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Coconut varieties for more return

The research efforts have recorded impressive achievements in terms of developing new cultivars and production technologies, which when demonstrated in the field resulted in two-three fold increase in yield. On a national level, research efforts under the aegis of the ICAR, CPCRI, AICRP and SAUs have resulted in the development of 49 improved varieties, including 20 hybrid varieties, capable of producing 2.79-6.28 tonnes of copra/ha/year in different parts of the country for cultivation in different agroclimatic regions within the country, including varieties tolerant to biotic and abiotic stress and specific end uses.

THE organized breeding on coconut was initiated in 1916 at the erstwhile Coconut Research Stations at Kasaragod and Nileshwar, now under the Central Plantation Crops Research Institute and Kerala Agricultural University, respectively. Concerted research on coconut improvement has been undertaken in the country for the past 100 years, with a view to improve productivity levels to ensure better return to coconut farmers. The improved varieties and technologies generated from research institutes have increased coconut production from 12,678 million nuts (69,52 nuts/ha) during 2001 to 21,665 million nuts (10,122 nuts/ha) in 2014 with 3.5% compound growth rate of production.

Varieties

Selection and evaluation of promising accessions

Cowghat Orange Dwarf tender coconut variety

Table 1. Varieties for higher copra yield

Variety	Important traits	Nut yield (palm/year)	Copra content (g/nut)	Oil content (%)	Area for which recommended
Chandra Kalpa	Drought tolerant, high oil - 72%, suitable for neera	97	176	72	Kerala, Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra
Kalpa Mitra	High nut and oil yield, drought tolerant	80	241	66	West Coast region and West Bengal
Kalpa Dhenu	High nut and oil yield, drought tolerant	86	243	65	West Coast region, Tamil Nadu and Andaman and Nicobar Islands
Kalpatharu	Drought tolerant, ball copra, high yield	117	175	68	Kerala, Karnataka, Tamil Nadu
Pratap	High yield	150	145	68	Konkan region of Maharashtra
Kamrupa	High yield	101	161	65	Asom
Aliyarnagar Tall 1	Moderately resistant to basal stem rot, stem bleeding	114	131	66	Tamil Nadu
Kera Bastar	High yield	110	172	65	Chattisgarh, Tamil Nadu, Andhra Pradesh, Maharashtra
Kera Keralam	High yield, suitable for neera	109	176	68	Tamil Nadu, Andhra Pradesh, Kerala, Maharashtra
Aliyarnagar Tall 2	Drought tolerant	120	135	65	Tamil Nadu
VPM-3	High yield, drought tolerant	84	176	70	Tamil Nadu
Kera Sagara	High yield	99	203		Kerala
Double century	High yield	147			Andhra Pradesh

Table 2. Varieties for high copra and tender nut purpose

Variety	Important traits	Nut yield (palm/ year)	Copra content (g/nut)	Oil content (%)	Tender nut water content (g/nut)	Area for which recommended
Kalpa Shatabdi	Large fruit size, lesser Rhinoceros beetle damage, tolerant to moisture stress	105	273	64	612	Kerala, Karnataka, Konkan region, Andhra Pradesh, West Bengal
Kera Chandra	Tolerant to moisture stress, less nematode damage	110	189	66	450	Kerala, Karnataka, Konkan region, Andhra Pradesh, West Bengal
Kalpa Pratibha	Tolerant to moisture stress, large fruits	91	256.37	67	448	West Coast region, Peninsular India
Kalparaksha	High yield in RWD prevalent areas	87	185.20	65.5	290	Kerala
Kalpa Haritha	Lesser eripohyid mite damage	118	180.05	66.5	440	Kerala, Karnataka
Gautami Ganga	Dwarf, green fruit colour	65	156.70	68	467	Andhra Pradesh
Kera Madhura	Semi-tall, green fruit colour	120	196	65	290	Kerala
Kalyani Coconut	Tall, high yield	80	154	68.5	350	West Bengal
CARI-C1 (Annapurna)	Dwarf, stout stem with closely spaced leaf scars	52	245	64.6	470	Andaman and Nicobar Islands

