# The Relative Merits of First and Second Bunch Coconuts for Seed Purposes

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THE usual practice in estates is to harvest coconuts once every two months. The palm produces one inflorescence every four weeks, so that at each harvest two bunches are picked, one bunch approximately a month more mature than the other. The older bunch is referred to as the first bunch and the other as the second bunch. Under normal picking, nuts from both bunches are ripe and suitable for copra and culinary purposes. Occasionally, three bunches may be picked from a single palm, then at the subsequent pick if two bunches are collected, the younger one may be unripe. Some palms show a marked periodicity in bearing, and at certain seasons no bunches can be picked at all.

There is considerable difference in opinion with regard to the use of first and second bunch nuts for seed purposes. Some maintain that the progeny derived from nuts of the second bunch are superior to those of the first bunch, and vice versa. An attempt is made in this paper to study the differences, if any, both in the young seedling and in the adult palm.

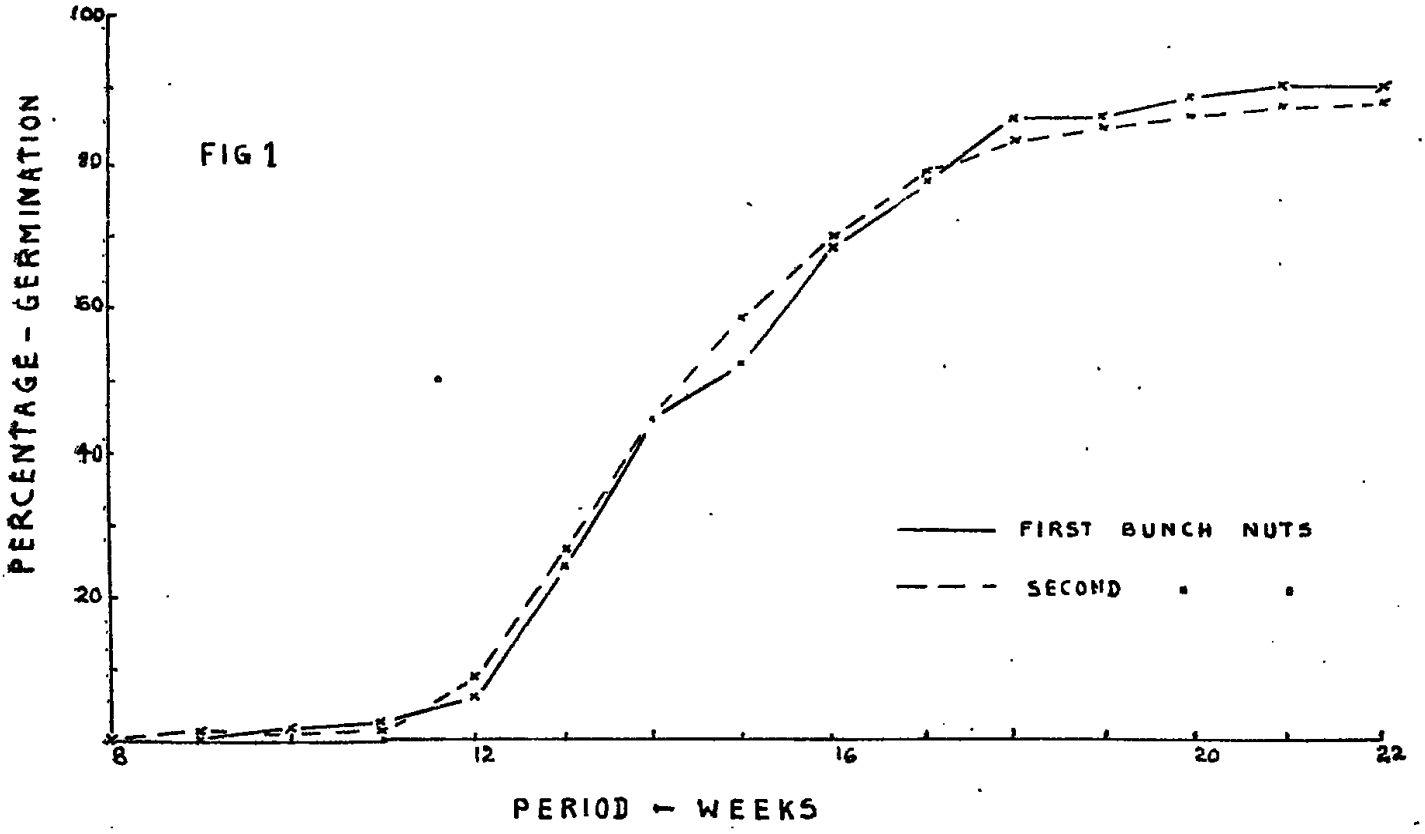
Literature on this aspect of germination of coconuts is rather scarce. Pandittasekera (1) has expressed the view that nuts of the second or less mature bunch are preferable to those of the first bunch. According to Espino (2) dead ripe nuts are superior to those at any other stage of ripeness —the exact converse.

## PERFORMANCE OF SEEDLINGS

From a normal estate pick, 200 first bunch nuts and 200 second bunch nuts of uniform size and shape were collected and planted in the nursery. Each first bunch nut was planted alternatively with that of a second bunch. Planting was done in the usual manner in trenches six inches deep. Date of germination, number of leaves, number of emergent roots and the height of each seedling, were recorded. The last three factors were determined when the seedling was uprooted nine months after date of planting. The number of leaves excluded the " fish " leaf and leaves that were not fully developed were denoted by fractions—half developed, &c. Period taken for germination has been recorded from the date of planting nuts which was nearly five weeks after picking the nuts.

