

*Rural Broadcasts :***I.—COCONUT SEED SELECTION AND SELECTION OF LAND FOR PLANTING**

IT is becoming increasingly obvious that the plantation coconut industry in the Territory is due to suffer a considerable decline in production, unless further plantings are made in the next few years by both European planters and Native communities. Many plantations are composed entirely, or in part, of aged palms which are beginning to show senility. Many planters are showing their awareness of this problem and are taking or planning steps to plant new areas.

These talks aim to give some guide in these activities.

Selection of Coconut Seed.—

As with all crops careful selection of the seed to be used is of the utmost importance in making a commercial planting of coconuts. Costs of planting up and copra production costs are at such levels to-day, that the planter cannot afford to neglect any steps which will lead to the highest possible yields from new plantings and he certainly cannot afford the luxury of planting haphazardly-collected seed nuts. Areas of palms from unselected seed nuts are most variable and easily distinguished from an area derived from well-selected seed nuts. In many of the older plantations in the Territory to-day numerous palms can be seen which can be contributing little to the revenue of the plantation while occupying space and taking up their share of maintenance costs and causing higher costs of production. As all planters know there are numerous types and varieties of the coconut palm, many of which are represented in the Territory. To name a few, there are :—

The characteristic tall-palm, the dominant feature in all plantings in the Territory ;

The king coconut, with its very attractive appearance, large, heavily laden pendulous fruiting branches carrying golden-orange nuts, and usually early maturing ;

Dwarf types usually distinguished by early maturity and rather short life.

In this group can be found types bearing all sizes of nuts from very small to quite large and varying in colour through reds, yellows and greenish-brown ;

Miniature palms, usually very early maturing, very short lived and bearing a profusion of tiny fruit ;

Drinking types usually of the tall-palm group but bearing distinctive bright yellow fruit either perfectly rounded or wedge-shaped. These have very palatable milk but are useless for copra production.

There are many other types not so commonly known in this Territory. To mention one which shows the versatility of the species there is the Macupuna nut of the Philippines which has albuminous milk in every three out of four coconuts approximately, also the local coconut, which is especially liked.

To the commercial planter in the Western Islands of New Guinea most of these types, with the exception of the typical tall palm, are of mainly academic interest. They are certainly of interest to the plant-breeder who in a long-term programme contemplates incorporating some of their desirable characteristics in a new variety but to date, generally speaking, no other has been found to surpass the tall-palm as an all-round producer for copra manufacture. Quite apart from questions of yield, longevity and quality, many of the other types give unsatisfactory leathery, or soapy, copra. Selected dwarf types attracted considerable interest during the last thirty years both in Malay, Ceylon and Fiji and commercial plantings were made ; however, generally speaking, these types have not always lived up to expectations and commercial interest in them is said to be waning. However, one Company here has done considerable replanting recently with quick maturing coconut palms on the advice of a Plantation Director from Malaya.

Various practices are followed in selecting coconut seed nuts for planting. For instance seed nuts may be taken in bulk from a block of palms which are known to be high-yielding from accurate records and on inspection are very uniform in appearance. Ideally, however, seed should be taken from marked individual mother-palms and particularly which have been matched for yield and type for some years, if possible. In this Territory, as has been pointed out already, so many of our existing stands are far from uniform. Nuts from these individually selected coconut palms can be expected to give anything from a ten per cent. to twenty per cent. higher yield on the same soil than a plantation planted with unselected nuts.

Mother-Palm Selection.—

Various characteristics should be sought in selecting mother-palms for seed production. In selecting it is desirable to choose palms at least twenty years old and not more than fifty years old. However, selections from young, early maturing and heavy yielding palms is definitely much preferable to no selection at all, especially if they are derived from selected nuts in the first instance.

First the general appearance—Palms with unduly thickened or unusually slender trunks or with poor bole development should be avoided. Careful attention should be given to the type of crown which should be well rounded and well filled in. Palms with fan-shaped or gappy crowns should be avoided. Leaf shape should also be taken into account. The fronds should be of good length and give the appearance of suppleness. Spiky or sharply-tapering leaves rule out a palm. Finally, all palms showing abnormalities such as distortion of the trunk, or twisting of the leaves, should be discarded.

