced by the market intermediaries five traders, five wholesalers, five pre harvest contractors and five retailers were selected from talukas from selected districts. The total marketing intermediaries were 160. Thus, the total sample size was 360. The majority of the farmers are facing problems in production mammalian pest attacking on arecanut bunch (73.56) in Davanagere district, high wage rates of labour in Chikkamagaluru and incidence of pest and diseases attack in Shivamogga and Dakshina Kannada districts. In case of arecanut marketing problems were lack of storage facilities, poor transport facility and price fluctuations. The need of present era is to increase the productivity of arecanut crop. This could be achieved by adopting improved production practice, high yield varieties and new technologies of crop.

**Key words:** Constraints, Diseases, Lack of labour, Market intermediaries, Pest, Power supply, Price fluctuations

### Introduction

The arecanut palm (*Areca catechu* L.) is a significant commercial and business crop of India. It plays an important role in the political, social and cultural functions and the economic life of people in our country. The arecanut has spread its uses in Ayurvedic and veterinary medicines of animals. Arecanut in our traditional country, which is growing in large quantity in many countries like India, Malaysia, Sri Lanka, Indonesia, Philippines and some of the Pacific Islands. It is called as "betel nut" and is used mainly for masticatory purposes by the people of India. The raw kernel is chewed by Indian population in tender, ripe and processed form. It is processed and used into panmasala, gutkha, scented supari etc. are some treated which are more popular in the country. The cultivation of arecanut production can be traced back to Vedic periods, where we can see the use of it.

Arecanut has much importance in the life of Indians since pre-vedic times of this traditional country. This practice of having 'Tambula' as it is described in the Vedic literature has been as ancient period of the Indian civilization itself. In the literature of Vedic period, there are some evidences to show that arecanut began to occupy a very prominent place in the religious ceremonies such as child birth, marriage, nuptial ceremonies and extending hospitality to guests of our culture. It is a common practice of Indians, even today in Hindu religious ceremonies to offer two betel leaves for guests and one betel nut with that is called as 'Tambula' with the image of God during worship. Further, arecanut has many medicinal properties for the people, chewing arecanut is said to have as one of the tonic

effect on the body and it is expected to have nerve system stimulating and ayurvedical properties. Hence, it is chewed after a sumptuous lunch is good for health conscious and after dinner. It aids for the digestive system due to these qualities of 'Tambula'.

The leaf-sheath of arecanut is used in converting into many by products like throw- away cups, plates, hard boards and picture mounts. The arecanut stem is used to construct small bridges and for making a variety of elegant utility articles. The leaves of betel nuts serve as a good source of organic manure for its cultivation. The main by-products of arecanut leaves are used for extraction of fat and alcohol. It is used in the manufacturing of healthy toothpaste and chewing gum (this is recent product). Tannins obtained from processing of tender nut. Chogaru is used for converting of tanning leather, dying clothes and as a perfect colorizing agent. The husk of arecanut is used and processed in the manufacture of wrapping paper and cushions. It is also used in medicinal purposes for the diseases like leucoderma, cough, fids, anemia, diabetics and skin diseases. It acts as a cofactor in digestive system of human body. It is used in pharmacological activities such as hypoglycemic effect, mitotic activity, anathematic activity etc.

The arecanut is one of the most important crops grown in Karnataka and the state's area under arecanut cultivation has nearly doubled in the last 15 years. Shivamogga, Davanagere, Chikkamagaluru, Dakshina Kannada, Tumkur and Uttara Kannada are the major arecanut producing districts of Karnataka, accounting for a sizable share of 60 per cent of the area and 65

per cent of arecanut production in the state. According to the report of the Department of Horticulture, Government of Karnataka, 2018-19 the Dakshina Kannada (21.35%, 14.89%), Shivamogga (19.84%, 18.14%), Davanagere (12.33%, 15.54%) and Chikkamagaluru (10.94%, 8.29%) area and production of arecanut cultivation respectively.

