



World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

ICRAF - WCA / Humid Tropics Programme



Enhancing the livelihoods of small scale farmers
through increased income and non income benefits
from indigenous trees.



We are grateful to ...

The programme's work is supported by the International Fund for Agricultural Development (IFAD), The Belgian Directorate General for Development, The European Union (EU) the United States Department of Agriculture (USDA), Unilever as well as the governments of all host countries.

Background



Low income farmers of Africa's humid tropics face a number of problems, arising from the constantly fluctuating prices of cash crops in the international market and increased forest logging that has confined them in smaller and less fertile areas, with little or reduced access to forest resources. ICRAF has been working with them to increase the productivity of their limited farming areas through sustainable resource management options like improved fallow as well as the domestication and commercialisation of high value indigenous trees.

The "Humid Tropics" programme of the World Agroforestry Centre (ICRAF) is one of the three nodes of the West and Central Africa Region, which began as a national programme in 1987. It has been working hard to increase the level of income, food security and environmental benefits of cultivated trees for rural households through research, education and development.

ICRAF-WCA/HT collaborates with international research centres (CIFOR, IITA); national agricultural and forestry research systems (IRAD, IRAF, INDEFOR, INERA); universities, local, regional and international NGOs; farmer groups, Community Based Organisations, traders and traditional medicine practitioners throughout the region. Its activities are spread over Cameroon, Nigeria, Ghana, Equatorial Guinea, Gabon and the Democratic Republic of Congo.



Feeding the soil...Feeding people

Improved fallows

Between 1988 and 1998, ICRAF' - Humid Tropics Programmes's research activities focused on developing improved fallow systems to increase food crop production and soil fertility. Trees and shrubs used include fast growing species such as *Calliandra calothyrsus*, *Inga edulis* and *Cajanus cajan* for their long-term ability to improve the fertility and structure of the region's acidic soils.

- On-station and on-farm trials of rotational tree fallows with *Calliandra*, *Inga* and shrub fallows with *Cajanus* give significantly higher maize yields than natural fallows
- Tree fallows increase crop yields, suppress weeds during the fallow phase and provide by-products such as stakes, firewood, honey and fodder



Tree domestication

With tree domestication, useful species are taken from their natural environment, developed and adapted for wider cultivation. This involves the selection of trees that farmers will like to reproduce, their improvement, their reproduction, and their mass cultivation for home use and markets. Participatory tree domestication focuses on low technology such as rooting of cuttings, grafting and marcotting. It is supported by research and extension.

- The production cycles of useful indigenous trees have successfully been reduced (from 15 to 3 years for the kola nut tree and from 8 to 3 years for the African plum/safou)
- Desired traits (colour, taste, size etc) in selected trees can be replicated in their off springs
- Quality planting materials are now available for small and medium scale farmers



*Testing the njansang
cracking machine*



Reducing losses

Harvest and post harvest losses (from insect pests and diseases as well as product handling) have been identified to greatly reduce Farmers' take home package.

This significantly affects income from their farming activities. To curb these problems, ICRAF-WCA/HT has studied the best harvest and post harvest practices for four priority species: eru (*Gnetum africanum*), njansang (*Ricinodendron heudelotti*), bush mango (*Irvingia gabonensis*) and kola nuts (*Cola spp*).

- Local plants such as vetiver roots, eucalyptus, tobacco and cypress have been identified as efficient kola nut conservers
- The new possibility of cracking njansang seeds mechanically will eliminate the hazards and time waste entailed in the manual process
- Best drying and sorting methods for bush mango seeds and kola nuts now exist



Generating income

Taking advantage of market niches

The sub-sector approach permits farmers to master the cycle of tree products from the time they are harvested, till they reach the consumer. This way, the farmer can efficiently manage unforeseen market or other changes that may affect returns from sales. This approach has been successfully applied to two tree products: kola nuts (*Cola spp*) and njansang (*Ricinodendron heudelotti*).

Group sales

Farmers have been encouraged to harvest, pull together their produce, and wait for peak price periods to sell. With this approach, they now get the best prices ever for njansang (in the Centre province of Cameroon) and kola nuts (in the North West province).

A "guarantee fund" enables farmers to attend to their pressing needs while waiting for the best time to sell.





Meeting with standards

A fruitful partnership with the private sector is helping farmers solve problems related to the perishable nature of their produce and their limited storage facilities. The main aim of this step is to match supply with consumer preferences

- Research is gradually revealing the best variety of the African plum (*Dacryodes edulis*) that can be processed into chips, paste etc.
- Some small and medium size enterprises now process and sell non timber forest products (plums, nuts: vegetables)





Training & Education

Through the Regional Agroforestry Training and Education Team (RAFT) of the African Network for Agroforestry Education instituted in 1999, ICRAF-WCA/HT in partnership with schools and universities:

* Adapts the content and delivery of education in agroforestry, agriculture and natural resource sciences



- * Establishes linkages among education, research and extension in order to maintain the relevance of education programmes to agroforestry research and development

- * Offers graduate and postgraduate internships for research on agroforestry and agroforestry related topics

- * Facilitates information and knowledge sharing among educational and training institutions in the region while promoting links with global partners



Publications

After over 10 years of research and field experience, ICRAF- WCA/HT researchers have a rich publication

history. On the list of their publications are:

- * Books
- * Book chapters
- * Posters
- * Extension manuals and leaflets





Research thesis ✨

Scientific articles in peer-reviewed journals *

Proceedings

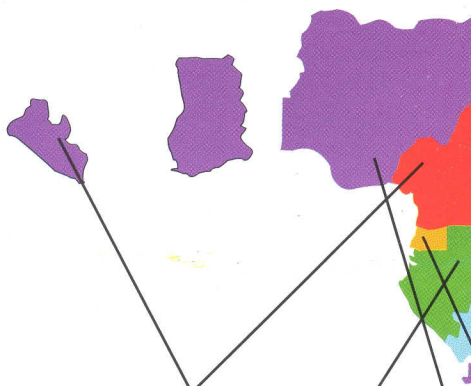
Conference papers

Communication and information documents*





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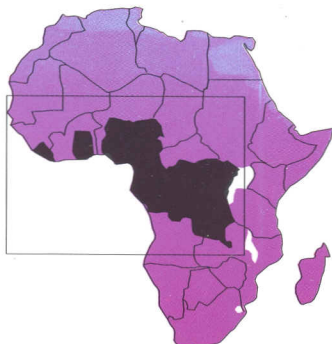
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