Secondly—yield. Both the numerical yield of nuts and the yield of copra from individual nuts has to be taken into account. Good palms growing under good conditions in the Territory should yield an average of 40 to 50 nuts, but selected areas and palms can yield about 100 nuts averaging 6-8 ounces of copra each per annum. It can be seen that yield recording will be necessary if mother-palms are to be accurately selected. However, experienced men can very often pick high-yielding palms by

visual observation, particularly if palms have been under observation over a period of several years.

Thirdly, the characteristics of the individual nut—the desirable copra nut has a relatively thin husk and a large kernel with thick meat. The main consideration is because there is a very high correlation between the weight of a nut and its yield of copra.

For the mathematically minded; the correlation between the weight of a husked nut and the weight of copra is .9, and between an unhusked nut and the weight of copra approximately .6 where unity is complete correlation. Hence the chances are that a well-shaped, heavy nut, even if weighed in the hand, is a heavy yielder with good potential.

In practice it is found that these characteristics in coconuts are usually closely related to the shape of the unhusked nuts. The coconuts which are most consistently desirable are of medium size and rather rounded or dumpy in appearance, being noticeably flattened at the tip end. The kernel is even more definitely flattened in appearance, being quite shallow from stalk end to tip end, but having a wide diameter in horizontal cross section.

Pear and wedged shaped, oblong and too elliptical are commonly poor copra yielders. It is to be hoped that very large nuts should be treated with suspicion except where they are from proved types such as the San Ramon and Markham nuts, both of which are available in this Territory. Such oversized nuts are usually borne in small numbers and have other undesirable characters such as very thick husks and small kernels.

Selection of Areas to be Planted.—

Careful attention to the selection of sites for plantings will be possibly the most important factor determining commercial success or failure of a coconut planting. We are indeed fortunate in the Territory in that coconut plantings are so widely distributed around the coasts and located in such a variety of environments, ranging from the low to the high rainfall zones and over a wide variety of soil types. In most Districts there are sufficient plantings to give a clear indication as to the future. It is the work of the Department of Agriculture to catalogue and document this infor-

mation, and to determine the causes of success, or failure, under various conditions so that precise recommendation can be made in future years. This work will, however, take time as will proper soil surveys and in the meantime planters will be well repaid by carefully observing the results of past plantings and applying the information in selecting new areas.

Various soil types with a definite history of coconut failure should be avoided. There have been some suggestions that such areas can be used if fertilizing, or other cultural practices are employed. However, it must be realized that the areas in other countries, like Ceylon, where the application of fertilizers brings about increase in yield, have already been selected and planted as good coconut land. The mere fact that fertilizing has a beneficial effect on palms in any particular area is not in itself sufficient to recommend the practice. The real question is will the increased returns from fertilizing pay for the cost and leave a profit margin over, or in other words, will it consistently, over a period of years, put money in the planters' pockets. Having in mind the cost of importing fertilizers to the coconut areas of the country, it seems to us to be unlikely in the case of the poorer soils but well worth experimentation

with while prices are high, as it has paid handsomely in Eastern plantations under selected conditions.

Areas or soil types with a definite history of coconut failures should be avoided. This Department does not hold out hopes to planters that such country can be economically brought into use by the application of fertilizers or by particular cultivation practices and feels that effort should not be wasted on it when there is so much good land available. Some of the types of country which have given poor results in the past are—

Heavy clay soils which are invariably unsuitable for coconuts;

Steep and sloping land other than in areas of particularly high fertility;

Red soils, particularly red clays associated with coastal limestone formations where the soils are too shallow;

Gravelly, or rubble soils, and soils with gravel or rubble strata at various depths.

Sour or acid sands, usually distinguished by a marked development of fern growth and the failure of leguminous cover crop to establish.