Improved Varieties and Promising Traditional Cultivars of Arecanut

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Front : Mohitnagar - a high yielding arecanut variety

Back : Arecanut variety - Mangala

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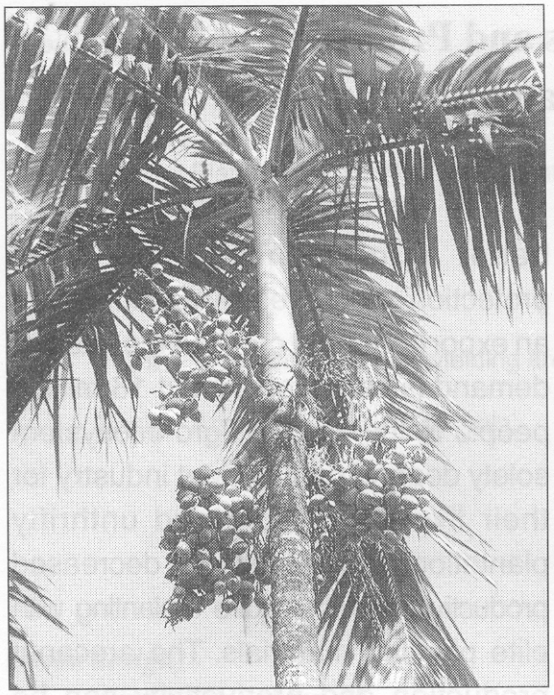
Improved Varieties and Promising Traditional Cultivars of Arecanut

Arecanut palm (*Areca catechu* L.) is one of the important plantation crops of India. The crop occupies a prominent place in the states of Karnataka, Assam, Kerala, Maharashtra, Goa, Tamil Nadu, Meghalaya and Andaman & Nicobar Islands. India is the largest producer and consumer of arecanut and it continues to dominate the world scenario in area under cultivation, production and productivity. Even though the Government discourages area expansion, the area under arecanut has increased because of good market. Area under arecanut in India was 94,800 hectares during 1956-57, which increased to 3.72 lakh hectares during 1998-99. Production during the corresponding period has increased from 0.75 lakh tonnes to 4.15 lakh tonnes. Productivity also increased from 788 kg chali per hectare in 1956-57 to 1186 kg chali per hectare during 1998-99. Thus the increase in production was not only due to increased area under cultivation but also increased productivity due to introduction of superior varieties, supply of quality planting materials, better agro-techniques and plant protection measures. Arecanut is not an export-oriented crop but the internal demand is very high. About 16 million people in the coastal agro-ecosystem solely depend on arecanut industry for their livelihood. Old and unthrifty plantations have resulted in decreased productivity which require replanting with elite planting materials. The arecanut production and productivity can be enhanced considerably by planting quality materials of high yielding varieties of arecanut alongwith adoption of the practices recommended for arecanut cultivation.

Genetic resources of arecanut

In India, systematic germplasm collection programme was started in 1957 from within the country and abroad and the programme for screening them under uniform conditions was initiated at the CPCRI Regional Station, Vittal. The present germplasm collection at Vittal includes 128 accessions. Out of these, 105 are indigenous eco-types of arecanut collected from different parts of India and 23 are exotic accessions



Actinorhytis calapparia

Areca normanbyii

Areca triandra Roxb

HD x Sumangala cross(Under trial)

introduced from Fiji, Mauritius, China, Sri Lanka, Indonesia, Saigon, Singapore, British Solomon Islands and Australia. They represent four species viz., *Areca catechu* L., *Areca triandra* Roxb., *Areca normanbyii* and *Actinorhytis calapparia*. The indigenous collections are from Gujarat, Maharashtra, Karnataka, Assam, Kerala, West Bengal, Tamil Nadu, Meghalaya and Andaman & Nicobar group of Islands.

