PROPAGATION AND CULTIVATION OF PESTICIDAL PLANTS: PRINCIPLES AND PRACTICES

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Tithonia diversifolia

Tagetes minuta

Azadirachta indica

Lippia javanica

Securidaca longipeduncalata

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

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