



A healthy six-leaved seedling of areca

CN EXCHANGE V

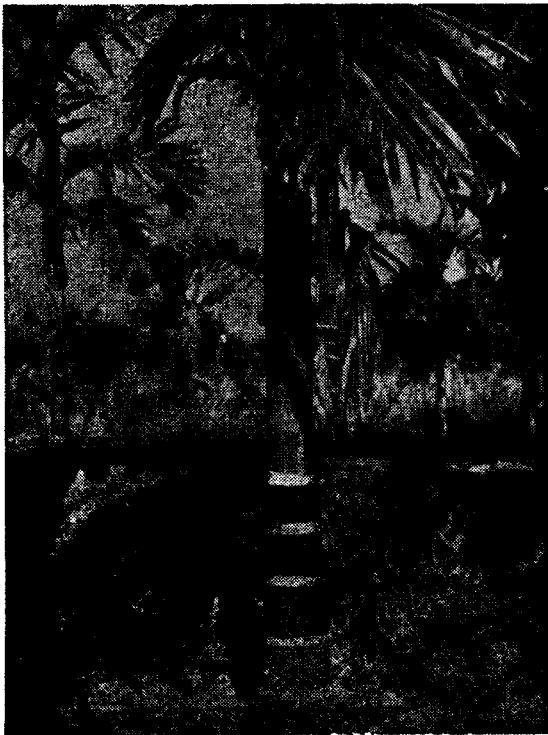
RP-157

IT'S WORTHWHILE SELECTING ARECA SEEDLINGS WITH CARE

K V.A. BAVAPPA and P. R. RAMACHANDER

Central Arecanut Research Station, Vittal, Mysore

.....retain only plants with more than four nodes



IF ARECANUT GROWERS would only exercise a little more care and select seedlings at the appropriate stage of their growth, they could get an increased yield of nearly 20 per cent and help in wiping out part of the one-fifth deficit of our annual requirement of about 1.3 lakh metric tonnes of this commodity.

Research at the Central Arecanut Research Station, Vittal (Mysore), has shown that the best seedlings are those which have more than four leaves at the time of planting, a girth of more than 20 cm. after one year of growth, and four nodes or more after two years' growth.

The arecanut palm which gives the much-liked betelnut or *supari* is an important crop in Kerala, Mysore, Assam, West Bengal, Madras and Maharashtra. Of all the inputs, good planting material is important in perennial crops like the arecanut.

Best Seedlings

In most of the arecanut growing areas 1½-year old seedlings are transplanted. However, to select the best seedlings, correlations (phenotypic and genotypic) were worked out between the different seedling characters at

the time of planting and after one and two years of growth in the transplanted field with yield in the initial four years. It was observed that positive phenotypic and genotypic correlations with yield exist only in respect of characters such as number of leaves at the time of transplanting, girth at collar one year after transplanting, and the number of nodes two years after transplanting. Thus to improve yields, plants must be selected on the basis of the above criteria. The yield behaviour of the plants under the different groups for the above three characters was as follows.

SEEDLING CORRELATION

Characters correlated with yield	Levels	Percentage of occurrence	Mean yield per tree per year-nuts (four years)
No. of leaves*	4	22	148
	5	64	188
	6	14	192
Girth at collar (cm.)	Less than 20	6	67
	20-25	10	121
	26 and above	84	194
No. of nodes	Less than 4	7	87
	4	9	151
	5 and above	84	191

* Since plants with less than four leaves had already been rejected at the time of planting, data on this group are not available.

It can be seen from the above table that plants with four leaves constitute about 22 per cent of the plant population and their yield potential is comparatively low. If these plants are rejected and selection is confined to those having five and more leaves, the overall yield increases by 11 per cent.

Plants which have less than 20 cm. girth after one year growth and plants which have produced less than four nodes after two years' growth also show very low yield potential. These groups of seedlings which constitute nearly 13 per cent of the original population

will, therefore, have to be rejected. However, if plants are selected according to number of leaves at the time of planting the rejection based on the above two criteria will be only eight per cent of the population. Rejection of these eight per cent plants, exercised during the period of two years after planting, increases the overall yield by nine per cent.

The yield pattern of the above groups of plants for four years was also analysed. Plants which yielded less than twenty per cent of the mean for a particular year(s) were grouped as low-yielding plants and percentage frequency of different groups, their yield contribution etc., was worked out which showed the following results.

YIELD PATTERN

Yielding behaviour of plants over a period of four years	Percentage of occurrence	Percentage of contribution to total yield
Never low	16	30
Low once	28	39
Low twice	16	16
Low thrice	16	9
Low always	24	6

It will be seen that 40 per cent of the plants which are either regularly low yielders or low yielders for three years out of the total of four, contribute only to 15 per cent of the total yield. By keeping the standard of selection of five leaves and above at the time of planting, more than 20 cm. girth after one year of growth, and four nodes or more after two years' growth, the population of these uneconomic plants is brought down by about 50 per cent.

Although some arecanut growers are selecting planting material at the time of transplanting without any standards, rejection after planting is never being done. The results mentioned above have shown the advantage of rejecting seedlings after they are transplanted as well as setting standards for selection at various stages.