Kalpa Prathibha

Kalpa Dhenu

Table 3. Dwarf varieties for tender nut and ornamental purpose

Variety	Important traits	Nut yield (palm/year)	Tender nut water content (ml/nut)	Area for which recommended
Chowghat Orange Dwarf	Orange fruit colour, less affected by eriophyid mite	112	351	All coconut growing areas
Kalpa Jyothi	Yellow fruit colour, shorter drooping leaves	114	380	Kerala, Karnataka, Asom
Kalpa Surya	Orange fruit colour, shorter drooping leaves	123	400	Kerala, Karnataka, Tamil Nadu
CARI-C2 (Surya)	Orange fruit colour, drooping leaves	107	155	Andaman and Nicobar Islands
CARI-C3 (Omkar)	Yellow fruit colour, shorter drooping leaves	113	346	Andaman and Nicobar Islands
CARI-C4 (Chandan)	Deep orange fruit colour, shorter leaves	98	368	Andaman and Nicobar Islands

Table 4. Varieties with tolerance/resistance to root (wilt) disease

Variety	Important traits	Nut yield (palm/year)	Copra content (g/nut)	Oil content (%)	Area for which recommended
Kalparaksha	Semi tall, high nut and oil yield in RWD prevalent areas	65	185.20	65.5	Root (wilt) disease affected tracts
Kalpasree	Dwarf, superior oil, high yield in RWD areas	90	96.30	66.5	Root (wilt) disease affected tracts

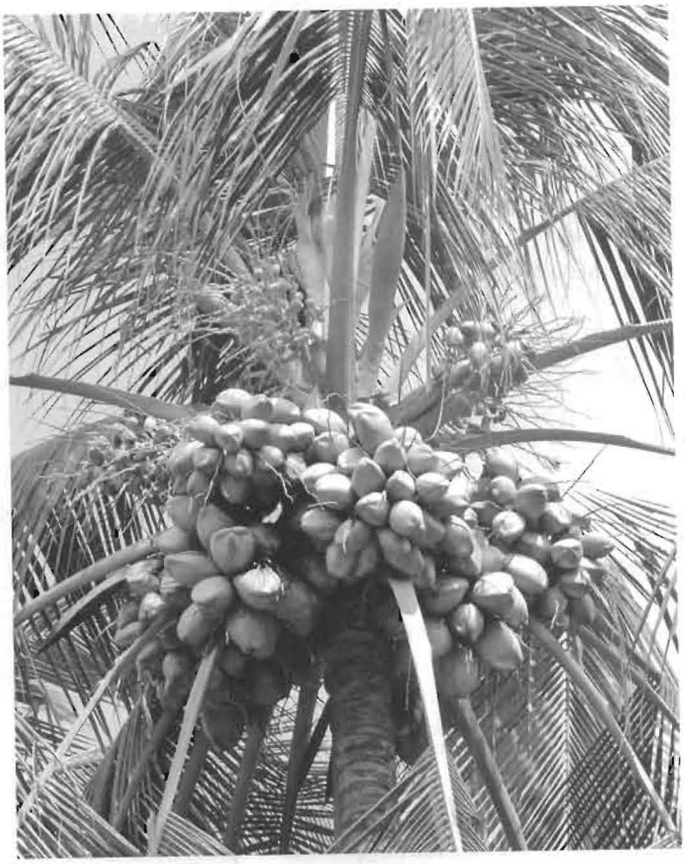
Table 5. Tall × Dwarf coconut hybrids released for higher yield

