

## Innovations in Cultivation of Casuarina developed by Mr.G.S.Dhanapathy



Casuarina (*Casuarina equisetifolia*) is an exotic species introduced in Tamil Nadu by the British during 1930 from Australia. The introduced species has been planted in the canal bunds. By seeing the good growth the grandfather of Mr.G.S.Dhanapathy (Govindan) got the seeds from the tree and planted in his field in the bunds. Then the family of Mr.G.S. Dhanapathy for the past 3 generations became specialized in cultivation of this species. Mr. late Sabapathy, father of Dhanapathy has extensively planted this tree in his land. Now Mr. Dhanapathy also extended planting this tree in 70 acres of land in Bharathipuram –Mootampatti, village, Pudukkottai District. Mr.G.S.Dhanapathy has developed many innovative practices and thus he is known for spreading this species to many farmers and now it is commercially viable for farmers both in dry and irrigated lands.

### **Background of Dhanapathy**

Mr. G.S.Dhanapathy (65) studied up to SSLC. Later he wanted to pursue M.A. but he could not complete the course. He helped his father in all farming activities when he was young and he and his father together pioneered in introducing many innovations such as sugarcane crop and jaggery production started first time and introduced in Pudukkottai samasthanam during British period.

By seeing the good quality of jaggery produced in his farm it has been exported to London in 1972-74 through a private exporter. Later on sugarcane cultivation could not

be continued due to availability of irrigation water and it become scarce. Now Mr G.S.Dhanapathy is maintaining Casuarina in 70 acres, coconut in 5 acres, mango 10 acres ,bamboo 2 acres and other tree species (teak, neem, *kumil tree ( Gmelina arborea)* , Red sandals,Pongamia Palmyrah trees numbering together 2500 ). The total area of 150 acres is owned by undivided family of 2 brothers and it is irrigated through 7 open wells. Still water is scarce in the area and therefore Casuarina cultivation is viable venture both under irrigated conditions and under dry land condition.

### **Raising seedlings of Casuarina**

Casuarina seeds are very tiny/feathery and it will be drifted easily thro' winds. He Collects the seeds , mix them with some and sown in raised bed. Seedlings are pulled after 45 days of growth. During pulling the roots are get damaged and survival / growth is delayed after transplanting in polythene bags/ main field. Mr. Dhanapathy has developed the following technique which keeps the root system intact and it enhances the growth of seedlings at a faster rate. In the new method he digs a pit of 10'-20' feet length with 6 feet width to a depth of half feet. He places about 200 green palmyrah front (leaf with stalk) . They are placed in such a way that the stalk is visible and other parts covered with soil mixture (sand, composted manure, red soil, coconut husk dust mixed on equal basis).Then sow the seeds of Casuarina and gently moisture with rose can. After germination he sprays Panchagavya twice at 15 days interval. After 45 days the stalk of palmyrah font is lifted and this will uproot entire seedlings with root system intact. Then seedlings can be transplanted in polythene bags and kept in nursery for another 2-3 months till grown up seedlings are taken for planting. This method promotes large scale production of Casuarina seedlings while enhance good growth with least damage to the root system. Officials from forest dept. have visited many times and learned this technique.

### **Collection of seeds**

The casuarina tree will bear fruits and the fruits / pods are to be collected at appropriate time before shattering off seeds. Farmers usually collect the pods and beat them for extracting seeds manually.

Mr.G.S.Dhanapathy developed a unique practice . In this method he collects the pods at right stage and place 10-15 kg of pods on a saree cloth (about 10 feet length and width about 3 feet ) and spread them over the entire length. Then cover the pods with another saree and it is clipped off so that seeds after shattering off will not drift away.

This method ensures no wastage of seed material and avoid drifting of seeds while it is easy and allow for natural shattering and saves time and energy.

## Selection of best trees and Improving the Timber value



Over the last 3 decades his careful observation of casuarina trees helped to identify best trees which are fast growing with more girth and its timber value is appreciated with narrow and taller height and bear plenty of fruits in bunches .



He tells that such trees are usually found in bunds where it gets more moisture and nutrition. From these tree he collects pods / fruits and use them for seed purpose. He raises nursery exclusively for such collected seeds either directly by him or through a private nursery man who is fully devoted for raising casuarina seedlings and selling them to others. Local farmers found that seedlings obtained from MrG.S.Dhanapathy is of high quality and its timber value at the time of harvest fetch good market rate. He claims that thousands of farmers benefited through supply of his quality casuarina seeds/ seedlings from his garden. He tells that about 2000 acres of casuarina has been planted by more than 60 famers with improved type. It is a boon to farmers as it fetches good income even under drought when other annual crops fail but income is ensured by planting improved casuarina. After 4 years of planting casuarina a farmer under dry land gets minimum of Rs. 4 lakhs in one acre which is about Rs. 1 lakh / year . It is highly profitable compared with intensive cropping with annual crops.

## **Economic Viability**

MrG.S.Dhanapathy has been growing many tree species other than Casuarina. Trees like bamboo,teak, redsandals, neem, *kumila tree* (Gmelina arborea) and also cultivates coconut , vegetables, pulses, and paddy. He compared the economics as pure or inter cropped as agro forestry models. He is keeping about 50 cattle and are grazed under the casuarina trees. Casuarina is planted at 4 x 3 feet (space of 4 feet between rows) Casuarina trees also provide grazing space for sheep. A farmer can easily maintain 10 cattle or 100 sheep in 10 acres of land grown with casuarina either irrigated or dry condition. He tells that cost of cultivation (cost of seedlings, ploughing, pitting, weeding, irrigation / maintenance for 4 years will be about Rs. 1 lakh). A farmer can harvest 50 tonnes of timber in 3 years in irrigated land or 30 tonnes in dry land after 5 years. The cost of timber value is Rs. 6200 / tonne and it is always in good demand and marketed through local traders. Trader w ill segregate them and send good quality poles (Rs 9000 per ton) for timber and low quality stalk (Rs 5000 per ton)to paper mills. Recently a new species Casuarina junghuhniana has been introduced. This species is only suitable for paper industry and its timber value is poor as claimed by the farmer.However Casuarina equisetifolia is a multipurpose tree with stand drought and it can begrown purely under dry conditions. It is also coming up under saline soil where water quality in saline or saltish.

In terms of water requirements a farmer can success fully cultivate Casuarina in 5 acres of land instead of 2 acre of paddy by using same quantity of water available as he claims.



Mr. Dhanapathy has been awarded by Principal Chief Conservator of Forests, Tamil Nadu Forest Department in a workshop at Chennai during March 2015 for his contribution of best practices in casuarina farming .

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