UGANDA GATSBY CLUB TREE (UGT) PROJECT: RESEARCH REPORT
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1. INTRODUCTION

This report provides results of the activities that NaFORRI has undertaken to provide research in support of Uganda Gatsby Club Tree (UGT) Project. As indicated in the previous report to the Board meeting 24 April 2010, additional data on the performance of the clones from other trial sites have been collected, and being cleaned for analysis for the clones at year 7. Similarly, during this period NaFORRI is also reporting additional data on the tree improvement. Analysis of mechano-physical properties of the wood of clones and the trees that were selected for tree improvement is on-going. And the seeds which were collected from the trees selected for tree improvement have been sown for the performance trial to be established in the coming planting season. Regular pest monitoring conducted at the Kifu and Mbale nurseries and in the fields has revealed that interactions of the clones with BGC has not changed and thus remains as reported during the last meeting. Further now NaFORRI has planned to undertake studying coppicing behavior of Eucalyptus clonal hybrids at the usual woodlot rotation of 7 years.

2. TREE IMPROVEMENT

In pursuit of the objective stated in the October 2008 report to the Board we need to broaden the genetic base of the clones scaled out and distributed by the UGT. Currently the UGT nurseries seem to focus on only a few clones which easily root. We need to improve the rooting of all the clones and recruit land races as started in 2008. The land races currently selected and cuttings collected for clonal evaluation trials are in total 69. Open pollinated seed from the selections was collected for progeny evaluation.

3.PERFORMANCE OF CLONES

Assessment on performance has been done in 8 trials of

No.	Site	District
1	Katooma	Ntungamo
2	Katyaza	Sembabule
3	Nyabushabi	Kabale
4	Bugongi	Bushenyi
5	Abi	Arua
6	Mukongoro	Kumi
7	Serere	Serere
8	Ikulwe	Mayuge

and we continue assessment on other sites and cleaning of data for analysis of performance of the clones at age 7 years.

4. IPM of *Leptocybe invasa* attacking Eucalypts

The overall objective of this study is to improve the productivity of Eucalypts through integrated management of *Leptocybe invasa (*Bluegum chalcid).

Specific objectives are:

Establish distribution of *L.invasa* countrywide
Establish damage levels and natural enemies
Establish seasonal abundance of Linvasa
Establish host resitence among clones and landraces
Implement management options

Progress

Distribution of L.invasa has been established countrywide.Pest is present in all regions.Monitoring of pest has also just revealed that pest is present in Kabale Kamwezi sub county

Established susceptibility in Eucalypts.Land races are more susceptible to L.invasa than clones. However susceptibility varies among clones and land races.Damage among landraces is on average in damage category 2(11-26% crown attack). However,*Eucalyptus camaldulensis* is most susceptible and damage levels can reach damage level 4(60-100% crown attack).This is therefore a suitable host for rearing natural enemies for release against pest.

Established host resitence mong clones too. 784 GC and 540 GC are the most susceptible on average in damage level 2(11-26% crown attack). 550 GC,578GC, 514GC, and all GUs are resistant to the pest. Trials being assessed to establish resistance

Indigenous natural enemies have been documented but they are all general feeders.
Exotic parasitoids *Quadrasticus mendeli*(Kim and Lasalle) and (*Selitrichodes kyrceri*) identified and tested by Isreal and found quite effective offer most potential control option.
Intending to import *Quadiristicus mendel which is slightly more effective than S.kyrceri*

5. Meta Data

Meta data have been collected from some sites as shown on Table 1: Meta Data: Eucalyptus clonal trials in Uganda.

Table 1: Meta Data: Eucalyptus clonal trials in Uganda

No.	Site	District	GPS reading (Easting)	GPS reading (Northing)	MAP(mm)	Soil type
1	Katooma	Ntungamo	0183948	9906350	1000 - 1250	Yellowish-red clay loams
2	Katyaza	Sembabule	0332550	9979907	750 - 1200	Brown-loamy sands
3	Nyabushabi	Kabale	0168934	9863046	1000 -1500	Red and reddish-brown clay loams
4	Bugongi	Bushenyi	-	-	800-2000	Yellowish-brown loams with dark sub soil horizons
5	Abi	Arua	0271066	0340443	1250	Grey sands over yellowish-red sandy clay loams-
6	Mukongoro	Kumi	0595445	0147147	800 – 1000	Shallow, grey brown, sandy loams.
7	Serere	Serere	0550240	0171394	1000 -1500	Yellowish-brown sandy loams
8	Ikulwe	Mayuge	0553160	0049019	1200	Reddish-brown sandy loams

6. MECHANO-PHYSICAL WOOD PROPERTIES

Analysis of the mechano-physical wood properties of clonal eucalypts has been undertaken and MSc thesis titled Physical and Mechanical Properties of Hybrid Eucalyptus Clones in Uganda is soon to be submitted to Makerere University.

7. SOCIO-ECONOMIC IMPACT STUDIES

Socio-economic factors on the uptake of clonal eucalypts growing in Uganda have been identified. Profitability of eucalypts clones growing on farm trials in Uganda is being established; and the changes in land use, resulting from the introduction of eucalyptus clones in being assessed. In addition the socio-economic impact of clonal eucalypts in Uganda is being evaluated as one of the NARO technologies for detailed impact studies to compare benefits versus costs of conducting research.

8. CARBON SEQUESTRATION

Data has been collected on carbon sequestration rates of the various clones in various sites in preparation for publication on estimating carbon sequestration of hybrid eucalyptus clones in Uganda.

9. WAY FORWARD

- Funding for research from UGT/Kilimo Trust
- Implementation of research activities to support clonal forestry in Uganda
- Management and resources of Kifu clonal nursery