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## Study on extent of adoption of factors influencing quality and extent of post-harvest technologies followed by arecanut growers of Uttara Kannada district

**Vinoda Shankara Naik and SL Patil**

### Abstract

The study was conducted to know the extent of adoption of factors influencing quality and extent of post-harvest technologies followed by arecanut growers. It was conducted during 2015-16 in Uttara Kannada district of Karnataka. Sirsi, Siddapur and Yellapur talukas of Uttara Kannada District were selected for the study in the view of their highest share in area and the production in the district. The ex-post-facto research design was used to select 180 samples for the study. A well-structured pre-tested interview schedule was used to collect the data through personal interview method and analysed by using frequency and percentage. Large majority of the arecanut growers adopted all the quality and price influencing practices like harvesting of fully ripened nut of arecanut for preparation of ripednuts (98.89 %) followed by sun drying for 40-45 days and dehusking the matured fruits (97.78 %). Further, majority (98.89 %) of arecanut growers had adopted riped nut processing followed by tender nut processing (94.44 %). In tender nut processing an equal percentage (90.00 %) of arecanut growers adopted grading like rashi/bette (without fibre on kernel) and kempgotu (with fibre on kernel). Whereas, in riped nut processing majority (96.67 %) graded their produce like chali (without fibre on kernel) followed by biligotu (93.33 %) and Koka (93.33 %). Related to marketing pattern nearly 44.00 per cent of the respondents sold the produce in TSS while 31.11 per cent of arecanut growers sold their produce in TAPMCS.

**Keywords:** Post-harvest technologies, dehusking, riped nut processing, tender nut processing, rashi/bette, kempgotu, chali, choragu, biligotu, Koka

### Introduction

Arecanut (*Areca catechu* L.), being a highly profitable commercial plantation crop, it is important to understand the package of practice to be followed in an arecanut garden and adopt the same for retaining the quality and to maximize the returns. Arecanut requires abundant and well distributed rainfall. It grows well within the temperature range of 14-36°C. It can be cultivated up to an altitude of 1000m in deep and well drained soils with low water table. Laterite, red loam and alluvial soils are most suited. Major portion of the arecanut production is exported to countries like Nepal, Singapore, Kenya, Saudi Arabia and United Kingdom in various forms. The important factors affecting the quality of arecanut are colour, tenderness, shape, weight etc. In Karnataka, 90.00 per cent of the total production of arecanut is processed. There are mainly two types of processing in arecanut such as Chali (ripe sun dried nuts) and Rashi (tender boiled nuts). Chali is mainly produced in Dakshina Kannada district and parts of Chickmagalur and Uttara Kannada district. It is used in preparation of scented supari and is having great demanded in Northern India. Rashi (tender boiled nuts) is prepared in Shimoga and Chickmagalur districts and is used for chewing. This type has a greater demand in Southern India. The arecanut products include herbal mouth wash, writing ink, heel ointment, cola type soft drink, mouth fresheners, etc. Gutka, pan masala, 'kaju supari' had ingredients such as cashewnut and arecanut can be consumed completely.

Harvesting of nuts at corrected stages is very important for obtaining the produce of better quality. In chali preparation, only ripe nuts are harvested. After harvesting, ripe nuts will have to be sun-dried for about 45 days. Proper drying of the nuts is important to prevent fungal infection of the nuts in the drying yard. Turning of nuts once in a week may be attended to ensuring uniform drying and better quality of produce. If market requirement is for the processed tender nuts, harvesting green fruits at an stage of about 6 months maturity is essential to retain the quality and matured fruits fetches low price in the market.

Post-harvest technology forms an important component of any agricultural system. It is vital in all circumstances, whether there is surplus or deficit. A lot has been done on the dissemination

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of technologies which reduces post-harvest losses in India, but very little has been done to evaluate the adoption of such technologies. This study also evaluated the extent of adoption of post-harvest technologies by arecanut growers. The study is designed with the following specific objectives.

1. To identify the factors influencing the quality and price of arecanut.
2. To study the extent of post-harvest technologies followed by arecanut growers.

