FARMERS TO FARMERS EXTENSION WORKSHOP

ORGANIZED BY
KENYA FORESTRY RESEARCH INSTITUTE (KEFRI)
INTERNATIONAL CENTRE FOR RESEARCH IN AGROFORESTRY
(ICRAF)

AT
KEFRI KIBWEZI RESEARCH STATION, FARMERS’ FIELDS
& ICRAF MACHAKOS RESEARCH STATION

26th - 29th MARCH 2000

Report to DFID Forestry Research Programme, R7342.
Summary

With the support of DFID and SIDA, farmers from Western Kenya and the Machakos District were introduced to the cultivation, management and marketing of the fast-growing indigenous timber tree, *Melia volkensii* (mukao) in the Kibwezi district, where mukau is grown as an income-generating species.

Visiting farmers were enthusiastic about the species and wish to try it out for themselves. Seedlings of the species have been supplied to them and more are promised.

The high value of timber processed as door frames, compared to the value of standing trees, indicates the opportunity to increase farmer income through enabling them to do simple timber processing themselves.
Mature Melia in farmer’s field

Melia planks on farm
*Melia* being grown for door frames in farmer’s field

*Melia* regeneration from suckers
1. BACKGROUND

Farmers in semi-arid areas of Kenya, particularly Kitui, Lower Embu and Makueni-Kibwezi districts, grow *Melia volkensii* as an income generating timber species. This timber is highly valuable because of its resistance to termites and durability. Surveys carried out under DFID Competitive Research Funding (R6727(H)) indicated that these districts use different management regimes for the species: farmers in Kitui grow ‘specimen’ melia as large solitary trees, while farmers in Kibwezi, in addition to growing ‘specimen’ melia, also treat it as a short-term cash crop, planting many seedlings or wildings, or managing naturally regenerated suckers and growing them for a short time to marketable size (as little as 4 – 6 months for roofing poles, or 1 – 1.5 years for door frames). By contrast, farmers in nearby Machakos subdivision do not grow melia at all, and appear unaware of it, although studies under R6727(H), R6321 and other studies by ICRAF have all shown that it grows well at this location. Results from ICRAF’s Machakos research station and KEFRI’s Kibwezi station further indicate that this fast growing species could yield marketable timber in less than five years. Markets are readily available and demands are increasing (Tedd 1997, Kidundo 1997).

This difference in approach to the management of melia, and knowledge of it as a species of high economic value may be a reflection of the duration and intensity of land settlement in the different districts, access to markets, and the difficulties of propagating the species. Machakos District has been settled for longest, and although melia was probably present at one time in this area, it no longer occurs on common land or on farm, and the historical difficulties of its propagation would have made it a difficult species to propagate once its population had declined. By contrast, Kitui and Kibwezi Districts have been settled much more recently (in the last 20 – 40 years). Mature, naturally occurring trees have been retained on farm and still occur on common land. As this tree is highly valued locally, there is an incentive to retain and propagate the species on farm. While farmers from Machakos do not to grow *Melia volkensii*, they grow other species (principally *Grevillea robusta*) for the same purpose as *Melia* could provide, though they do not manage it as a short term cash crop. The Kibwezi farmers’ approach to the management of melia is interesting, as it enables them to gain both short and long-term financial returns from melia, in an environment which is subject to frequent crop failure, where an increased emphasis on tree products reduces the risks. Farmers from Machakos could also benefit from this approach and from diversification of the species which they cultivate.

Successful *Melia* growing and its potential to provide income to farmers has been documented at Kibwezi, Embu and Kitui (Tedd, 1997, Steward and Blomley, 1994). Because of this, Forest Department (FD) extension and KEFRI researchers (FD, 1999) proposed extensive *Melia* planting within farmer’s fields. With this background, 20 farmers were selected for the visit from Katelembo and Katheka-kai newly settled areas in Machakos district eastern Kenya. In addition, having heard from extension workers about the usefulness of *Melia*, and that the Machakos team was visiting *Melia* growing areas, 20 farmers from Nyando district in Nyanza in western Kenya took the opportunity to join their Machakos colleagues at Kibwezi. They were sponsored by the SIDA Lake Victoria Project, and led by David Ombalo, the District Agricultural Officer, Nyando District.
The joint farmers’ team was taken to Kibwezi area to visit fellow farmers to learn and exchange ideas about their farming systems. In addition, visiting research trials, demonstration farms and other farming activities were included.

2. OBJECTIVES

Introduce Machakos subdistrict (and Kisumu and Nyando district) farmers to the species *Melia volkensii*, to the diversity of management and cultivation practices employed in Kibwezi district and to the commercial opportunities for the species. Use farmer – visitor visits, supported by extensionists (from KEFRI, Forestry Department (FD) and Ministry of Agriculture), timber merchants, and KEFRI and ICRAF researchers as the mechanism for this dissemination.

