

High-yielding coconut varieties

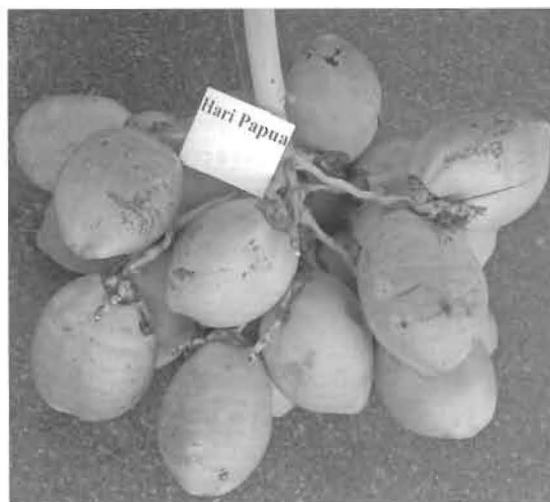
Of the 30 accessions studied, Niu Lekha, Hari Papua, Niu Oma and Nikkore of typical types were selected for phonological and economical traits. Among 4 accessions, Niu Lekha typical type was named as CARI-Annapurna because of its dwarf and high copra content characters. The dwarf, compact crown and attractive nuts of coconut varieties are being used as avenue trees and focal plants in a garden. It has been reported that the dwarf orange and yellow coloured coconut palms are getting popular all over the world because of their attractive nuts and aesthetic value. In view of above, three ornamental coconut varieties such as Hari Papua, Niu Oma and Nikkore were named as CARI-Surya, CARI-Omkar and CARI-Chandan, respectively. The highest fruit weight (1521g), fruit length (22.20 cm), fruit breadth (18.30 cm) nut weight (873.80g/nut) and copra content (237.80g/nut) were recorded in CARI-Annapurna as compared to other three varieties selected. The difference in yield and other attributes might be due to the genetic make-up of varieties.

COCONUT is one of the major plantation crops occupying nearly 50% of cultivable area of A & N Islands and this crop supports the livelihood of majority of populations particularly the Nicobari tribes. Most of the plantations are old and farmers are deriving income without incurring any expenditure on maintenance of the plantation. One of the major problems of coconut cultivation in A & N islands is because of overcrowding of senile and very old palms. There are many gardens where poor yielding palms are standing in the midst of palms giving average yield or above.

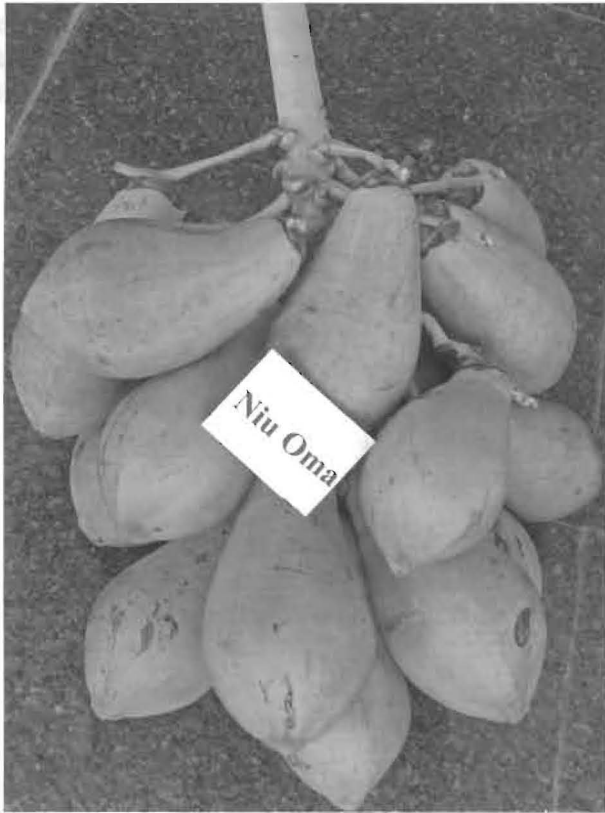
The expansion of area under coconut is difficult because of less area available for agriculture. Out of 21,689 ha of coconut plantations, 14,556 and 7,133 ha are distributed in Nicobar and Andaman islands, respectively. An experiment was conducted in World Coconut Germplasm Centre (WCGC) at Sipighat farm, CARI, Port Blair, with 30 germplasm including 24 exotic germplasm collected from Pacific Oceans islands and 6 indigenous germplasm collected from the Nicobar group of Islands. All these collections were evaluated for yield and other attributes over 25 years.



CARI-C1



CARI-C2



CARI-C3



CARI-C4

Varieties

The CARI- Annapurna is dwarf (4.7 m), yielding 51.60 nuts/tree/year as compared to Andaman ordinary which has the height of 12.90 m, yielding 63.5 nuts/tree/year. The advantage of CARI, Annapurna is that this variety is dwarf which has significance in reducing the labour cost for harvesting the nuts. The other economic characters such as spacing adopted 6 m × 6 m, copra content/nut (245g) and copra yield kg/ha (3795 kg) were superior over the Andaman ordinary. The ornamental varieties such as CARI-Surya, CARI-Omakar and CARI-Chandan were found to be superior for ornamental characters over the local dwarfs.

