

# SILVICULTURE PRACTICES



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# Lesson plan

	Contents	Sessions
1. Foundation and practices	Introduction	1
	Tree and the forest	1
2. Relationship between silviculture practices and forest environment	Factors of locality 1. Climatic factors 2. Topographic factors 3. Edaphic factors 4. Biotic factors	4
3. Regeneration	1. Natural Regeneration	2
	2. Artificial Regeneration	4
4. Nursery	1. Basic principal	4 (Nursery Tour)
	2. Establishment	
5. Afforestation techniques	1. Tree	2
	2. Bamboo	1



# Lesson plan

	Contents	Sessions
6. Recent techniques of production and out planting of bare root and container seedling	<ol style="list-style-type: none"><li>1. Different types of production of seedlings</li><li>2. Different types of plantation</li></ol>	4 (2 Guest Lecture)
7. Afforestation of problem sites	1. Denuded hill slopes	1
	2. Ravine lands	1
	3. Mined out area (OB Dump)	1
	4. canal, road side and railways strip	1
	5. saline, alkaline and laterite soils	1

# Lesson plan

	Contents	Sessions
8. Energy plantation		1
9. Urban Forestry		2 (Tour)
10. Costing and records of regeneration operation		2
11. Silviculture of some important species and their regeneration		2(Assignment)
12. Seed quality testing		2
13. Regeneration techniques of important species and site treatment		
14. Tree genetics	Genetics and its application to plant improvement, plus tree, laying of seed orchards	3(Guest Lecture)
	Planting stocks improvements	4
	Total sessions	40

# Total 40 marks

- External Guest Lecture- Clonal Technology and Tree Genetics and improvement =Total 5 lectures(3+2)
- Excursion-one nursery visit and one city forest=total 2
- Concurrent assignment- 7 –Assignment and 5 marks  
Unannounced Quiz= 12 marks
- Examination- 28 marks

# SILVICULTURE

- **According to Toumey and Korstian :-**
  - Branch of forestry dealing with
  - The establishment
  - Development
  - Care
  - Reproduction of stands of timber
- **As per FRI terminology**
- “Art and science of cultivating forest crops”

## □ **Object of silviculture**

- Production of more useful and valuable forests in less time to meet our requirements

## □ **Role of Silviculture**

- Production of species of economic value (in consistent with other objectives)
- Production of larger volume per unit area
- Quality timber
- Reduction of rotation
- Raising forests in blank area
- Creation of man- made forests and introduction of exotics

# Relation of forestry with other branches

## □ Silviculture and forest protection

- Prevention and control of damage to forest by various agencies

## □ Silviculture and forest mensuration

- Determination of dimensions, form, volume, age and increment of logs, single trees or whole woods

