REPORT ON A VISIT TO KENYA AND UGANDA  
5-23 June 2004
FRP Research Scheme R6549, Phase II:
Scaling up the promotion of calliandra in East Africa

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ACRONYMS

ADRC Agricultural Research and Development Centre (Formerly Farmer Training Institute), Uganda
FORRI Forestry Resources Research Institute, Uganda
HEM Trust Himo Environmental Management Trust, Himo, Tanzania
HPI Heifer Project International (international NGO)
ICRAF International Centre for Research in Agroforestry (World Agroforestry Centre)
JCC Joy Children’s Centre, Masaka, Uganda
MOA Ministry of Agriculture, Kenya
NARI Namulonge Agricultural Research Institute, Uganda
NARO National Agricultural Research Organisation, Uganda
NGO Non-Governmental Organisation
ODECO Organisation for Development and Cooperation, Nyenga, Jinja, Uganda (local NGO)
USEP Ugandan Association for Socio-economic Progress, Ngongwe, Mukono, Uganda (local NGO)

INTRODUCTION

The Project Maturity Workshop (PMW) for R6549-Phase II was held during the first week of the visit, followed by a one-day planning meeting to develop ideas for a project proposal on domestication of indigenous fodder trees. Most of the second week was devoted to a monitoring visit to Uganda (Lakeshore site). At the end of the trip, three days were spent in Nairobi, mainly at the ICRAF campus working on documentation (tour report and minutes from the PMW), in meetings at ICRAF, KEFRI and ILRI on indigenous fodder research.

PROJECT MATURITY WORKSHOP: “SCALING UP THE IMPACT OF FODDER SHRUBS IN EAST AFRICA”

Proceedings will be produced so the workshop is not described here in detail. There were 33 participants: these included staff working directly on the project; partner organisations including both GOs (e.g. MOA, Kenya) and NGOs (e.g. HPI, Kenya; Send-a-Cow, Rwanda; HEM Trust, Tanzania); farmers; and a private extensionist. The teams from each of the six project sites (Central Kenya, Western Kenya, SW Uganda, Uganda Lakeshore, Tanzania and Rwanda) gave presentations on the scaling-up process in their area. All the authors of the studies commissioned under outputs 1, 2 and 3 also attended and gave presentations of their findings.

The workshop was very successful in its aim of allowing the participants to discuss their different experiences and to exchange ideas, which was particularly useful as the sites are at very different stages in the scaling-up process.
UGANDA (LAKESHORE AREA)

I visited the Lakeshore site for four days with Charles Wambugu. Jane Kugonza, the extensionist working for the project at this site, has made good progress since the last monitoring visit (with Steven Franzel) in May 2003. The most important change has been to move away from providing free inputs: initially, the project was providing free potted seedlings (raised at the FORRI station at Kifu), free seed and other inputs. The strategy now is to provide only free starter seed for new groups, but thereafter farmers are expected either to buy seed or to collect from their own or neighbours’ trees.

In July 2003 Jane took an HPI extensionist (Florence Kandole), the USEP manager (John Ssemogerere) and three leading farmers on an exchange visit to Maseno (W. Kenya) to see the project activities implemented there by Hellen Arimi. The scaling-up process is further advanced there and all the participants have learnt a lot from the experience.

At the ICRAF office in Kampala we had a meeting with Mr Katumba, who is organising the production of project extension materials in Luga nda (the main local language in the Lakeshore area). The two brochures and the Ugandan version of Calliandra for Livestock have already been professionally translated; however we agreed not to use the latter as it is out of date with regard to several important recommendations. The text for the two brochures will be field tested with at least three farmers to check their clarity before producing the final product.

The field visits on this trip were to four HPI groups (with all of whom Jane is still working productively); USEP, a small local NGO which we also visited last year; and VI (Swedish-funded agroforestry NGO) in Masaka. Near Masaka we also visited Joy Children’s Centre, a small church-funded NGO which is implementing a goat-breeding programme using a wide range of indigenous fodders as well as calliandra and the other common exotics.

The groups and farmers visited, and the key issues that emerged, are summarised below.

☆ **Nsambwe Farmers’ group: Nsambwe Village, Goma Sub-County:** Mr Vincent Wasswa. This group has 30 members and has been running since 2000; Mr Sasswa received a cow in 2001. HPI has introduced a range of innovations in addition to improved cows and fodder, including fruit tree grafting, vegetable plots and composting. Mr Sasswa visited Maseno with Jane, and found it a valuable experience: see Annex 1 for his report from that visit. His neighbour, Mr Sebwe (whom we also visited), belongs to another (non-HPI) farmer group, Sesewa, and after returning from Kenya Mr Sasswa trained this second group in fodder tree establishment: a good example of farmer-to-farmer dissemination. Sesewa has about 20 members, several of whom we met.

