
ECONOMICS OF A FIREWOOD PLANTATION IN BATTICALOA: *Casuarina equisetifolia*

T Jayasingham
Department of Botany, Eastern University

Alluvial soil spread over the coastal belt of the Batticaloa district in the Eastern Province while the red earth take over the interior, west of the lagoon. More than 80% of the district uses firewood as their primary energy source and the stock have dwindled over the past with much destruction of the natural and other forest resources, including home gardens. A clear need for cheap energy source is an urgent need into the future. *Casuarina equisetifolia* has been found to grow very well under all soil types of this district and is also a species known for its high energy content. This study was designed to study its potential as a firewood crop and the cost effectiveness as an energy source. An ideal crop should grow fast, be energy rich and coppice well for steady supply following a harvest and also occupy a relatively little space.

Six plots of 20 x 20 m each were planted with 6 month old saplings, grown in our own nursery, at a rate of 10,000 plants per hectare having 400 plant per plot. Plants were watered daily for three months and every other day for the next four months. Height of the plants were recorded from the first month every three months and the diameter was record after a year. Mortality was recorded from planting and the dead plants were replaced from the stock until a year after planting. Harvesting of wood resources was carried out in various ways: Pruning of all branches below 3' as done after 12 months; Pollarding was carried out by cutting the main branch above 6' in 7 rows of 2 plots in 18 months; Total shoot harvest was done in 14 rows in 2 plots after 18 months; Pruning of all branches below 6' was carried out after 2 years and total harvest was carried out at random after 27 months. In each case fresh/drywt of the product was recorded. Coppicing also was recorded after pollarding and total harvest.

30,884 kg of wood would be harvested per hectare after three years. 60% of harvested plants would coppice. Only 7078 kg would be harvested in two year period. Non destructive harvesting (pruning, pollarding) would yield around 10,000kg per year. The revenue may be calculated at Rs.2 per kg of firewood. The cost of this project is around Rs. 125,000 with Rs.90,000 towards labour. Perhaps, the cost could be reduced by adjusting the planting season and also having the plants in larger bags for a longer period before planting.

The project may be translated to a family which provides labour as a means, towards an earning of a conservative estimate of Rs.1,500 per month from one hectare plantation, the minimum as the return over the further years are more positive. The data on cost from Ceylon Tobacco Company is Rs.36,800 per hectare of for a firewood plantation of eight years.

The potential of such plantations in Biomass energy production is also important. It is stated that 1 d hectare plantation would produce a 1 Mw power sustainably. The species does flags high as a potential where marginal lands are available in plenty, having also in mind its ability to fix nitrogen. It would be an ideal species and project for a family based income in the future