

season on 6 to 8 months credit without interest. From small beginnings, the spraying of areca has extended to about 12,000 acres annually and chemicals and spare parts worth Rs. 60,000 to Rs. 70,000 is sold through Depots and Co-operative Societies. A special circle was formed for this work under an Assistant Director of Agriculture with Headquarters at Tirthahalli, which was later on merged in the Shimoga Circle. It may be noted that there are in use more than 8,000 privately owned sprayers in areca gardens in Mysore.

The Mysore Agricultural Department has been the first to devise the remedy and adopt it with success against the disease which has meant the salvation of the Malnad garden owners. It has been taken up by the bordering Indian Malnad areca tracts which also thus share in the beneficial results of the work of the Mysore Department. Extensive manurial experiments on the suitability of different kinds of green manure, the use of artificial manures, the practice of growing and ploughing in green manure has been conducted for several years. It has been observed that an application of artificials similar to coffee raises the yield of nuts from 20 to over 30 maunds per acre and that once a garden is brought into a good bearing condition by judicious manuring for about 5 or 6 years, the yields do not fall off even if application of artificials is omitted for a couple of years afterwards. Moreover, it is seen that provided the usual practices of cultivation and mulching are kept up, an application of artificials in the prescribed dose once in three years is not only adequate, but maintains the trees in good cultivation.

The cultivation of green manure between the rows of areca palms in preference or as an adjunct to the usual practice of bringing in leaves from the forest, the damage to which as a consequence has often been protested against, has been found to be very useful.

A preliminary study of the varieties of arecanuts under cultivation and their performance has been made. Two separate varieties have been noticed in cultivation, viz., Sweet areca which is provisionally named as Areca. (1) *Catechu* var *delicosa* and (2) the coarse *Rama adike*. The sweet areca is free from astringence and moderate in size and the fruits are somewhat round and the bunches are small. The *Rama adike* is distinguished by a much larger stem, the nuts are much larger, brilliant yellow in colour and bear fruits throughout the year. The latter is also more resistant to Koleroga and may be useful in breeding.

Merits of Different Nursery Practices in Arecanut Cultivation

By

K. V. AHAMAD BAVAPPA,

Central Arecanut Research Station, Vittal.

INTRODUCTION

Amongst the different agronomic practices followed in the cultivation of arecanut there exists wide diversity from tract to tract. Opinions differ among experienced cultivators regarding the sowing of nuts both in the nursery as well as in the transplant field. Though same advantages are attributed in sowing the nuts directly in the main field the wider practice is transplanting the seedlings raised in the nursery. In Mysore and Kanara Districts different practices are adopted for raising

Notable differences are seen only in the size and shape of arecanuts which correspond to differences in shape and size of kernels which retain these characters in breeding.

Differences have been noticed in the inflorescence either compact or loose, in the taste of cured kernels as very astringent and almost bitter or sweet areca which are free from astringency, in the degree of hardness of nuts as hard or soft, in the colour of husk at maturity as yellow or green. Differences have also been noticed in maturity some palms which come to bearing early and others late. However there is a very great need for the classification of the existing varieties and comparing them for their respective yielding capacities and the quantities of different grades of nuts prepared.

Acknowledge with appreciative thanks the help given in writing this article to the Senior Assistant Botanist-in-charge of Paddy work and the Plant Pathologist to the Government.

arecanut seedlings of which sprouting the nuts in loosely tied straw bundles (Muda) and then planting in the nursery, sprouting the same in baskets covered with a layer of straw and then planting in the nursery and direct sowing of the nuts in the nursery beds are the three widely followed methods. At the Central Arecanut Research Station, Vittal, nearly 25,000 arecanut seedlings were grown during the year under the above three different methods and data gathered on some important economic aspects of each method and the seedlings raised from each method are recorded in this paper.

Nambiar (1949 and 1951) and Yegnanarayana Iyer (1950) have reported that seed arecanuts are sprouted in straw bundles before they are sown in the nursery. Sundaramurthi (1950) has mentioned the use of soil media for sprouting the seednuts. No study appear to have been taken up with regard to the relative merits of these different practices.

OBSERVATIONS

Seednuts selected from healthy trees of regular and good yielding nature and harvested in the month of December 1955 were sown in January 1956 under the three different methods. Nuts with varying number ranging from 150 to 630 were tied in Mudas (straw bundles) so as to get different sized mudas. The total population of nuts under this method being over 1500. Nuts numbering nearly 22000 were arranged in baskets in a single layer with their basal portion pointing up and mulched with a layer of straw. In well prepared beds of 3'X25' nearly 1500 nuts were also directly sown. All the three methods were provided with shade and watered on alternate days except during rainy days so as to keep the nuts continuously moist but without stagnant water at any time. When the nuts completed sprouting final germination counts and number of healthy sprouts were recorded and the sprouts planted in the nursery. An establishment count was also subsequently taken. The mean figures are given below:—