In Karnataka state, there are different types of arecanut are being produced *viz.*, chali, chogaru, saraku and rashi. Among different types of arecanut, the chali alone contributes for more than 40 per cent of the total arecanut production and which is confined mainly to Dakshina Kannada, parts of Uttara Kannada and Chikkamagaluru districts. Further, the Saraku/Rashi type of arecanut accounts for about 60 per cent of the arecanut production and its growing confined to Shivamogga, Davanagere, Chikkamagaluru and parts of Chitradurga district.

Arecanut is the major source of livelihood for small and marginal farmers. Long pre bearing period, fluctuations in market prices, unexpected loss due to adverse environmental conditions, pests and diseases *etc.* are some of the major problems in arecanut cultivation. Diverse agricultural production systems had been practiced by arecanut growers due to diverse agro-climatic conditions. But in the last four to five decades, traditional agriculture was mostly neglected in favour of the modern and intensive agriculture. This had a negative impact not only on agriculture but also on the economy, environment and social life of people. Kerala and Karnataka states account for about 70 per cent of country's production. Arecanut consumption in the country is around 3.3 lakh tonnes. The need of present era is to increase the productivity of arecanut crop. This could be achieved by adopting improved production practice, high yield varieties and new technologies of crop. Efforts are made to transfer these recommendations among the arecanut growers by the extension workers. However, it has been observed that arecanut growers are still following their age old practices of arecanut cultivation. The practices followed by the arecanut growers of Karnataka have not been systematically documented so far. Hence, the study was undertaken on problems experienced by farmers in production and marketing of arecanut.

### Material and methods

The random sampling method was used for selection of arecanut growers and four districts were selected namely Dakshina Kannada, Chikkamagaluru, Davanagere and Shivamogga based on highest area and production in the state, since these four districts were accounted more than 70 per cent of area and 80 per cent of production of arecanut in the state during the year 2018-19 and also the processing units were concentrated in these arecanut producing districts. Two talukas were selected from each district based on area and production of arecanut and from each talukas six villages were selected. From each village four farmers were selected randomly. Thus, total sample size of farmers was 192.

To analyse the problems faced by the market intermediaries five traders, five wholesalers, five pre harvest contractors and five retailers were chosen from each taluka from selected

districts. The total marketing intermediaries were 160. Thus, the total sample size was 352.

Garrett's ranking technique was used in the change of orders of constraints of farmers and market intermediaries into numerical scores. The major advantage of this technique as compared to simple frequency distribution was that the constraints were arranged based on their importance from the point of view of respondents. Hence, the same number of respondents on two or more constraints may have been given different rank.

Garrett's formula for converting ranks into per cent was given by

$$\text{Per cent position} = \sum_{j=1}^n \frac{100 \times (R_{ij} - 0.5)}{N_j}$$

Where,  $R_{ij}$  = Rank given for  $i$ th factor by  $j$ th individual

$N_j$  = Number of factors ranked by  $j$ th individual

The per cent position of each rank then converted into scores referring to the Table given by Garret and each factor, the scores of individual respondents were added together and divided by the total number of the respondents for whom scores were added. These mean scores for all the factors were arranged in descending order, ranks were given and most important factors were identified.

### Results and discussion

#### Constraints faced in production and marketing of arecanut

The constraints faced by the farmers, market intermediaries like pre-harvest contractors, traders and wholesalers was studied in detail and analyzed using Garret's ranking. The results and discussion were presented below.

#### Production constraints faced by the arecanut farmers

The constraints faced by the farmers in Davanagere district were calculated using the garrett's score, the highest garrett score was obtained for the incidence of mammalian pest with 73.56 garrett score followed by non availability of labour as well as high wages rates with the garrett score of 65.10, incidence of pest and disease was the third problem with the score of 64.02 and the last problem that was listed to be non availability of good planting materials with a garrett score of 26.73. The mammalian attack was maximum as they attack to the plantation during the time of formation of nuts in the tree which causes heavy loss as opined by the farmers. The farmers also opined that there was a non availability of the labours for the operational purpose in the field such as labour required for irrigation and harvesting purposes. The demand for the high wage rates by the labour has become the major constraint for the farmers.

