



Technical Bulletin  
CAFRI/2026/05

# AGROFORESTRY

## ADVISORIES

• ESTABLISHMENT AND MANAGEMENT •

G.P. Sandeep • R.P. Dwivedi • A. Arunachalam



**ICAR-Central Agroforestry Research Institute**

Jhansi 284003, Uttar Pradesh



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## (Establishment and Management)

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## Disclaimer

The information and recommendations presented in this publication are based on available scientific knowledge, field experiences, and expert inputs from agroforestry research and development programmes in India. While every effort has been made to ensure the accuracy and reliability of the content, the authors and publishers do not assume responsibility for any loss, damage, or consequences arising from the use of the information contained herein. The advisories provided are intended as general guidelines and may require adaptation to local agro-climatic conditions, resource availability, and prevailing regulations.

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## Preface

Agroforestry has emerged as one of the most promising approaches for achieving sustainable agricultural development while addressing the challenges of climate change, land degradation, declining natural resources, and livelihood insecurity. By integrating trees with crops and livestock, agroforestry enhances farm productivity, improves resource-use efficiency, strengthens ecological resilience, and generates diversified income opportunities for farming communities.

Despite its immense potential, successful adoption of agroforestry requires appropriate technical guidance on species selection, establishment techniques, seasonal management practices, nursery production, protection measures, and market-oriented planning. Farmers, extension personnel, and development agencies often require practical and location-relevant information that can support informed decision-making throughout the tree life cycle.

This publication, *Agroforestry Advisories for Establishment and Management*, has been prepared as a practical reference to provide comprehensive guidance on the planning, establishment, maintenance, and sustainable management of agroforestry systems. The document presents phase-wise and season-wise advisories, nursery management guidelines, pest and disease management strategies, climate-resilient contingency measures, information on promising agroforestry tree species, and relevant policy provisions related to tree harvesting and transit regulations.

The advisories compiled in this publication draw upon recommendations from national research institutions, technical bulletins, contingency planning frameworks, and field experiences. It is expected that this publication will serve as a useful resource for farmers, extension functionaries, students, researchers, development practitioners, and policymakers engaged in promoting agroforestry across diverse agroecological regions of India.

We hope that the information presented herein will contribute to the wider adoption of scientifically managed agroforestry systems, leading to enhanced farm incomes, improved environmental sustainability, strengthened climate resilience, and long-term livelihood security for farming communities.

- **Authors**





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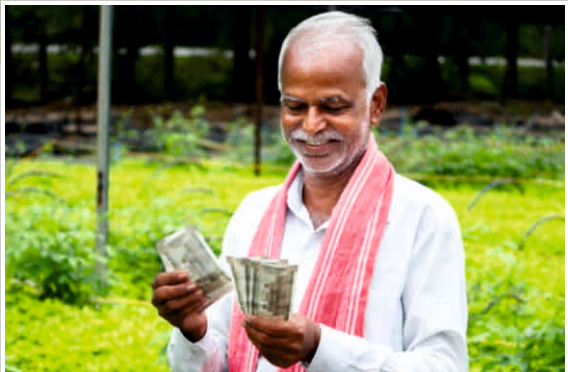


## Executive Summary

Agroforestry is increasingly recognized as a sustainable and climate-resilient land-use system that integrates trees with crops and livestock to enhance productivity, environmental sustainability, and livelihood security. With the implementation of the National Agroforestry Policy in the country and the enforcement of Agroforestry Nursery Protocols for quality planting material production, all states are promoting agroforestry. The growing challenges of climate variability, land degradation, declining soil fertility, water scarcity, and increasing production costs necessitate the adoption of scientifically managed agroforestry systems that can provide both economic and ecological benefits. This publication, *Agroforestry Advisories for Establishment and Management*, has been developed as a practical guide for farmers, extension personnel, researchers, and development practitioners engaged in agroforestry promotion and management. The document provides comprehensive advisories covering the entire tree life cycle, from site selection and planting to stand management and harvesting. Phase-wise recommendations are complemented by season-specific advisories that address critical management operations during different periods of the year, enabling farmers to undertake timely interventions for improved tree growth and system productivity.

The publication also includes guidelines for agroforestry nursery management, covering seed sourcing, propagation, planting material production, quality control, and transportation. Practical recommendations on integrated management of major insect pests and diseases are provided to support healthy tree establishment and long-term plantation productivity. In addition, the document highlights the role of digital tools such as the FarmTree mobile application and incorporates recommendations from ICAR-CRIDA District Agriculture Contingency Plans to strengthen climate resilience through tree-based interventions.

To support informed decision-making, the publication presents a state-wise list of promising agroforestry tree species suitable for diverse agroecological regions of India, along with information on felling and transit regulations applicable to trees grown on private and non-forest lands. By consolidating technical knowledge, management advisories, and policy-related information in a single reference, this publication aims to facilitate the wider adoption of agroforestry, enhance farm incomes, improve natural resource conservation, and contribute to climate-resilient agricultural development across the country.





## Introduction

Agroforestry is a sustainable land-use system that integrates trees with crops and livestock on the same land to enhance productivity, environmental quality, and farm resilience. By combining the ecological benefits of forestry with the economic returns of agriculture, agroforestry creates beneficial interactions among trees, crops, livestock, soil, and water, thereby improving farm performance and long-term sustainability. Trees play a vital role in improving soil fertility through nutrient recycling, biological nitrogen fixation, and the addition of organic matter from leaf litter. Their deep root systems access nutrients from deeper soil layers and make them available to crops. Agroforestry also promotes soil and water conservation by reducing erosion, improving water infiltration, and maintaining soil structure. In the face of challenges such as declining soil fertility, land degradation, climate variability, water scarcity, and rising production costs, agroforestry offers a practical and resilient solution. It diversifies farm enterprises and provides products such as timber, food, fuelwood, fodder, fiber, fruits and medicinal resources, thereby enhancing farm income and reducing economic risks. Trees also regulate microclimatic conditions, support carbon sequestration, conserve biodiversity, and contribute to climate change adaptation and mitigation.

The following advisories have been developed as a practical guide for farmers, particularly beginners, interested in adopting agroforestry. They provide season-specific recommendations on the selection, establishment, and management of agroforestry systems to support informed decision-making, improve productivity, conserve natural resources, and maximize long-term benefits.



Key Advantages of Agroforestry

### 1. Generic advisories for agroforestry

Agroforestry systems require systematic management throughout the tree life cycle to ensure optimum growth, productivity, and sustainability. Management interventions vary with the developmental stage of the trees and should be tailored to address specific requirements related to establishment, growth, resource utilization, and harvest. The following phase-wise advisories provide guidance on key management practices from site preparation and planting to stand management and harvesting in agroforestry systems.

- **Pre-Planting Phase:** The success of an agroforestry system largely depends on careful planning and site preparation undertaken before planting. Farmers should select suitable tree species and agroforestry models based on local agro-climatic conditions, soil characteristics, water availability, farm objectives, and market opportunities. Site preparation should include soil testing, land leveling, pit excavation, and incorporation of organic manures or soil amendments wherever necessary. The cultivation of leguminous crops or green manures prior to tree planting can improve soil fertility, enhance soil structure, and suppress weeds, thereby creating favorable conditions for subsequent tree establishment.
- **Establishment Phase:** The establishment phase extends from planting until trees become well-rooted and capable of sustaining active growth. Healthy, vigorous, and true-to-type seedlings should be planted during the onset of the monsoon or under assured irrigation conditions. Adequate attention should be given to irrigation, mulching, weeding, nutrient management, gap filling, and protection against grazing, pests, diseases, and adverse weather conditions. Compatible intercrops may be grown between tree rows during this phase, while maintaining adequate spacing around young trees to minimize competition for moisture, nutrients, and sunlight.
- **Silvicultural Management Phase:** During this phase, management interventions should focus on improving tree growth, form, and productivity while maintaining compatibility with associated agricultural enterprises. Timely pruning, thinning, training, and canopy management operations should be undertaken to improve stem quality, regulate canopy development, and optimize light penetration. Soil and moisture conservation measures, nutrient supplementation, and integrated pest and disease management practices should be continued as required. Silvicultural operations should be carried out judiciously to minimize competition between trees and crops and to enhance overall system efficiency.
- **Maturing Phase:** As trees approach maturity, management efforts should concentrate on maintaining tree vigor, stand health, and resource-use efficiency. Regular monitoring should be undertaken to assess tree growth, canopy condition, pest and disease incidence, and nutrient status. Weed management, moisture conservation, and protection against biotic and abiotic stress remain important during this stage. Depending on the agroforestry system, compatible understory activities such as fodder production, grazing, medicinal plant cultivation, or shade-tolerant crops may be integrated to maximize land productivity and ecosystem services.
- **Harvesting Phase:** Harvesting should be planned based on the intended end use of the produce, species-specific rotation age, timber quality, and prevailing market

conditions. Prior assessment of tree dimensions, wood quality, transportation facilities, and market demand is essential to maximize economic returns. Harvesting operations should be carried out carefully to minimize damage to standing trees, associated crops, and soil resources. Farmers are advised to identify potential buyers and market channels well in advance and explore opportunities for value addition, processing, and collective marketing to enhance profitability.

