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Agroforestry is a land use management system that combines trees and/or shrubs with agricultural crops and/or livestock in a mutually beneficial manner. There are several classifications or types of agroforestry systems, each with its own set of practices and objectives. The main agroforestry classifications include:

1. **Agrisilviculture (Agro-Silviculture):**
 - This involves the combination of trees and shrubs with agricultural crops. The trees or shrubs may be planted alongside or within the crop fields. The goal is often to provide additional income through timber, fruits, or other tree products while maintaining crop production.
2. **Silvopasture:**
 - Silvopasture integrates trees or shrubs with pastureland for livestock. This practice aims to improve animal welfare, provide shade for livestock, and enhance overall pasture productivity. The trees can also serve as a source of timber, fodder, or other products.
3. **Agrosilvopastoral Systems:**
 - This is a combination of agrisilviculture and silvopasture, where trees or shrubs are integrated into both agricultural and pastoral systems. The objective is to optimize land use by combining crops and livestock with trees.
4. **Forest Farming (Agroforestry in Forested Land):**
 - In forest farming, agricultural crops, herbs, or mushrooms are cultivated under the canopy of established trees. This approach allows for the simultaneous production of forest products and traditional crops.
5. **Windbreaks and Shelterbelts:**
 - Windbreaks consist of rows of trees or shrubs planted to reduce wind erosion and protect crops. Shelterbelts are similar but are often used to protect livestock or other structures. Both serve as protective barriers and can also provide additional products such as timber or fruit.
6. **Home Gardens (Agroforestry around Homesteads):**
 - Home gardens involve the cultivation of a variety of crops, including trees and shrubs, around a household. This system provides diverse products for household use and can contribute to food security and income generation.
7. **Riparian Buffer Strips:**
 - Riparian buffer strips involve planting trees and shrubs along watercourses to protect water quality, prevent soil erosion, and enhance habitat for aquatic life. This type of agroforestry system is common in areas with water bodies.
8. **Alley Cropping:**
 - In alley cropping, rows of trees or shrubs are planted between rows of crops. This system helps to reduce soil erosion, improve microclimatic conditions for crops, and provide additional products from the trees.
9. **Multistrata Agroforestry:**

- This involves the cultivation of multiple layers of vegetation, such as trees, shrubs, and herbaceous plants, to maximize productivity and ecological benefits.

These classifications are not mutually exclusive, and agroforestry systems can often exhibit characteristics of more than one type. The specific choice of agroforestry system depends on factors such as climate, soil type, the objectives of the landowner, and the desired products from the system.

Classification of agroforestry system

1. Structural Classification

Structural classification is done on the basis of

- A. Based on Nature of Components.
- B. Based on the Arrangement of the Components.

A. Based on Nature of Components

- Based on Presence.
- Based on Dominance.

i. Based on Presence

- Agrisilviculture (Crops and trees).
- Silvopastoral (Pasture/ Animals and trees).
- Agrosilvopastoral (Crops, Pasture/ animals and trees).
- Others: Multipurpose tree lots, apiculture with trees, aquaculture with trees, etc.

ii. Based on Dominance of Components

Based on the dominance of components, the systems are further classified into the following categories.

a. Silvoagriculture: Here, silvoculture is the primary aim of land use. Trees constitute the major component while agricultural crops are integrated with them. e.g., Shifting cultivation, Taungya cultivation.

b. Agrosilviculture: Agriculture is the primary (major) component, and the trees are secondary. e.g., Multipurpose trees on farmland, hedge-row or alley cropping, intercropping of trees, home gardens.

c. Silvopasture: Trees constitute the primary (major) component of land use, with pastures as secondary. Most grazing in forests can be treated as Silvopasture.

d. Pastoral silviculture: Pasture is a primary component while the trees are secondary. e.g., Grazing land.

e. Agrosilvopasture: It is a combination of crops, trees, and pastures. Both crops and trees are dominant over the pasture.

f. Silvoagropasture: It is a combination of trees, crops, and pastures. Trees are dominant over other components.

B. Based on Arrangement of Components

Arrangement of the component can involve the dimension of space and time. Based on the arrangement of components, the [Agroforestry](#) system can be classified as.

- In space or spatial arrangement.
- In time or temporal sequence.
- Vertical stratification of components.

A. Space or spatial arrangement:

- **Mixed dense:** Different components are arranged together with high density. e.g., Home garden.
- **Mixed sparse:** Different components are arranged together with low density. e.g., Most systems of trees in pastures, Scattered trees on agricultural lands.
- **Strip plantation:** Width of the strip to be more than one tree. e.g., Alley cropping.
- **Boundary plantation:** Trees on edges of plots/ fields.

B. In time or temporal sequence:

- **Coincident:** It occurs when different crops occupy the land together. e.g., Tea/ Coffee under a shade tree, pastures under trees.
- **Concomitant:** When different components stay together for a certain period. e.g., the [Taungya system](#).
- **Intermittent:** When annual crops are grown with perennial ones. e.g., Rice under coconut trees or other MPTs, Seasonal grazing of cattle pastures under trees.
- **Interpolated:** When different components occupy the space during different times. e.g., Home garden.
- **Overlapping:** e.g., Black pepper in rubber.
- **Separate:** When components occupy space at different times. e.g., Improved 'fallow' [species](#) in shifting cultivation.