With respect to the constraints faced by the farmers of Shivamogga district during arecanut production. The first and foremost problems were observed to be incidence of pest and disease with the garrett score of 74.19 followed by incidence of mammalian pest with 67.56 score, non availability of labour or high wages of labour with 67.55 and high cost of inputs in

*Constraints faced in production and marketing .....*

Table 1. Constraints faced by the farmers in arecanut production in study area

Problems	Davanagere		Shivamogga		Chikkamagaluru		Dakshina Kannada	
	Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank
Mammalian pest (Rats, Squirrels and Monkeys)	73.56	I	67.56	III	69.30	II	67.25	III
Non-availability of labour / High wages of labour	65.10	II	67.55	II	75.88	I	52.85	V
Incidence of pest and diseases	64.02	III	74.19	I	67.25	III	75.50	I
Limited and irregular power supply	60.75	IV	50.52	V	60.72	IV	67.67	II
High cost of inputs	50.67	V	52.90	IV	52.83	V	43.23	VIII
Increased weed production	49.10	VI	37.17	VIII	39.60	IX	35.13	IX
Higher initial investment	39.54	VII	45.33	VI	46.25	VII	55.75	IV
Lack of technical knowledge	35.81	VIII	28.21	X	27.81	X	44.96	VII
Lack of improved harvesting techniques	33.46	IX	30.88	IX	50.25	VI	49.94	VI
Non-availability of good planting materials	26.73	X	43.71	VII	44.60	VIII	28.40	X

fourth rank with the score of 52.90, limited power or irregular supply with the score of 50.52 and the last problem was lack of technical knowledge with the score of 28.21. As the district comes under the malnad region due to climatic factors the incidence of pest and disease was more which one of the major problem.

With respect to the constraints faced by the farmers in Chikkamagalur district in arecanut production. The non availability of the labour and high wage rates was the first and foremost problem opined by the farmers with the garet score of 75.88 and lack of technical knowledge with the garrett score of 27.81. Majority of the farmers were large and medium sized utilizing the services of migrated people mainly from north east by providing all necessary amenities at the farm in order to curtail the labour issue.

The constraints faced by the farmers of Dakshina Kannada district is also observed in the table that, the farmers were facing as per the garet score was incidence of pest and diseases with the score of 75.50 because of heavy rainfall during the season and the last constraint observed that non availability of good planting materials with the garet score of 28.40 from Table 1. The overall observations were online with the results of Desai (2016) and Mohanraj and Velusamy (2020)

**Marketing constraints faced by arecanut farmers in the study area**

In Table 2 are presented the problems faced by the farmers in marketing of the arecanut in the study area of four districts. The farmers of Davanagere district opined the first problem as

the lack of storage facility which was registered with the garrett score of 69.31 followed by the poor transport facility 69.00. In the Davanagere district there were no storages facilities due to absence of societies and poor transportation it was ranked second problem.

With respect to the farmers of Shivamogga, the first problem that they faced was price fluctuations which were observed with the garet score of 74.75 followed by poor transportation facility with 59.35 with garet score. The farmers opined that price fluctuation was more because of in the season there was a first time harvesting was got high price and followed by second time harvest was lesser coated and while poor transportation because grower was road facility was not good in Shivamogga district.

The farmers of Chikkamagaluru district faced the first problem to be lack of storage facilities with the score of 73.81 followed by lack of financial support for marketing with the score of 58.44, price fluctuations with the score of 56.33, poor transport facility which had a garet score of 54.65.

The farmers opined that due to non availability of the storage godowns the farmers were forced to sell the produce in the market for the price was available also termed as the distress sale of the produce. The farmers demand as like the government provides subsidy in purchase of equipments in the similar line there was a demand for the financial support for marketing of the produce.

