

## TRIAL CULTIVATION OF EUCALYPTUS IN EAST PAKISTAN

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### Introduction

Eucalyptus is a large genus of family Myrtaceae which comprises over 500 species, varieties and hybrides. Most of the species are indigenous to Australia, Tasmania, New Guinea and the neighbouring islands, where they constitute a large portion of forest vegetation. This being one of the large genera, a great number of classification schemes have been proposed since its discovery but the system now in use and universally accepted is based on shape of the anthers.

Eucalyptus are among the world's important hard woods and the principal source of timber in Australia. Besides, Eucalyptus oil has got also much importance in commerce. Cultivation of Eucalyptus got momentum due to its commercial importance throughout the world. Further, rapid growth, ease in cultivation and adaptability have also helped much in wide spread introduction into many countries specially those poorly endowed with forest resources. This plant has become such an important factor in the economy of some countries that millions of trees are now being planted each year throughout the world.

In India, work on Eucalyptus started in 1820 and so far about 170 species have successfully been introduced. As most of the works were conducted in present Indian state, Pakistan was deprived of that plants. However, work for large scale introduction of the plants are being carried out both in East and West Pakistan to enrich forest resources of the country.

The requirements of various species of Eucalyptus as regards soil and climate vary considerably. Most of the species grow best on deep fresh soil with fair amount of sub soil moisture. There are also some species which can stand odd ecological factors for their growth.

The usual method adopted in tropical countries for raising Eucalyptus plants is transplanting of nursery-raised seedlings. These plants, as a rule, are intolerant of shade. They have usually a spreading root system and are as such wind-firm. It is self evident that in commercial Eucalyptus plantation the trees must be planted in rows at a certain fixed distance apart in order to facilitate cultural treatment and the eventual removal of timber, bark and leaf.

Casualties due to fungus and white ant have been reported. This can be minimized by spraying nicotine mixed with water.

The Eucalyptus play most important role in culture of bees for honey. A unique and intimate relationship exists between the honey bees and the plants due to the fact that the entire food supply for the bees comes exclusively from the floral parts of the plants and so they are termed as 'Honey Flora' by some authors. Honey is one of the important minor forest products of the Sunderbans Forest and it used to add substantially to the revenue of the Forest Department. But the production of honey is gradually decreasing as most of the bees are migrating to the place where they are being attracted with better living and food. In East Pakistan, no organized work was so far done to culture bees for higher yield of honey which is an important product and has got ever increasing demand in home and abroad.

Considering above factors, I think, the large scale cultivation of suitable species of Eucalyptus in suitable areas is a must for above two fold benefits.

In East Pakistan forest, the following different species have so far been introduced and are growing well.

List of Eucalyptus species planted in East Pakistan

Measurement taken in 1969.

Sl No.	Name of the species	Location	Year planted	No. of trees	Height (ft.)
1.	E. citriodora	M.C.College, Sylhet	1929	1	70
		Hazarikhil, Chittagong	1938	3	70
		Balda Garden, Dacca	1940	2	60
		Futakhali, Cox's bazar	1959	4	25
		Rasulpur, Mymensingh	1959	27	39
2.	E. globulus	Balda Garden, Dacca	1940	1	55
3.	E. grandis	Futakhali, Cox's bazar	1963	3	25
4.	E. robasta	Hathazari, Chittagong	1963	1	40
4.	E. robasta	Futakhali, Cox's bazar	1963	5	10
		Hathazari, Chittagong	1963	3	25
5.	E. rubida	Rasulpur, Mymensingh	1963	1	19
6.	E. selegne	Rasulpur, Mymensingh	1963	1	25
		Hazarikhil, Chittagong	1963	43	18
		Futakhali, Cox's bazar	1963	2	12
		Hathazari, Chittagong	1963	9	25
7.	E. siderophloida	Futakhali, Cox's bazar	1963	1	10
8.	E. tereticornis	Rasulpur, Mymensingh	1963	1	24
		Futakhali, Cox's bazar	1967	4	35
9.	E. umbellata	Hathazari, Chittagong	1963	12	15

Work done in Forest Research Institute on Eucalyptus plants :

Seeds of three different species of Eucalyptus were received through the Project Manager, UNDP, Pak. Project - 30 from Thailand. The species were (i) Eucalyptus grandis, (ii) E. alba, and (iii) E. camaldulensis (Australia). Work with these species were carried out here under the guidance and advice of the Project Manager.