## □ Silviculture and forest utilization

- Harvesting, conversion and use of forest produce



# Relation of forestry with other branches

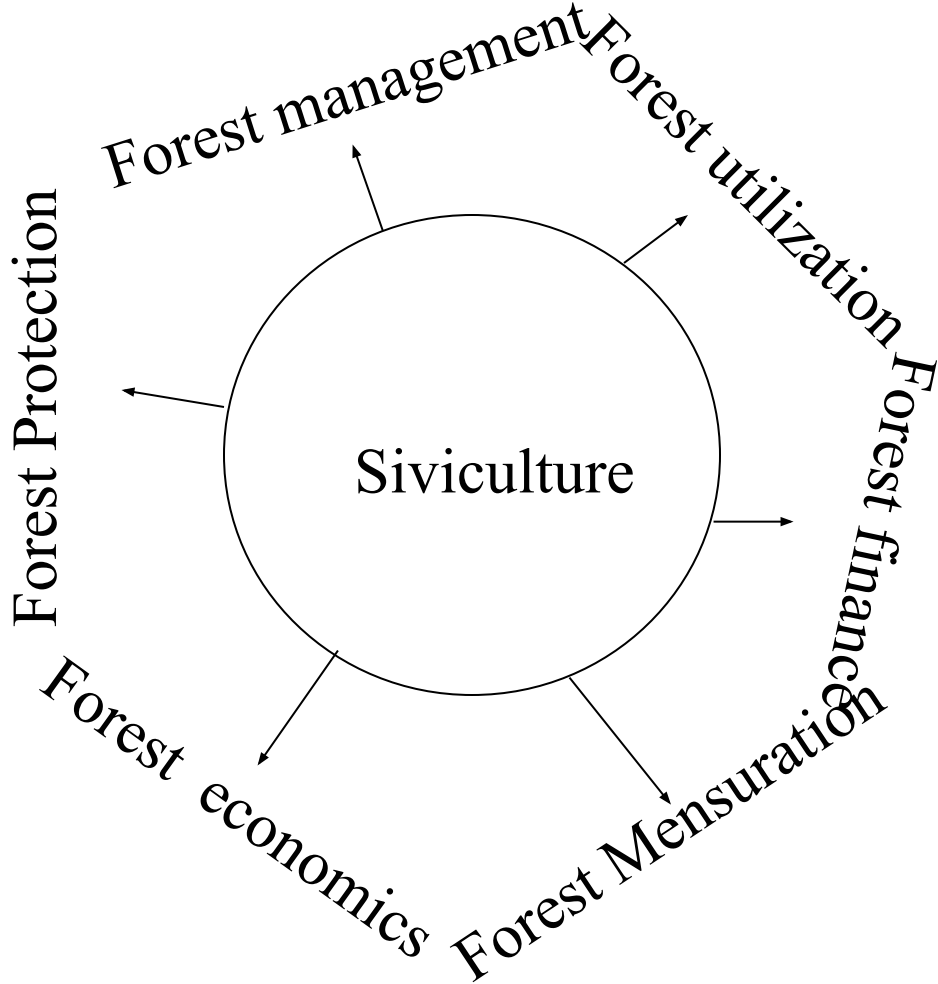
## □ Silviculture and forest economics

- Forest economics deals with the forest as a productive asset, subject to economic laws

## □ Silviculture and forest management

- The practical application of the scientific, technical and economic principles of forestry

# SILVICULTURE AND FORESTRY





# Tree

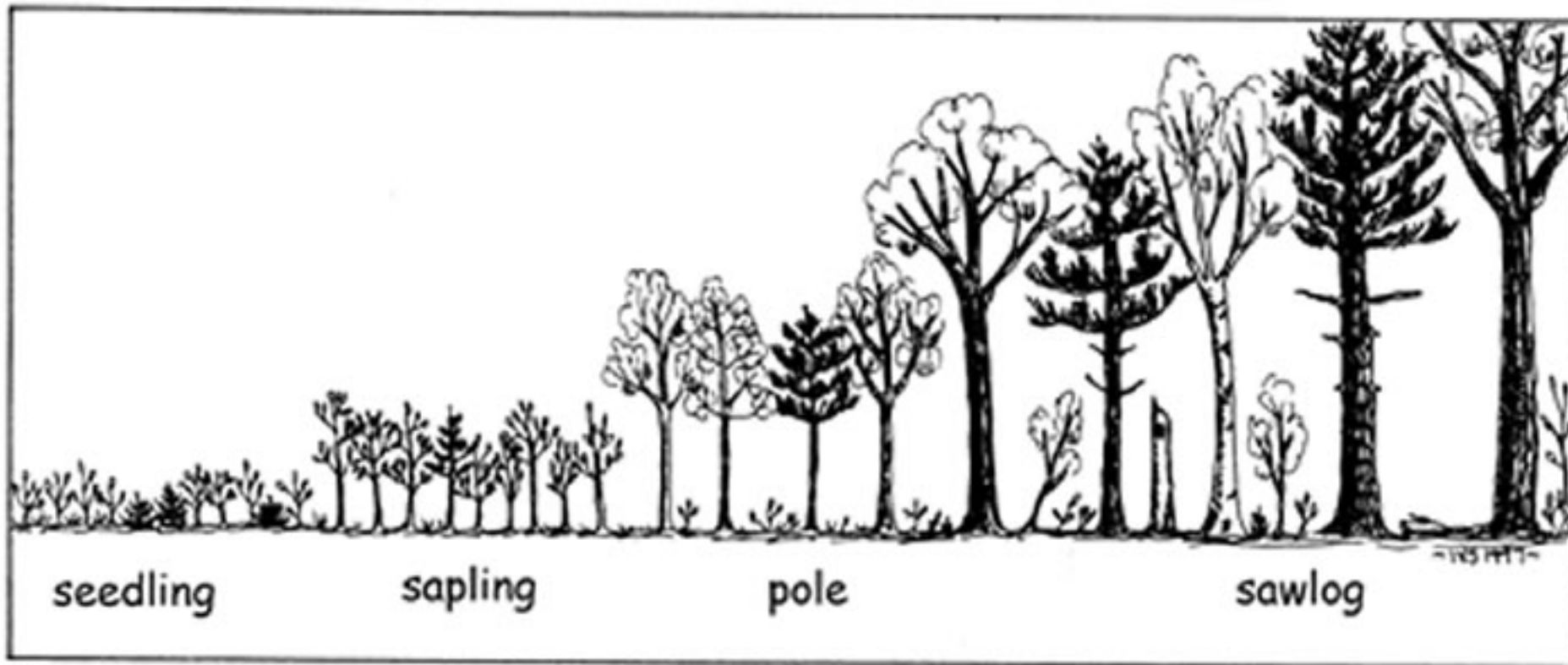




- Crown
  - Shape and size
  - Mode of branching
  - Leaf colour, size and texture
  - Leaf shedding-  
deciduous and  
evergreen
- Stem
- Root