ON EXCHANGE V

RP-152

“Reprinted from December 1966 issue of ‘Indian Farming’ ”

A SUBSTITUTE FOR SUPARI

K. V. AHAMED BAVAPPA
Central Arecanut Research Station, Vittal (Mysore)

THE pan-chewer may be interested to know that a substitute for the arecanut has come to light. It has a pleasant aroma and has a less astringent taste than areca. The palm which yields the substitute nuts has the advantage of being resistant to mite, a serious pest of areca palms, and is shorter in stature—all of which should weigh heavily with the cultivator.

Betelnut or *supari*, an important ingredient of the popular masticatory is produced by the elegant arecanut palm, *Areca catechu*, which is the only cultivated species of the genus *Areca*. This crop which occupies a total area of 1,20,000 ha. in our country is of considerable economic importance to the farmers of Kerala, Mysore, Assam, West Bengal, Madras, and Maharashtra. Our deficit in this commodity comes to about one-fourth of the annual requirement of 1.3 lakh tons. At the Central Arecanut Research Station, Vittal, where a world collection of different species of areca is under trial, it has been observed that *Areca triandra*, a species introduced from Indonesia, produces nuts which have very favorable market and chewing qualities. Nuts of this species have not so far been reported to be useful for chewing.

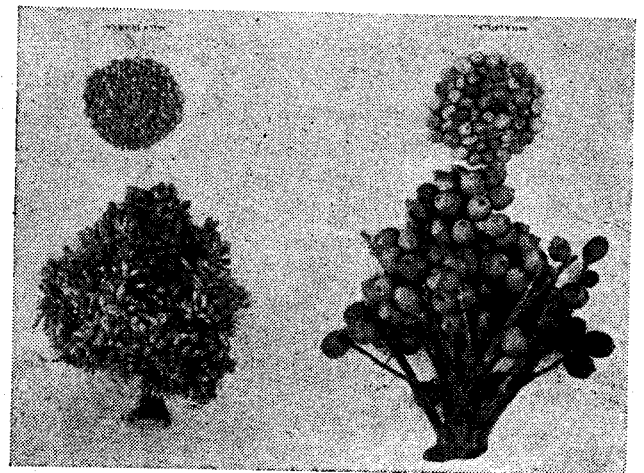
Growth Habit

The *Areca triandra* palm is shrubby and throws out 3 to 14 offsets from the base. The green, distinctly annulate stem has recorded a growth of 1.5 metres in seven years and has a circumference of 25 cm. The bright green leaves which average eight in number are



Areca triandra with four offsets

Ripe fruits and dried kernels of *A. catechu* and *A. triandra* (left)



1.5 to 2 metres long and have 16-20 pairs of leaflets each. The spadix, enclosed by a sealed, boat-shaped spathe is located inside the leaf axil. On an average, 3,465 female flowers are borne in each palm, as against 1,015 in

A. catechu. The fruit-set in this species has also been found to be as high as 57 per cent. The fruits, which are much smaller compared to *A. catechu*, are crimson red in colour when fully ripe and have a pulpy covering. Information gathered on turn-over of *Chali* (dried kernel), etc., of the two species is given below.

	<i>A. catechu</i>	<i>A. triandra</i>
Mean weight of ripe fruit (gm)	31.9	3.4
Percentage of dry kernel over wet weight	23.5	27.0
Mean weight of dry kernel (gm)	10.0	1.0
Specific gravity of dry kernel	1.11	1.25
No. of days required for sun-drying the fruits	40	21

It will be observed from the above that even though the fruits of *Areca triandra* are one-tenth the weight of *A. catechu* fruits it requires only half the number of days for drying, gives 3.5 per cent more out-turn of *chali* and has a higher specific gravity. From the overall yield point of view the high production of female flowers and fruit-set, and the capacity of the species to produce a large number of offsets capable of yielding nuts will compensate for the reduction in the size of the individual fruit. Plants of this species have also been found to flower almost throughout the year, unlike the presently cultivated *Areca catechu* and the fruits come to maturity after about 7½ months.

Nut with Pleasant Aroma

The dried kernel, which was evaluated for market quality, fetched a price five per cent higher than the prevailing market rate for the local variety of nuts. In the chewing test it has been found that the nut has a very pleasant aroma similar to that of date fruit, less astringency and has deep red colour. The nuts were also analysed for their chemical constituents and the results showed that the tannin and alkaloid content was only one-third that of *supari* and the pleasant taste is probably due to the low proportion of the above constituents. It is also interesting that the nut size of this species is such that one nut is just sufficient for one chew. This is a definite advantage in its handling. The nut with its market and chewing quality is a good substitute for *supari*.

From the breeding point of view, the palm's desirable characters are, resistance to mite, which is a serious pest of *Areca catechu*, its suckering habit and the short stature of the plant. When the genetics of the suckering is fully known, it may be possible to exploit the same for obtaining uniform material for field experimentation. The short stature of the plant has also definite advantage from the point of view of harvesting and spraying.