Farmers of Dakshina Kannada district opined the first problem with respect to marketing was high transportation cost

Table 2. Constraints faced by the farmers in arecanut marketing

Problems	Davanagere		Shivamogga		Chikkamagaluru		Dakshina Kannada	
	Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank
Lack of storage facilities	69.31	I	55.23	V	73.81	I	60.38	IV
Poor transport facility	69.00	II	59.35	II	54.65	IV	62.19	III
Price fluctuations	61.33	III	74.75	I	56.33	III	67.25	II
Poor market intelligence	55.33	IV	51.60	VII	49.62	VII	60.38	VII
Non availability of market facility near farm	54.85	V	56.33	IV	52.60	VI	56.13	V
Financial support for marketing	46.63	VI	51.60	VI	58.44	II	43.13	VI
High transportation cost	44.04	VII	54.44	III	48.15	VIII	68.06	I
Delay in payment after sale	31.00	VIII	49.52	VIII	46.18	IX	33.60	VIII
Exploitation by middle man	19.00	IX	46.15	IX	53.81	V	21.60	IX

Table 3. Constraints faced by the Pre-harvest contractor cum processors in study area

Problems	Davanagere		Shivamogga		Chikkamagaluru		Dakshina Kannada	
	Garrett score	Rank	Garrett score	Rank	Garrett score	Rank	Garrett score	Rank
Price fluctuation	74.80	I	78.60	I	62.60	III	68.06	II
Lack of labour	64.30	II	70.70	II	73.75	I	73.75	I
More physical loss in storages	61.20	III	60.20	III	63.30	II	50.52	VI
Lack of transportation facilities	55.70	IV	53.60	IV	53.65	V	63.75	III
Procurement problems	54.80	V	52.50	V	56.75	IV	59.60	IV
Credit inadequacy	47.60	VI	45.80	VI	46.81	VI	54.75	V

with the garet score of 68.06 followed by price fluctuations with 67.25 score. Due to poor road facility because small and kaccha road farmers even are facing high transportation cost was more, farmers are facing price fluctuations of the arecanut in the market. Similar findings have been observed in study conducted by Chintey (2017) and Tigari and Rajamma (2019).

**Constraints faced by the Preharvest contractors cum processors in study area**

Table 3 presented the constraints faced by the preharvest contractors in the study area. For the study a total of 40 preharvest contractors were interviewed in four districts considered for the study. For Davanagere district, the first problem was a price fluctuation with garet score of 74.80 followed by lack of labour 64.30, more physical loss in storage with the score of 61.20. In case of preharvest contractors of Shivamogga district, price fluctuation with the garet score exhibiting the score of 78.60 followed by lack of labour with the score of 70.70, physical loss during storage with the score of 60.20. The table also depicts the problems faced by preharvest contractors of Chikkamagaluru district. As it can be observed from the table the lack of labour was the first problem that was faced by contractors which was expressed with the garet score of 73.75 followed by loss of the produce during storage 63.30, price fluctuation switch the score of 62.60. With respect to the Dakshina Kannada, the preharvest contractors faced non availability of the labour was major problem with the garet score of 73.75 followed by price fluctuations 68.06 score, lack of transportation facilities with the score of 63.75. Due to high fluctuations in the price the pre-harvest contractors were unable to go for negotiations as there was loss during the storage period. The respondents expressed that they were facing the physical loss of the produce during the storage facility due to incidence of pests. Labour was another problem as was expressed, due to high wage the requirement of labour has

become the major issue. Because arecanut plantation need a skilled labour for harvesting and dehusking. Due season time there was lack of labour faced by the pre-harvest contractor. Similar finding has been reported by Ananthakumar (2014).

**Constraints faced by traders in study area**

Constraints faced by traders in study area were presented in Table 4. A total of 10 traders from each district were selected. In Davanagere district the first problem traders faced was loss of produce during storage with garet score of 71.32 followed by lack of labour with the score of 53.60, procurement problems were with the score of 53.60.

With respect to the traders of Shivamogga district, the first problem was lack of labour with the score of 71.80 followed by procurement problems 61.90, physical loss during storage 55.60 and high rent charges 53.20.

