

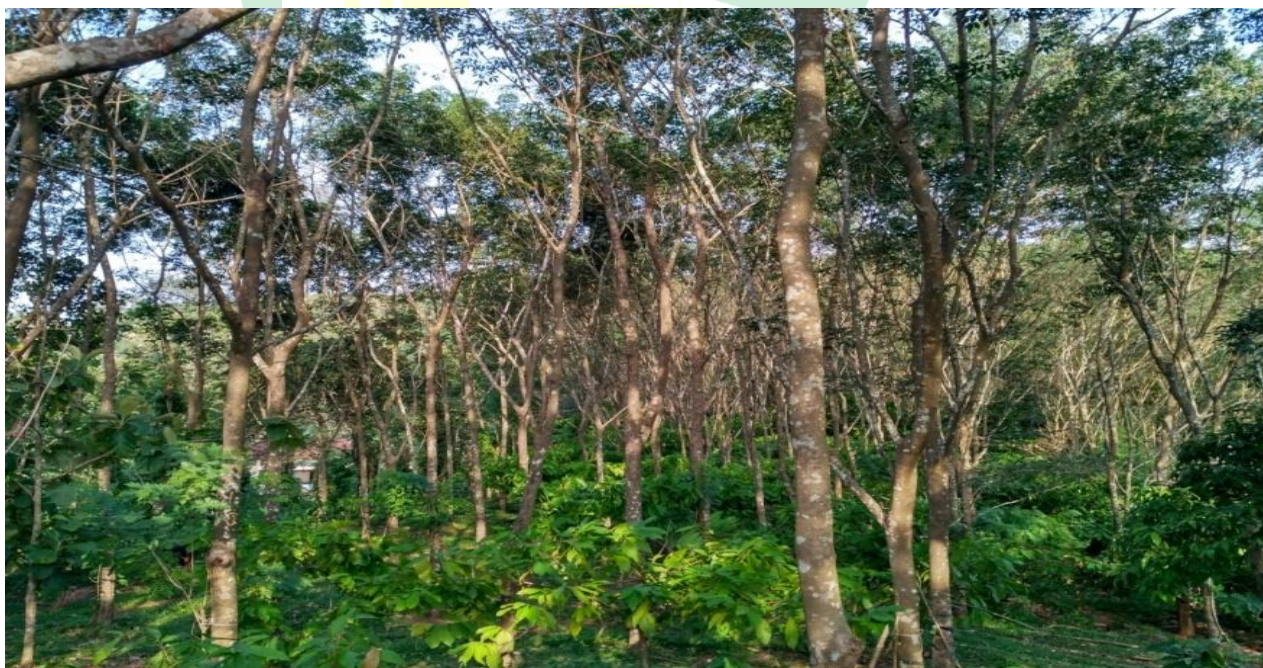
## Multilayer Farming: A viable option for increasing farm income

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Farmers often try new ideas in their fields based on deep knowledge of their local environment and develop many ecologically and environmentally sound local technologies/ farming practices by innovations and adaptations. One of these practices is known as Multilayer Farming system which means growing and cultivating compatible plants of different heights on the same field and at the same time. This type of farming system is mostly cash crop based and it includes a combination of different vegetables, pluses, flowers and fruits on same land which have different growth height and maturity time. This technique of farming helps the marginal and small farmers grow various seasonal vegetables and horticultural crops throughout the year while ensuring food and nutritional security for the household.



Multilayer farming is also known as multi storied cropping or multi-tire farming. It is one type of intercropping which is generally practiced in orchards and plantation crops for

maximum use of solar energy. In multilayer farms, as different types of vegetables, pulses and fruits are grown, they complement each other in many ways such as providing shade canopy, litter, increasing moisture holding capacity of the soil while nurturing micro flora.

The main objective of this type of farming is to utilize the vertical space more efficiently. In this system, the tallest components have foliage of strong light and high evaporative demand and shorter components with foliage requiring shade and high humidity. The other objectives of multilayer farming include optimum use of per unit area of land, harvesting of crops on regular basis all-round the year and conservation of water along with increase in productivity.



### **PRINCIPLE OF MULTILAYER FARMING**

Multilayer Farming is based on the principle of high-density planting and making the ultimate and efficient use of manure, water, land, labour and vertical space. This system of farming also works on the principles of minimization of production cost and inputs use, development of organic and sustainable farming system in order to mitigate the use of chemicals and ensuring the food and nutritional security to each household.

### **CROPS NATURE IN MULTILAYER FARMING**

The different crops planted in multilayer farming have different growth and development pattern. So, special attention should be given in selecting the types of crops that will later forms the multi layers.

1. The crops which are planted underground or below surface soil should be deep rooted and shade loving crops.



2. The crops planted on the surface of the soil should be leafy. These leafy plants completely cover the ground which reduced the weed germination. Also, leafy crops completely cover the ground, due to which, the moisture content of soil is preserved and we don't need to irrigate regularly. The harvesting of these leafy crops is done directly by uprooting them, which provides good aeration to the soil.



3. The climbing plants should be staked properly for their growth and development. These climbing plants can reach up to roof structure, so, they should be properly managed with training.
4. The straight growing plants should be pruned so that they don't occupy more space. Also, they should bear fruits at last and their harvesting should be done after harvesting of all other layer is completed.

### **BENEFITS OF MULTILAYER FARMING**

The following are some of the benefits of practicing multilayer farming system:

1. Multilayer farming generates employment and provides income on regular basis.
2. Multilayer farming decreases the investment cost by 4 times and relegates the needs of expensive Polyhouse. The shade can be made with the help of local materials like bamboo and leafy grass.
3. The multilayer farming structure allows the right amount of sunlight to reach onto the crops and even in peak summer, yield is very good.
4. It also helps in conservation of water and moisture in soil.
5. The amount of fertilizers equal for one plant in field farming is sufficient to 4 crops inside multilayer structure.
6. One of the major benefits of this type of farming system is no effects of climate change. There has become own ecosystem under the structure, therefore, the crop production is not totally affected by outer factors.

7. Multilayer farming system helps to eradicate the germination of weeds, which helps to increase the production and productivity.
8. It helps in the optimum use of available cultivated land for the agricultural production as the farmers can produce large number of agricultural commodities from small area.
9. There is less attack of pest and diseases in this farming system.

## CONCLUSIONS

Multilayer system of cropping is cost effective sustainable method of farming which requires less labour and gives more yield per unit area. Therefore, people should be made aware of this type of farming system. Further, the farmers who are willing to do work, but face the problems like lack of irrigation and less cultivated area can be motivated to do multilayer farming system. This system of farming can help to uplift the economic condition of farmers of the country; therefore, the government should give top priority for this kind of farming system.