

# FUEL USAGE FOR CURING OF CIGARETTE TOBACCO

S B Rajakaruna  
Group Agri Environmental Manager  
Ceylon Tobacco Company Ltd  
Leaf Division  
P O Box 62  
Kandy.

## INTRODUCTION

Wood fuel continues to be the main source of Energy used in Sri Lanka. Nearly 75% of the national Energy requirement is met by fuelwood. The largest consumption is in the domestic sector which accounts for 64% while industries consume the balance 14%. The greater portion of the latter is used in the tea industry. The amount consumed by the tobacco industry is less than 1%. The ever-increasing cost of fossil fuels means that for the foreseeable future, wood fuel will continue to meet the bulk of the Energy requirements of the people. This demand will no doubt be a strain on our forest cover unless the country goes into a systematic programme of fuelwood production. The forest cover has dropped from 44% of land area in 1950 to 25% in 1991, ie from 2.9 million ha to 1.3 million ha. The contributory reasons are large scale agricultural development programmes, shifting cultivation and cutting for wood fuel.

Although the annual consumption of wood fuel in the tobacco industry is rather an insignificant compared with the total national consumption, the need to replace the off-take of wood fuel cannot be underestimated. Being mindful of the diminishing sources of supplies, Ceylon Tobacco Company embarked of a three-pronged programme to satisfy the Energy requirements of the tobacco industry. These were,

- (1) To establish and manage fuelwood plantations.
- (2) To explore and develop alternate fuels.
- (3) To develop fuel saving devices.

## FUELWOOD PLANTATION

In 1976, the Company initiated a systematic programme of planting fast-growing species of trees recommended by the Forest Department for the production of wood fuel. These plantations were of 2 types.

-----  
An invited paper for SLEMA Journal. Paper Number J19102.

- (a) Woodlots planted by the tobacco farmers as **fuel blocks** with plants supplied by the Company in lands owned by them.
- (b) **Company plantations** developed in lands obtained on long lease from the Government.

### Farmer fuel blocks

Fast growing seedlings of Eucalyptus species recommended by the Forest Department as suitable for the different agro-ecological zones were supplied to tobacco farmers at the commencement of the season. These seedlings were raised in the Company nurseries and given to farmers on the polypots, ready to be planted in the field. The farmers were supplied with seedlings to plant an extent varying between 1 and 1.5 acres, depending on the size of the curing barn they are registered for the cultivation of tobacco. This programme was phased over 3 years to complete the planned extent. Lack of sufficient freehold land owned by the farmers was the main constraint faced in the implementation of this programme. Encouraging farmers to grow community forests in lands taken on lease from the Government was one of the methods adopted to solve this problem. The extent under farmer fuel blocks amounts to about 500 acres at present.

### Company fuelwood Plantations

The Company programme of fuelwood plantation too started about the same time as that of the farmers. We are proud to be the first non-governmental organisation to start fuelwood plantations. The Company presently has a total of 1250 acres of planted forest at 3 locations- Malapattawa in Walapane (Nuwara Eliya District), Bowalana in Hewaheta (Kandy District) and Naula (Matale District). The two varieties grown in these plantations are Eucalyptus Camaldulensis and Eucalyptus Grandis. In addition to these 3 main plantations, there are about 80 acres planted in the Company Depot areas. Table 1 shows the places, variety and extents planted under the Company fuelwood plantations programme.

# FUEL USAGE FOR CURING OF CIGARETTE TOBACCO

S B Rajakaruna  
Group Agri Environmental Manager  
Ceylon Tobacco Company Ltd  
Leaf Division  
P O Box 62  
Kandy.

## INTRODUCTION

Wood fuel continues to be the main source of Energy used in Sri Lanka. Nearly 75% of the national Energy requirement is met by fuelwood. The largest consumption is in the domestic sector which accounts for 64% while industries consume the balance 14%. The greater portion of the latter is used in the tea industry. The amount consumed by the tobacco industry is less than 1%. The ever-increasing cost of fossil fuels means that for the foreseeable future, wood fuel will continue to meet the bulk of the Energy requirements of the people. This demand will no doubt be a strain on our forest cover unless the country goes into a systematic programme of fuelwood production. The forest cover has dropped from 44% of land area in 1950 to 25% in 1991, ie from 2.9 million ha to 1.3 million ha. The attributory reasons are large scale agricultural development programmes, shifting cultivation and cutting for wood fuel.

Although the annual consumption of wood fuel in the tobacco industry is rather an insignificant compared with the total national consumption, the need to replace the off-take of wood fuel cannot be underestimated. Being mindful of the diminishing sources of supplies, Ceylon Tobacco Company embarked of a three-pronged programme to satisfy the Energy requirements of the tobacco industry. These were,

- (1) To establish and manage fuelwood plantations.
- (2) To explore and develop alternate fuels.
- (3) To develop fuel saving devices.

## FUELWOOD PLANTATION

In 1976, the Company initiated a systematic programme of planting fast-growing species of trees recommended by the Forest Department for the production of wood fuel. These plantations were of 2 types.

-----  
An invited paper for SLEMA Journal. Paper Number J19102.

- (a) Woodlots planted by the tobacco farmers as **fuel blocks** with plants supplied by the Company in lands owned by them.
- (b) **Company plantations** developed in lands obtained on long lease from the Government.