## 2. Seasonal advisories for agroforestry establishment and maintenance

### May – June (Pre-Monsoon/*Kharif* Preparation)

The pre-monsoon period is characterized by high temperature, intense solar radiation and severe moisture stress. Moisture conservation and land preparation activities during this period determine the success of upcoming monsoon tree establishment and *Kharif* cropping systems.

#### *Establishment Stage*

- **Deep ploughing should be completed before onset of monsoon rains to break compact soil layers and improve rainwater infiltration.**
  - Farmers are advised to undertake deep ploughing (25-40 cm) utilizing summer showers during the pre-monsoon period to improve soil aeration, root growth, and rainwater infiltration. Clear weeds, residues, and stones before ploughing.
  - Use suitable implements such as mould board, disc, or chisel ploughs based on soil conditions and machinery availability. In sloping lands, plough along contour lines to reduce runoff and soil erosion.
  - Leave the field exposed to sunlight for a few days after ploughing to suppress soil-borne pests, weeds, and pathogens. Timely deep ploughing before monsoon supports better root establishment and tree growth.
- **Farmers should prepare contour bunds, trenches and water harvesting structures in sloping areas to reduce runoff, harvest rainwater and enhance groundwater recharge. Existing drainage channels should also be repaired before monsoon to prevent water stagnation around plants.**
  - Farmers are advised to construct contour bunds across the slope or along contour lines to reduce runoff and soil erosion. Bunds should be properly compacted, and grasses may be planted on them for added stability.
  - In sloping lands, staggered or continuous trenches should be dug across the slope between tree rows to capture runoff, improve water infiltration, and enhance soil moisture conservation. Trenches should be cleaned before the monsoon.

- Small farm ponds, percolation pits, or recharge pits are recommended to be established in suitable low-lying areas to harvest rainwater, recharge groundwater, and provide protective irrigation during dry periods.
- Existing drainage channels should be cleaned and repaired before the monsoon by removing weeds, silt, and blockages. Proper drainage prevents water stagnation, root rot, and poor tree growth, particularly in heavy soil and high-rainfall areas.
- **Pit preparation for new tree establishment should be completed during this period. Farmers should dig pits of recommended dimensions depending upon species and soil type. The excavated soil should be mixed with topsoil, farmyard manure, compost and biofertilizers before refilling.**
  - Farmers are advised to mark planting positions according to the recommended spacing of the selected tree species to minimize competition between trees and intercrops.
  - Pits of 45 × 45 × 45 cm to 60 × 60 × 60 cm should be dug depending on the tree species and soil conditions. Larger pits are recommended to be prepared in hard, gravelly, or degraded soils.
  - The pits should be left open for 10-15 days to expose the soil to sunlight, which helps reduce soil-borne pests, pathogen infections, and weed seeds while improving soil aeration.
  - During refilling, the top fertile soil should be mixed with well-decomposed FYM, compost, or vermicompost along with chlorpyrifos dust. Biofertilizers such as *Azospirillum*, *PSB*, or *mycorrhiza* can also be added to promote root growth and nutrient uptake.
  - Refill the pits with the prepared soil mixture without excessive compaction. In high-rainfall areas, slight mounding is recommended to prevent water stagnation and ensure better seedling establishment and growth.
- **Selection of suitable tree species according to local agro-climatic conditions is scientifically important.**
  - Farmers are advised to select tree species that are well adapted to local rainfall, temperature, soil type, and moisture conditions, as locally suited species generally exhibit higher survival, better growth, and greater resistance to pests, diseases, and climatic stresses. Ex: In semi-arid and dryland regions (Neem) and humid and high-rainfall areas (Teak).
- **Well-established agroforestry trees generally do not require regular irrigation after 3 years of age, particularly when locally adapted species are grown under suitable agro-climatic conditions. However, protective irrigation may be**

provided during prolonged droughts, severe moisture stress, or extreme heat waves, especially in arid and semi-arid regions, while fruit trees and other high-value perennial species may require supplemental irrigation based on their water requirements.

- Farmers are advised to provide protective irrigation during the pre-monsoon and summer period to reduce moisture stress and maintain healthy growth of agroforestry trees.
- Soil moisture should be checked regularly near the root zone, and irrigation should be provided when the soil becomes dry, especially for young saplings and trees growing in shallow soils.
- Proper basins should be maintained around trees to improve water retention and reduce runoff losses. Basin bunds should be repaired regularly, particularly before irrigation.
- Mulching with crop residues, dry leaves, ground nut pos shells or grasses around tree basins is recommended to conserve soil moisture and reduce evaporation losses.
- **Fire protection measures are extremely important during peak summer. Farmers should remove dry grasses and combustible materials from trees. Community-level fire vigilance is especially important in dryland and forest fringe regions.**
  - Dry grasses, fallen leaves, weeds, and pruned branches should be removed regularly from agroforestry fields. Collected biomass should be composted or stored safely away from tree plantations.
  - Burning of crop residues, waste materials, or any open fire activities near agroforestry plantations should be strictly avoided during summer.
- **Shade protection may also be provided to young seedlings using locally available materials such as dry grasses, coconut fronds or shade nets to minimize heat injury and transpiration losses.**
  - Shade structures should preferably be erected on the western and southern sides of the plant to reduce direct exposure to intense afternoon sunlight and hot summer winds.
  - The shade covering should be placed in such a way that partial sunlight and proper air circulation are maintained around the plant. Completely covering the sapling should be avoided because poor ventilation may increase humidity and create favorable conditions for fungal infection. Shade structures should be fixed firmly to withstand summer winds and should not touch the tender plant directly to avoid mechanical injury.

### *Development stage*

- Deep ploughing should be carried out once every three years before the onset of the monsoon to break compacted soil layers, enhance rainwater infiltration, and improve soil moisture retention.
- Provide protective irrigation during prolonged dry spells to minimize moisture stress and maintain healthy growth, particularly in fruit-based agroforestry systems.

### **July - August (Monsoon/Kharif Season)**

Monsoon season is the most favorable period for tree planting and establishment because of abundant soil moisture, moderate temperature and active microbial processes. Planting should begin only after receipt of continuous effective rainfall to ensure proper root establishment and high survival rate.

### *Establishment Stage*

- **During planting, polybags should be removed carefully without disturbing the root ball. Seedlings should be planted vertically with proper alignment, and soil should be pressed gently around the root zone to eliminate air pockets. A basin should be formed around each plant to retain rainwater and improve infiltration.**
  - Carefully remove the polythene bag without disturbing the root ball, place the seedling in the planting pit, and provide water thoroughly immediately after planting to ensure proper establishment and minimize transplantation shock.
  - Place the seedling upright at the center of the pit, keeping the root collar at ground level. Refill soil firmly around the roots to ensure good root-soil contact and eliminate air pockets.
  - Form a basin around each sapling for efficient rainwater harvesting; semicircular basins may be used in sloping lands to conserve runoff.
  - Mulching with dry leaves, straw or crop residues around the basin should be practiced to conserve soil moisture, suppress weeds and regulate soil temperature in areas without termite infestation.
- **In regions of heavy rainfall, farmers should provide proper drainage channels because prolonged waterlogging reduces aeration around roots and causes root decay and mortality. Certain species such as Teak, Melia etc. are particularly sensitive to stagnant water conditions.**
  - Before the monsoon, inspect fields for low-lying areas and construct shallow drainage channels between tree rows or along field boundaries to safely remove excess rainwater.