Mr Sasswa has about 700 fodder trees and claimed that replacing dairy meal with calliandra increased milk production from 11 litres to 18 litres (though we were not able to get a reliable estimate of the relative amounts offered). He has also experimented with eating coked calliandra shoot tips as a vegetable, and making ‘calliandra coffee’ from the dried, roasted seeds. He sells this to neighbours for UGS 250 (USD 0.15) per spoonful, with the (unsubstantiated!) claim that it reduces high blood pressure.

☆ **Nyenje Heifer Group:** Mr Emanuel Mubwezi; Joshua; Mr Sam Nkungu. This HPI group, which has 24 members, received the first improved cows in 2000. The calliandra promoted by the project since 2002 is highly appreciated as it is perceived to increase milk yield and quality (cream content). They find Leucaena pallida slower growing and much less palatable than
calliandra. Two of the farmers we visited were raising calliandra seedlings for sale at UGS 100-200 each. Sam Mkungu (who has a lot of experience with nursery work because he also raises clonal coffee under contract for the government) buys seed from the Tree Seed Centre. Although this costs UGS 60,000/kg, he can raise 5,000-10,000 seedlings from 1 kg of seed, which he sells at UGS 200 each. Last year he raised 3,000 seedlings, all of which were sold.

One farmer (‘Joshua’) had planted about 600 fodder trees, but no longer has a cow, so he is conserving the calliandra foliage and planning to sell it as leaf meal.

☆ Wankoba Women’s Group, Lugazi: Mrs Dorothy Nabahunja (Chair of group); Madam Namirembe (Secretary of group).
This group initially had two group nurseries, but has now moved on to raising seedlings in individual nurseries. They now collect seed from their own trees and give any surplus to neighbours. Sudden death of mature (over 2 year old) calliandra trees is a significant problem in this area and we advised strongly against collecting seed from diseased trees. The two farmers visited had both planted large numbers of calliandra in hedges and boundaries as well as using a range of local species on a more ad hoc basis. They have also benefited from an exchange visit to Kifu and farmers in Mukono, where they learnt about how to feed tree fodder, as well as how to make mineral blocks incorporating calliandra leaf meal.

After visiting the two farms we had a short group meeting where the members raised issues of concern. These included problems with artificial insemination (referred to HPI extensionist who was also present); the sudden death of calliandra seed trees; and demand for fruit trees.

☆ Nazigo HPI Group, Nazigo, Seeta: Mr Samuel Mukasa; ‘Frank’.
The two farmers visited value calliandra highly (one admitted to stealing 100 extra seedlings from the group nursery!) and feed it in mixtures with Napier and a range of local woody and herbaceous species. They started with a group nursery but currently are not raising seedlings at all because of lack of seed (and problems with collection of what seed they have: see below). There is high local demand for milk: they can sell to neighbours at UGS 300/litre.

☆ USEP, Nkokonjeru Parish, Ngogwe Sub-County
USEP is a local NGO managed by Mr. John Ssemwogerere. It works on sustainable agriculture, environmental protection, micro-finance and social development. It is not at present linked to HPI or other NGOs that distribute dairy cows, but John is promoting fodder tree planting in the hope that farmers will be able to get improved animals in future, either from an NGO or by buying. He will initially promote goats, until the farmers can get cows. USEP has also provide six improved bulls (75% Friesian) to six parishes, to improve the local stock.

Since our visit last year, several new groups have started and been trained in group nurseries using starter seed from the project. Longer-established groups have also been trained in seed collection and should be able to start collecting from their own trees soon. John also plans to start producing seedlings in a central USEP nursery: he already has demonstration seed stands of calliandra (Patulul & Embu), L. pallida and Gliricidia sepium.

Thirty-two USEP farmers participated in an exchange visit to Mukono arranged by the project. John also went on the visit to Kenya (Maseno) with Jane and others (see above). John plans to continue to focus on training farmers and encouraging them, in turn, to train others. Neighbours of group members are now showing interest in acquiring fodder seed.
We visited farmers (Mr Kirongozi, Mrs Teopista Okumu) belonging to the USEP Bwakedempulira Group (which has eight members). They have focused initially on seed stand establishment and construction of zero grazing units. Seed collection has started from the calliandra seed stands but spacing tends to be too close and there is also the sudden-death problem in this area (see below), to the extent that one farmer was assuming that it was normal for calliandra trees to die back after 2-3 years (though he said that they subsequently resprout from the base).