In case of Chikkamagaluru, high rent charges was found first and foremost problem with the score of 72.63 followed by lack of labour 61.50, physical loss during storage 56.15, procurement problems 53.36 and price fluctuations 51.72.

In Dakshina Kannada district, price fluctuations were the first and foremost problem that was observed with 70.40 of garet score followed by lack of labour with the score of 61.00 and procurement problems with score of 50.90. The constrains was expressed by the traders in the study area regarding storage. Because of less storage facilities in the villages the farmers. The other problems observed were lack of labour and procurement problems due high cost of procurement charges, reduction in quality of material, majority of the farmers were the members of the different marketing agency and they sell the produce directly to the cooperative societies and marketing agency at the competitive price which has affected the trading business of the traders. Similar finding has been observed by Rao *et al.* (2011)

Table 4. Constraints faced by traders in study area

Problems	Davanagere		Shivamogga		Chikkamagaluru		Dakshina Kannada	
	Garrets score	Rank	Garrets score	Rank	Garrets score	Rank	Garrets score	Rank
More physical loss in storages	71.32	I	55.60	III	56.15	III	44.70	VII
Lack of labour	53.60	II	71.80	I	61.50	II	61.00	II
Procurement problems	53.60	III	61.90	II	53.36	IV	50.90	IV
Price fluctuations	51.63	IV	51.80	V	51.72	V	70.40	I
High rent charges	48.51	V	53.20	IV	72.63	I	49.50	V
Credit inadequacy	45.20	VI	36.30	VII	48.50	VII	46.50	VI
Lack of transportation facilities	42.75	VII	51.20	VI	50.60	VI	52.80	III

*Constraints faced in production and marketing .....*

Table 5. Constraints faced by wholesalers in study area

Problems	Garrets score	Rank	Garrets score	Rank	Garrets score	Rank	Garrets score	Rank
Lack of labour	69.32	I	58.60	III	61.10	II	46.25	V
Procurement problems	58.60	II	62.30	I	72.60	I	45.33	VI
More physical loss in storages	50.25	III	57.90	IV	56.15	IV	48.60	IV
High rent charges	49.60	IV	51.25	V	46.30	VI	71.45	I
Credit inadequacy	44.45	V	61.30	II	57.60	III	51.65	III
Lack of transportation facilities	44.10	VI	48.60	VI	53.60	V	59.60	II

**Constraints faced by wholesalers in study area**

Table 5 presented the constraints faced by the wholesalers in study area. A total of 10 wholesalers from each district were selected. With respect to Davanagere district, the first problem was observed lack of labour with garet score of 69.32 followed by procurement problems 58.60, physical loss during storage 50.25 and high rent charges 49.60. The wholesalers of Shivamogga district expressed procurement problems with garet score of 62.30 followed by credit inadequacy of 61.30, lack of labour 58.60 and physical loss during storage 57.90. In case of Chikkamagaluru district the first problem was observed procurement problems with the garet score of 72.60 followed by lack of labour with score of 61.10, credit inadequacy 57.60 and physical loss in storage 56.15. Similarly in case of Dakshina Kannada district was high rent charges with garet score 71.45 followed by lack of transportation cost with score of 59.60. The wholesalers opined that they were facing the constraints of

lack of labour in loading and unloading of the arecanut bags and for other operational purposes as the wages are increasing day by day and the demands that were put forth by the labourers was also more. The major incidence of mammalian pests during the storage process which has lead to the heavy loss in the physical quantity. The results obtained were on par with the results of Hemambara and Yogesh (2014).

**Conclusion**

The study was concludes that majority of the farmers are facing the problems of mammalians, high wage rates, limited power supply and some other problems pertaining to the production. With respect to marketing component, farmers are facing the lack of storage facilities, poor transport facilities. High price fluctuations and some other problems such as lack of market intelligence about the prices prevailing in the markets. There is a need of perpetual planning and assistances by the government, cooperative federations which help the farmers to gain more profit

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