- Waterlogging-sensitive species such as Teak, Melia and several fruit trees require special attention. In high-rainfall areas, side drains or semicircular trenches may be provided to divert excess runoff from the root zone.
- Avoid excessive irrigation during rainy periods, as saturated soils restrict root respiration and microbial activity. Proper drainage promotes healthy root growth, efficient nutrient uptake, and better tree survival under high rainfall conditions.
- **Weed growth becomes extremely vigorous during monsoon, due to high moisture and favorable temperature. Farmers should undertake regular manual weeding around tree basins and crop rows.**
  - Carry out regular manual weeding around tree basins, planting rows, and intercrop areas, especially around young saplings, using suitable hand tools without damaging feeder roots.
  - Avoid deep hoeing near tree basins and preferably undertake weeding after rainfall or light irrigation for easy removal of weeds with roots.
- **Nutrient management during monsoon is highly important because trees undergo rapid vegetative growth during this season. Recommended fertilizers, organic manures, compost and green leaf manure should be applied around root zone of trees to improve nutrient availability and microbial activity.**
  - Apply recommended fertilizers, FYM, compost, or vermicompost around the drip line of trees to ensure efficient nutrient uptake by feeder roots.
  - Incorporate organic manures, green leaf manure, and leaf litter lightly into the topsoil to improve soil fertility, organic carbon, microbial activity, and moisture retention capacity.
  - In nitrogen-fixing species such as Subabul, Gliricidia, and Sesbania, recycle lopped biomass and leaf litter as green manure. Biofertilizers such as *Azospirillum*, *PSB*, and *Mycorrhiza* may also be applied to enhance nutrient uptake.
  - Avoid fertilizer application during heavy rainfall to minimize nutrient losses through runoff and leaching. Apply during periods of moderate soil moisture for better utilization.
  - Proper nutrient management during the monsoon promotes vigorous growth, root development, and long-term productivity of agroforestry trees.
- **Farmers should inspect fields regularly to monitor termite attacks, leaf spot diseases, damping off and root rot. Infected plants or branches should be removed immediately to prevent spread of disease. Neem-based formulations**

and biological control measures should be preferred over excessive chemical application to maintain ecological balance within agroforestry systems.

- **Intercropping with *Kharif* crops may be undertaken in wider spacing systems. Crop rows should be aligned scientifically to minimize competition for light and nutrients.**
  - Select intercrops based on local rainfall, soil type, tree spacing, and shade tolerance.
  - Align crop rows scientifically with tree rows and maintain adequate distance from tree basins to minimize competition for light, moisture, and nutrients. North-south oriented tree rows generally provide more uniform sunlight to intercrops.
  - Apply recommended fertilizers and irrigation to both crops and trees to ensure balanced resource use. Deep-rooted and shade-tolerant crops are better suited to mature agroforestry systems with dense canopy cover.
  - Regularly monitor intercrops for weeds, pests, and moisture stress. Incorporate crop residues into the soil or use them as mulch to improve soil organic matter and moisture conservation.
  - Crop selection should be based on local rainfall conditions, soil type, tree spacing and shade tolerance of the intercrop species.

### *Growth stage*

- Ensure proper drainage by maintaining field drains and removing excess rainwater, particularly around waterlogging-sensitive species such as Teak, Melia, and Eucalyptus. Timely drainage prevents root rot, improves root aeration, and maintains healthy tree growth during periods of heavy rainfall.

### **September – October (Post-Monsoon/*Rabi* Preparation)**

During the post-monsoon period, rainfall decreases gradually and soil moisture stabilizes. *Kharif* crops begin reaching maturity and preparations for *rabi* cultivation start simultaneously. Agroforestry trees continue moderate growth during this phase and require nutrient replenishment after the active monsoon growth period.

### *Establishment Stage*

- **After harvesting *Kharif* crops, crop residues should not be burned. Instead, farmers should incorporate residues into soil or use them as mulch around tree basins to improve soil organic matter and moisture conservation. Field cleaning and removal of diseased crop residues are necessary to reduce pest and pathogen carryover.**

- After harvesting *Kharif* crops, chop and incorporate healthy crop residues into the soil during land preparation to improve soil organic carbon, microbial activity, and nutrient availability.
- Crop residues may also be used as much around tree basins and interspaces to conserve moisture, suppress weeds, reduce erosion, and regulate soil temperature. Keep much away from the tree stem to avoid termite infestation and collar rot.
- Separate and safely dispose of diseased or pest-infested residues to prevent the carryover of pests and diseases to the next season.
- Remove weeds, volunteer plants, and damaged plant debris after harvest to maintain field hygiene and reduce pest breeding sites.
- **Application of farmyard manure, compost and basal fertilizers around perennial trees should be undertaken during this period during first three years. Fertilizers should be applied in the outer root zone, as most feeder roots responsible for nutrient uptake are concentrated in this area. Light irrigation after fertilizer application improves nutrient dissolution and uptake.**
- **Fields should be prepared for sowing *rabi* crops. Residual monsoon moisture should be conserved through minimum tillage and mulching practices. Farmers should also inspect trees for structural damage, nutrient deficiency and pest incidence after monsoon rain.**

### *Growth stage*

- **Pruning should be carried out to regulate canopy spread and improve sunlight penetration for upcoming *rabi* crops. Farmers should remove weak, diseased and overcrowded branches carefully without disturbing the structural balance of trees. Proper pruning also promotes healthy growth, flowering, and fruiting in fruit tree species.**
  - Inspect trees regularly and remove dead, diseased, broken, overcrowded, or weak branches using clean and sharp pruning tools to improve light penetration and air circulation.
  - Carry out pruning during dry weather and avoid excessive canopy removal, as it may reduce photosynthetic activity and weaken tree growth.
  - Remove lower, crossing, and inward-growing branches to improve sunlight availability for intercrops, enhance canopy aeration, and facilitate field operations.
  - Treat large pruning cuts with Bordeaux paste to prevent fungal infection and dispose of pruned and diseased materials properly to avoid pest and disease carryover.

## November – December (Winter/*Rabi* Season)

During winter season, physiological activity slows down in many agroforestry tree species due to lower temperatures and shorter photoperiod. Management activities during this period mainly focus on protection, irrigation regulation and maintenance of tree health.

### *Establishment Stage*

- **Young saplings require protection against frost and cold injury. Farmers should apply thick mulch around tree basins using straw, sugarcane trash or dry leaves to maintain root zone temperature and conserve soil moisture.**
  - Apply a thick layer of organic mulch such as straw, sugarcane trash, dry leaves, or paddy straw around tree basins to conserve soil heat and protect roots from cold stress. Keep mulch slightly away from the stem to avoid collar rot and termite infestation.
  - Provide light irrigation before anticipated frost nights, as moist soil retains heat better and helps moderate root zone temperature.
- **Irrigation should be scheduled carefully according to recommended practice of inter crops, due to winter evaporation demand remains comparatively low. Excessive irrigation may lead to fungal diseases and root damage under cool conditions. Irrigation before expected frost occurrence helps moderate soil temperature and minimizes frost injury.**
- **Regular monitoring for bark-eating caterpillars, stem borers and fungal cankers should continue because winter stress weakens tree resistance. Farmers should also encourage recycling of leaf litter and organic biomass within agroforestry systems because decomposition improves soil fertility, microbial activity and nutrient cycling for the upcoming growth season.**

### *Growth stage*

- Regularly monitor trees for nutrient deficiency symptoms and apply foliar sprays of micronutrients such as zinc and boron wherever deficiencies are observed, particularly in fruit trees, to maintain vigor and productivity.

## January – February (Late Winter/*Rabi* Harvesting)

During the late winter season, agroforestry trees remain under relatively slow vegetative growth because of low temperatures and shorter day length. At the same time, *rabi* crops approach flowering and grain filling stages. Therefore, the major objective during this period is to reduce crop-tree competition and maintain tree health.

### *Establishment stage*

- Tree basins should be cleaned properly by removing weeds, fallen infected leaves

and unwanted vegetation around the root zone. Basin loosening should be carried out lightly to improve soil aeration and facilitate irrigation water infiltration. Farmers should apply well decomposed farmyard manure or compost around the tree drip line instead of directly near the stem. This improves microbial activity, enhances nutrient availability and supports root development before spring growth initiation.

