# COCONUT SOILS ON THE EAST COAST OF INDIA

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Coconut is a perennial tree crop grown extensively in India under varied soil and climatic conditions in an area of about 1.1 million hectares. Its cultivation is mainly confined to the States encompassed by the west and east coasts, of which the latter accounts for nearly 15 per cent of the total coconut area and contributes to 21 per cent of the domestic production of nuts. Compared to the West coast, where extensive coconut plantations already exist, further scope for expansion of coconut cultivation is vast in the states of East coast. This article deals with the features of soils supporting coconut in the different states on the east coast, their problems limiting productivity and prospects for improvement. A similar narration of the coconut soils in the west coast is given in the November 1976 special issue of the Indian Farming.

## TAMIL NADU

The state has a coconut area of 1.05 lakh ha. with annual production of 943 million nuts. Coconut is mainly cultivated in the coastal plain, in deltaic portion of river and in the plateau region on coastal, deltaic alluvium and ferrugenous red loam soils respectively.

(1) *Coastal alluvium*: This soil type is found to occur along the sea coast as a narrow belt in the districts of Chingleput, South Arcot, Thanjavur, Ramanathapuram, Tirunelveli and Kanyakumari. It is formed by the deposition from rivers and overlain by the sand blown from sea beaches. The texture varies from sandy to sandy loam to sandy clay loam with well drained surface but poorly drained subsoil. The subsoil consists of a mixed pan of sand and clay which becomes hard in the summer. In general it is low in organic matter and phosphate, high in potash and alkaline in reaction. Moisture stress in summer, lack of adequate drainage in the rainy season and poor organic matter status are some of the problems in this soil region. The coastal area of Tamil Nadu is also within the grip of cyclone in some years and the common practice of surface planting in the tract has to be replaced by deep planting of seedlings.

(2) *Deltaic alluvium*: These are formed from the sediments transported and deposited by rivers in deltaic areas of Thanjavur, Tiruchirapalli, Ramanathapuram, Tirunelveli, Madurai, South Arcot and Chingelput districts. The soils are heavy in texture (silt loam to clay), well supplied with plant nutrients, but poorly drained.

(3) *Red loam*: Coconut areas in parts of Coimbatore, Kanyakumari, Madurai, Ramanathapuram and Thirunelveli districts are covered by this soil. It is red in colour, deep, loamy in texture, well drained, low in organic matter, medium in phosphorus and potash, poor in base status and neutral to alkaline in reaction. Coconuts in this soil type respond well to summer irrigation and balanced manuring.

## ANDHRA PRADESH

The state has a coconut area of 0.4 lakh ha. producing nearly 164 million nuts annually. Nearly 75 per cent of the coconut area is in fine textured deltaic alluvium of the Godavari and the rest in the coarse textured coastal alluvium and the black soils.

(1) *Deltaic alluvium*: This soil type covers parts of east and west Godavari, Vishakhapatnam, Srikakulam and Nellore Districts. It is very deep, loam to clay, moderately drained except in the old alluvium and adequately supplied with plant nutrients due to annual deposition of river silt.

(2) *Coastal alluvium*: This type occurs along the coast in the districts of Srikakulam, Vishakhapatnam, east and west Godavari, Krishna, Guntur and Nellore. It is characterised by sandy texture, good drainage, poor moisture retentivity and low organic matter, nitrogen and phosphorus status.

## ORISSA

Coconut growing in this state is mainly confined to the coastal tract of Puri, Cuttack, Balasore and Ganjam districts in an area of 10700 ha. with an annual production of about 40 million nuts. Coconut is grown in coastal alluvial soils of sandy to sandy loam texture and red alluvial soils of loam to clay loam textures. They are deep, well drained except in low lying areas with heavy soil and low in organic matter, nitrogen and potash status. The main problem limiting coconut production is drainage in the heavy soils of the low lying areas of Puri, Cuttack, Balasore and Ganjam districts. There is also moisture stress in the littoral sandy soils for which both summer irrigation and moisture conservation practices like burial of husk, application of silt need to be taken up. To avert crop damage due to cyclones, wind breaks have to be provided for protection which will also check wind erosion of sand dunes.

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## WEST BENGAL

The State has a coconut area of 6700 ha. spread over the coastal tract, alluvial plains, field, canal and tank bunds with an annual production of about 22 million nuts, major portion of which is consumed as tender nuts. Howrah, Hooghly, 24 Parganas and Midnapore are the important coconut producing districts. Coconut is mainly raised on coastal and alluvial soils of these districts. The coastal soil is sandy at the surface with a heavy sub-soil, poorly drained and is saline to alkaline. The alluvial soil of transported origin in flood plains is clay loam to clay with sand layers embedded in the profile, moderately drained, low to medium in organic matter and medium in available phosphate and potash. The alkaline soils in parts of eastern Midnapur, southern 24 Parganas and Howrah are problem areas limiting crop production. The soils need improvement of drainage and reclamation with gypsum. Surface planting has to be discontinued and deep planting adopted. In low lying areas planting or raised mounds or bunds as practised in Kerala may be resorted to.

## ASSAM

Coconut cultivation is confined to the riverine tract of Brahmaputra and its tributaries spread over the districts of Kamrup, Darrang, Nowgong, Sibsagar and Goalpara in an area of about 4200 ha. producing nearly 10.6 million nuts annually. The soils are recent alluviums with light to dark grey colour, sandy loam to silt loam in texture at the surface and sandy to loamy sand layers at the bottom with ground water table ranging from 1 to 3 metres. In general the soils are meduim in organic matter and phosphate, low in potash and acidic in reaction. The soils need adequate building up of nitrogen and potash.

## PONDICHERRY

The Coconut area of this territory is only about 1500 ha. with an annual production of about 14.8 million nuts. The cultivation is limited to the banks of rivers and backwaters, field and canal bunds and to the sea shore. Coastal alluvium, deltaic alluvium and laterite are the main soils on which coconut is grown of which Pondicherry is covered by coastal alluvium, Karaikal and Yanam by deltaic alluvium of Cauvery and Godavari respectively and Mahe by laterite.

The coastal alluvial soils are brown to reddish brown in colour, sandy to clay loam in texture and neutral to alkaline in reaction. Nitrogen status in the soils of Pondicherry and Karaikal is low while that in the soils of Yanam is medium to high. Phosphate is medium for all the three areas. Potash is low in Pondicherry, medium in Karaikal and high in Yanam. The laterite soil of Mahe in the west coast is indentical in characteristics to the laterite of Kerala.

## ANDAMAN AND NICOBAR ISLANDS

This consists of a group of 477 islands of large and small size. Seventy eight per cent of the area is covered by deciduous forest. The extent of coconut area is 8700 ha. cultivated in the coastal sandy soils of calcareous nature as well as cleared forest areas of the uplands which are clay loam to clayey, poorly drained, vulnerable to soil erosion and consequent low status of organic matter, available phosphate and potash. The calcareous coral soil is sandy, poor in nutrient status and alkaline in reaction. The palms in the old plantations are mostly self-sown and very little attention is paid to their management. There is good scope for organised large scale coconut plantations in these islands.