After the farm visits we met group members (mainly those with dairy cows, who have planted fodder shrubs) at the USEP office. Most of their concerns focused on acquisition of improved animals (through better linkages to NGOs such as HPI and Send-a-Cow), and improving the efficiency of the local AI services. Their main problem concerning fodder was that scaling-up is currently constrained by lack of seed. This should improve as their trees start to produce more seed.

Joy Children’s Centre (JCC), Masaka (David and Jacqui Dowdy)
JCC is a church-based project run by two Britons, David and Jacqui Dowdy. The ultimate beneficiaries are 14-20 year old orphans who have dropped out of school due to lack of funds. JCC runs a goat-breeding farm where the children work, learning about goat-rearing and having money set aside for their school fees in return for their labour. The farm currently has about 250 goats, which are fed on a very diverse mix of fodders including over 30 local species as well as calliandra, mulberry and other exotics. The children bring in fodder (collected from their own homes, or from the wild, roadsides etc), for which they are paid. Detailed records are kept which give useful information on the relative importance of different native forages. The children also raise fodder seedlings for sale, so have developed a lot of expertise in propagation techniques for a wide range of species.

VI, Masaka
VI is one of the most active NGOs in Uganda on promotion of calliandra and other fodders (as well as a range of other agroforestry interventions). They distribute free seed in massive amounts (reportedly 2,300 kg of calliandra seed in 2003 alone!) and the farmers use mainly direct seeding for hedgerow establishment. We visited one farm (Joseph Bukenya, Bujubi Village). He did not know how many plants he had but it must have been several thousand. The VI strategy has resulted in substantial, visible ‘greening’ of the landscape around Masaka, but it entails a substantial, ongoing external investment.

ISSUES AND RECOMMENDATIONS
These points emerged during the field visits, and/or during the wrap-up meeting with Jean-Marc Boffa, Jane Kugonza and Charles Wambu.
6 kg calliandra leaflets + 1 kg salt: feeding 5 kg of the mixture twice a day, morning and evening, whilst milking. This is in addition to fresh leaves (2 kg/day) fed in mixture with Napier grass during the day. The Wankoba farmers also incorporate calliandra leaf meal into mineral blocks: they were taught this during their visit to Kifu. The mix they use is: 2 kg P, 2 kg mineral salt, 1 kg table salt, 1 kg calliandra leaf meal, 1 kg cotton seed cake. Nine blocks (lasting one week each) can be made for UGS 10,000, compared to UGS 5,000 each for commercial blocks, which also do not contain calliandra or cotton seed cake.

☆ **Partnerships and collaboration:** The greatest challenge that the project is experiencing is in the partnership with HPI. At the time of the last visit this seemed promising, but since then there have been difficulties in the collaboration, mainly concerning resource sharing (particularly transport) and ownership/ attribution of the groups’ activities. Although Jane is able to continue working with the HPI groups where she started last year, she will probably not be able to scale up the activities to other groups at this site. This is in contrast to the situation in western Kenya and in Rwanda, where HPI remains an important collaborator: HPI also signed a high level MoU with ICRAF last year which aimed to facilitate collaboration. However, Jane has maintained productive partnerships with two smaller, local NGOs, USEP and ODECO.

☆ **Seed orchards:** Some farmers have established seed production areas, but at too-close spacing (typically 2 m x 2 m), so that seed production inside the stand is low. We recommended diagonal thinning to at least 3 m x 3 m spacing, with cut trees left to resprout to provide fodder. We also advised pollarding at about 2 m to keep the seed within reach.

☆ **Seed collection:** Our current strategy is to provide free starter seed to new groups, but thereafter farmers are encouraged to collect seed from their own trees. Although seed production by calliandra does not seem to be a problem in this area, and the trees planted in 2002 are now starting to produce, the farmers have not so far collected much seed, and they feel constrained by shortage of seed from raising more plants. The problem is mainly the difficulty of timing collection so that the seed is mature but before the pods dehisce and shed it; and because in some cases the seed is out of reach. We advised pollarding (see above) as well as timing of pod collection so that they can after-ripen and dehisce in bags. In Nazigo there seemed to be an additional problem of poor seed quality (ripe seed appearing smaller than normal).

Some farmers in the Lakeshore area have been encouraged by the project to raise calliandra specifically for seed production (e.g. through the NGO, ODECO, not visited on this trip). These stands are now starting to come into production, and the project should try to link these producers to farmers in the areas visited where there is a shortage of seed.

☆ **Follow-up training:** The widespread lack of knowledge about seed collection highlights the need to provide follow-up training on aspects which the farmer may not remember from his/her initial training, because they are not relevant at the time of establishment. Other such aspects include plant management (cutting etc) and feeding (composition of mixtures, substitution for concentrates etc).