Hybrid	Important traits	Nut yield (palm/year)	Copra content (g/nut)	Oil content (%)	Area recommended
VHC-1	High yield	98	135	70	Tamil Nadu
VHC-2	High yield	107	146	69	Tamil Nadu
Chandra Laksha	Dual purpose, drought tolerant	109	195	69	Kerala, Karnataka
Laksha Ganga	High yield	108	195	70	Kerala
Ananda Ganga	High yield	95	216	68	Kerala
Kera Ganga	High yield	100	201	69	Kerala
Kera Sankara	Drought tolerant	108	187	68	Kerala, Karnataka, Maharashtra, Andhra Pradesh
Godavari Ganga	High yield	150	150	68	Andhra Pradesh
Kera Sree	High yield	112	216	66	Kerala
Kera Sowbhagya	High yield	130	195	65	Kerala
VHC-3	High yield	156	162	70	Tamil Nadu

Table 6. Dwarf x Tall coconut hybrids released for higher yield

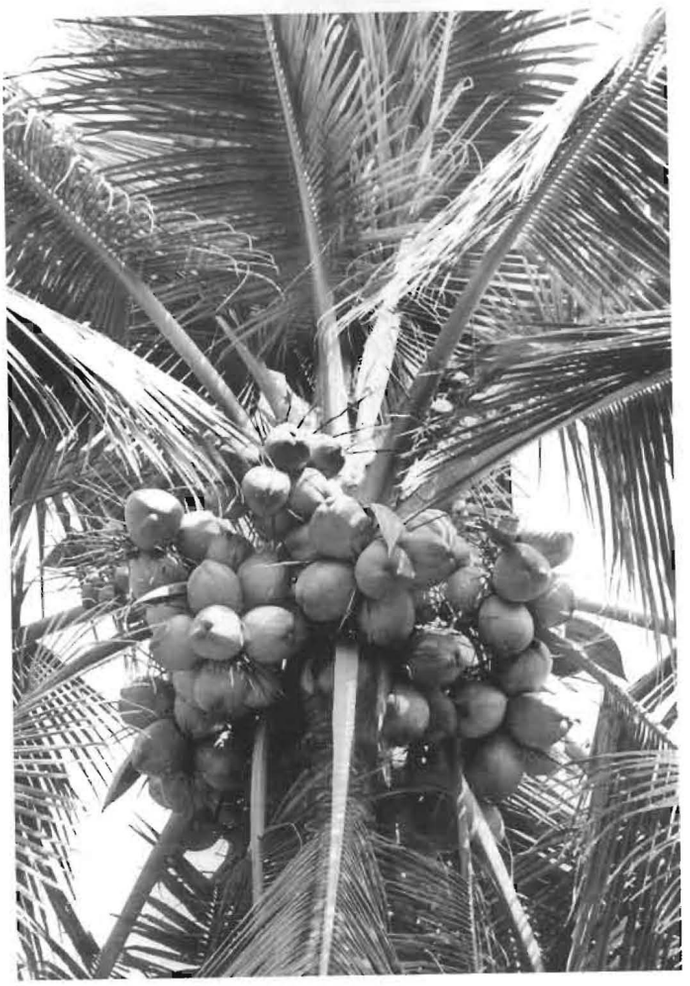
Hybrid	Important traits	Nut yield (palm/year)	Copra content (g/nut)	Oil content (%)	Area for which recommended
Chandra Sankara	Dual purpose	110	208	68	Kerala, Karnataka, Tamil Nadu
Kalpa Samrudhi	Dual purpose, drought tolerant, higher nutrient use efficiency	117	219	67	Kerala, Asom
Kalpa Sankara	Tolerant to root (wilt) disease, high yield	84	170	67	Root (wilt) disease prevalent tracts
Kalpa Sreshta	Dual purpose variety, high yield	167	216	64	Kerala, Karnataka
Konkan Bhatye coconut hybrid 1	High yield	116	178.75	67	Maharashtra
Kalpa Ganga	High yield, suitable for ball copra production	121	157.80	64	Karnataka
Vasista Ganga	High yield	125	175.20	69	Andhra Pradesh, Karnataka
Ananta Ganga	High yield	128	169.50	72	Andhra Pradesh, Karnataka

