



SNS COLLEGE OF TECHNOLOGY
(An Autonomous Institution)
COIMBATORE-35



DEPARTMENT OF AGRICULTURAL ENGINEERING

Agroforestry is a land use management system that integrates trees and shrubs with crops and/or livestock in a symbiotic manner. In Tamil Nadu, India, which has diverse agro-climatic zones ranging from coastal to hilly areas, different agroforestry systems can be implemented based on the specific climatic conditions and soil types. Here are some suggestions for agroforestry systems in different agro-climatic zones of Tamil Nadu:

1. **Coastal Zones (Delta and Coastal Plains):**
 - **Mangrove Agroforestry:** Integrate mangrove species like Avicennia and Rhizophora with aquaculture practices.
 - **Coconut-based Agroforestry:** Combine coconut palms with intercrops like banana, pineapple, or cashew for enhanced income.
2. **Dry Zones (Southern and Western Districts):**
 - **Dryland Agroforestry:** Utilize drought-tolerant trees such as neem, pongamia, and Prosopis along with crops like millets, pulses, and oilseeds.
 - **Agro-silvopastoral Systems:** Integrate trees, crops, and livestock, allowing for synergies in resource use.
3. **Hilly and Western Ghats Region:**
 - **Shade-grown Coffee and Cardamom Agroforestry:** Plant shade trees like silver oak or jackfruit to provide shade for coffee and cardamom plants.
 - **Mixed Fruit Orchards:** Combine fruit trees such as guava, passion fruit, and papaya with native trees to create a diverse and sustainable agroforestry system.
4. **High Rainfall Zones (Eastern Ghats and Nilgiri Hills):**
 - **Tea Agroforestry:** Integrate tea plantations with native trees to enhance biodiversity and soil conservation.
 - **Mixed Timber Agroforestry:** Combine valuable timber species like teak or mahogany with fruit and nut trees.
5. **Southern Plateau (Dindigul, Madurai, etc.):**
 - **Aromatic Plant Agroforestry:** Integrate aromatic plants like sandalwood or vetiver with crops like pulses or oilseeds.
 - **Windbreak Agroforestry:** Plant windbreaks using fast-growing species like Eucalyptus or Casuarina to protect crops from strong winds.
6. **Cauvery Delta Region:**
 - **Rice-Fish Agroforestry:** Combine rice cultivation with fish farming and trees like moringa or drumstick for additional income and nutrient cycling.
 - **Palm-based Agroforestry:** Integrate palm trees with crops like pulses, vegetables, or oilseeds.
7. **Northern Plateau (Chennai, Vellore, etc.):**

- **Urban Agroforestry:** Implement small-scale agroforestry in urban and peri-urban areas, incorporating fruit trees, herbs, and vegetables.
- **Bamboo Agroforestry:** Integrate bamboo plantations with crops like ginger, turmeric, or mushrooms for added income.

It's important to note that the choice of agroforestry system should consider local ecological conditions, farmer preferences, and market demand. Additionally, proper management practices, including tree selection, spacing, and pruning, are crucial for the success of agroforestry systems in different agro-climatic zones. Local agricultural extension services and research institutions can provide valuable guidance tailored to specific regions in Tamil Nadu.

Suitable agroforestry practices for northeastern zone of Tamil Nadu

Districts : Chennai, Kanchipuram, Thiruvallur, Cudallore, Vellore, Thiruvannamalai, Vilupuram 2. Annual Rainfall : 1054 mm 3. Soil Types : Red loam, red sandy loam, black clayey and black clay loam to limited extent, saline alluvial in sea coast 4. Major Crops : Groundnut, sesame, rice, bajra, ragi and sugarcane 5. Dominant tree species : Casuarina equisetifolia, Thespesia populnea, Pongamia pinnata, Lannea coromondalica, Anacardium occidentale 6. Major agroforestry practices : a) Monoculture of Casuarina equisetifolia b) Intercropping of groundnut, sesame and pulses with C. equisetifolia c) Band planting of Thespesia populnea and Lannea coromondalica d) Monoculture of Acacia auriculiformis e) Intercropping groundnut, pulses and minor millets with Anacardium occidentale