### Material and methods

The study was conducted during the year 2015-16 in Uttara Kannada district of Karnataka. Sirsi, Siddapur and Yellapur talukas of Uttara Kannada District were selected for the study in the view of their highest share in area and the production in the district. From each taluka four villages were selected randomly. Totally twelve villages and from each village fifteen arecanut growers were selected randomly to make the total sample of 180. The *ex-post-facto* research design was used for the study. A pre-tested interview schedule was used to collect the data through personal interview method.

To know the factors influencing the quality and price of arecanut, a list of factors influencing the quality and price of arecanut were prepared after extensive review of literature and consulting horticulture scientists. Further, based on the personal interview the arecanut growers were asked to give their response in terms of their adoption and non- adoption. These responses were analysed using frequency and percentage.

To know the extent of post-harvest technologies followed by arecanut grower, a list of post-harvest technologies were prepared after extensive review of literature and consulting horticulture scientists. Further, during interview the arecanut

growers were asked to give their response regarding various post-harvest operations practiced by them. The results obtained were analysed using frequency and percentage.

### Results and discussion

#### Extent of adoption of factors influencing quality and price of the arecanut

The results of the Table-1 indicates that, large majority of the arecanut growers adopted all the quality and price influencing practices like harvesting of fully ripened nut of arecanut for preparation of ripenednuts (98.89 %) followed by sundrying for 40-45 days and deshuking the matured fruits (97.78 %), harvesting of nut of 6-7 month old to obtain tender nuts (94.44 %), turning of arecanut once in a week to get fully and uniformly dried (90.00 %), addition of choragu (kali) to improve shineness (90.00 %) and spreading of the nut uniformly in a layer (89.44 %). The results indicates that, large majority of the arecanut growers adopted all the quality and price influencing practices. The reasons for adoption of these practices as recommended are the simple to understand and low cost which can be practiced by making use of their knowledge and their own resources without depending on any external agency. Further, arecanut growers with their farming experience might have realized the usefulness of practices and also convinced about the profitability and practicability of these recommendations. Bihon (2015) <sup>[1]</sup> Identified that seed and fertilizers were one among the factors influencing quality and price of agriculture production. Reddy *et al.* (2003) <sup>[5]</sup> reported that management factors such as planting method, seeding rate, population density, sowing time, fertilizer, irrigation, weed control, intercropping and abiotic stresses such as drought and salinity were influencing the quality of crop residue.

**Table 1:** Extent of adoption of factors influencing quality and price of the arecanut (n= 180)

S. No.	Quality and price factors	Extent of adoption	
		Adopted	Not adopted
		F (%)	F (%)
1	Harvesting of fully ripened nuts of areca for preparation of ripened nuts	178(98.89)	2(1.11)
2	Sundrying for 40-45 days and deshuking the matured nuts	176(97.78)	4(2.22)
3	Spreading of the nuts uniformly in a layer	161(89.44)	19(10.56)
4	Turning of the arecanuts once in a week to get fully and uniformly nuts	162(90.00)	18(10.00)
5	Harvest nuts of 6-7 month old to obtain tender nuts	170(94.44)	10(5.56)
6	Addition of chogaru (kali) to improve shineness of tender nut	162(90.00)	18(10.00)

f – Frequency, % - Percentage

#### Extent of post-harvest technologies followed by arecanut growers

The result in the Table-2 revealed that majority (98.89 %) of arecanut growers had adopted ripened nut processing followed by tender nut processing (94.44 %). In tender nut processing an equal percentage (90.00 %) of arecanut growers adopted grading like rashi/bette (without fibre on kernel) and kempgotu (with fibre on kernel). Whereas, in ripened nut processing majority (96.67 %) graded their produce like chali (without fibre on kernel) followed by biligotu (93.33 %) and koka (93.33 %). The reasons for this might be that the produce which is processed and graded would fetch a better price because of its good quality and fine grading. The arecanut growers might be expecting a fair and competitive price for their produce so they followed processing and

grading activities. Mohanakumara *et al.* (2016) <sup>[4]</sup> reported with respect to individual post-harvest management practices that large majority of the respondents harvesting their produce by sickle, majority of the respondents followed the practice of beating with sticks. Over one third of the respondents adopted grading by manual winnowing at the time of cleaning, majority of respondents adopted transportation by tractor. Chavai *et al.* (2015) <sup>[2]</sup> revealed that regarding adoption of post-harvest technologies that almost all growers adopted drying of turmeric (100%) followed by storage in gunny bags (95.45%). According to Elemasho *et al.* (2017) <sup>[3]</sup> the respondents' sources of information influenced their adoption of post-harvest technologies with the p- value less than 0.05. So recommended that available post-harvest technologies should be made known to all users.