Evaluation, selection and release of varieties

Screening of the available arecanut cultivars for their performance under different ecological conditions is a promising method of obtaining ecotypes suited for the different regions of our country. Systematic evaluation of exotic and indigenous accessions and selection for high yield and its component characters have resulted in the release of high yielding varieties suitable for cultivation in different agro climatic conditions of the country such as Mangala (VTL-3 from China), Sumangala (VTL-11 from Indonesia) and Sreemangala (VTL-17 from Singapore). Similarly, through the evaluation of indigenous accessions, the variety Mohitnagar (from West Bengal) with high yield potential has been released during 1991, the variety Calicut 17 (from Andaman & Nicobar Islands) has been recommended for commercial cultivation in Andaman & Nicobar group of Islands in 1995. The variety SAS-1 (from Sirsi hill zone of Karnataka) has been released in the same year for traditional arecanut growing valleys in Sirsi zone of Karnataka. In the recent years, hybrids involving Hirehalli Dwarf as one of the parents are showing great promise for the future. Summary on the performance of released varieties are presented in Table 1.

Salient characteristics of the released arecanut varieties

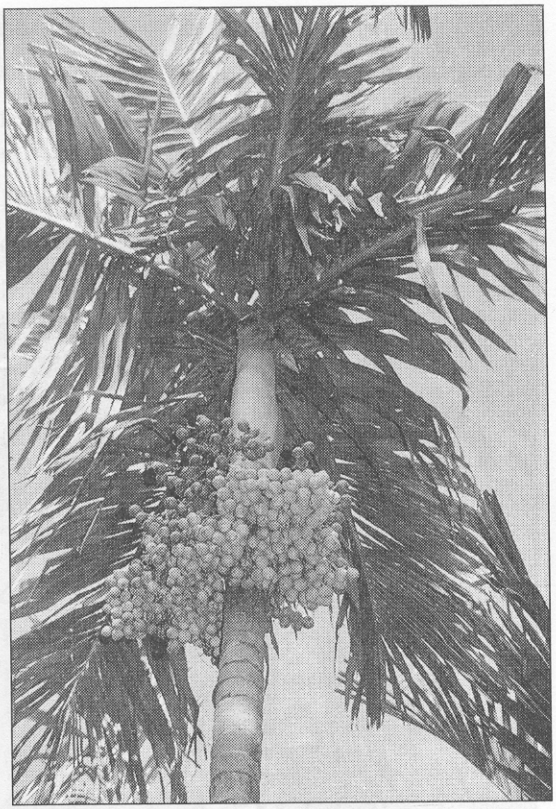
Mangala (VTL-3)

The evaluation of exotic accessions for yield and its component traits resulted in the identification of cultivar VTL-3 introduced from China as a promising variety. The variety has a number of desirable characters such as earliness in bearing, more number of female flowers per inflorescence, higher nut set, initial and cumulative higher yield, quicker stabilization of production and lesser height in comparison with local South Kanara variety. It gives an average yield of 3.0 kg chali per palm per year. The

Table 1. Yield performance of released arecanut varieties

Varietal name	Growth habit	Shape & size of nut	Yield chali (kg/palm)	State for which recommended	Year of release	Agency responsible for release
Mangala	Semi Tall	Round & medium	3.00	Coastal Karnataka and Kerala	1972	CPCRI
Sumangala	Tall	Oval & medium	3.28	Karnataka and Kerala	1985	CPCRI
Sreemangala	Tall	Round & bold	3.18	Karnataka and Kerala	1985	CPCRI
Mohitnagar	Tall	Oval to round & medium size	3.67	West Bengal, Coastal Karnataka and Kerala	1991	CPCRI
Calicut-17	Tall	Elongat-ed & bold	4.37	Andaman & Nicobar Islands	1995	CARI/ CPCRI
SAS-1	Tall	Round & medium	4.60	Valleys of Sirsi and Uttara Kannada in Karnataka	1995	UAS Dharwad

cultivar was released as "Mangala" in 1972 for commercial cultivation in coastal areas of Karnataka and Kerala upto an altitude of 800 m above MSL. The variety is distinguished by partially drooping crown with well spread leaves having more number of leaflets as compared to South Kanara Local. The leaflets are dark green in colour with characteristic crinkling at the tip. It is important to note that in this variety, because of heterozygous nature of the crop and semi tall habit, about 2 per cent of the palms develop weak stem with lanky growth. These weak palms may be located and rouged out within two years of planting and replaced.



Sumangala (VTL-11)

The variety is a tall type with partially drooping crown. Under good management, palms flower in 4-5 years. The colour of ripe nuts is deep yellow to orange and oblong to round in shape. The variety records an average yield of 3.28 kg of chali per palm per year at the age of ten years. This yield is 63 per cent higher than the local control. In view of the significant yield increase, the variety was released for commercial cultivation in all the areca growing areas during 1985. High recovery about (26.50%) of chali/dried kernel from the fresh fruit can be obtained from this variety.