**TABLE I.—First and Second Bunch Nuts**

| | *No. of nuts planted* | *Per cent. of germinations* | *Average period taken for germination* | *Average Number of leaves per seedling* | *Average Number of roots per seedling* |
|---|---|---|---|---|---|
| | | | *Days* | | |
| **First bunch** | 200 | 91·0 | 102·5 | 4·0 | 10·6 |
| **Second bunch** | 200 | 88·5 | 101·1 | 3·9 | 10·5 |




GRAPH SHOWING THE PERCENTAGE RATE OF GERMINATION OF FIRST AND SECOND BUNCH NUTS

The main characters of seedlings are summarized in Table I, and fig. 1.

The average period taken for germination per seedling varies only by one day (approximately) in the two classes, and this difference is not significant. Nearly 50 per cent. of the nuts of each class have germinated before the completion of 15 weeks and 85 per cent. by the 18th week. The largest number of germinations in each case were from the 13th to 15th weeks.

The co-efficients of variability were rather high with 15.2 per cent. for the first-bunch nuts and 15.3 per cent. for the second-bunch. Here again this difference too is negligible.

Variations in the periods taken for germination even in nuts of a single bunch are considerable. Frequently, these differences are spread over two to three months. This probably is due to some inherent qualities of the nut and not to any environmental conditions.

Thus as far as germination is concerned there are no differences between the first and second-bunch nuts. Although the embryos of the first-bunch nuts are approximately four weeks older than that of the second-bunch nuts, yet they awaken into activity more or less at the same time. The dormancy period is about three months. This dormancy is not due to the fact that after ripening of embryo is necessary when the nuts are picked.

Other characters like production of leaves and roots and height of seedlings are identical in both classes.

## PERFORMANCE OF ADULT PALMS

Data of 147 first-bunch nut palms and 145 second-bunch nut palms which form the first generation palms in a progeny trial are now available. The palms have been planted at random in a five-acre block in November, 1934, and the manurial treatments right through have been identical. Two important characters of palms are the periods taken for bearing and the yielding capacity.

**TABLE 2.—Frequency Table for period taken for initial flowering in 6 month classes**

| | *Mean of Class (Months)* | *Frequency of 1st bunch-nut-palms* | *Frequency of 2nd bunch-nut-palms* |
|---|---|---|---|
| 49–54 | .. | 5 | 7 |
| 55–60 | .. | 16 | 18 |
| 61–66 | .. | 44 | 57 |
| 67–72 | .. | 38 | 22 |
| 73–78 | .. | 34 | 32 |
| 79–84 | .. | 5 | 7 |
| 85–90 | .. | 2 | 1 |
| 91–96 | .. | 2 | 0 |
| 97–102 | .. | 0 | 1 |

The class range is quite considerable extending from 4 to 8 years. The dispersion of varieties round the general mean is slightly more in the case of second-bunch nuts with a co-efficient of variation of 12.1 per cent. against 11.6 per cent. for the first-bunch nuts.

Nearly 71 per cent. of the palms in either groups have flowered before the completion of six years and only a negligible number, less than 3 per cent. remained to flower after seven years. The average periods taken for flowering of the first and second bunch-nut palms are 68.1 and 67.0 months respectively, from date of transplantation. This difference of 1.1 months is not statistically significant.

**TABLE 3.—Yield of Nuts**

| | No. of palms | Year after transplantation | | | | | | | Total | Total less 6th and 7th years | Av./Palm/ year |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 6th | 7th | 8th | 9th | 10th | 11th | 12th | | | |
| First bunch .. | 147 | 41 | 1,089 | 5,616 | 7,623 | 7,671 | 6,012 | 6,440 | 34,492 | 33,362 | 45·4 |
| Second bunch .. | 145 | 150 | 1,351 | 5,704 | 7,257 | 7,739 | 5,823 | 6,350 | 34,374 | 32,873 | 45·3 |
| Total .. | 292 | 191 | 2,440 | 11,320 | 14,880 | 15,410 | 11,835 | 12,790 | 68,866 | 66,235 | 45·4 |

The comparative total yields of nuts of the two lots are presented in Table 3. During the first three years of bearing, the second bunch nut palms have yielded more nuts than the other lot, but as the palms have come into full bearing, these initial differences have evened out.

The average yield of copra was 18.1 lb. and 18.4 lb. per palm per year for the first and second bunch nut palms respectively. This difference of 0.3 lb. per palm is not significant. There were considerable variations within each group and these variations were more or less common to both groups, so that the yearly yields remained even (Table 4). Nearly 17 per cent. of the palms in each group have given more than 25 lb. of copra per palm per year.

**TABLE 4—Frequency Table : Yield of Copra per palm per year**

| Class (*wt. in lb.*) | *Frequency of 1st bunch-nut-palms* | *Frequency of 2nd bunch-nut-palms* |
|---|---|---|
| 1–10 .. .. | 24 .. | 25 |
| 11–20 .. .. | 65 .. | 56 |
| 21–30 .. .. | 50 .. | 54 |
| 31–40 .. .. | 8 .. | 10 |

This plantation is now nearly sixteen years old, and so far no marked differences in the growth of the palms are apparent. Seven palms show signs of tapering, four from the first-bunch nut palms and three from the other group. Heavy leaf drooping and immature nut fall occur with every drought in both groups in equal numbers. Therefore it cannot be said that the effect of environment on palms is more pronounced in any particular group than in the other in relatively young palms.

## DISCUSSION

The suitability for seed purposes of first and second bunch nuts of normal estate picks is analysed. As far as the major characters of seedlings like period taken for germination and production of roots and leaves are concerned, differences between the two groups are negligible. Similarly in the adult palms, differences in the period taken for flowering and the yielding capacities are not statistically significant. Consequently, when coconuts are taken for seed purposes, both first and second bunch nuts are equally suitable as long as they are quite ripe.

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