- In northern India, young saplings are highly vulnerable to frost damage during January and early February. For this, farmers should spread straw mulch, dry grasses or sugarcane trash around tree basins to insulate the root zone and conserve soil warmth. Irrigation one day before anticipated frost also helps maintain soil temperature and reduces frost injury.

### *Growth stage*

- Farmers should regularly inspect trees for nutrient deficiency symptoms such as leaf yellowing, marginal scorching, and poor flushing. Foliar application of micronutrients, particularly zinc and boron, may be undertaken wherever deficiency symptoms are observed, especially in fruit tree species.

### **March – April (Spring)**

Spring season marks the beginning of active physiological growth in agroforestry trees. Rising temperatures stimulate bud emergence, leaf flushing, root growth and cambial activity. During this phase, trees require adequate moisture, nutrients and proper canopy management for vigorous growth and improved crop compatibility.

### *Establishment stage*

- Irrigation scheduling should be managed due to evapotranspiration increases rapidly during this season. Light irrigation at regular intervals should be provided depending upon soil type and temperature conditions. Sandy soils require more frequent irrigation compared to clay soils because of lower moisture retention capacity. Drip irrigation is highly beneficial in agroforestry systems because it delivers water directly to the root zone while minimizing evaporation losses.
- Farmers cultivating fodder trees such as *Subabul*, *Gliricidia* and *Sesbania* may undertake controlled pollarding and lopping during this period. For this, mature branches should be cut at appropriate height without damaging the main stem. Excessive lopping should be avoided because it weakens tree vigor and reduces future biomass production. The collected biomass may be utilized as green fodder or incorporated into soil as organic manure.
- In widely spaced agroforestry systems, short-duration summer crops may be cultivated in the interspaces. Before sowing, farmers should prepare fine tilth, apply organic manure and ensure adequate irrigation facilities. Crop selection should be based on shade tolerance and local market demand.

### *Growth stage*

- Inspect trees for dead, diseased, damaged, or overcrowded branches and undertake light sanitary pruning where necessary. This helps improve canopy aeration, maintain tree health, and prepare trees for active growth during the upcoming spring season.

### **3. Generic advisories for agroforestry nurseries**

- **Seed Sourcing:** Seeds should be collected from healthy, mature, disease-free, and phenotypically superior trees exhibiting desirable traits such as straight bole, good growth, and high productivity. Wherever possible, seeds should be sourced from certified seed stands, seed production areas, or seed orchards to ensure genetic quality and better plantation performance.
- **Seed Collection and Storage:** Seeds should be collected only after attaining physiological maturity and during the recommended collection period for each species. After collection, seeds should be properly cleaned, dried, graded, and stored under cool and dry conditions in suitable containers to maintain viability and vigour until sowing.
- **Selection of Elite Germplasm and Mother Trees:** Elite mother trees should be selected based on superior growth, stem form, crown characteristics, wood quality, health status, and adaptability to local conditions. The use of elite germplasm enhances productivity, uniformity, resilience, and overall plantation success.
- **Propagation Techniques:** Suitable propagation methods such as direct seeding, nursery-raised seedlings, stem cuttings, grafting, budding, or tissue culture should be adopted depending on the species. Standardized propagation techniques ensure the production of healthy, true-to-type, and vigorous planting stock.
- **Nursery Growing Media:** The nursery medium should be well-drained, porous, fertile, and free from weeds, pests, and disease-causing organisms. A balanced mixture of soil, sand, and well-decomposed farmyard manure or compost promotes proper root development and healthy seedling growth.
- **Nursery Management:** Nursery operations should include timely sowing, irrigation, nutrient management, weeding, root pruning, hardening, and protection against pests, diseases, and adverse weather conditions. Regular monitoring and scientific nursery management practices help produce robust seedlings with higher field survival and establishment rates.
- **Packaging and Transportation:** Seedlings should be carefully handled, packed, and transported to avoid mechanical injury and moisture stress. Planting materials should be transported during cooler hours and planted as early as possible after reaching the planting site.

- **Record Keeping and Quality Control:** Proper records of seed source, collection date, germination percentage, nursery operations, and seedling performance should be maintained. Regular quality assessment helps ensure the production and distribution of superior planting material for agroforestry programmes.

#### 4. Plant Diseases in Agroforestry – A Ready Reckoner

**Source:** <https://cafri.res.in/wp-content/uploads/TechnicalBulletin-ReadyReckoner.pdf>; This document "*Plant Diseases in Agroforestry – A Ready Reckoner*" provides practical disease management strategies for major agroforestry tree species.

##### *General Disease Management Strategies*

- **Use of Quality Planting Material:** Use disease-free seeds, seedlings, and planting materials obtained from reliable sources. Seed treatment with suitable fungicides or biocontrol agents such as *Trichoderma viride* is recommended before sowing. Wherever available, resistant or tolerant varieties should be preferred.
- **Nursery Sanitation:** Maintain clean and hygienic nursery conditions by using sterilized potting media and containers. Ensure adequate spacing, ventilation, and sunlight penetration. Regularly remove and destroy infected seedlings and plant debris to prevent disease spread.
- **Prevention of Mechanical Injury:** Avoid injuries to roots, stems, and branches during planting and field operations, as wounds serve as entry points for pathogens. Pruning cuts and injuries should be protected with Bordeaux paste or lime paste to prevent infections.
- **Monitoring and Early Detection:** Regular monitoring of nurseries and plantations is essential for early detection of disease symptoms such as leaf spots, cankers, wilting, root rot, rust, and dieback. Prompt removal of infected plant parts helps contain disease spread.
- **Vector and Insect Management:** Control insect vectors such as leafhoppers, termites, borers, and whiteflies that facilitate disease transmission. Maintaining plantation hygiene and timely pest management helps reduce disease incidence.
- **Biological Management:** Apply beneficial microorganisms such as *Trichoderma* spp. through seed and soil treatments to suppress disease-causing pathogens. Addition of organic matter helps enhance beneficial microbial activity and soil health.
- **Chemical Management:** Use recommended fungicides and bactericides judiciously for effective disease control. Commonly recommended products include copper oxychloride, mancozeb, carbendazim, propiconazole, azoxystrobin, thiophanate methyl, and wettable sulphur. Always follow the prescribed doses and application schedules.

- **Disposal of Diseased Material:** Severely infected plants, dead trees, diseased roots, fallen branches, and fungal fruiting bodies should be removed and destroyed safely. Diseased plant material should not be left in the plantation, as it can serve as a source of further infection.

### Key Disease-Specific Management Approaches

S.No	Disease	Management Measures
1	Damping-off	Soil sterilization, drainage improvement, copper oxychloride drenching
2	Wilt diseases	Disease-free planting material, removal of infected plants, soil drenching
3	Root rot	Improve drainage, avoid injuries, remove infected trees, fungicide application
4	Leaf spots and blights	Sanitation, adequate spacing, neem oil and fungicide sprays
5	Powdery mildew	Ventilation, sulphur sprays, neem oil application
6	Rust diseases	Resistant varieties, sanitation, azoxystrobin sprays
7	Stem cankers	Avoid wounding, remove infected tissue, Bordeaux paste application
8	Phytoplasma diseases	Removal of infected plants and control of insect vectors

## 5. Insect Pests in Agroforestry – A Ready Reckoner

**Source:** <https://cafri.res.in/wp-content/uploads/2025/10/4-2021-3-Insect-Pests-in-Agroforestry.pdf>; This document "*Insect Pests in Agroforestry – A Ready Reckoner*" provides practical pest management strategies for major agroforestry tree species.

### General Insect Pest Management Strategies

- **Biological Pest Management:** Promote the use of beneficial organisms such as *Metarhizium anisopliae*, *Bacillus thuringiensis* (Bt), entomopathogenic nematodes, and natural predators like ladybird beetles. Conservation of natural enemies helps maintain ecological balance and suppress pest populations sustainably. Biological control should be integrated with other management practices.
- **Vector and Sap-Sucking Insect Management:** Control sap-sucking insects such as aphids, scales, mealybugs, thrips, leafhoppers, and gall-forming insects that weaken plants and may transmit diseases. Timely monitoring and management of these pests help prevent both direct damage and spread diseases. Plantation hygiene should be maintained to discourage pest multiplication.