Sreemangala (VTL-17)

The palm is tall with partially drooping crown with longer internodes and sturdy stem. It starts flowering in 4-5 years. Ripe nuts are bold in size and usually oblong to round in shape with deep yellow colour. It is an high yielder with an average yield of 3.18 kg chali per palm per year. The variety, released in 1985, records an yield increase of 48 per cent over South Kanara Local and 39 per cent over Mangala variety.

Mohitnagar

Mohitnagar, an indigenous (Mohitnagar, West Bengal) arecanut variety with high yield potential, was recommended for release during 1991. The important features of this variety is its higher level of uniformity in performance. The bunches are well placed and nuts loosely arranged on spikes which help in their uniform development. This character also enables efficient plant protection measures. Early stabilization of yield as compared to Sumangala and Sreemangala is another distinguishing character of this variety. It is a consistent high yielder with an average yield of 3.67 kg chali per palm per year. The variety showed an increase in yield by 23 per cent and 84 per cent over Mangala and South Kanara Local, respectively. This variety has been released for cultivation in West Bengal and Coastal areas of Karnataka and Kerala and also has become popular in non-traditional areas such as Andhra Pradesh, Goa and Tamil Nadu.

Calicut-17

The variety Calicut-17 (indigenous to Andaman & Nicobar Islands) is tall in nature with longer internodes and crown as compared to Mangala. The striking feature of this cultivar is its consistent high yield potential. It gives an average yield of 18.89 kg ripe nuts per palm per year with a kernel weight of 4.34 kg per palm per year. It has well placed bunches with round and bold nuts. This cultivar was released for commercial cultivation in Andaman & Nicobar group of Islands during 1995 where it exhibited better performance as compared to 'Mangala' and other cultivars.

Sirsi Arecanut Selection -1(SAS-1)

This variety is characterized by tall growth habit with compact canopy.

Nuts are round and even sized and closely arranged on compact bunches. This variety is a regular bearer. It is suitable for both tendernut and ripe nut processing. It has got the potential to yield about 4.60 kg chali per palm per year. The variety is recommended for traditional arecanut growing valleys of Sirsi hill zone of Karnataka.

Promising traditional cultivars of arecanut

Farmers have been cultivating a few traditional varieties of arecanut over the last few decades based on local selection. Under the germplasm collection programme, such traditional cultivars were collected from different regions of the country. These varieties were further evaluated at CPCRI Regional Station at Vittal. The comparative statement on their preformance is presented in Table 2.

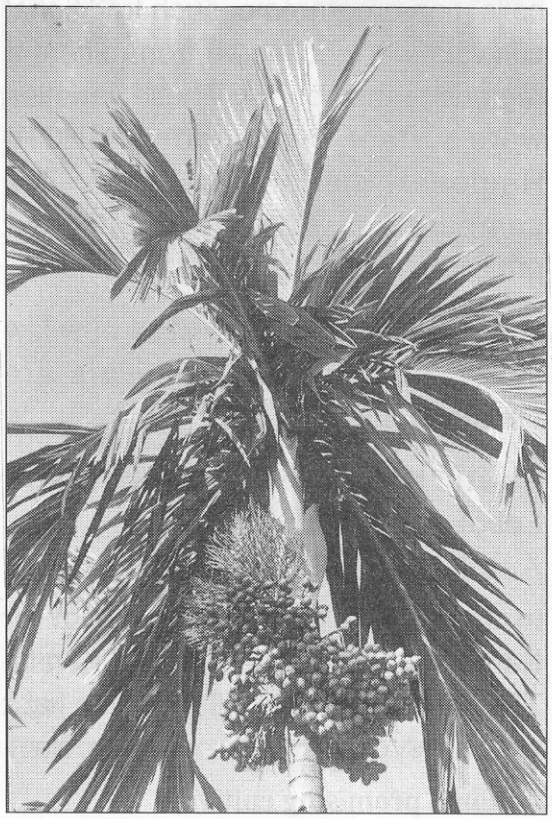
Salient characteristics of a few important traditional cultivars are presented here.

