

OBSERVATIONS ON THE COCONUT GENEPOOL IN LAKSHADWEEP ISLANDS

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ABSTRACT

The coconut palms in Lakshadweep Islands are high yielding, free from major diseases and are in highly over crowded stands. Laccadive Ordinary, Laccadive Micro, Kaithathalli and Dwarf palms bearing green and orange nuts are the types cultivated in these islands. Laccadive Micro is a high yielding cultivar with highest oil content in copra among all cultivars. However, the population of this cultivar has been on the decline due to introgression resulting in the intermediate types between Laccadive Ordinary and Laccadive Micro.

The vegetative and nut characters of Laccadive Ordinary population have been studied. The Islands were surveyed for locating the available Laccadive Micro palms. Androth Island has got the maximum number of Laccadive Micro palms. An improved germination technique has been developed for Laccadive Micro, by which 80% germination was realised instead of the 49% obtained in the field conditions.

INTRODUCTION

The Lakshadweep Islands, the smallest union territory of Indian Union, are an archipelago of coral islands and reefs lying about 192 to 320 kms off the Kerala Coast between 8° and 12°-30' North latitude and between 71° and 74° East longitude. They are 27 in number of which 10 are inhabited, 12 uninhabited and 5 attached islets. *The total area of the islands is only 32 Sq. kms.* The weather and other climatic conditions are the same as those experienced along the West Coast of the mainland. The islands receive South West and North East Monsoons, the average rainfall being 1,600 mm a year. The temperatures experienced in the islands fall in the range of 29.3°C to 31.2°C.

The islands have similar physical and topographical conformation. The land is about 3 to 4 m above the sea level, plain with no hills, rivers and forests. The depth of water table in summer months is in the range of 0.4 to 3.5 m in different islands. Soils have been uniformly derived from coral lime-stone and are fairly homogeneous in their composition and texture throughout the profile. Soil analysis indicates that they are highly calcareous, the calcium carbonate content being not less than 85% with pH value above 8. The surface soil is fairly well supplied with N. The available phosphate is, in general, medium but the available potash is very low (Velayutham and Singh, 1978).

MATERIALS AND METHODS

The natural population surveyed in the islands of Androth, Agatti, Amini, Bangaram, Kavaratti, Kalpeni, Kiltan, Kadmat and Minicoy, formed the material for the present study. Four sample plots of size 25 m × 25 m were selected at random from each of the islands for assessing the yield, population density and distribution of different cultivars. Laccadive Micro palms available in the islands were individually identified and marked for future use. The criteria for identification of types was that of Menon and Pandalai (1958).

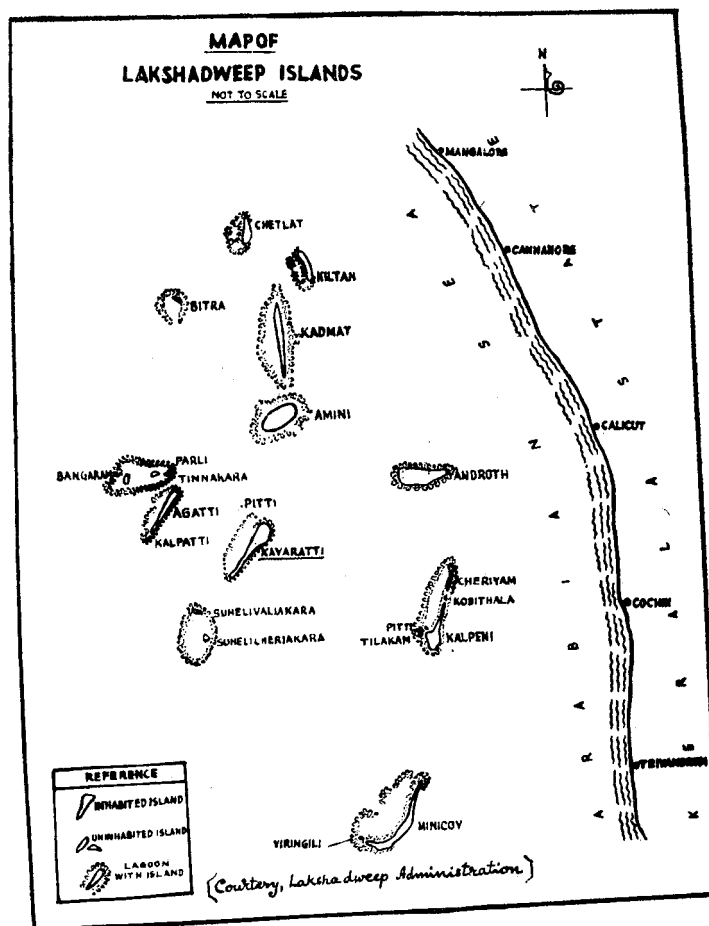
The fully mature Laccadive Micro nuts were harvested and dehusked keeping a tuft of fibres covering the eyes. They were kept inverted over beakers containing tap water (Fig. 4). The date of emergence of the sprout was noted. One week after the emergence of the sprout, the nuts were transferred from beakers to plastic trays filled with moist sawdust and placed in a horizontal position. When the sprout started growing upwards they were transplanted to polybag filled with soil.

