



PLATE 1.—Seedlings at selection stage in nursery.

NURSERY SELECTION OF COCONUT SEEDLINGS

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THE importance of careful selection of planting material when establishing a new area of coconuts cannot be over-emphasized. Any mistakes made in the initial planting will reduce the returns to be expected from the crop over a period of 50 years or more so that some additional expense in the first instance will be amply repaid in future years.

An experiment carried out in Ceylon (Liyanage 1955) has shown convincingly that very worthwhile improvements in future plantation productivity can be achieved by selection of seedlings in the nursery. Three criteria of selection are used :—

(a) early sprouting ;

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- (b) vigour of seedling; and
- (c) resistance to pests and diseases.

The experiment referred to was laid down in 1939, and palms had been in bearing for nine years at the time the results were reported. It has shown that there is a definite correlation between the time taken for a seed nut to sprout and the time taken for the palm to mature and commence flowering. Early sprouting nuts on the average produce earlier flowering palms than nuts which are slow to sprout. Thus palms grown from early sprouting nuts give higher yields in the first years of bearing.

The experiment has also shown that the yield of nuts from palms derived from selected seedlings has been significantly higher than those derived from unselected seedlings. The increase in crop in both number of nuts and weight of copra during the first five years of bearing (1945-1949), was over 25 per cent. and subse-

quently (1950-1954) more than 12 per cent. This increased yield in the early years would more than repay the cost of selection, even if the advantage were not maintained in later years. However, indications are that the advantage will be maintained throughout the life of the stand.

Seed Collection

One factor which is likely to reduce the effectiveness of seedling selection in this country, as compared with Ceylon, is the difference in method of harvesting. In Ceylon, nuts are cut down from the palms as soon as they mature, and thus it is possible to obtain seed nuts of uniform age for planting. In this Territory, nuts are collected from the ground after natural fall and inspection of the palms on any plantation will show that this leads to considerable variation in the age of the fallen nuts. Many palms tend to drop their nuts as soon as they

PLATE 2.—Seedlings at selection stage contrasting good characteristics (left) with poor ones.



mature, when the husk is brown, but not fully dry. But on some palms the dry nuts hang for some months before falling, and often are germinated or infected by the time they fall. Such variation in age will inevitable cause variability in rate of germination not related to the vigour of the seed.

It is therefore important to collect seed as uniform in age as possible. Freshly fallen nuts only should be taken and those palms should be avoided which have more than one bunch of dry nuts hanging on them. If the quantity of seed required is not too great, it may be worthwhile to collect from the palms in the same way as in Ceylon.

Nursery Practice.

The nursery should be established in even, well-worked and, if possible, fairly loose soil, preferably where water is available for watering in dry periods. Nuts should be spaced widely enough to enable removal with a large proportion of the roots after the seedlings have been selected at about the four-leaf stage. A spacing of about 12 inches in rows, 18 inches apart should be satisfactory. Seed nuts should be planted on their side and at such a depth that they are almost covered by the soil.

The first selection to be made will be based on the time taken to shoot. Ceylon practice is to reject all seed nuts that do not germinate within 20 weeks. However, rate of germination is affected considerably by weather conditions—dry weather slows germination—and a more satisfactory criterion might be the rejection of

all ungerminated nuts as soon as the first 70 per cent. have shot. These nuts could still be converted to copra.

The second selection is made on the vigour of the seedlings. The time of this selection must be to some extent a compromise. The older the seedling, the easier it will be to detect differences in vigour. But on the other hand, the older the seedling, the greater will be the setback at transplanting, particularly if weather conditions prove unfavourable. As a compromise, the four-leaf stage (that is, when the majority of seedlings have four leaves) is the best for selection. But in areas where rains cannot be relied on, it would be better to select and transplant earlier.

Vigour is determined from the girth at the base of the shoot; size, spread, and colour of the leaves; rapidity of growth and sturdiness of the seedling. A good seedling has a stout stem, dark green, broad leaves with strong midribs. A poor seedling is "leggy" with a thin, weak stem, pale green, narrow leaves and thin midribs.

On these standards, the two stages of selection will probably result in rejection of 40 to 60 per cent. of the original seed nuts. This will at least double the cost of planting material over the use of unselected material; but as has been indicated, the extra expense will be abundantly repaid. In any case, cost of planting material is a minor item in the total costs of coconut planting.

REFERENCE

- LIYANAGE. 1955. Planting Material for Coconuts. Ceylon Coconut Quart., 6: 75-80.