South Kanara Local/Kasaragod Local

This variety is traditionally grown in Dakshina Kannada district of Karnataka and northern part of Kerala. The variety exhibits tall in growth habit with partially drooping crown and hard stem.

Table 2. Yield performance of traditional promising cultivars

Cultivar	Growth habit	Nut shape and size	Yield of chali (kg/palm)	Recommended agroclimatic zone
South Karana Local/ Kasaragod	Tall	Round and bold	2.00	Northern Kerala and Dakshina Kannada of Karnataka
Thirthahalli	Tall	Small and elongated	2.60	Malnad areas of Karnataka
Sagar	Tall	Small and round	2.25	Shimoga and Uttara Kannada of Karnataka
Shriwardhan	Semitall	Round and medium sized	2.00	Coastal Maharashtra and Karnataka
Hirehalli local	Tall	Round to oval and medium sized	3.20	Maidan Parts of Karnataka



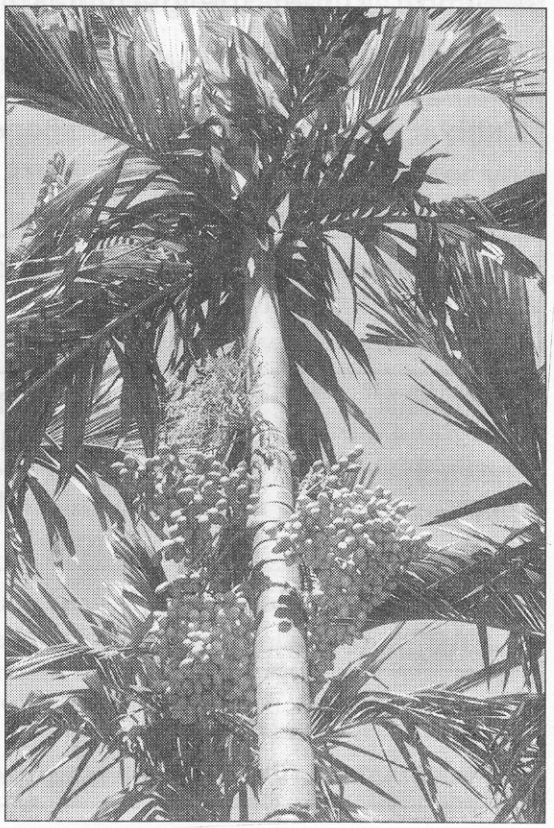
It is characterized by large sized nuts with uniform bearing. Average chali yield is about 2.0 kg per palm per year. Ripe nut of this cultivar is mainly used for making chali.

Shriwardhan/Ratnagiri

It is grown widely in the Raigad and Ratnagiri districts of Maharashtra and Coastal Karnataka. The nuts of this variety are oval in shape and the yield is comparable to 'South Kanara'. Average yield recorded is about 2.20 kg chali per palm per year. Because of the larger proportion of its endosperm, it is tastier than other varieties. Due to the shape and marbled appearance of the kernel when cut, it fetches a premium price in the market.

Thirthahalli

The variety is predominantly grown in Malnad areas of Chikmagalur and Shimoga districts of Karnataka. It is a tall cultivar with longer internodes and possess drooping crown. Size of the nuts are smaller and oblong in shape. Green nuts (6-7 months old) of this cultivar are preferred for tender nut processing. Its yield is 2.6 kg chali per palm per year.



Sagar

It is mainly grown in Uttara Kannada and Shimoga districts of Karnataka. It is a tall type with sturdy stem and erect bunches. Compact arrangement of the nuts in the bunches is its distinguishing character. The nuts are smaller in size and round in shape. Average yield is 2.25 kg chali per palm per year. Nuts are used both for tender nut processing as well as for making chali.

Hirehalli Local

It is a tall type mainly cultivated in maidan areas. It is especially popular in Tumkur, Mandya and parts of Hassan, Chitradurga, Kolar and Bangalore districts of Karnataka. The nuts are medium sized with round to oval shape. Nuts of this cultivar is used both for tendernut processing and making chali. Average yield is 3.20 kg chali per palm per year. This cultivar gives economic yield even under rainfed conditions.

The performance of varieties and cultivars will vary depending upon agro-climatic conditions where they are cultivated and the care given to them by the grower. Under optimum management conditions, the potentiality of the above varieties and cultivars can be exploited to the maximum extent.

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