Sowing :

(1) Preparation of the soil :

Good quality sandy type of soil was mixed with manure (cowdung) in the proportion of 1:5 and they were thoroughly mixed. Several wooden boxes were then filled up with the soil. The boxes were specially made for easy aeration and percolation of water. The soil was not sterilised nor any fungicides were used before sowing. The boxes were kept in an open shed and the three varieties of Eucalyptus seeds were sown in separate boxes. The seeds were first broadcasted and then covered with a thin layer of sand. The boxes were regularly watered after sowing. The seeds were sown on the 3rd May, 1969 and the germination started in all the species in between 7th and 8th May, 1969. The seedlings remained in the boxes for the whole of May and during that time no damping off casualties was noticed.

(2) Hardening :

When seedlings in the boxes were of six inch height, those were transplanted in polythene bags. Polythene bags were filled up with well prepared soil mixed with cow dung and perforated at the bottom for easy percolation of water. The seedlings were transferred to bags with much care without damaging its root system. The bags were then kept in indirect sun light in a shed. The seedlings showed vigorous growth after transplantation and the casualties during this process was less than two per cent due to insect cut.

(c) Transplantation to site :

Hill slope, road side and plain land were selected for raising a small compact plantation of Eucalyptus inside Institute campus. The area selected for plantation were first cleaned by cutting bushes and then pits were prepared in rows at a distance of 10' x 10'. The diameter of the pits was 3 feet and dug at the depth of 3 feet. The pits were filled up with soil mixed with small amount of cow dung. The seedlings with polythene bags were then transferred to the site. The seedlings were transplanted with the soil of the bag simply by cutting and removing the bag without disturbing even the shape of the soil in the bag. Temporary shed was given to individual plants after plantation. Casual watering was done after plantation in the whole area. The seedlings started growing well after transplantation but the growth became stunted after August, 1969 due to severe draught. Most of the plants reacted well to draught except the variety E. grandis whose apical bud (leader shoot) were dried due to draught.

(d) Casualties :

Casualties in the field after transplantation were not severe. About 7% casualties were recorded due to insect cut, fungus and grazing etc. however, all the diseased and dead plants were replaced by new ones.

About two thousand plants of the above species were raised in the nursery out of which six hundred plants were transplanted in the Institute campus. Other seedlings were distributed to Forest Department, Medical College and other interested persons. The plants inside the Institute campus are growing well and showed vigorous growth at the advent of monsoon.

(e) Observation :

From the growth characteristics, it is evident that the performances of Eucalyptus camaldulensis and Eucalyptus

alba are surely encouraging. Most of the plants of the above two species are growing well and by this time have attained average height of 3 to 5 feet. The other variety is also now growing well, but the size of the leaf is so big that the plant cannot stand without support and hence seems to be a bit weak.

Remarks :

Adoptability and vigorous growth of the plants cultivated on trial basis have proved success of its future large scale cultivation to meet our growing demand by that important plant of the world. The plants are one year old and its needs further observations before making any definite comments in this respect. But some of the plants have grown more than 8 feet in height by this time and they are growing so healthy that one cannot but foretell the bright future of this plant in the soil and climatic condition of East Pakistan.

Reference :

1. Penfold, A. R. and Willis, J. L., The Eucalyptus (F. A. O. publication)
2. Indian Forester, Volume 96, No. 3.
3. Research Report, Silviculture Division, Forest Research Institute, Chittagong.

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