# MANAGEMENT OF HYBRID COCONUT PALMS

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**Abstract:** Recently, hybrids Chandrasankara (COD x WCT) and Chandralaksha (LO x COD) from CPCRI, Kasaragod, Lakshaganga (LO x GB) and Anandaganga (AO x GB) from the Kerala Agricultural University and VHC 1 (ECT x OGD) and VHC 2 (ECT x MYD) from the Tamil Nadu Agricultural University have been released for cultivation. Hybrids Chandralaksha and Lakshaganga were found tolerant to drought. Chandrasankara appeared to be susceptible to drought. However, in sandy loam soil under rainfed conditions at Kasaragod, this hybrid has outyielded the hybrid WCT x COD and the local cv WCT. Under rainfed conditions of Kasaragod with the fertilizer level of 500 g N + 500 g $P_2O_5$ + 1000 g $k_2O$/palm/year, hybrid Chandrasankara produced 92 nuts/palm/year as against 79 and 67 nuts respectively in WCT x COD and WCT. With 20 mm irrigation through perfo-sprinkler, hybrids Chandrasankara and WCT x COD yielded 147 and 135 nuts/palm/year respectively, compared to 126 nuts by WCT. Hybrid Chandrasankara showed higher efficiency in utilizing native fertility and attained earlier bearing than WCT x COD and WCT.

Planting of hybrid coconuts makes sense only if they are grown in a congenial environment and supplied with adequate nutrients and water and optimum plant protection measures are adopted to enable the palms to express their full yield potential. Most of the hybrids have been released for cultivation only recently and only limited information is available regarding their management. Though there is no basic difference in the management of cultivars and hybrids of coconut, hybrids do differ from local cultivars. Management practices for optimising the productivity of hybrid coconuts are discussed in this paper in the light of recent research findings. The hybrids COD x WCT (Chandrasankara) and LO x COD (Chandralaksha) of CPCRI and LO x GB (Lakshaganga) and AO x GB (Anandaganga) of KAU have been recommended for cultivation in Kerala. Similarly TNAU has released the hybrids VHC 1 (ECT x OGD) and VHC 2 (ECT x MYD) for cultivation in Tamil Nadu. The performance of the released hybrids vis-a-vis the local cultivars is summarised in Table 1.

The productivity of hybrids varies under different agro-ecological conditions. Among the released hybrids, COD x WCT was observed to be more susceptible to drought. The yield of COD x WCT palms showed large year to year variations and it recorded very poor yields during 1982, 1984 and 1986 as a result of the pronounced drought which occurred during the previous years. Hybrids involving LO (LO x GB and LO x COD), however showed greater tolerance to drought and recorded only smaller fluctuations in their annual yield. The increased susceptibility of COD x WCT hybrid to drought was also brought out by the physiological traits. Lower stomatal resistance, less epicuticular wax content and higher transpiration rate compared to its reciprocal hybrid, WCT x COD and the local cultivar WCT, make COD x WCT the most susceptible to drought. Therefore, this hybrid is not suited to drought-prone areas under rainfed conditions.

During 1981-83 hybrid COD x WCT produced significantly higher yield (77.6 nuts/palm/year) than WCT (61.6 nuts/palm) and hybrid WCT x COD (62.0 nuts/palm). During this period both the

Table 1. Performance of coconut hybrids released for cultivation

| Location | Hybrid/ cultivar | Yield (nuts/ palm/ year) | Copra/ nut (g) | Copra yield (kg/palm/ year) |
|---|---|---|---|---|
| [1] CPCRI, Kasaragod | WCT | 68 | 176 | 12.0 |
| | COD x WCT | 78 | 208 | 16.3 |
| | LO x COD | 78 | 195 | 15.2 |
| [2] Regional Agrl. Res. Stn. (KAU), Pilicode | LO x GB | 108 | 195 | 21.6 |
| | AO x GB | 95 | 216 | 20.6 |
| [3] Coconut Research Station (TNAU) Veppankulam | VHC 1 | 112 | 162 | 18.1 |
| | VHC 2 | 126 | 161 | 20.3 |
| | ECT | 105 | 134 | 14.1 |

Sources : [1]Bavappa (1986); [2] Balakrishnan *et al.* (1988); [3] AICRPP (1988)

Table 2. Response of coconut genotypes to fertilizer levels under rainfed conditions at CPCRI Kasaragod

| Genotype | Yield during 1981-83 (nuts/palm/year) | | | |
|---|---|---|---|---|
| | $m_0$ | $m_1$ | $m_2$ | Mean |
| WCT | 33.7 | 66.9 | 84.4 | 61.6 |
| COD x WCT | 45.9 | 92.2 | 94.7 | 77.6 |
| WCT x COD | 26.4 | 79.2 | 80.4 | 62.0 |
| Mean | 35.3 | 79.4 | 86.5 | |

CD (0.05) for genotypes is 12.0; and for fertilizer levels is 12.0

hybrids have shown response up to $m_1$ level only. Thus the optimum dose for both the hybrids is 500 g N + 500 g $P_2O_5$ + 1000 g $K_2O$/palm/year. The hybrid COD x WCT produced 45.9 nuts/palm/year at $m_0$ level which was 36 and 74 per cent higher than the yields of WCT and WCT x COD at $m_0$ level. At $m_1$ level COD x WCT yielded 38 and 16 per cent nuts, respectively than WCT and WCT x COD hybrids (Table 2)

From 1984 onwards, the response of the three genotypes to fertilizer levels was evaluated under both rainfed and irrigated conditions. The data presented in Table 3 reveal that under irrigated condition, the hybrid COD x WCT responded up to $m_1$ level of fertilizer. The production was 166.4 nuts/palm/year under rainfed condition. Regarding the WCT x COD hybrid, the nut yield increased up to $m_2$ level of fertilizer application with irrigation, but decreased at $m_2$ dose under rainfed condition.

Table 3. Performance of coconut genotypes under rainfed and irrigated conditions (1986-88)

| Treatment | | Yield of nuts/palm/year | | |
|---|---|---|---|---|
| | | Rainfed | Irrigated | Mean |
| WCT | m0 | 81.2 | 99.4 | 90.3 |
| | m1 | 108.3 | 134.0 | 121.1 |
| | m2 | 128.9 | 144.3 | 136.6 |
| | mean | 106.1 | 125.9 | 116.0 |
| COD x WCT | m0 | 69.3 | 104.8 | 87.0 |
| | m1 | 148.8 | 166.4 | 157.6 |
| | m2 | 148.6 | 168.4 | 158.5 |
| | mean | 122.2 | 146.5 | 139.3 |
| WCT x COD | m0 | 65.5 | 105.5 | 85.5 |
| | m1 | 137.9 | 140.9 | 139.4 |
| | m2 | 117.1 | 157.6 | 137.4 |
| | mean | 106.8 | 134.7 | 120.8 |
| Means for | m0 | 72.0 | 103.2 | 87.6 |
| | m1 | 131.7 | 147.1 | 139.4 |
| | m2 | 131.5 | 156.8 | 144.1 |

m0 = No fertilizer; m1 = 500 g N + 500 g $P_2O_5$ + 1000 g K2O/palm/year; m2 = 1000 g N + 1000 g $P_2O_5$ + 2000 g $K_2O$/palm/year

## REFERENCES

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