**Table 2:** Extent of post-harvest technologies followed by arecanut growers n= (180)

S. No		Types of processing and grading	f	%
I		Tender nut processing	170	94.44
	Grading	Rashi / Bette (Without fibre on kernel)	162	90.00
		Kempgotu (With little fibre on kernel)	162	90.00
II		Riped nut processing	178	98.89
	Grading	Chali (Without fibre on kernel)	174	96.67
		Biligotu (with little fibre on kernel)	168	93.33
		Koka (Discoloured / Shrewelled kernel)	168	93.33

f – Frequency, % - Percentage

### Marketing pattern and receipt of payment by the arecanut growers

An insight into the Table-2.1 revealed the nearly 44 per cent of the arecanut growers sell their produce in Totgar's Co-operative Sales Society (TSS) followed by Taluk's Agriculture Produce Marketing Co-operative Society (31.11 %) and both TSS and TAPMCS (18.89 %). While, only 6.11 per cent of arecanut growers sold through middlemen. The reason for this might be that TSS and TAPMCS along with remunerative price provides additional benefit to the arecanut growers like storage of the produce grown by arecanut growers. And also the raw material required for processing and marketing and credit disbursement. The data related to time of getting income revealed that majority (87.22 %) of arecanut growers got income immediately after selling their produce followed by 9.45 per cent got after one week, 2.77 per cent got income after two weeks and only 0.56 per cent got income after one month. The possible reason might be the urgency of credit, lack of transportation facility and small quantity of produce.

A large majority (87.22 %) of the arecanut growers got the payment immediately after the sale of the produce. This might be due to the fact that arecanut growers take their produce to the point of sale after a better price is announced by the societies. A small number of (9.45 %) arecanut growers got the payment after one week followed by 2.77 per cent who got the payment after two weeks the reasons for this might be that the produce taken to the market when high prices are announced this may create a market glut, which force the arecanut growers to wait till their lot is sold. Mohanakumara *et al.* (2016) <sup>[4]</sup> also reported that in case of marketing majority of the respondents were sold their produce in APMC. According to Vilane *et al.* (2012) <sup>[6]</sup> the farmer oriented factors were identified as gender, level of education, marital status and occupation as detailed. The seven technology factors that affected the level of adoption were fast drying rate, better crop protection economic technology, ease of marketing the crop, safety in terms of theft and livestock damage, technology being introduced by extension agent, and long crop storage life of the technology.

**Table 2.1:** Marketing pattern and receipt of payment by arecanut growers n= (180)

.	Particulars	f	%
I	Marketing pattern		
1	TSS (Totgar's co-operative Sales Society)	79	43.89
2	TAPMCS (Taluk's Agriculture Produce Marketing Co-operative Society)	56	31.11
3	Both (TSS + TMS)	34	18.89
4	Middlemen	11	6.11
II	Time of receipt of payment after sale		
1	Immediately after sale	157	87.22
2	One week after sale	17	9.45
3	Two weeks after sale	5	2.77
4	One month after sale	1	0.56

f – Frequency, % - Percentage

### Conclusion

The study concluded that large majority of the arecanut growers adopted all the quality and price influencing practices like harvesting of fully ripened nut of arecanut for preparation of ripednuts. Further, majority of arecanut growers had adopted riped nut processing followed by tender nut processing. In tender nut processing an equal percentage of arecanut growers adopted grading like rashi/bette and kempgotu. Whereas, in riped nut processing majority graded their produce like chali followed by biligotu and koka. Related to marketing pattern, respondents sold the produce in TSS and TAPMCS. A large majority of the arecanut growers got the payment immediately after the sale of the produce. To get high income from arecanut cultivation growers should have an idea about factors influencing quality and price. Also arecanut growers should harvest the produce at right time to retain the quality of arecanut both in case of riped nut processing and tender nut processing.

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