- **Management of Borers and Termites:** Inspect trees regularly for symptoms such as bore holes, frass deposits, bark injury, stem tunnelling, and termite galleries. Infested branches should be removed and destroyed, while borer holes may be treated and sealed. Termite colonies and mounds should be identified and eliminated before they spread within plantations.
- **Judicious Chemical Control:** Apply recommended insecticides only when pest populations exceed economic threshold levels. Suitable insecticides may be used according to the target pest, crop stage, and recommended dosage. Care should be taken to avoid indiscriminate use of chemicals and to follow all safety precautions.
- **Integrated Pest Management (IPM):** Adopt an integrated approach combining cultural, mechanical, biological, and chemical methods for sustainable pest management. Emphasis should be placed on prevention, regular monitoring, conservation of natural enemies, and need-based interventions. Integrated Pest Management ensures effective control while minimizing environmental impacts and maintaining plantation productivity.

## 6 FarmTree Mobile App

**Source:** [https://play.google.com/store/apps/details?id=com.cafri.farmtree&hl=en\\_IN](https://play.google.com/store/apps/details?id=com.cafri.farmtree&hl=en_IN); The FarmTree mobile application is a user-friendly, bilingual digital platform designed to provide comprehensive information on 25 commonly cultivated and promising agroforestry tree species grown by farmers across India. The app offers detailed guidance on various aspects, including common and botanical names, family, suitable growing regions, silvicultural requirements, nursery and planting techniques, tending operations, compatible agroforestry systems, tree protection measures, yield potential, utilization, and availability of planting materials. The content is enriched with high-quality original photographs, making the information easy to understand and highly useful for farmers, forestry professionals, students, researchers, naturalists, and forest department personnel. In addition to serving as an information repository, FarmTree provides an interactive platform where users can participate in public discussions, submit queries directly to experts and developers, share photographs for better diagnosis and communication, connect with specialists, and obtain guidance on accessing quality planting materials and related resources.

## 7. Contingency Plans

**Source:** [https://www.icar-crida.res.in/Crop\\_Contingency\\_Plan.html](https://www.icar-crida.res.in/Crop_Contingency_Plan.html); The District Agriculture Contingency Plans developed by ICAR-CRIDA provide several location-specific recommendations that support the integration and management of agroforestry systems as a climate-resilient land-use strategy.

Across various districts, the plans emphasize the establishment of multipurpose trees on farm boundaries, community lands, degraded areas, and around water bodies as a long-term measure to mitigate the adverse impacts of climatic stresses and extreme weather events. The plans recommend the development of tree-based interventions such as shelterbelts, windbreaks, and vegetative barriers to reduce crop damage, conserve soil and water resources, and improve microclimatic conditions. In drought-prone and environmentally fragile regions, agroforestry is promoted for enhancing soil moisture conservation, reducing land degradation, strengthening fodder and biomass availability, and diversifying farm income sources. The contingency plans also highlight the role of perennial vegetation in stabilizing agricultural production systems, protecting natural resources, and improving the resilience of farming communities during periods of climatic uncertainty. Furthermore, agroforestry systems are recognized for their potential to support ecosystem services, including carbon sequestration, biodiversity conservation, and landscape restoration. These recommendations underscore the importance of agroforestry as a sustainable adaptation measure that can enhance the resilience, productivity, and long-term sustainability of agricultural landscapes under changing climatic conditions.

## 8. List of promising tree species for agroforestry

S.No.	State	Tree species
1	Andhra Pradesh	<i>Azadirachta indica</i> , <i>Casuarina equisetifolia</i> , <i>C. junghuhniana</i> , <i>Eucalypts</i> , <i>Gmelina arborea</i> , <i>Leucaena leucocephala</i> , <i>Melia dubia</i> , <i>Moringa oleifera</i> , <i>Santalum album</i> , <i>Swietenia macrophylla</i> , <i>Tectona grandis</i> , Bamboos ( <i>Bambusa balcooa</i> , <i>B. nutans</i> , <i>Dendrocalamus strictus</i> , <i>D. stocksii</i> )
2	Arunachal Pradesh	<i>Anthocephalus chinensis</i> , <i>Artocarpus heterophyllus</i> , Bamboos ( <i>Bambusa balcooa</i> , <i>B. pallida</i> , <i>B. tulda</i> , <i>Dendrocalamus giganteus</i> )
3	Assam	<i>Bombax ceiba</i> , <i>Dillenia indica</i> , <i>Phyllanthus emblica</i> , <i>Gmelina arborea</i> , <i>Litsea monopetala</i> , <i>L. serrata</i> , <i>Mesua ferrea</i> , <i>Michelia champaca</i> , <i>Phoebe goalparensis</i> , <i>Ricinus communis</i> , <i>Tectona grandis</i> , Bamboo ( <i>B. balcooa</i> , <i>B. bambos</i> , <i>B. nutans</i> , <i>B. tulda</i> )
4	Bihar	<i>Casuarina equisetifolia</i> , <i>C. junghuhniana</i> , <i>Dalbergia sissoo</i> , <i>Bombax ceiba</i> , <i>Eucalyptus tereticornis</i> , <i>Gmelina arborea</i> , <i>Khaya anthotheca</i> , <i>Melia azedarach</i> , <i>Melia dubia</i> , <i>Moringa oleifera</i> , <i>Neolamarckia cadamba</i> , <i>Populus deltoides</i> , <i>Salix alba</i> , <i>Swietenia mahagoni</i> , Bamboo ( <i>Bambusa balcooa</i> , <i>B. nutans</i> , <i>B. tulda</i> , <i>Dendrocalamus strictus</i> )

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5	Chhattisgarh	<i>Acacia mangium</i> , <i>Gmelina arborea</i> , <i>Leucaena leucocephala</i> , <i>Vachellia nilotica</i> ( <i>Acacia nilotica</i> ), <i>Bamboo</i> ( <i>Bambusa nutans</i> , <i>B. tulda</i> , <i>Dendrocalamus stocksii</i> , <i>D. strictus</i> )
6	Gujarat	<i>Ailanthus excelsa</i> , <i>Azadirachta indica</i> , <i>Prosopis cineraria</i> , <i>Senegalia catechu</i> ( <i>Acacia catechu</i> ), <i>Tectona grandis</i> , <i>Vachellia nilotica</i> ( <i>Acacia nilotica</i> ), <i>Bamboo</i> ( <i>Bambusa arundinacea</i> , <i>Dendrocalamus strictus</i> )
7	Haryana	<i>Azadirachta indica</i> , <i>Dalbergia sissoo</i> , <i>Eucalyptus hybrid</i> , <i>Melia dubia</i> , <i>Populus deltoides</i> , <i>Prosopis cineraria</i> , <i>Vachellia nilotica</i> ( <i>Acacia nilotica</i> ), <i>Casuarina junghuhniana</i>
8	Himachal Pradesh	<i>Bauhinia variegata</i> , <i>Eucalyptus tereticornis</i> , <i>Grewia optiva</i> , <i>Morus alba</i> , <i>Phyllanthus emblica</i> , <i>Populus deltoides</i> , <i>Salix alba</i> , <i>Senegalia catechu</i> ( <i>Acacia catechu</i> )
9	Jammu, Kashmir and Ladakh Union Territories	<i>Eucalyptus spp.</i> , <i>Grewia optiva</i> , <i>Morus alba</i> , <i>Phyllanthus emblica</i> , <i>Populus deltoides</i> , <i>P. nigra</i> , <i>Salix alba</i> , <i>Senegalia catechu</i> ( <i>Acacia catechu</i> )
10	Jharkhand	<i>Artocarpus heterophyllus</i> , <i>Bauhinia variegata</i> , <i>Gmelina arborea</i> , <i>Melia azedarach</i> , <i>M. dubia</i> , <i>Moringa oleifera</i> , <i>Bamboo</i> ( <i>Bambusa bambos</i> , <i>B. nutans</i> , <i>B. tulda</i> , <i>Dendrocalamus strictus</i> )
11	Karnataka	<i>Ailanthus excelsa</i> , <i>Azadirachta indica</i> , <i>Casuarina junghuhniana</i> , <i>Phyllanthus emblica</i> , <i>Gmelina arborea</i> , <i>Grevillea robusta</i> , <i>Moringa oleifera</i> , <i>Melia dubia</i> , <i>Pongamia pinnata</i> , <i>Santalum album</i> , <i>Swietenia macrophylla</i> , <i>Tectona grandis</i> , <i>Vachellia nilotica</i> ( <i>Acacia nilotica</i> ), <i>Bamboo</i> ( <i>Bambusa balcooa</i> , <i>B. nutans</i> , <i>B. tulda</i> , <i>Dendrocalamus asper</i> , <i>D. stocksii</i> , <i>Thyrsostachys oliveri</i> ), <i>Simarouba glauca</i> , <i>Mangifera indica</i> , <i>Acacia mangium</i>
12	Keralam	<i>Ailanthus triphysa</i> , <i>Artocarpus hirsutus</i> , <i>A. heterophyllus</i> , <i>Gmelina arborea</i> , <i>Melia dubia</i> , <i>Swietenia mahagoni</i> , <i>Tectona grandis</i> , <i>Bamboo</i> ( <i>Dendrocalamus brandisii</i> , <i>D. giganteus</i> , <i>D. strictus</i> , <i>Ochlandra travancorica</i> )
13	Madhya Pradesh	<i>Dalbergia sissoo</i> , <i>Eucalyptus spp.</i> , <i>Gmelina arborea</i> , <i>Leucaena leucocephala</i> , <i>Neolamarckia cadamba</i> , <i>Phyllanthus emblica</i> , <i>Tectona grandis</i> , <i>Bamboo</i> ( <i>Bambusa bambos</i> , <i>B. nutans</i> , <i>B. tulda</i> , <i>B. vulgari</i> , <i>Dendrocalamus strictus</i> )