### Farmer fuel blocks

Fast growing seedlings of Eucalyptus species recommended by the Forest Department as suitable for the different agro-ecological zones were supplied to tobacco farmers at the commencement of the season. These seedlings were raised in the Company nurseries and given to farmers on the polypots, ready to be planted in the field. The farmers were supplied with seedlings to plant an extent varying between 1 and 1.5 acres, depending on the size of the curing barn they are registered for the cultivation of tobacco. This programme was phased over 3 years to complete the planned extent. Lack of sufficient freehold land owned by the farmers was the main constraint faced in the implementation of this programme. Encouraging farmers to grow community forests in lands taken on lease from the Government was one of the methods adopted to solve this problem. The extent under farmer fuel blocks amounts to about 500 acres at present.

### Company fuelwood Plantations

The Company programme of fuelwood plantation too started about the same time as that of the farmers. We are proud to be the first non-governmental organisation to start fuelwood plantations. The Company presently has a total of 1250 acres of planted forest at 3 locations- Malapattawa in Walapane (Nuwara Eliya District), Bowalana in Hewaheta (Kandy District) and Naula (Matale District). The two varieties grown in these plantations are Eucalyptus Camaldulensis and Eucalyptus Grandis. In addition to these 3 main plantations, there are about 80 acres planted in the Company Depot areas. Table 1 shows the places, variety and extents planted under the Company fuelwood plantations programme.

Place	Variety	Extent (acres)
Malapattawa	Eucalyptus grandis	120
Bowalana	Eucalyptus grandis	250
<u>Naula</u>		
Haduwa	Eucalyptus camaldulensis	400
Kumaragala/ Maragamuwa	Eucalyptus camaldulensis	250
Pilihudugolla	Eucalyptus camaldulensis	150
Other depots	both varieties above	80
TOTAL		1250

Table 1- Company fuelwood plantations

Some of these plantations as well as farmer fuel blocks are presently in the harvestable stage. The Company is therefore pleased to announce that the cigarette tobacco industry is self-sufficient in its fuelwood requirements for curing tobacco.

**Alternate types of fuel**

Along with the development of fuelwood plantations, CTC also explored the possibilities of using alternate types of fuel for the curing of tobacco. Two waste products were identified- cost fibre dust and paddy husk. Our initial plan was to make fuel briquettes to be used as a substitute for fuelwood. The cost of the required machinery and production of the briquettes was found to be too high in comparison with the price of fuelwood in the open market. Hence, the plan to make fuel briquettes was not pursued. However, trials conducted by the CTC in the late 1970s resulted in the successful development of a technique to use paddy husk directly as a fuel. The technique has been successfully introduced to areas such as Polonnaruwa, where paddy husk is freely available, for the curing of tobacco cultivated in the Yala season. In the development areas such as such as Mahaweli systems C and H, all barns have been designed to use paddy husk exclusively for curing of tobacco.

**Reduction of fuel Usage**

In addition to finding alternate types of fuel, research was directed towards developing fuel-saving devices. Initially, CTC has been successful in introducing an adaptation to the curing system called the warm air furnace which reduces the fuel usage by 30%.

The fuel system in the barn was further modified into multiflues whereby increasing the area of radiation. The furnaces are now being converted into venturi systems minimising the heat losses from the furnaces. These modifications has resulted in savings of fuelwood by nearly 20%. It is envisaged that when these systems are finally installed in the barns, a total reduction of 50% of the fuelwood usage in the conventional system could be achieved. This is a significant achievement of the CTC's research and development team.

**Conclusions**

Ceylon Tobacco Company is confident that our efforts have lead to,

- \* the conservation of the environment where tobacco is cultivated through advanced methods of the conservation farming,
- \* the establishment of fuelwood plantations making the industry self-sufficient in its fuelwood requirements,
- \* developing paddy husk as an alternative source of fuel for curing of tobacco and
- \* the reduction of the quantity of fuelwood used through modification of the curing system.



Ceylon Tobacco Company plant nursery at Naula.



Ceylon Tobacco Company fuelwood plantation at Naula..

# Why the trees grow tall in the man-made forests...

Sri Lankans use fire-wood as the main source of fuel — and out of some 4.8 million cubic meters used for a year, 82.6% is for domestic cooking.


Thus, over the years, Sri Lanka's forests have been diminishing. Forests covered 44% of Sri Lanka in 1960. Now this has been reduced to 20%

Aware of the dangers of dwindling forests, Ceylon Tobacco Company established a planned programme of afforestation in the early eighties, to replenish the wood fuel the industry consumes, even though it is less than 1% of Sri Lanka's total consumption.

Seedlings raised in the Tobacco Company's own nurseries are grown at the rate of 1,200 trees per acre, in areas such as Naula in Matale; Bowlana in Kandy and Malapattawa in Nuwara Eliya. In eight years, they are thirty feet tall and ready for harvesting.

Already trees have been grown in 1,100 acres. When the programme to afforest 1,250 acres is completed, it would make the tobacco industry self-sufficient in fuel-wood requirements.

A growing legacy for tomorrow.

 **Ceylon Tobacco Co. Ltd**

*Sharing and caring  
for our land and her people.*

