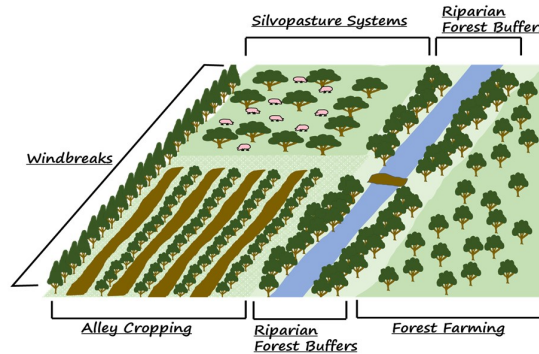
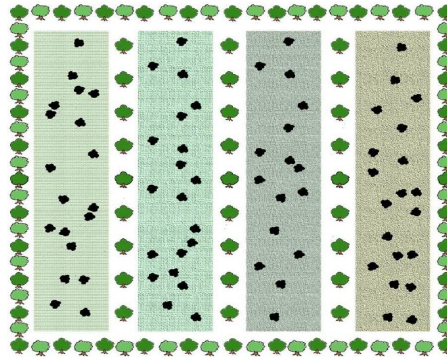
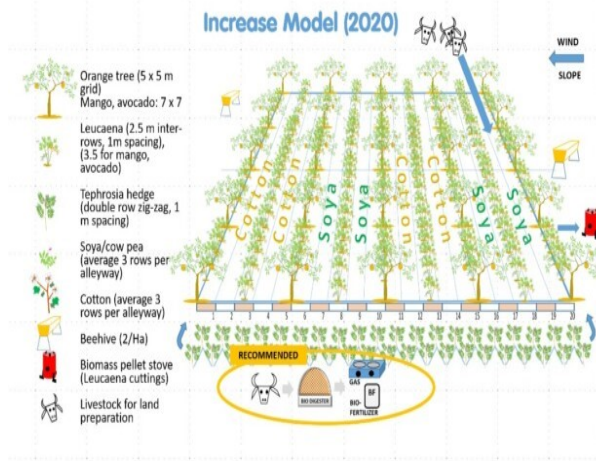


**Aquaforestry system**, the main components are fish and trees and shrubs that are preferred by fish. In the system, the leaves are used as feed for fish while the trees are used for bund stabilization around the fish ponds.

**MAPs based agroforestry**

MAP-based intercropping or agroforestry systems integrating these valuable plants under tree canopy. A long list of industrially important MAPs exists and out of these one such genus is *Ocimum*. Many species of genus *Ocimum* are used in pharmaceutical industries as whole herb and essential oils are used in perfumery and cosmetics industries .

Medicinal and aromatic plants (MAPs) which grow wild under shade in wild. This shade loving nature of MAPs has been tested by intercropping them under tree-based agroforestry systems . Thus there is ample scope to devise MAP-based intercropping or agroforestry systems integrating these valuable plants under tree canopy



# Agroforestry models for district Reasi



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## Agroforestry in hills

The hill farming system features a complementary relationship among crops, trees and livestock. Assorted species of trees and shrubs grown on farms are an integral component of local economies. Besides providing for human needs, crops and trees supply feed, fodder, and bedding materials (litter) to livestock. Animals contribute to the system by providing crops and trees with nutrients via manure. The system is sustained through the recycling of organic materials within the farm as well as through the utilization of forest products. However, there has been a continuous decline in the availability of forest products due to deforestation, especially the clearing of forests for agriculture.

Besides for fodder and fuel wood, there is a considerable dependence of hill farmers on common property and public forests for litter for livestock, with its quantity collected varying considerably by location, season and the accessibility to the forest .

Agroforestry plays a vital role in achieving sustainability in the hills farming system. Agroforestry plays a better role in increasing agricultural productivity by nutri-

ent recycling, reducing soil erosion, and improving soil fertility and enhancing farm income compared with conventional crop production .

There are three main types of agroforestry systems:

### **Agrisilvicultural Systems ( Crops + Forest crops ):**

The crops and trees that are interplanted in between are the components of these systems. Given that protective irrigation is used, crops can be cultivated for two years. If careful farming is done, crops can even be grown in this technique for four years.

### **Silvopastoral Systems ( Silviculture + Pasture management ):**

Woody plants are employed in silvopastoral systems to grow pasture. Trees or shrubs cultivated particularly as fodder, for animals, or to enhance the soil's quality can also be included as part of this system. Silvopasture systems can be divided into three groups: protein banks, living fences made of fodder trees and hedges, and trees and shrubs on grassland. Ex: *Ficus semicordata*, *Litsea monopetalous*, *Artocarpus lakoocha*, and cow and goat rearing.

- Agrosilvopastoral Systems ( Crops + Forest crops + Pasture management ):

It consists of a mix of fields, trees, and crops. Over the field, trees and crops coexist. The two categories apply here: domestic gardens and wooded hedgerows.

Napier, Stylo, Broom grass, and seasonal crops are planted under the fodder tree, as well as goat and cow rearing.

### **Agrosilvopastoral systems**

In this system, woody perennials are combined with annuals and pastures. The systems can be classified into two categories that include home gardens and woody hedgerows for a browse, green manure, mulch, and soil conservation.

### **Home gardens**

This system is more common in areas with high rainfall areas in South and Southeast Asia where coconut is the main crop. Many tree species can be used in this system as well as vegetables, bushes, and herbaceous plants are grown randomly or in special or temporal arrangements. The system also supports a variety of animal components.

**Apiculture system with trees**, the main components are honey bees and trees that encourage honey production.