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14	Maharashtra	<i>Ailanthus excelsa</i> , <i>Buchanania lanzan</i> , <i>Casuarina equisetifolia</i> , <i>Dalbergia sissoo</i> , <i>Gmelina arborea</i> , <i>Leucaena leucocephala</i> , <i>Melia dubia</i> , <i>Santalum album</i> , <i>Tectona grandis</i> , <i>Vachellia nilotica</i> ( <i>Acacia nilotica</i> ), <i>Bamboo</i> ( <i>Bambusa balcooa</i> , <i>B. bambos</i> , <i>B. nutans</i> , <i>Dendrocalamus stocksii</i> , <i>D. strictus</i> ), <i>Terminalia paniculata</i> , <i>Terminalia tomentosa</i> , <i>Hevea brasiliensis</i>
15	Manipur	<i>Albizia spp.</i> , <i>Alnus nepalensis</i> , <i>Artocarpus heterophyllus</i> , <i>Ficus spp.</i> , <i>Litsea polyantha</i> , <i>Parkia timoriana</i> , <i>Bamboo</i> ( <i>Bambusa tulda</i> , <i>Dendrocalamus brandisii</i> , <i>D. longispathus</i> ), <i>Eucalyptus citriodora</i> , <i>Eucalyptus tereticornis</i> , <i>Parkia roxburghii</i> , <i>Leucaena leucocephala</i> , <i>Morus alba</i> .
16	Meghalaya	<i>Alnus nepalensis</i> , <i>Aquilaria malaccensis</i> , <i>Pinus kesiya</i> , <i>Schima wallichii</i> , <i>Bamboo</i> ( <i>Bambusa tulda</i> , <i>Dendrocalamus asper</i> , <i>D. hamiltonii</i> )
17	Mizoram	<i>Albizia procera</i> , <i>Anthocephalus chinensis</i> , <i>Melocanna baccifera</i> , <i>Tectona grandis</i> , <i>Bamboo</i> ( <i>Bambusa balcooa</i> , <i>B. bambos</i> , <i>B. mizorameana</i> , <i>B. multiplex</i> , <i>Dendrocalamus asper</i> , <i>Melocalamus compactiflorus</i> , <i>Phyllostachys edulis</i> , <i>Schizostachyum dullooa</i> , <i>Sinarundinaria falcata</i> )
18	Nagaland	<i>Alnus nepalensis</i> , <i>Aquilaria malaccensis</i> , <i>Pinus kesiya</i> , <i>Prunus domestica</i> , <i>Pyrus communis</i> , <i>Schima wallichii</i> , <i>Morus alba</i> , <i>Litsea glutinosa</i>
19	Odisha	<i>Casuarina equisetifolia</i> , <i>Tectona grandis</i> , <i>Gmelina arborea</i> , <i>Acacia mangium</i> , <i>Bamboo</i> ( <i>Bambusa balcooa</i> , <i>B. bambos</i> , <i>B. tulda</i> , <i>B. nutan</i> , <i>Dendrocala mushamiltonii</i> , <i>D. strictus</i> and <i>D. stocksii</i> ), <i>Ailanthus excelsa</i> , <i>Mangifera indica</i> , <i>Dalbergia sissoo</i>
20	Punjab	<i>Eucalyptus hybrid</i> , <i>Melia dubia</i> , <i>Populus deltoides</i>
21	Rajasthan	<i>Dalbergia sissoo</i> , <i>Acacia nilotica</i> , <i>Dichrostachys cinerea</i> , <i>Prosopis cineraria</i> , <i>Prosopis cineraria</i> , <i>Hardwickia Binate</i> , <i>Ailanthus excelsa</i> , <i>Azadirachta indica</i> , <i>Prosopis juliflora</i> , <i>Salvadora oleoides</i> , <i>Senegalia catechu</i> ( <i>Acacia catechu</i> ), <i>Senegalia Senegal</i> ( <i>A. senegal</i> ), <i>Tectona grandis</i> , <i>Vachellia nilotica</i> ( <i>Acacia nilotica</i> ), <i>V. tortilis</i> ( <i>A. tortilis</i> ), <i>Ziziphus mauritiana</i>
22	Sikkim	<i>Alnus nepalensis</i> , <i>Aquilaria malaccensis</i> , <i>Morus alba</i> , <i>Ficus spp</i> , <i>Schima wallichii</i> , <i>Bamboo</i> ( <i>Dendrocalamus hamiltonii</i> , <i>D. sikkimensis</i> )

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23	Tamil Nadu and Puducherry	<i>Sesbania sesban</i> , <i>Ailanthus excelsa</i> , <i>Pongamia pinnata</i> , <i>Acacia leucophloea</i> , <i>Simarouba glauca</i> , <i>Grevillea robusta</i> , <i>Eucalyptus tereticornis</i> , <i>Tectona grandis</i> , <i>Simarouba glauca</i> , <i>Neolamarckia cadamba</i> , <i>Leucaena leucocephala</i> , <i>Sesbania grandiflora</i> , <i>Phyllanthus emblica</i> , <i>Moringa oleifera</i> , <i>Annona squamosa</i> , <i>Emblica officinalis</i> , <i>Psidium guajava</i>
24	Telangana	<i>Casuarina junghuhniana</i> , <i>Dalbergia latifolia</i> , <i>D. sissoo</i> , <i>Gmelina arborea</i> , <i>Melia dubia</i> , <i>Santalum album</i> , <i>Tectona grandis</i>
25	Tripura	<i>Aquilaria malaccensis</i> , <i>Artocarpus heterophyllus</i> , <i>Bamboos (Bambusa cacharensis, Thyrsostachys oliveri)</i>
26	Uttar Pradesh	<i>Aegle marmelos</i> , <i>Ailanthus excelsa</i> , <i>Azadirachta indica</i> , <i>Bauhinia variegata</i> , <i>Bombax ceiba</i> , <i>Ceiba pentandra</i> , <i>Dalbergia sissoo</i> , <i>Phyllanthus emblica</i> , <i>Eucalyptus hybrid</i> , <i>Gmelina arborea</i> , <i>Hardwickia binate</i> , <i>Melia azedarach</i> , <i>Melia dubia</i> , <i>Moringa oleifera</i> , <i>Neolamarckia cadamba</i> , <i>Populus deltoides</i> , <i>Spondias pinnata</i> , <i>Swietenia mahagoni</i> , <i>Syzygium cumini</i> , <i>Tectona grandis</i> , <i>Vachellia nilotica (Acacia nilotica)</i> , <i>Bamboo (Bambusa bambos, Dendrocalamus strictus, Schizostachyum dullooa)</i>
27	Uttarakhand	<i>Bauhinia spp.</i> , <i>Grewia optiva</i> , <i>Melia dubia</i> , <i>Populus deltoides</i>
28	West Bengal	<i>Cinnamomum tamala</i> , <i>Gmelina arborea</i> , <i>Neolamarckia cadamba</i> , <i>Pongamia pinnata</i> , <i>Swietenia mahagoni</i> , <i>Bamboos (B. balcooa, B. jaintiana, B. multiplex, B. nutan, B. tulda, B. vulgaris, D. strictus, Thyrsostachys oliveri)</i>
<ol style="list-style-type: none"> <li>1. Chaturvedi, O.P., Handa, A.K., Uthappa, A.R., Sridhar, K.B., Kumar, N., Chavan, S.B., &amp; Rizvi, J. (2017). <i>Promising agroforestry tree species in India</i>. Central Agroforestry Research Institute (CAFRI) &amp; World Agroforestry Centre, South Asia Regional Program</li> <li>2. ICAR (2020). <i>Agroforestry for income enhancement, climate resilience and ecosystem services</i>. Indian Council of Agricultural Research, New Delhi</li> <li>3. ICFRE (2024). <i>FAQs on Agroforestry</i>. Compiled by Ramakant Mishra and Vishwajeet Sharma. Edited by Geeta Joshi, Rekha R. Warriar and A.N. Arunkumar. Media and Extension Division, Directorate of Extension, Indian Council of Forestry Research and Education, Dehradun, Uttarakhand, India.</li> </ol>		