☆ **Disease in calliandra:** At several sites (Nyambwe-Goma, Nyenje, Lugazi) many of the calliandra trees are dying at about two years old (3-4 m height, and just starting to bear seed). There was little evidence of insect attack (except frass around the base of some dead trees). This could be the disease observed by Philip Nyeko in his study, which he attributed to
fungal infection (*Fusarium oxysporum* and a *Phomopsis* species), though not all the symptoms he describes\(^1\) were present. Jean-Marc Boffa will ask Philip Nyeko to inspect the infected trees and recommend control strategies (costs to be met by R6549). At present only occasional trees are affected but this could become a very serious problem if it spreads. Until the problem is diagnosed, we asked farmers not to collect seed from infected trees in case the pathogen is seed-borne.

\* Transport: The ICRAF office in Kampala has a serious shortage of vehicles and this sometimes constrains Jane’s field activities. She sometimes has to use public transport. This is an issue that should be followed up with ICRAF management as it is essential for the country programmes to have adequate transport if they are to function effectively.

**ITINERARY**

Saturday 5 June: Depart London (LHR) on KQ 101.
Sunday 6 June: Nairobi.
Monday 7 June -
Thursday 10 June: Project Maturity Workshop, ICRAF, Nairobi.
Friday 11 June: Proposal planning meeting, ICRAF, Nairobi.
Sunday 13 June: Nairobi – Entebbe by air (KQ412).
Monday 14 June: a.m.: Field visit to farmer groups in Mukono District (Nsambwe-Goma and Nyenje).
p.m.: Meeting at FORRI station, Kifu with John Okorio, Sande Dickens, Jane Kugonza & Hillary Agaba.
Tuesday 15 June: Field visit to Mukono: Wankoba Women’s Group, Lugazi; Nazigo HPI group, Seeta; and USEP, Nkokonjeru Parish, Ngongwe.
Wednesday 16 June: Field visit to Joy Children’s Centre and VI Project, Masaka.
p.m.: Meeting with Patrice Grimaud (CIRAD) at ICRAF office; wrap-up meeting with Jane Kugonza and Jean-Marc Boffa.
Thursday 17 June: a.m.: Visit to Namulonge ARI.
p.m.: Entebbe – Nairobi by air (KQ415).
Friday 18 June: ICRAF HQ.
Monday 21 June: a.m.: ICRAF HQ. p.m.: Meetings at KEFRI, Muguga and ILRI.
Tuesday 22 June: ICRAF HQ. Dep. Nairobi on KQ102.
Wednesday 23 June: Arr. London (LHR); to Oxford by bus.

\(^1\) “Die-back, wilting, poor vigour/stunted growth, leaf chlorosis, zigzagging of branches, premature flowering, and darkening and hardening of the branches, leading to the death of substantial parts of the tree”.

Report by Mr Vincent Wasswa on his visit to Maseno, July 2003

Many thanks to ICRAF for having organized and invited us to this educative and interesting trip.

The aim of the trip was to share and exchange ideas on farming practices so that we can improve our farms with modern methods.

We started our trip on 7/7/03 from Kampala to Busia and we arrived there safely and in time. Hellen of ICRAF Kisumu welcomed and took us to have lunch before we proceeded to the field in Yala sub-county, Viga village at Mr. Amukoye Harrison’s farm.

We saw impressive work at his farm such as Biomass-transfer, soil conservation, bee keeping, soil erosion control, zero grazing and the like. He is such an innovative farmer and a good example to the people in that area.

From there we went to report at ICRAF Kisumu and to get booked in a hotel, which was already identified by Hellen. The hotel was good, clean and safe.

On the 8th we went to Nyamira district where we met Mr. James Micheka, the livestock officer, who took us with Helen to an ICRAF focal area to meet a group of farmers practising a number modern methods of farming.

Paul Odinga had improved bananas, beans and potatoes, zero grazing system with calliandra and Leucaena hedgerows and a lot of maize.

Alex Miregwa had a well-built poultry house with healthy birds and zero grazing unit. He still lacks experience in livestock feeding.

John Mululi had a fishpond, vegetable gardens and Calliandra hedges.

Joseph Kintu had a lot of vegetables and over 500 fodder trees.

On 9th we got sad news that Helen had lost a relative and we were given another field person who took us to Cleophas Teti of Wanama sub-county, Dago village. He keeps dairy cows and goats and keeps bees with modern beehives. He also uses stone lines on soil conservation structures.

Sarah Indioso, a chair lady of Esina womens group keeps dairy cows and poultry (layers), which are meant to be seed for the group.

All in all the farmers showed seriousness in their farming practices and I had a lot to learn from them.

Thank you very much for this trip and I welcome many more of the kind.