



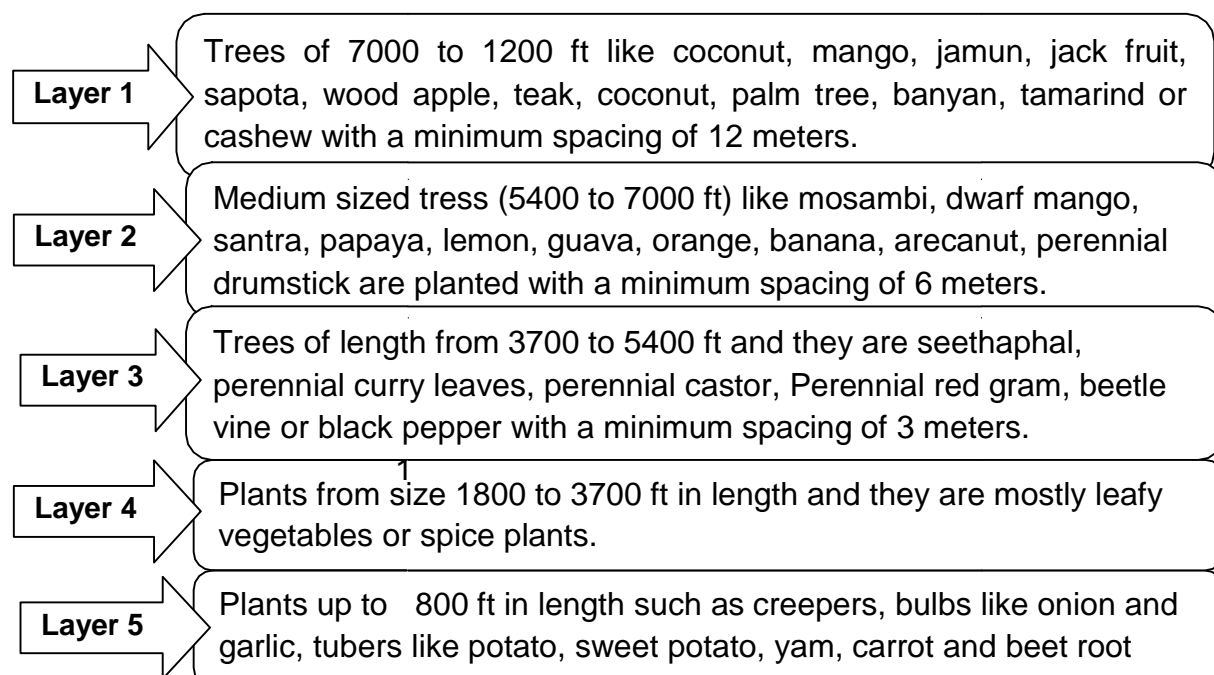
Padi pantalu

A Case study on Five Layer Model

In order to cope with the change in food habits sustainable farming practices and fodder security in drought prone regions of Chittoor district in the state of Andhra Pradesh, APMAS is implementing a project, '**Padi pantalu**' in two mandals viz. Kurabalakota and valmikipuram. The project is being funded by AEIN Luxembourg and aims to achieve food and fodder security through sustainable farming and alternate livelihoods for the small and marginal farmers with focus on women and youth.

As a food security measure in order to increase consumption of nutritious food and promotion of sustainable farming with multi-tier system named "**Five Layer Model**" is introduced. Which was promoted by Subash Palekar, an Indian farmer, Agricultural Scientist and Padma Shri Awardee, in Vidarbha region of Maharashtra state. "**Five Layer Model**" is a sustainable crop management model which improves the soil health. This system allows a maximum of five horticulture crop species in a small holding. This farming system basically aims at utilizing every inch of soil available and making the system look like a forest with its layers of canopy.