## 9. State wise list of Trees Species free from felling and transit regulations growing on Non-Forest area/private land

S.No	Name of States/UTs	Status
1.	Andaman n Nicobar Islands	➤ Transit Permit is required for transit of forest produce in A & N Islands and no exemption for any sps. has been provided in the Regulation.
2.	Assam	➤ No Felling Permission (FP) is required for home grown bamboo. ➤ No Transit Pass (TP) is required. Certificate from Gram Panchayat is required.
3.	Andhra Pradesh	➤ NO FP. All species are exempted. ➤ NO TP. all species exempted.
4.	Arunachal Pradesh	➤ No FP is for bonafide use except commercial use ➤ No TP is required except commercial and other use
5.	Bihar	➤ Tree species currently exempted from Transit Regulations (as on 27.02.2009): Poplar, Eucalyptus, Kadamb, Gamhar, Mango, Litchi, Toddy palm, Khajur, Bamboo sps (Except Dandrocalamus strictus), Semul. ➤ Some more sps are in process to be exempted.
6.	Chandigarh	➤ No interstate transit permit is being issued by Forest Department as no forest check posts have been established. ➤ The permission for felling of trees on private /non forest land is given only in two cases, i.e either for any development work or trees are dangerous to human life or property. As such no tree sps. is exempted under this

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7.	Chhattisgarh	<ul style="list-style-type: none"> <li>➤ Timber sps that have been exempted from transit regulations are Poplar, Casuarina, Su-babul, Israili, Babul, Vilayati babul, Manziium, Nilgiri</li> </ul>
8.	Delhi	<ul style="list-style-type: none"> <li>➤ Since land is premium commodity in Delhi, farmers generally do not practice agroforestry here. Poplar, Kikar and Eucalyptus have been proposed for exemption. So, FP is required.</li> <li>➤ There are no transit rules in Delhi for transportation of timber.</li> </ul>
9.	Goa	<ul style="list-style-type: none"> <li>➤ No FP. Omitted Bamboo from the definition of tree.</li> <li>➤ NO TP. All types of bamboo grown in private areas (non-forest areas) will not fall under the purview of forest produce and hence transit permit for bamboo felled from private areas are exempted</li> </ul>
10.	Gujarat	<ul style="list-style-type: none"> <li>➤ Nilgiri, Subabul, Saru, Champa, Laxmanfal, Ramfal, Sitafal, Asopalav, Pendula, Nagkesar, Nagchampha, Falsa, Ingorio/ Angarea, Kamrakh, Kadhipatta, Limbu, Chikotru, Bijoru/ Turanj, Narangi, Mausambi, Maharuk, Rukhdo, Motoarduso, Limdo, Neem, Bakan, Bakan, nim, Irani nim, Nimbara, Limbara, Mahanim, Mahogany, Bordi, Bor, Khati bor, Ghulbor, Liehi, Lilchi, Aritha, Aritha, Amba, Kadvo Saragavo, Saragavo, Agathin, Segto, Agastin, Desi Baval, Goras amlili, Gando baval, Ganda baval, Botlle Brush, Jamphal, Dadam, Chikoo, Boralli/ Mursal/ Vakal/ Varasd/ Bakul, Saptaparni, Champo, Safed champo, Liar/ Nani/ Gundi/ Nagod, Nirgund/ Nargundi, Lingur Nirgudi, Ambla, Fanas, Pipli/papri, Shetur, Haredo, Harero, Poplar, Golden cane palm, Oilplam</li> </ul>

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11.	Himachal Pradesh	<ul style="list-style-type: none"> <li>➤ Kala Siris/Ohi/Sriris, Kachnar/ Karial, Safeda, Kimu/ Chirmu/ Shahtoot/ Tut/Mulberry, Poplar, Indian Willow/ Biuns, Kuth, Kala Zira, Japanese Shehoot/paper mulberry, Paik, /Koi,/ Kosh/Kunis/Kunish/Nyun, Khirk/ Khadki, Darark/Bakin, Fagoora/ Phagoora/Tiamble/timla/tirmal/ anjiri/cluster fig/goolar, Toon, Jamun, Teak/Sagun/Sagwan, Arjun, Semal, Shalmaltas, Bihul/Beul/Bhimal/ Bhiunal/Dhaman, Paza/Padam, Kamala/Raini/Rohan/Rohini/ Sinduri, Aam (Mango wild variety), Rishtak/Ritha/Dode</li> </ul>
12.	Haryana	<ul style="list-style-type: none"> <li>➤ Some sps are exempted from regulations under Punjab Land Preservation Act, 1900. These are Eucalyptas, Poplar, Alianthas, and Acacia tortilis. There is no transit rules applied for timber sps.</li> </ul>
13.	Jharkhand	<ul style="list-style-type: none"> <li>➤ Eucalyptus (Safeda), Poplar, Casuarina, Maha Neem, Baken Kadmb, Subabool, Silver Oak, Israeli Babool Vilayati Babool, Babool, Plam, Ber, Munga, Mulberry Guava, Nimboo, Santra, Mussambi, Ashok</li> </ul>
14.	Jammu & Kashmir	<ul style="list-style-type: none"> <li>➤ Kikar, Bel, Siris, Champ, Neem, Malugarh, Kakrad, Palas, Amaltus/ Karangal, Sisoo/Tali, Dhamman, Nili Gulmohar, Akhrot(khod), Kehbal jhingar, Baronkal, Bilati Kikar, Safeda, Poplar, Robin, Chitta banddha, Rondu banddha, Sagwan, Arjun, Beheda, Tun/Toon, Bana, Dhoi</li> </ul>
15.	Karnataka	<ul style="list-style-type: none"> <li>➤ Acacia hybrid, Acacia mangium, Tree of Heaven, Rain tree, All Cassias except Golden Rain tree, Cashew, Christmas</li> </ul>

		<p>tree, Arecanut, Casuarina, India Beef wood, Lemon, Ornage, Coconut, Coffee, Mayflower, Indian coral tree, Eucalyptus, Glyceridia/ Quick stick, Silver Oak, Rubber, Jacaranda, Sausage tree, Subabul, Umbrella tree, Sapota/Chikoo fruit, Melia, Indian Cork tree, Drumstick, Mulberry , Curry leaf tree, Peltiform, Purple bauhinia, Pagoda tree, False Ashoka, Guava, Sesbania, Hummingbird tree, Paradise tree, African tulip, Tabebuia, Trumpet tree</p>
16.	Kerala	<p>➤ <b>Species for Plywood:</b>  Vellappine, Kurangandi/Narivenga/Mundani, Karakily/Kalpine, Kulamavu/Kulirmavu/Ooravu, Pali/Palendinjan, Thellipine/Undapine, Kulavu, Red Cedar, Poon/Punna/Punnappa, Vediplavu/Mullampali, Charu, Pothundi/Perunthondi, Cheeni, Nedunar, Vallabham/Varangu, Chorapine, Chemmaram, Champakam, Cherukonna, Mulliam, Neeramruthu, Peenary, Kumbil, Veembu, Gnavel, Kattunelli, Vakka, Thavala.</p> <p>➤ Species for Matchwood: Aspin/Kanala/Nasakam, Elavu/Poola, Pala/Mukkampala</p> <p>➤ Species for Bobbin wood: Vellakil, Manjakdambu</p> <p>➤ Species for pencil wood: Venkotta, Perumtholi/Poochakadmbu, Attuthekku/Cadambu,</p> <p>➤ Species for packing wood: Kara/Bhadraksham, Amazham, Aval, Arayanjili, Kalaveppu/Malaveppu, Vatta/Uppathi.</p>