Methods.	Germination (As mean percentage of total nuts)	Healthy sprouts.	Establishment in the nursery.
1. Muda.	84.5	80.6	76.0
2. Basket.	95.0	93.7	93.0
3. Direct sowing.	95.9	95.0	95.0

It will be seen from the above figures that nuts put under Muda have given low germination and less number of healthy sprouts. Besides it was also noted that the sprouts were etiolated and as such their subsequent establishment in the nursery was also poor, the mortality of sprouts amounting to 4.6%. It was also interesting to note that irrespective of the size of the Muda the germination percentage was low ranging from 78.5 to 93.7 with mean of 84.5. It is also seen that the maximum germination of 95.9% has been recorded by directly sown nuts. This is but to be expected since nuts both under Muda and basket were found attacked by insects particularly mites, causing death of sprouts and fungi causing embryo rot whereas under the conditions existing in the soil it is likely that the intensity of attack by the organisms may not be so severe. Since there is necessity of transplanting the sprouts from directly sown nuts there is no mortality on this account and hence a maximum of 95% established healthy seedlings has been obtained under this method.

During the course of observation it was also noted that there was marked variation in growth of the seedlings got from the three different methods. In order to assess how far each method has influenced the subsequent growth of seedlings, height, girth and number of leaves of the seedlings in all the three methods were recorded. The mean figures are presented below:—

	Mean height in c. m.	Mean girth in c. m.	Mean number of leaves.
1. Muda	32.9	2.9	1.7
2. Basket.	29.7	3.2	2.1
3. Direct sowing.	32.3	4.2	2.8

From the above figures it is seen that seedlings from Muda are lanky with poor girth and less number of leaves, seedlings from directly sown nursery having moderate height maximum girth and number of leaves and seedlings from basket coming almost in the midway of the above two.

Sowing of the majority of seednuts in the nursery comes in the month of January and the months that follow are the summer months during which period watering has to be done. Where the nuts are directly sown in the nursery the area that has to be irrigated

will be large enough to involve some extra cost. Evidently the idea behind this age-long practice of sprouting the seednuts either in the Muda or in the basket and then planting the same is to save the irrigation at least for two to three months by which time only the sprouts are ready for planting in the main nursery. But considering the quality of seedlings and number that can be expected from a directly sown nursery the slightly extra cost that is involved by way of irrigation is worth incurring. While the above observations are only of a preliminary nature, this study would be pursued in greater detail in the coming season.

SUMMARY

From the bulk scale observations with three different nursery practices it is seen that sprouting the seednuts in Muda give both low germination of 84.5 percent and poor establishment of 76.0% in the nursery as against 95.9% establishment recorded by direct sowing.

From the morphological characters of the seedlings recorded it is evident that the seedlings from directly sown nuts are superior to the seedlings from both the other methods.

Direct sowing of the nuts in the nursery appear to be advantageous over the other two methods considering the number of quality seedlings that can be expected out of this method.

ACKNOWLEDGMENT

I am grateful to members of the staff of the Central Arecanut research station, Vittal for their kind co-operation in recording the observations.

REFERENCE

1. Nambiar K. K. (1949) Survey of Arecanut Crop in Indian Union P. 14.
2. -do- (1951) Cultivation of Arecanut in Mysore State - Monthly Bulletin Vol. I. No. 11. Indian Central Arecanut Committee, P. 3.
3. Sundaramurthi. (1950) Arecanut plantation in Ceylon. Monthly bulletin, Vol. No. 6 Indian Central Arecanut Committee, P. 5.
4. Yegnanarayana Iyer (1950) Field Crops of India. P. 558.

Indian Council of Agricultural Research,

NEW DELHI.

Extract from Agricultural Newsletter, Vol. II No. 4 June 1956
issued by Directorate of Extension Ministry of
Food & Agriculture, New Delhi.

FARMING AND ALLIED INDUSTRIES IN INDIA NATIONAL CONVENTION'S RECOMMENDATIONS.

The second National Convention of farmers, which ended its sixday session in New Delhi in April has made a number of recommendations to streamline farming and its allied industries and to help in raising agricultural production.

Convened by the Farmers' Forum, India, of which Dr. Panjabrao Deshmukh is the President, the convention was attended by over 1,000 farmers from Kashmir in the north to Cape Comorin in the south and Saurashtra in the west to Assam in the east.

After the inauguration by Dr. Rajendra Prasad, the convention split into small sections and held seminars on various topics connected with agriculture.

The seminar on "Co-operative Marketing and Rural Credit" suggested that every credit society and multipurpose co-operative should develop a system of "revolving credit" to allow their members a cash credit limit on which they might draw at convenience.

Similarly, every co-operative society should have a cash credit limit with the financing co-operative bank on which it might draw at convenience, where revolving cash credit for the primary borrowing members should be fixed in keeping with the assets as also the crop grown.

It was also thought to be desirable that the Government should fix minimum prices for each crop at the