C. Vertical Stratification of components:

- **Single layered:** The major component usually grows in one layer or storey. e.g., Tree garden.
- **Double-layered:** The major component is usually grown in two layers. e.g., Tea/ Coffee under a shade tree.
- **Multilayered:** Different components are grown in different layers. e.g., Homestead agroforestry.

2. Functional Classification

Production and protection are, theoretically, two fundamental attributes of all agroforestry systems. This implies that [agroforestry](#) systems have a productive function yielding one or

more products that usually meet basic needs and a service role, i.e., protective function. Based on various functions, the agroforestry systems are classified into the following:

A. Productive Agroforestry system: This system refers to the production of essential commodities required to meet society's basic needs. It includes intercropping of trees, home gardens, plantation of trees in and around the crop field, production of animals and fishes associated with trees. Productive functions are as follows

▲ Food. ▲ Fodder. ▲ Fuelwood. ▲ Others woods. ▲ Other products.

B. Protective Agroforestry system: This system refers to protect the land, improving climate, reduce wind and water erosion, improve soil fertility, provide shelter, and other benefits. Protective functions are as follows:

- Windbreak.
- Shelterbelt.
- Soil conservation.
- Moisture conservation.
- Soil improvement.
- Shade (for crops, animals, and man).

3. Socioeconomic Classification

Based on socioeconomic consideration, the agroforestry system is classified as:

A. Subsistence Agroforestry system: Subsistence Agroforestry system aims at the basic needs of a small family having less holding and very little capacity for investment. There may be some marginal surplus production for sale. e.g., Shifting cultivation, Scattered trees in the farms, Homestead Agroforestry.

B. Commercial Agroforestry system: It refers to large-scale production on a commercial basis. The main consideration is to sell the products. e.g., Tea/ Coffee under a shade tree.

C. Intermediate Agroforestry system: It is an intermediate between commercial and subsistence systems. It is practiced on small and medium-sized farms. The system aims to produce items that are not only enough to meet the needs of the family but also earn money from the surplus that can be sold.

The Socioeconomic Agroforestry system may further be classified based on Management and Technology used.

A. Based on Management

- **Intensively managed system:** Agroforestry systems are intensively managed for more production per unit area as in home gardens, trees with agricultural crops.
- **Extensively managed system:** It includes Shifting cultivation, Silvopasture, Pastoral silviculture, etc.

B. On the basis of technology

- **Low technology system:** The technology used in this system is primitive, as in shifting cultivation.
- **High technology system:** This system depends on modern technology for forest and agricultural crop production. e.g., Tissue culture, Biotechnology, Genetic engineering, etc.
- **Intermediate technology system:** This system is an intermediate between low and high technology systems. Most Agroforestry systems belong to this category.

C. Classification based on Utilization of Land

Based on the Utilization of land, the Agroforestry production systems are sometimes classified into the following categories.

a. Homestead Agroforestry: Production of fruit trees, selected [MPTs](#) having less canopy and decorative trees/ shrubs and vegetables, spices, and many shade-loving crops.

b. Forest land Agroforestry: Production of crops in the vacant spaces of the forest.

c. Crop farm forestry: Production of crops and trees in the cropland.

d. Fish farm forestry: Production of fishes and trees in the fish farm.

e. Animal farm forestry: Classified as

- **Poultry farm forestry:** Farming of poultry birds and trees.
- **Dairy farm forestry:** Farming of milk cattle and trees.
- **Beef cattle farm forestry:** Farming of beef cattle and trees.
- **Goat farm forestry:** Farming of goats and trees.
- **Integrated farm forestry:** Production of crops, animals, fishes along with trees.

f. Roadside Agroforestry: Production of deep-rooted tall trees with narrow canopies and soil building grasses or crops along the sides of roads, highways, railways, and embankment.

4. Ecological Classification

The Agroforestry system is related to various ecological factors. It can be classified based on important ecological parameters (Climate, edaphic and physiographic ones).

Based on Ecological parameters, it can be classified as

A) Tropical: Vegetation in an extreme climate, such as high temperature, low humidity, scarcity of water, etc., e.g. Tropical Silvopasture.

B) Sub-tropical: Vegetation in suitable climatic conditions. e.g., Agroforestry practices in the subtropical regions.

C) Temperate: Vegetation in low temperature. e.g., Silvopasture or pastoral silviculture in the temperate region.

D) Subalpine: Vegetation in low and medium mountainous regions. e.g., Natural or artificial forest vegetation in low or medium mountains.

E) Alpine: Vegetation in high mountainous regions. e.g., Natural forest vegetation in high altitude.

♣ Each of these groups can further be subdivided based on moisture conditions into the following types.

a) Wet: Vegetation under high moisture content of the growing areas as in marshy land, Swamp, waterlogged area.

b) Moist: Vegetation under adequate moisture status of the following place as the crop fields with Agrosilviculture, Silvoagriculture.

c) Dry: Vegetation under very low moisture as in the tropical dry forest.