Kalpa Jyothi



Chandrakalpa

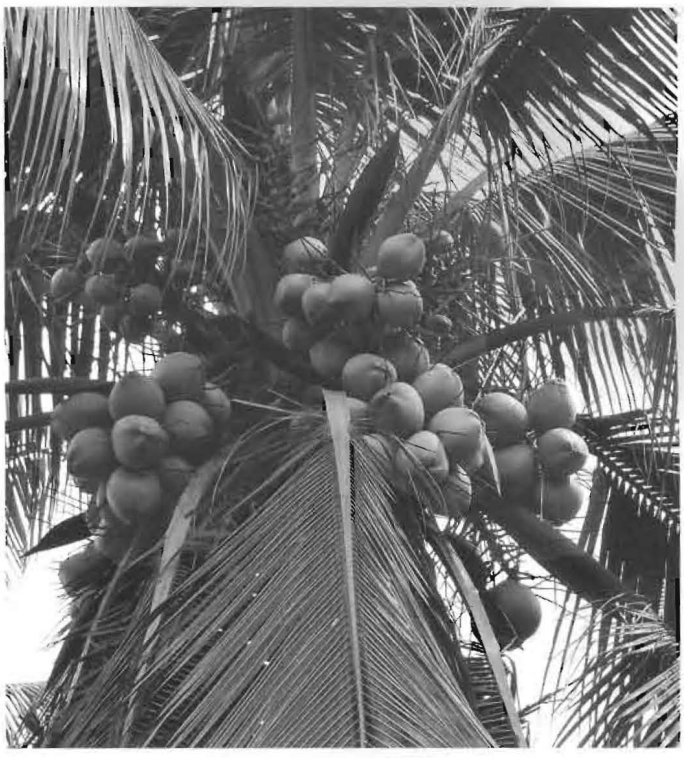
Kalpa Surya



Kera Chandra

Kalparaksha

Kalpatharu



Kalpa Haritha

Kera Keralan

Chandralaksha

Kalpasree

Chandra Sankara

Kera Sankara

Kalpa Samrudhi

Kalpa Sankara

Kalpa Sreshtha

Kalpa Mitra

have resulted in the development and release of 29 high-yielding varieties of coconut. Important features of released varieties from indigenous as well as exotic coconut germplasm are given in Tables 1-4.

Heterosis for Hybrids

In coconut, heterosis has been tapped through hybridization between Talls and Dwarfs. India was one of the first country in the world to report on heterosis/hybrid vigour in coconut. More than 100 cross-combinations have been developed for evaluation of yield potential. So far 20 hybrids have been released for cultivation in different states (Tables 5 and 6).

SUMMARY

With increasing threat of climate change associated pest/disease outbreaks, focus is also on identification of sources of resistance/tolerance to important pests/diseases. Further, efforts are also under way to assess the potential for neera/inflorescence sap yield, coconut milk and VCO production for development of coconut varieties suitable for different end purposes. Planting material of released varieties is provided to farmers for establishment of plantations by respective institutes, to facilitate higher crop productivity and higher return. The CPCRI, Kasaragod, promotes establishment of mother gardens in different parts of country to facilitate production of quality planting material and meet the requirement of different stakeholders. Towards this end, mother garden have also been established at different centres of the AICRP on palms in the states of Tamil Nadu, Karnataka, Maharashtra, Andhra Pradesh, West Bengal, Gujarat, Asom, as well as in non-traditional states, Bihar and Chhattisgarh. The farmers, producers, societies/federations, entrepreneurs and NGOs are encouraged to establish seed gardens of improved varieties to meet the demand of quality planting material and to facilitate area expansion under released/notified varieties in different regions of the country.

For further interaction, please write to:
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