



BREEDING STRATEGY FOR NEEM, *Azadirachta indica* FOR SUPPLY OF WOOD FOR CARVINGS UNDER KGT/WWF GOOD WOOD PROJECT IN COLLABORATION WITH TBP

1. General Description

The neem tree, *Azadirachta indica*, called 'mwarubaini' in East Africa, has long been known for its medicinal and pesticide properties. Indeed, it is claimed to cure 40 different diseases, hence its local name, mwarubaini (arubaini is Kiswahili for 40).

The neem is an evergreen multipurpose tree native to the Indian subcontinent and Southeast Asia, where it has been traditionally used for centuries. The species adaptation to hot and dry climates has made it one of the most commonly planted species in arid and semi arid areas both within and outside its natural range. It can be used for shade, windbreaks, firewood, medicinal and pest management purposes and carving. Neem oil and industrial chemical compounds extracts from Neem are gaining attention worldwide.

2. Exploitation of neem for wood carving in Kenya

In Kenya the woodcarving industry supports up to 60,000 carvers, generating an income of over US\$10 million per year. Yet, the economic success of the industry has undermined the resource on which it has been based as threatened hardwoods.

An innovative WWF project promoting sustainable Kenyan woodcarvings from good wood has achieved Forest Stewardship Council (FSC) certification a first for Kenya. Through awareness campaigns by the WWF East Africa Regional Programme, over 70 per cent of wood carvers use alternative farm grown tree species like neem, jacaranda, mango and *Grevillea robusta*, which has translated into conservation of indigenous forests.

The project encourages the use of farm-grown trees instead of threatened hardwoods for carving, thereby securing carvers livelihoods and providing a new income source for farmers. The FSC certification will contribute to conservation of threatened East African forests and help to improve livelihoods for poor farmers in Kenya. The project success is largely due to an innovative partnership of WWF with Oxfam, Kenya Gatsby Trust, Kwetu and the National Museums of Kenya. The partnership has brought together the

necessary skills in conservation, business development, marketing, quality assurance and capacity building.

3. General consideration and Background Information

The GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) IPM Horticulture Project (IPMH) undertook feasibility studies in 1994-95 in Kenya. Based on climatic classifications, these studies estimated that over 25% of the land in Kenya is suitable for growing mwarubaini. The tree is currently found in Kilifi, Lamu, Mombasa and Taita Taveta districts in Coast Province as well as the semi-arid areas of north-eastern Kenya.

Despite the widespread use of Neem, there are no programmes for evaluating and improving its genetic resources, mainly because of seed – viability and seed handling problems, which make seed collection and transfer difficult. As a result, the genetic material used in present plantations is generally thought to have been originally collected from a few stands or trees, and its genetic base is likely to be very narrow, particularly in countries outside the range of the species

4. Why a breeding strategy for neem?

A breeding strategy is a plan developed to maximize genetic gains within the constraints and opportunities of the specification of the organization. The breeding strategy uses information from several disciplines (genetics, biology, economics, silviculture) to create the best strategy for a given species. It is possible to develop a strategy that makes best use of current resources to maximize future genetic gains to the wood carving industry.

5. Time line for the breeding strategy

September 2005	Preliminary selection of base population elite phenotypes 100
October, 2005	Development of synthesized breeding strategy and harmonization of logistics, work plan and budget

November 2005	Approval of budget and work plan
December 2005	Collection of coppices from 50 top ortet
January 2006	Rooting of the clones in Gede
March 2006	Selection of the clones based on rooting ability
April 2006	Establishment of Research clonal hedges in Gede based on the selected clones
October 2006	Establishment of the first clonal field trials

6. References

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3. [Www.icfre.org/institutes2/ FRI-Genetics%20and%20Tree%20Propagation.htm](http://www.icfre.org/institutes2/FRI-Genetics%20and%20Tree%20Propagation.htm) - 47k
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5. [Www.neemamerica.org/research/neem12.html](http://www.neemamerica.org/research/neem12.html) - 32k
6. [www.colostate.edu/Depts/Entomology/ courses/en570/papers_1994/sclar.html](http://www.colostate.edu/Depts/Entomology/courses/en570/papers_1994/sclar.html) - 31k

PROPOSED TREE BREEDING STRATEGY *Azadirachta indica*

BASE POPULATION

BREEDING POPULATION