3. ACTIVITIES

(I) Visit Machakos and Kibwezi areas to set up the links and initiate *Melia* production activities in the KEFRI nursery at Kibwezi and establish link with farmers for *Melia* production activities and nursery operations at Kibwezi.

(II) Conduct survey at Machakos on farmer’s perceptions of previous *Grevillea* planting and why they don’t grow *Melia*.

(III) Take farmers to see *Melia* growing experimentally and on farms and *Melia* products at Kibwezi.

(IV) See *Melia* growing at Machakos research station and have question and answer session with resource staff.

Activities were organised by Jackson Mulatya (KEFRI) and Almaz Tefera (ICRAF). At the same time as seeing and discussing *Melia*, the opportunity was taken to show farmers a wide range of other species and agroforestry activities.

4. THE FARMER GROUPS

Forty farmers from Machakos (Katheka-kai and Katelembo villages) and Kisumu and Nyando districts participated in the farmers’ workshop held in Kibwezi on March 27, 2000. The workshop was sponsored by DFID and SIDA through ICRAF and field visits were organized by the KEFRI/Agroforestry for Integrated Development in the Semi-arid Areas of Kenya (ARIDSAK) project based in Kibwezi.

ICRAF worked with Katheka-kai and Katelembo villages in 1996. At that time, the area was relatively recently settled and had formerly been open grassland, lacking useful trees. Farmers were not practicing tree planting. At that time, a group of farmers was taken to the ICRAF Machakos station to see different tree species, their performance and potential products. They chose *Grevillea* and *Melia* as priority species, but opted to plant *Grevillea robusta*, simply because they already had experience of it, and its seedlings were readily available. They had not seen *Melia* before and were not sure of its value, additionally seedling production and availability was a major constraint even at the station (Jaenicke, pers. comm.), thus hindering its planting on their farms. Consequently, numerous *Grevillea* seedlings were supplied to

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1 The ARIDSAK project is a bilateral project between the governments of Belgium and Kenya. It is executed thorough the Belgian Administration for Development Cooperation (BADC) and the Kenya Forestry Research Institute as the lead institution representing the Government of Kenya.
farmers in 1996 and Grevillea planting has been very successful in the area (confirmed by a survey in 2000). Because of the success of Grevillea, farmers have not felt the need, or had the support, to plant other species and so have continued to plant Grevillea.

The survey visit to Katelembo- Katheka kai area in 2000, prompted farmers to consider widening the number of species they plant, and their interest in melia was rekindled. Consequently, they were selected to participate in this visit.

5. VISIT

Nursery and on-station trials
Farmers visited nursery and on-station trials established by ARIDSAK. Farmers were introduced to tree establishment, management, and soil and water conservation methods using various trees and shrubs. At these trials, farmers were appraised of various agroforestry technologies and valuable tree species. Agroforestry technologies included fodder production, tree management for poles, mulching, multistrata farming, terrace farming, fruit trees and mixed cropping for soil conservation. They were also introduced to live poles and live hedges for fencing. Farmers appreciated the importance of the visit and raised different issues and questions, which made the workshop more valuable and educative. In conclusion, all the farmers wanted the fast growing species for various products. They were aware of competition from some species, especially Eucalyptus. However, most farmers would allow such competition and realize the benefits from such trees would exceed the disadvantages. Tree management (pruning and trimming) was agreed by all to increase crop yield close to trees, and the prunings were recognised as having value.

Farmer – Farmer visits
The most highly valued commercial species grown by farmers was Melia volkensii. Apart from its high value timber, other Melia tree products mentioned by farmers included fodder (leaves and pods), seeds, medicinal (for chicken diseases), pesticide for crops, woodcarving and fuelwood. This species dominated the discussion with questions on how it is raised and the constraints encountered in raising it in the nursery. Farmers in Kibwezi are encouraged to raise Melia by ARIDSAK on cost basis and the different techniques used by farmers to overcome the problem of raising Melia seedlings were very encouraging. The majority of farmers admitted that raising Melia from seedlings was difficult, use of wildings was the easier way to raise large numbers of plants. The farmers’ nurseries visited had raised most of their seedlings from regenerated wildings within their farms and a few from the natural stands in parklands. Whenever old trees grow, natural regeneration occurs. Some farmers thought that saplings had arisen from goat droppings within farms and sheds. Root sprouts were common in some farms and were responsible for some of trees in the farmer’s fields. Farmers had lengthy discussion on these issues. Melia fast growth fascinated many and farmers unanimously agreed that it had great timber production potential.