Suitable agroforestry practices for northwestern zone of Tamil Nadu 1. Districts : Dharmapuri, Krishnagiri, Salem and Namakkal 2. Annual Rainfall : 825 mm in 47 rainy days 3. Soil Types : Red to brown, loamy soils 4. Major Crops : Groundnut, tapioca, sugarcane and vegetables, ragi, sesame, horsegram and castor 5. Dominant tree species : Delonix elata, Pongamia pinnata, Ailanthus excelsa, Albizia amara and Tamarindus indica 6. Major agroforestry practices : a) Bund planting of Pongamia pinnata (Dharmapuri), Delonix elata and Albizia amara (Salem) b) Intercropping tapioca with Eucalyptus tereticornis c) Monoculture of E. tereticornis

Districts : Tiruchirapalli (part of district), Perambalur (part of district), Pudukottai (part of district), Thanjavur, Nagapattinam and Thiruvarur 2. Annual Rainfall : 900 – 1000 mm 3. Soil Types : Alluvial in the old delta and red loam with pockets of laterite in the new delta 4. Major Crops : Paddy, sugarcane, banana, pulses 5. Dominant tree species : Thespesia populnea, Bamboo, Acacia nilotica, Prosopis juliflora, Ailanthus excelsa, Casuarina equisetifolia, Eucalyptus tereticornis 6. Major agroforestry practices : a) Bund planting of Acacia nilotica and Bambusa bambos (Thanjavur) b) Intercropping groundnut and coriander with B. bambos c) Boundary planting of Tectona grandis and Dalbergia sissoo along water courses and canals d) Live fence of Lannea coromondalica (Nagapattinam) e) Woodlots of Terminalia arjuna

Suitable agroforestry practices for western zone of Tamil Nadu 1. Districts : Erode, Coimbatore, Karur, Dindigul and Theni 2. Annual Rainfal : 638 mm in 45 rainy days 3. Soil Types : Thin red with a block of black soil 4. Major Crops : Rice, sugarcane, cotton, sorghum, ragi, turmeric, banana, groundnut, Bengal gram, tobacco 5. Dominant tree species : Hardwickia binata, Holoptelia integrifolia, Ailanthus excelsa, Acacia leucophloea, Acacia ferruginea, Santalum album 6. Major agroforestry practices : a) Bund planting of Albizia lebbeck, Ailanthus excelsa, Hardwickia binata b) Intercropping tapioca, groundnut, sesame with *E. tereticornis* c) Woodlots of *Ceiba pentandra* d) Silviculture consists of *Acacia leucophloea* with fodder sorghum, *Cenchrus* spp. e) Fuel plantation of *Prosopis juliflora*

Suitable agroforestry practices for southern zone of Tamil Nadu 1. Districts : Ramanathapuram, Tirunelveli, Madurai, Pudukottai (part), Sivagangai, Virudhunagar and Thoothukudi 2. Annual Rainfal : 776 mm in 43 rainy days 3. Soil Types : Black clayey (mid zone), saline coastal alluvium or river alluvium (eastern region), red sandy soil (north eastern side), deep red soil (western region) 4. Major Crops : Bajra, cotton, jowar, fodder jowar, minor millets, groundnut, senna, chilli and vegetables 5. Dominant tree species : *Acacia planifrons*, *Ceiba pentandra*, *Bassia latifolia*, *Prosopis juliflora*, *Tamarindus indica*, *Eucalyptus tereticornis*, *Azadirachta indica* 6. Major agroforestry practices : a) Woodlots of tamarind and neem b) Silviculture consists of *Leucaena leucocephala* c) Intercropping cereals or pulses with kapok d) Monoculture of *Eucalyptus tereticornis*, *Acacia nilotica*, *A. leucophloea* and *Prosopis juliflora*

Suitable agroforestry practices for high rainfall zone of Tamil Nadu 1. Districts : Kanyakumari 2. Annual Rainfal : 1500 mm in 64 rainy days 3. Soil Types : Deep loam, saline coastal alluvium (south eastern belt) 4. Major Crops : Rice, tapioca, coconut, pepper, clove, nutmeg, cardamom and coffee 5. Dominant tree species : Rubber, tamarind, *Calophyllum inophyllum* and *Albizia falcataria* 6. Major agroforestry practices : a) Home garden b) Intercropping food crops, spices and pastures with coconut c) Bund planting of *Albizia falcataria* d) Intercropping food crops with *Calophyllum inophyllum*, *Bassia latifolia* and *Pongamia pinnata*

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