SEED-COCONUTS

"BLOCK-NUTS" *versus* "MOTHER PALM" NUTS

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IN view of the urgent necessity for rehabilitating the Coconut Industry in Ceylon, the supply of ample and suitable planting material is of paramount importance and the question to be decided is which is the most suitable planting material. Seedlings derived from "Mother Palm" nuts or those from "Block-nuts."

To deal first with "Mother Palm" nuts.

The argument that seed-nuts from carefully selected high-yielding "Mother Palms" should eventually produce palms of an equally high standard of productivity as their parents would at first sight appear to be theoretically and genetically sound, and this method of seed selection has hitherto been always recommended by the Coconut Research Institute. (Coconut Research Institute Leaflets Nos. 1 and 2).

But is this assumption correct? The Coconut Research Institute has during the last 14 years supplied to Coconut growers many thousands of seedlings derived from "Mother Palms," carefully selected by officers specially trained in this method of selection. But so far no definite evidence has been forthcoming to prove that the offspring from "Mother Palms" have turned out true to type. In fact some of the results observed have been disappointing.

From an article on the "Sex Life of the Coconut Palm" by the Acting Botanist, Coconut Research Institute, Mr. D. V. Liyanage, published in the *Ceylon Coconut Quarterly* (Vol. I, No. 2, page 35), I quote the following words :—

> "The female flowers thus have to look to another palm for the male parentage. Pollen carried by air would stick on to the wet stigmas of female flowers. This pollen is cosmopolitan, *i.e.*, derived from many inflorescences. Thus all female flowers on one inflorescence, do not receive pollen from a single palm. Hence the nuts are of mixed origin and the resultant seedlings would vary considerably. This explains why the seedlings from selected high-yielding palms are not always true to type."

It must be realized that although the "Mother Palms" may be of exceptionally fine growth and with an annual yield of perhaps between 80 and 100 nuts it is, more often than not, an isolated specimen surrounded by good, bad or indifferent palms upon one or more of which it is dependent for the pollination of its flowers, so that it is impossible to say if the male parents of its progeny are high or low yielders,—healthy or otherwise.

Therefore there is no guarantee that seedlings derived from an isolated high-yielding "Mother Palms" will eventually become equally high-yielding palms. On the other hand, an appreciable proportion may even turn out to be weaklings with small crowns and poor crops.

Also it is possible to select only a very small percentage of really good " Mother Palms " in any reasonably good coconut estate so that the quantity of seed-nuts that can be obtained from them is a mere drop in the ocean when hundreds of thousands of seedlings are required annually for the rejuvenation of senile and neglected plantations and the opening up of new areas under Coconuts in Ceylon.

It has, therefore, become necessary to find some other method of seed-nut selection that will satisfy the urgent needs of the Rehabilitation Project, and at the same time provide high-grade planting material.

This is now being done by the selection of what are termed " *Block-nuts.*" These are selected from only really good estates with records of high yields over a long period of years. Recently harvested nuts are picked out from the heaps in the best " blocks " or fields on an estate or, in some cases, from the whole crop of an estate and a very strict standard of seed-nut selection is carried out, only about 30% or 40% of the nuts in the heaps being taken.

As these seed-nuts are from estates or " blocks," giving an *average* annual yield *per palm* of 55 nuts or more and as only the very best nuts are chosen for seed-purposes, it is safe to assume that the progeny from these " Block-nuts " are just as likely to become high-yielding palms as the best of those from isolated individual " Mother Palms."

In view of the results of a long term experiment initiated by the late Geneticist in 1939 and yet being continued by the Botanist at Ratmalagara Estate, showing little difference in performance between the progeny of nuts chosen from high-yielders, low-yielders or heap nuts, *so long as seedlings are properly selected* the compromise we have adopted is justified.

This method of seed selection has been carried out by the Planting and Advisory Division of the Coconut Research Institute during the past three years and, as far as the resulting seedlings are concerned, with satisfactory results. The " Block-nut " seedlings in all our nurseries are sturdy and generally healthy in appearance, also the percentage of germination has been most satisfactory, averaging over 90% while the percentage of rejection of seedlings of plantable age is as low as 30% to 40%.

Until such time as controlled pollination of coconuts *by hand* can be carried out on a much larger scale than is being done at present, on an experiment at scale, utilising both selected " *Father* " and selected " *Mother* " palms, the most reliable and expeditious means of replacement and of planting up new areas would be by using as planting material selected seedlings produced from selected Block-nuts. This is the best practical compromise.

The artificial pollination of coconut palms to produce high grade seed-nuts which can be planted direct into the planting hole, without selection, is a matter of long range research which is shortly to be undertaken by the Botanical Division.