

# PROPAGATION AND CULTIVATION OF PESTICIDAL PLANTS: PRINCIPLES AND PRACTICES

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*Tagetes minuta*



*Azadirachta indica*



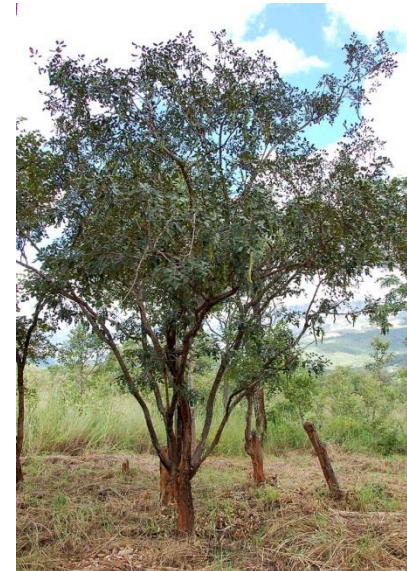
*Lippia javanica*



*Tithonia diversifolia*



*Securidaca longipedunculata*



*Zanthoxylum holtzianum*



# Need for propagation & cultivation

- Parts of the plants harvested: roots, leaves, seeds, fruits, bark
- Constraints to the natural regeneration as well as vigorous stands development
- Propagation and silvicultural techniques also unknown



# For what?

## Right tree

- Different species
- Varieties
- Species mixtures

## Right people

- Fit in livelihood strategy
- Tree planting habit
- Group membership
- Comparative advantage

## Right place

- Climatic requirements
- Ecological suitability
- Market access
- Comparative advantage
- Landscape role
- Farm niche

# Germplasm collection

## Why germplasm collection?

- Raising seedling/other propagules for distribution to farmers
- Tree management research (e.g. on how to germinate seed or vegetatively propagate trees).
- Genetic improvement programmes (e.g. for the establishment of provenance field trials from which superior material can be selected through exploiting intraspecific variation in a species).

# Germplasm collection

- *Ex situ* conservation (e.g. establishment of field gene banks for long-term management of genetic resources).

# Plus tree selection



- Selected planting material should be capable of consistently producing good quantities of high quality product (active ingredient in the case on pesticidal plants).

# Propagation

## laboratory

A **laboratory** is a facility that provides controlled conditions in which scientific research, experiments and measurements are performed.

## Nursery

A Nursery is a facility where plants are raised with special care until they are ready or large enough for transplanting into the field.

It also serves as a centre to train and transfer knowledge to people who are interested in raising seedlings



# Types of nurseries

- **Permanent:**

Produces large quantities of seedlings for many years.

- **Temporary nursery:**

Temporary Nursery is established for a short period, mostly less than five years to meet a specific but temporary local needs.

- **Extension nursery**

Extension Nursery is established to produce seedlings of many species useful to the local community for amenity, firewood fodder post and poles.



# Nursery site

- Easily accessible
- Permanent water supply
- Easy drainage
- Nurseries should not be sited on sloppy or flat grounds e.g. hill tops or valley bottoms. Gentle slopes should be selected (slopes of  $2^{\circ}$  –  $4^{\circ}$  must be selected).





**ITSC nursery, Offinso, produces millions of seedlings per year**

# Setting cuttings

- Tools needed
  - Secateurs
  - Knives
  - Humid Bags/Polythene Bag
  - Ice Chest
  - Hand sprayer
  - Labels
  - Pencil

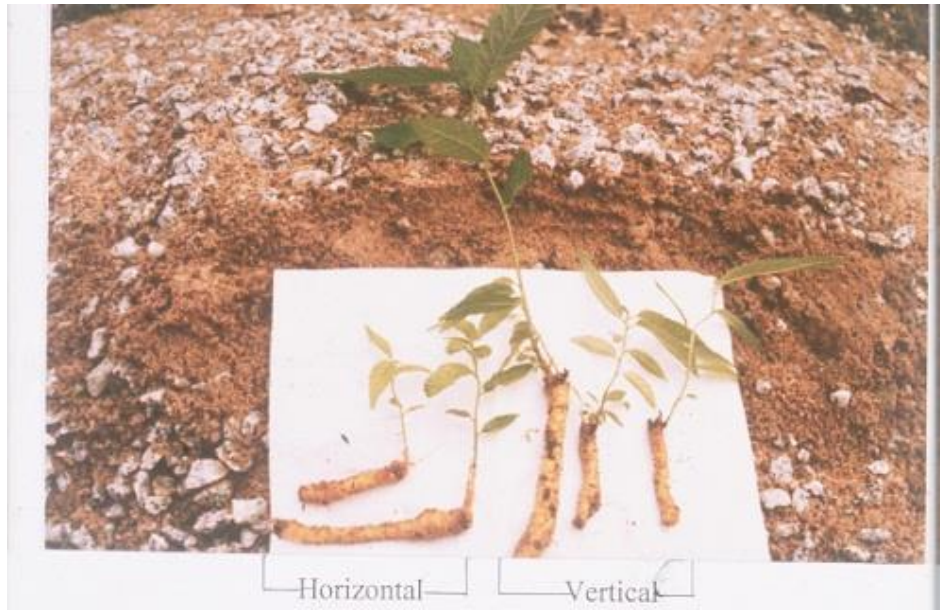


# Setting cuttings





# Rooted cuttings



# Grafting



Collection of scion



Grafted plant



# Air layering



Girdled branch  
With ball of rooting  
medium



# In vitro tissue culture



Propagation  
Ex-situ conservation







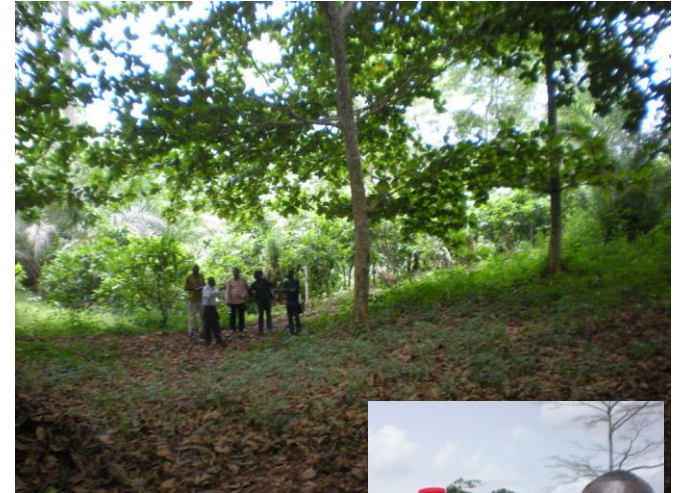


Medium term seed storage at ICRAF





# Integration on farms



Need for quality planting materials and silvicultural techniques





# Application