RESULTS AND DISCUSSION

Coconut culture

Coconut is the only crop of economic importance in this group of islands. The total area under coconut cultivation is 2766 ha which comes to about 90% of the total land area. There is no

further chance of expanding the cultivation of coconut on account of non-availability of land. The average yield of nuts/palm/year is around 55 which is much higher than that in the mainland (35). The average annual production of nuts is 210-220 lakhs from the



4 lakh bearing trees (Anonymous, 1978). On an average, 400 palms are grown in one hectare as against 229.5/ha in Kerala. Till recently the number of coconut trees one had was considered to be the criteria of possession of wealth which resulted in the

indiscriminate planting of seedlings. Besides, boundary disputes have also contributed to the maximum planting density along the borders. This process of planting is still in practice, in spite of the repeated persuasion by the Agricultural Demonstration Units (AD Units) operating in all the inhabited islands. In the uninhabited islands self-sown nuts have germinated, causing over crowding.

Coconut types

Laccadive Ordinary, *Laccadive Micro*, *Kaithathali* and *Laccadive Dwarfs* (Green and Orange) are the main types of coconuts growing in the island. *Laccadive Medium* type reported earlier in literature (Menon and Pandalai, 1958 ; Satyabalan, 1958) is presumably the product of introgression between *L. Ordinary* and *L. Micro* types.

Laccadive Ordinary : The bulk of the coconut population in the islands is represented by this cultivar (Fig. 1) which resembles West Coast Tall, except for comparatively small sized nuts with three prominent ridges and high oil content. The nut colour varies from green to yellow through various shades of brown. The shape of nut varies from oval to oblong. It has a copra content of 120 to 180 g with 72% oil content. Under the island conditions, without any cultural and management practices, the average yield is around 55 nuts/palm/year.

Laccadive Micro : The distribution of *Laccadive Micro* in the islands is given in Table 1. This is a profuse bearing tall palm (Fig. 2) with the maximum oil content of 75%. The nut size is very small and the shape is either round or oblong. The nut colour varies from green to shades of brown. The bunches are very heavy and attractive with a large number of closely packed nuts varying from one to eight per rachilla. The female flower distribution is invariably more than one per rachilla, ranging even upto twenty leaving, four or five rachillae in each inflorescence without any female flowers (Fig. 3). The average yield of nuts per palm per year is over 200. It has a copra content of 80-95 g nut. This type has an alternate bearing tendency.

There has been a sharp decline in the *Laccadive Micro* population. This could be due to their highly scattered occurrence

