Are Eucalyptus hybrid clones suitable for Uganda?

- Eucalyptus have been grown in Uganda for over 70 years.
- Majority of species grown in Uganda hybridize in nature.
- Three of these species are used in hybrid clonal production in S. Africa:
  - grandis x cameldulensis= gc
  - grandis x tereticornis = gt
  - grandis x urophylla = gu
- Clonal hybrids will therefore blend themselves easily in Uganda plantation forestry.

Matching clones to planting sites

- Biological characteristics of hybrid clones dictate their planting sites.
- Characteristically hybrid clones from:
  - cameldulensis and tereticornis are slow growers but drought tolerant.
  - grandis is fast growing but intolerant of drought.
  - urophylla is basically cold-hardy.
- During hybridization (crossing):
  - grandis imparts fast growth trait.
  - other species impart trait for resistance to drought or coldness.
- Therefore in Uganda
  - gc and gt would be suitable for arid areas.
  - gu is suitable for moist highland sites.

Rotation and end-uses

At age:

- 2 years clones are ready for firewood
- 3 years clones are ready for building poles (see Fig. 3)
- 4 years clones are ready for telephone poles and fence posts
- > 6 years clones are ready for electricity poles, timber and charcoal production.

Outreach strategy

Implementation of TBP will span 5 years during which:

- Trial and demonstration plots shall be established in ARDCs of NARO, namely: Abbi, Kitgum, Nabuim, Ngetta, Bulindi, Serere, Buginyanya, Ikulwe, Mbarara, Kachwekano and Kyembogo.
- Eight trial and demonstration plots shall be established in selected farmer landholdings.
- Clonal nursery (Figs. 1 and 2) capable of producing 1m clones shall be established at FORRI Headquarters at Kifu in Mukono District.

CLONAL EUCALYPTUS IS FOR SURE GOING TO INCREASE FORESTRY PRODUCTIVITY IN UGANDA!

For more information contact:
Project Leader
Tree Biotechnology Project
P.O. Box 1752, Kampala
Tel:256-41-255163/4
Fax:256-41-255165
E-mail:foridir@infocom.co.ug

Clonal Eucalyptus: A preview



Tree Biotechnology Project

FORESTRY RESOURCES RESEARCH INSTITUTE

Introduction

NARO is importing from Mondi Forests Limited of South Africa a proprietary clonal tree biotechnology namely; the propagation and management techniques of *Eucalyptus grandis* and hybrids of *E. grandis* with *E. cameldulensis, E. tereticornis* and *E. urophylla* (see Figs. 1-3) and apply it in Uganda.

Fig.1 Rooting Section



Fig.2 Grow-out Section



This South-South biotechnology transfer would be done through a collaborative Tree Biotechnology Project (TBP) involving NARO, Kenya Forestry Research Institute (KEFRI), Kenya Forest Department, International Service for the Acquisition of Agri-biotech Applications (ISAAA), Mondi Forests Ltd and Gatsby Charitable Foundation (GCF) of UK.

Mondi Forests will, under the Pilot Agreement, donate planting materials for trial and demonstration of clonal Eucalyptus in Uganda. GCF will fund the trial and demonstration of the clones. Once suitable clones are identified, mass propagation of the clones is expected to be undertaken by private sector under Mondi permit.

This brochure is a preview of the project which is intended to introduce, inform and interest potential partners in clonal forestry biotechnology which TBP is now at an advance stage of introducing into Uganda.

Mission

The mission of TBP is to improve the living standards of rural communities in Uganda, particularly of the resource poor segment of the population by enhancing forestry production.

Goal

To transfer and apply proven clonal biotechnology for large-scale multiplication of selected elite materials using proprietary Eucalyptus clones from Mondi Forests Ltd of South Africa.

Specific Objectives

a) To transfer the proven proprietary Eucalyptus clonal biotechnology from Mondi Forests Limited of S. Africa and apply it in Uganda for the benefits of the resource poor rural farmers.

b) To establish large-scale production of Eucalyptus clones in Uganda through direct private sector involvement.

c) To select and utilize valuable indigenous tree species of Uganda for forestry and agroforestry development.

d) To build capacity in clonal forestry biotechnology in Uganda.

What is clonal forestry?

Clonal forestry is a deliberate, long-term process of tree improvement in which elite clones developed from individual trees of a given species are used in plantation forestry (e.g. Fig 3)

What are clones?

- Clones are descendents produced asexually (without mating/fertilisation) from a single animal or plant.
- Thus genes of the clones are derived from the single animal or plant.
- Clones are therefore individuals of the same genetic constitution.
- In plants especially trees, clones may result naturally.
- For the Eucalyptus, hybrid clones are produced artificially as shown in Figs. 1 and 2.

Advantages of Eucalyptus hybrid clones

- Faster growth (MAI = 60 -70m^3/ha/yr).
- Optimum moisture utilisation.
- Uniform growth as shown in Fig 3.
- Reduced harvesting costs (clear felling).

Disadvantages of hybrid clones

- Extremely narrow genetic base.
- Therefore liable to severe pest and disease attacks.
- Overcome pest problems by growing more than one clonal line.

Fig.3 Three year old clones