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		<ul style="list-style-type: none"> <li>➤ Fire wood: Palvu (Jack), Parankimavu (cashew), Kattadi (Casuarina), Poovarasu (Poovarasu), Mavu (Mango tree), Puli (Tamarind tree), Nattupunna (Nattupunna), Aanjili (Aanjili), Vaka (Vaha- species), Poovam, (Poovam, Konna), Thanni (Thanni), Uthi (Uthi), Aal Jatikal (Ficus species), Matti (Matti), Murukku (Murukku), Elappu (Iloia) and Kodamuli (Koadampuli)</li> </ul>
17.	Lakshadweep	<ul style="list-style-type: none"> <li>➤ NO FP. IFA or any Forest Act is not enforced in Lakshadweep. Also, Bamboo is not grown anywhere in Lakshadweep. Therefore, amendment in IFA or any Forest Act does not arise in this state.</li> <li>➤ No TP</li> </ul>
18.	Madhya Pradesh	<ul style="list-style-type: none"> <li>➤ Neelgiri, Casuarina, Poplar, Subabul, Israili Babul, Vilayati Babul, Australian Babul, Babul, Khamer, Maharukh, Kadamb, Cassia Siamea, Gulmohar, Jacaranda, Silver oak, Plam, Ber, Mulberry , Katahal, Amrood, Nimbu, Santra, Mussambi, Munga, Molshri, Ashok, Putranjiva, Imli, Jamun, Mango, Saptparni, Kaitha, Jungle Jalebi, Petltaphorum, Neem, Bakain, Sissoo, Karanj, Palash, Safed Sirus, Pipal, Bargad, Gular, Rubber, Semal, Kapok, Chirol, Gliricidea, Rimjha, meithi Neem, Gurhal, , Jasoun, Conifers, imported Timber Species</li> </ul>
19.	Maharashtra	<ul style="list-style-type: none"> <li>➤ Nilgiri trees, Babhul, Subabhul, Prosopis, Ashok, Drumstick, Sindi, Orange, Chiku, Bhendi, Acacia, Poplar, Lac, Casuarina equisetifolia, Rubberwood and Teak</li> </ul>

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20.	Meghalaya	<ul style="list-style-type: none"> <li>➤ Meghalaya being a Hilly state, there is no Agroforestry at all, since percentage of states' land covered by agriculture is very small. If any blank interstate movement of timber is permitted, state will lose meagre resources of forests under control of the State Government.</li> </ul>
21.	Mizoram	<ul style="list-style-type: none"> <li>➤ Kothal, Tung, Eucalyptus spp., Mulberry, Neem, Rubber tree, Imli, Silver Oak, Subabul, Mango, Guava, Coconut, Citrus, Areca nut</li> </ul>
22.	Manipur	<ul style="list-style-type: none"> <li>➤ No Felling Permission (FP) is required</li> <li>➤ No Transit Pass (TP) is required for homegrown trees within state.</li> <li>➤ TP is required outside state</li> </ul>
23.	Nagaland	<ul style="list-style-type: none"> <li>➤ Aam, Korei, Walnut, Neem, Alder, Manipur Sim, Kadam, Hollock, Khokan, Teak, Gamari</li> </ul>
24.	Odisha	<ul style="list-style-type: none"> <li>➤ Bada chakunda, Sana Chakunda, Jhaun, Sliver Oak, Patas/Nilgiri, Sunajhari/ Acacia, Subabul, Kaitha, Ambada, Batapi, Oau, Sajana, Karamanga, Sahada, Plam tree, Debadaru, Bhersunga, Gohira, Giliricidia, Paladhua, Coconut</li> </ul>
25.	Punjab	<ul style="list-style-type: none"> <li>➤ Forest produce" shall specifically mean timber (converted or otherwise), firewood, charcoal, katha and resin, but shall not include Non Timber Forest Produces (NTFPs) like bamboos and agro-forestry species such as Populus spp., Eucalyptus spp., Melia azedarach (Drek), Morus alba (Mulberry), Leucaena leucocephala (Subabul), Casuarina spp., Grevillea robusta (Silver Oak), Acacia mangium, Melia dubia, (Malabar Neem), Prosopis cineraria (Khejri), Salix alba (Indian willow), Gmelina arborea</li> </ul>

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		(Gamari) or any other species declared by the State/ authorized agency as agroforestry species from time to time.
26.	Rajasthan	➤ Casuarina, Australian babul, Khamer, Cacia Siamea, Gulmohar, Jaccaranda, Silver oak, Plam, Ber, Mulberry, Katahal, Amrood, Sehjana, Molshri, Ashok, Putranjiva, Imli, Jamun, Saptarni, Kaitha, Jungle, Jalebi, Petaphorum, Bakain, Karanj, Safed Sirus, Semal, Kapok, Churel, Mithi neem
27.	Sikkim	➤ No permission for felling of trees on any private or Forest land has been granted. If anyone wishes, he/she must apply to be Block Officer.
28.	Tamil Nadu	➤ Mesquite, Casuarina, Subabul, Palmyrah, Dadops, Umbrella thom, White Back Acacia/ Paniced Acacia, Maharuch, Maharukh/ East India Walnut/Siris, Cashew, Kadam, Jack, Neem/Margosa, Red silk cotton/ Kapok, Sappan, Cassia, white silk cotton tree/ kapok, Sissoo, Coral tree, Eucalyptus, Gamari, Rubber, Sea Hibiscus, Mohua, Mango, Persian Lilac, Malabar Neem, Morinda / Suranji, Manila/ Tamarind, Pongam/ Indian Beach, Rain tree, Mahogeny, Jamun/Indian cherry, Tamarind, Esperanaza, Indian Portia tree/Indian Tulip, Red Cedar/Toon, Silver Oak.
29.	Telangana	➤ Eucalyptus, Neelagiri, Jama oil, Casuarina, Sarugudu, Sarvi, Saru, Poplar, Subabul, Israeli Babool, Seema Thumma, Australian babul, Gummaadi teak, Pddamanu, Kadamb, Seema Tangedu, Jacaranda, Silver oak, Regu, Ber, Mulberry, Jama, Guava, Orange and related species, Munga, Ashok,

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		Naramamidi, Mahaputrajivi, Putrajeevi, Edakulapala, Turakavepa, Kanuga, Rubber, Seemamarri, Tella Tumma, Gliricidia, Kaivepaku, Mandara, Conifers (Chir, Kail, Deodar and Pine species), Tati, Tadi, Palmyrah, Sapota, Coconut, Kobbari, Tenkai, Cashew, Jeedimamidi, Semma, Chinta, Rain tree, Nidraganneru, Mango (Mamidi), and Panasa (Jackfruit).
30.	Tripura	➤ Tree species like Mango, Litchi, Drumstick, Guava, Rubber and bamboo are exempted from extraction from private land. Bamboo sps. have been exempted from transit permits both from Private and Forest land. Transport of Timber is also permitted.
31.	Uttar Pradesh	➤ Aru, Casuarina, Jangal Jalebi, Poplar, Babool, Vilayati Babool, Rabania, Siris, Su-babool, Kathber, Jamun, Eucalyptus, Dhak Palas, Paper Mulberry, Ber, Sainjana, Shah toot, Mango (Desi, Tukhmi or Kalmi)
32.	Uttarakhand	➤ 27 tree species have been exempted from the provision of Tree Protection Act, 1976. This includes fodder and small timber species that are being used in small scale industries, animal husbandry, agricultural implements and allied activity. Other 07 tree species like Walnut, Neem, Oak, Ficus (Peepal and Banyan) and Deodar have been placed in the restricted category and felling permission can be granted only in case of dead or dangerous trees.

**Source:** Government of India, DAC&FW (NRM Division-SMAF), F. No. 10-2/2020-NRM-SMAF, 2020.

Government of Maharashtra. (2026, June 9). Notification under the Maharashtra Felling of Trees (Regulation) Act, 1964 (No. TRS-10/2025/C.R.244/F-6). Revenue and Forests Department, Maharashtra Government Gazette.







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