Fig. 1. Laccadive Ordinary



Fig. 2. Laccadive Micro

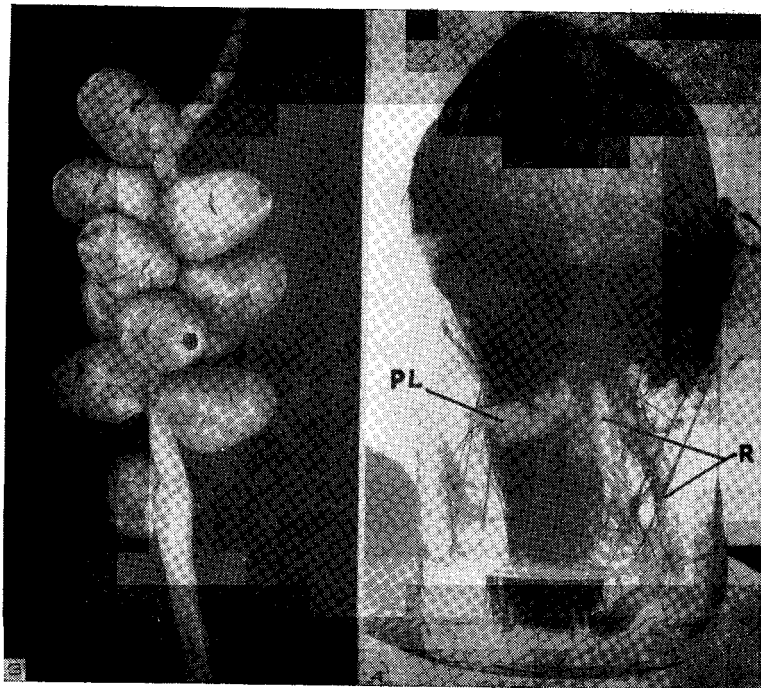


Fig. 3. Female flower distribution
in Laccadive Micro

Fig. 4. A Germinating Laccadive
Micro nut

PL—Plumule R—Root

amidst the dominant Laccadive Ordinary population and the extensive outcrossing resulting in intermediate types which are referred to as Laccadive small or Laccadive medium. Moreover, the islanders do not show any special interest to propagate this type because of its small size, although it has a good market in North India particularly in the form of ball-copra. Androth, the largest island with an area of 4.8 sq km, has got the maximum number of Laccadive Micro trees. The distribution of trees in different islands is shown in Table 1. Inter-se mating has been initiated by the authors with a view to conserving this rapidly dwindling germ-plasm. Seednuts of marked trees have been planted both in the island at the CPCRI Research Centre, Minicoy, and at CPCRI, Kasaragod.

Table 1. The distribution of 'Laccadive Micro' in Lakshadweep Islands.

S.No.	Name of the Island	Area of the island	No. of palms available
		sq. km.	
1.	Androth	.. 4.8	45
2.	Amini	.. 2.6	19
3.	Agatti	.. 2.7	11
4.	Kadmat	.. 3.1	10
5.	Kavaratti	.. 3.6	7
6.	Kiltan	.. 1.6	7
7.	Kalpeni	.. 2.3	35
8.	Minicoy	.. 4.4	14

Kaithathali: This is also a tall type resembling the West Coast Tall except for the sweet and edible nature of the husk at the tendernut stage. At maturity the husk becomes spongy and peels off easily like arecanut husk. The husk of tendernuts is sometimes eaten raw and is said to be a very good antidote against sea sickness (Menon and Pandalai, 1958). The nut size is medium to large and the shape is round. The colour of the nut is either green or brown. The annual yield of nuts/palm/year is 80-90. Only a few trees are available in the islands Amini, Agatti and Androth.

Laccadive Dwarfs : Both Green and Orange dwarf palms are cultivated to a limited extent in the islands. These dwarfs are not different from Chowghat Dwarf Green and Chowghat Dwarf Orange. Most of these dwarf palms are confined to the vicinity of houses, giving a clue that they might have been brought from the mainland.

New technique to increase the germination percentage in Laccadive Micro nuts

Fully mature Laccadive Micro nuts contain only 15 to 20 ml of water. Difficulty in germination of these nuts which often take a maximum of 120 days has been attributed to this. Experiments have shown that dehusking the nuts could increase the percentage and reduce the time of germination (Koshy and Sosamma, 1978). With the present method over 80% germination was realised instead of 49% normally obtained in the nursery, and the time taken for the sprout to emerge was reduced from 120 to 50 days. The sprouted nuts were transplanted in polybags filled with soil after the first root was established. The sprouted seedlings in the polybags were watered regularly. All the transplanted seedlings got established in the polybags.

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