# Stages



# FORESTS- DEFINITION

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- Forests : derived from latin word ‘Foris’ meaning outside the village boundary or away from inhabited land.
- Area occupied by different kind of trees, shrubs, herbs and grasses and maintained “as such”
- Technically : an area set aside for the production of timber and other forest produce, or maintained under woody vegetation for certain indirect benefits like climatic or protective function (Anon, 1966)



- **Ecologically:**-plant community, predominantly of trees and other woody vegetation, usually with a closed canopy.
- **Legally:** an area of land proclaimed to be a forest under a forest law.
- **FAO:** lands bearing vegetation associations dominated by trees of any size capable of producing wood or other forest products, or exerting an influence on the climate, water regime or providing shelter for live-stock and wild life.

- Thus forest has five constituents:
  - Land area
  - Should be accepted by different vegetation types, mainly trees
  - Trees should form a closed or partially closed canopy
  - Trees and other forms should be managed for obtaining forest produce and other benefits
  - Should provide shelter to wildlife, birds and other fauna.

## Supreme court order dated 12.12.96 in CWP 202 of 1995

- The forest conservation Act, 1980 was enacted with a view to check further deforestation which ultimately results in ecological imbalance;
- Therefore, the provisions made therein for the conservation of forests and for matter connected therewith, must apply to all forests irrespective of the nature of ownership or classification thereof.
- The word “forest” must be understood according to its dictionary meaning. This description covers all statutorily recognized forests, whether designed as reserved, protected or otherwise for the purpose of section 2 (i) of the forest conservation Act.
- The term “forest land”, occurring in Section 2, will not only include “forest” as understood in the dictionary sense, but also any area recorded as forest in the Government record irrespective of the ownership.

- This is how to be understood for the purpose of section 2 of the Act.
- The provisions enacted in the Forest conservation Act. 1980 for the conservation of forests and the matters connected there with must apply clearly to all forests so understood irrespective of the ownership or classification thereof.

# ROLE OF FORESTS

1. Productive functions
2. Protective functions
3. Ameliorative functions
4. Recreational functions
5. Developmental functions

- Productive functions
  - Timber and other important MFPs. like
  - a. Fibre and flosses
  - b. Grasses and bamboos
  - c. Essential oils
  - d. Oil seeds
  - e. Tans and dyes
  - f. Gums and resins
  - g. Drugs, spices and insecticides
  - h. Tendu and other leaves
  - i. Edible products
  - j. Lac and other products
  - k. Fodder and grazing



# □ Protective and ameliorative functions

- i. Maintain CO<sub>2</sub> balance
- ii. Increase local precipitation
- iii. Reduce temperature and increase humidity
- iv. Increase soil fertility
- v. Check floods by intercepting rainfall
- vi. Conserve soil and water both prolonging water cycle
- vii. Tree crowns reduce the violence of rains and check splash erosion
- viii. Reduce wind velocity
- ix. Check siltation of irrigation and hydel reservoirs
- x. Store house of genetic diversity
- xi. Protect from physical, chemical and noise pollution
- xii. Provide shelterbelt and wind break effect

## □ Recreational and educational functions

- Recreational facility to people through national parks and sanctuaries
- Experimental field and laboratory
- Healing effect for many diseases

## □ Developmental function

- Employment, revenue etc.

# CLASSIFICATION OF FORESTS

- Method of regeneration ;
  - High forest –seed origin
  - Coppice forest – vegetative origin
- Based on age
  - Even aged (regular)- 25% of the crop over 100 yrs
  - Uneven aged (irregular) - Selection Forest
- Composition
  - Pure forest – 80% of single species and 20% of other species
  - Mixed forest
- Objects of Management
  - Production
  - Protection

- Ownership and legal status
  - State forest –reserved, protected, village
  - Community forest
  - Village forest
  - Private forest
- Growing stock
  - **Normal**–for a given site and objects of management, is ideal w.r.t. growing stock, age, increment, yield etc.
  - **Abnormal**

- **Forestry**: the theory and practice of creation, conservation and scientific management of forest and utilization of their resources
- **Intensive forestry**: obtaining maximum volume and quality of products per unit area through application of best techniques of silviculture and management

## □ **Multiple use forestry**

- **Based on objectives**

- i. Protection forestry

- Wind and water erosion
- Floods other adverse climatic conditions

- ii. Commercial forestry

- iii. Social forestry

- iv. Farm forestry – absentee land lordism

- v. Extension forestry

- Shelter belts
- Linear strips
- Recreational – high scenic value



A photograph of a lush green field with a dirt path and several trees. The text "Thank you" is overlaid in the center.

Thank you