Their Cultivation

All these varieties can be cultivated by selecting one-year-old vigorous and healthy seedlings free from pests and diseases. Mostly coconuts are planted in square system of planting with a spacing of 7.5 m × 7.5 m but CARI-coconut varieties can be planted at the spacing of 6 m × 6 m. This will accommodate 177 palms per ha. Pits of 1 m × 1 m × 1 m size are dug out and filled with topsoil, powdered cow dung

up to 60 cm depth during summer season and seedlings are planted in the pits with the onset of monsoon.

In waterlogged soils, mounds are made and seedlings are planted in the center of the mound. Planting is generally done during the beginning of monsoon season, i.e. from June to September. In areas subject to waterlogged condition planting can be done after the cessation of the monsoon. Sufficient attention and care must be taken to young palms in initial growth period. The seedlings must be properly shaded during summer. Irrigation with 45 litres of water once in 4 days must be provided during summer months. The pits should be cleared of weeds periodically. An application of 500gN, 320g P₂O₅ and 1200g K₂O per palm per year is generally recommended for adult palms. The cultivation of different cover crops such as *Pueraria* sp., *Calopogonium* sp., *Centrocema* sp. and *stylosanthes* sp. improves the soil conditions and yield.

SUMMARY

Among 30 accessions evaluated, Niu Lekha typical type was named as CARI-Annapurna which has high copra yield/ha (3,795 kg) compared to

Table 1. Comparative analysis of nut characteristics of high-yielding CARI coconut varieties

| Characteristic | CARI-C-1 (Annapurna) | CARI-C-2 (Surya) | CARI-C-3 (Omkar) | CARI-C-4 (Chandan) |
|--------------------------------|------------------------------|---------------------|---------------------|-----------------------|
| Plant height (m) | 4.7 | 7.3 | 5.5 | 6.7 |
| Girth of trunk (cm) | 94.7 | 68.8 | 67.0 | 66.3 |
| Number of scars | 35.7 | 22 | 32.3 | 35.3 |
| Internodal distance(cm) | 4.9 | 5.0 | 4.7 | 5.5 |
| Number of leaves in crown | 29.8 | 20.8 | 21.7 | 23 |
| Length of longest Leaf (cm) | 399.2 | 420.5 | 392.0 | 485.8 |
| Length of petiole (cm) | 113.3 | 93.8 | 90.0 | 112.3 |
| Number of leaflets on one side | 98.8 | 82.0 | 86.0 | 97.0 |
| Length of longest leaflet (cm) | 102 | 115.0 | 113.3 | 132.5 |
| Breath of longest leaflet (cm) | 5.5 | 4.5 | 4.7 | 3.5 |
| Average number of bunches/tree | 11.2 | 10.8 | 13.0 | 9.5 |
| Weight of fruit (g) | 1521.00 | 410.50 | 432.50 | 545.00 |
| Length of fruit (cm) | 22.2 | 15.5 | 18.8 | 18.1 |
| Breadth of fruit (cm) | 18.3 | 12.0 | 11.0 | 11.9 |
| Thickness of husk (cm) | 2.6 | 1.0 | 1.5 | 1.5 |
| Weight of husk (gm) | 590 | 140.5 | 143.5 | 168.1 |
| Weight of nut (gm) | 873.8 | 250.5 | 277.5 | 359.7 |
| Volume of nut water (ml) | 179 | 28 | 26 | 59 |
| Volume of cavity (ml) | 315 | 119 | 114 | 122 |
| Thickness of kernel (cm) | 1.32 | 0.98 | 0.98 | 1.14 |
| Thickness of shell (cm) | 0.81 | 0.45 | 0.43 | 0.37 |
| Weight of wet kernel (g) | 426.3 | 155.5 | 152.5 | 207.8 |
| Weight of shell (g) | 288.8 | 100 | 106 | 106.3 |
| Weight of copra/nut (g) | 237.8 | 70.0 | 73.5 | 101.6 |
| Oil (%) | 63.5 | 62.5 | 64.5 | 66.0 |
| Yield/tree (No. of nuts) | 51.6 | 114.3 | 136.0 | 92.5 |
| Utility/use | Copra and tender nut purpose | Ornamental | Ornamental | Ornamental |

Andaman Ordinary, yielding 1,947 kg/ha of copra, 49% copra yield of the CARI-Annapurna. Three ornamental coconut varieties of CARI were found to be superior for their attractive nuts and dwarf characters over local dwarfs. Hence, popularization of these varieties for large-scale cultivation in Islands as well as in the mainland of India would certainly

benefit the farming communities.

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