Five-layer plantation systematically integrates tree and crop species with varying degrees of sunlight intensity, ensuring 100% cover to the soil with diverse plants and trees. This enhances the soil biome, carbon sequestration, water retention capacity of soils, nutrient availability and year-round income to farmers. The trees create Biodiversity and hence provide nutrition through live roots. The trees also protect the environment at micro level by reducing the temperature, allowing rains to come, maintaining soil health and carbon sequestration and providing fodder to animals. Thus, a five layer model as given below is definitely a step towards addressing drought in the semi-arid areas of the district.





Five Layer Models

Jayamma a women farmer from Kanasanivaripalli village Kurabalakota Mandal, used to cultivate groundnut in her half acre land every season the yield from the crop was not upto to mark because there were many risks were associated with the crop loss like damage of crop by rodents, high pest infestation and many. Due to this the cost of cultivation has been increased but the expected income were not availed to her then she decided to change the crop pattern in to 5 layer model and with in a year she earned Rs 5000 during good monsoon season from this 5 layer model produce were before it was Rs 2000 was her income.

Mrs Jayamma has adopted the five layer model in the year 2019 in his half acre land. she has planted Guava, Tamarind, Jamun, Lemon, Drum stick, Mango, Papaya, banana and Curry leaves trees in the 1st, 2nd and 3rd layers and Chilli, tuber crops and other leafy vegetables in 4th and 5th layers. All the plants and seeds were provided from the Padi pantalu project. Land preparation, pitting, plantation and staking were done by farmer herself with the help family support and also some labour cost, which was the investment from her side. All the trees are still in growing phase. she has harvested the Chilli, banana, Papaya and drumsticks crop during January and sold in the market Now as promotion of millets she has sown Finger Millet in the place of Chilli. she is very happy that she could earn more money from just one crop and she is waiting for the plants to grow so that he can get more income from her half acre land.



Figure 1: Jayamma in her half acre land

Another famer Gopal, a farmer, From valmikipuram Mandal has also adopted the multi-layer model know 5 layer model planted in 60 Acres Guava, Tamarind, Jamun, Lemon, Drum stick, Mango, Papaya, banana and Curry leaves trees in the 1st, 2nd and 3rd layers and vegetables and leafy vegetables in 4th 5th layer Vegetables and leafy vegetables sown in the year 2020 April He also added Fodder species as border crops for cattle feed by this not only in terms income but also feed for the cattle in summer season as there is severe scarcity of fodder this helps him for cattle feed to . The farmer has being practicing natural farming from 4 years and this time for this 5 layer model also he is going to implies same practices, the farmer used dried leaves of the plants to fall in them and perish.



Figure 2: Gopal's land with 5 layer model

Cow dung and traditional organic fertilizer, jeevamurutham were used while transplanting the saplings for better growth and good yield and organic mulching for restoring and to maintain moisture. In this pattern of cultivation of five species of crops, he can avail of regular source of revenue.

In his village he was the first one to introduce this 5 layer model, he is showcasing as model farm. Farmer from neighboring villages coming to his farm to know about the model and suggestion from him. 4 farmers from the same village got inspired by him and established 5 layer models.

Five Layer Model Farming...a way to nutritious food and mitigate drought due to climate change

The Padipantalu project team has oriented the farmers on the advantages of the Five Layer Model and taken them for an exposure visits . About 45 farmers came forward to adopt Five Layer Model during Kharif 2019 and about 4500 plants were procured from various nurseries, distributed and planted by the farmers. The project aims to enable especially the small landholders to go in for the multi layer farming.

Planting of more trees yields number of benefits for the humans to have better nutritional food which is residues free for better health and to the environment helps fight climate change in many ways – absorption of carbon dioxide and other pollutant gases in the air; cleans the air and produces enough oxygen for humans; reduces the temperature; prevents evaporation of water; prevents soil erosion and water pollution; brings more rain; increases the fertility of the soil; provides shelter for birds, bees, squirrels; serves as eco-friendly fuel; promotes bio-diversity ; provides nutritious fruits; provides fodder for livestock; gives sustainable income to the farmers and so on.