Visiting farmers were also shown fruit cultivation, soil conservation and water harvesting for crops, planting of high value trees and on-farm production of seedlings for sale. Visiting farmers become more aware that they could increase their household
income by growing trees on field boundaries, woodlots, as single trees and along terraces for sale and/or domestic consumption.

**Timber merchants**

The introduction of farmers to the timber dealers and merchants provided the proof that *Melia* tree production was commercially rewarding. The prices of single standing trees were quoted between KSh. 500 - 700 per tree depending on size and distance from main markets. The processed timber was selling for higher prices especially when split to usable pieces. These observations (supported by R6727H), highlight the opportunity for increasing farmers’ incomes through enabling them to do simple timber processing themselves. For instance, individual door frames were selling for KSh. 450 and some trees could produce up to four frames totaling KSh. 1800. They were also shown finished products like tables, chairs, sideboards, doors, stools and beds. When made from *Melia*, their values were much higher than the same products made from other commercial timbers in the market. The benefits that a farmer can get from growing commercial species like *Melia* within few years (<4 – 10 >) were a real encouragement to the adoption of this enterprise.

The timber dealers and merchants were the most happy people met in the visit as they were benefiting a lot from the timber trade, locally and outside their area of operation. The finished timber products in *Melia* were selling quicker and more expensively than same products from other timbers. They however expressed the fear that if the present timber source is not enlarged or improved, there will be a lack of timber to meet the demand. They said they would participate in any effort to improve *Melia* productivity.

**Government Agents**

Before the visit ended, the extension officers from KEFRI, FD and Ministry of Agriculture who had accompanied the farmers acknowledged the potential of *Melia volkensii* to provide high value products that might improve the socio-economic status of rural farmers more quickly than any other tree species. They promised to aid farmers in propagating planting materials (seedlings and cuttings) or order them from other areas on farmer’s request. In addition, the extensionists were happy that their efforts to raise *Melia* planting material (though with limited success) and creating *Melia* awareness were appreciated by farmers and other organizations (ICRAF, CEH and sponsors of the workshop) and promised to offer more.

At the close of the day’s sessions, researchers and extension workers who had accompanied farmers interacted with them freely and easily communicated their findings and their experience elsewhere to farmers. The day was closed by words of appreciation by both farmers groups and Machakos farmers departed for their Machakos field station tour and western Kenya farmers remained in Kibwezi for more visits on the next day.

**6. MACHAKOS FIELD STATION**

The Katheka-kai and Katelembo farmers visited Machakos field station on 28th March and were introduced to various experimental plots of different agroforestry technologies. Farmers were shown different varieties of indigenous and exotic species
for different utilities at varying stages of development. Farmers appreciated the growth performance of some tree species. They visited all *Melia* trials and rated it as the fastest growing tree species and most suitable for their farms. They also acknowledged the importance and need for a variety of other tree species like *Grevillea*, *Senna* and *Leuceana* in their farms. The *Melia* boundary planting technology particularly impressed the farmers, who asked if they could be assisted to acquire *Melia* seedlings or planting materials. Some seedlings have been provided to them and more plants were promised by KEFRI. These were to be obtained from farmers group nurseries, raised from saplings and wildings. Unfortunately, because of the drought, there has been no natural regeneration from which to obtain plants.

A question and answer session was conducted in the field between researchers and farmers on tree growth and competition with crops. Farmers suggested various ways of planting and managing trees to reduce these effects. Of course, some of the suggestions had been learnt from the previous day’s experience at Kibwezi. The idea of root trenching on the side of crops was floated and some farmers wondered why would somebody want to harm trees by cutting their roots.

The field visit ended in the afternoon and farmers were given seeds of some species for raising their own seedlings. Group photographs were taken by farmers who thanked the workshop organizers for the educative and familiarization tour in both regions. Farmers also acknowledged ICRAF for giving them the opportunity of a lifetime and prayed this cooperation could continue and be extended to other people. The workshop was closed with a word of prayer.

7. FOLLOWUP
At present, progress on tree planting is hampered by the widespread drought, which has limited plant production. However, farmers from both districts have implemented much of what they have seen at Kibwezi, especially tree planting and river bank protection.

8. ACKNOWLEDGEMENTS
Finally, we wish to thank DFID for sponsoring this workshop and the preceeding survey that determined workshop modalities, especially for providing funds quickly after proposal submission. We wish the same understanding and consideration will be repeated in future follow up requests for support for *Melia* extension and for other actions to increase income to farmers, such as the processing of timber in farmers fields.

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9. REFERENCES


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FARMER VISITORS

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