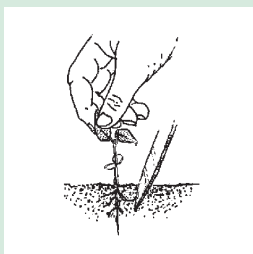
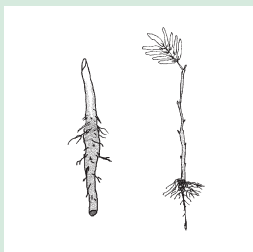


# Propagating and planting trees

Agrodok 19 - Propagating and planting trees



# **Agrodok 19**

## **Propagating and planting trees**

Ed Verheij

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# Foreword

This Agrodok is a companion to Agrodok 16: Agroforestry. Trees and shrubs play important roles on the farm and in the environment. Unfortunately too many trees are lost because of overgrazing, excessive fuelwood collection and deforestation. Agroforestry supports the efforts of people in rural areas to plant more trees and to use them to greater advantage, also because of their favourable interaction with crops and livestock.

It is fairly common for farm households to propagate a few trees and shrubs in tins, bowls or other containers under a tree or on the veranda. Where larger numbers of planting material are to be produced, it would be helpful to have a better understanding of: different propagation techniques, how to run a proper farm nursery, and planting out and aftercare of young trees. That is why this Agrodok was written. The emphasis is on propagation from seed or cuttings. The more complicated propagation methods used for horticultural crops, such as budding and grafting, are not dealt with. The Agrodok is written using simple language so that the information can easily be used for extension material.

## Acknowledgements

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Wageningen, October 2004, Ed Verheij

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# 1 Introduction

Trees are vitally important to people. They provide many products, including food for humans and animals, timber, fuel and medicines. In the tropical zone trees are much more important as food crops and cash crops than in temperate zones, where palms and large herbaceous perennials such as banana are absent because of the cold winters.

Trees not only provide products, they also protect the environment and improve the living conditions around a farm. For example, they provide shade and shelter and play a vital role in preventing soil erosion and in sustaining soil fertility. All over the world forests as well as scattered trees are being cut down by people in their search for timber, fuelwood or land for other uses. Uncontrolled fires also destroy many trees.

Proper management of trees and forests is necessary to make resources sustainable. Trees – or rather: woody plants in general – play an important part in traditional farming systems in the tropics, not just as food and cash crops but also as suppliers of fuelwood and fodder. Farmers are also aware of the environmental benefits and use trees as fallow vegetation, hedges, windbreaks, erosion barriers, etc. Where these traditional roles of trees are diminishing due to increasing population pressure and/or changing land use, it is necessary to encourage and support local initiatives to plant trees. That is the subjectmatter of Agrodok 16: Agroforestry.

This Agrodok describes techniques used to propagate and plant agroforestry trees. It has been written primarily for farmers and extension workers. Simple, low-cost and low-input methods are emphasized.

In Chapter 2 the different roles that trees play in various parts of the farm are briefly discussed and the importance of choosing the right tree species for each role is emphasized. Chapter 3 deals with the collection and handling of propagules, i.e. the parts of a plant used in

propagation: seeds, wildings, cuttings and layers. Chapter 4 presents propagation methods: from stimulating natural regeneration – which interferes the least in the natural course of events – and sowing tree seeds directly in areas where you want these trees to grow, to raising plants in a nursery for field planting later on.

Chapters 5 to 8 all deal with raising and field planting of nursery stock. The techniques are suitable for simple on-farm nurseries to raise small numbers of trees to be planted from year to year, as well as for village nurseries, producing trees for reforestation of communal land.

In Chapter 5 the major elements of nursery work are presented in some detail: raising seedlings, using pots, and rooting cuttings. This is followed in Chapter 6 by how to set up a permanent nursery that comprises all these elements: different types of beds for seedlings and cuttings as well as for pots. The chapters on nursery work conclude with Chapter 7 dealing with how to care for the plants in the nursery till they are ready for field planting. Field preparation, planting out and the aftercare for the young trees is the subject of Chapter 8.

At the end of this Agrodok there is a list of publications for Further Reading, a list of Useful Addresses where seeds and/or information can be obtained and a Glossary explaining terms used in the text.

There are two Appendices. Examples of measurements and calculations are given in Appendix 1. Common names are used for well-known crop plants, such as cassava and mango. Many agroforestry species have no generally accepted common names. That is why botanical names are used in this Agrodok for all lesser-known woody plants. Appendix 2 lists these botanical names and gives the common names as far as known, along with some other characteristics of the species.

Growing conditions differ greatly within the tropics. It is therefore impossible to give detailed information which applies to all local conditions. To develop local methods of propagating and planting trees it



is essential to collaborate and exchange knowledge. Readers are strongly advised to gather local knowledge on trees and combine it with the information in this Agrodok, in order to make the right choice for their specific situation.

You may contact Agromisa if you have specific questions. In your letter always include information on local climate (in particular seasonal pattern and quantity of rainfall), tree species, soil types and other important factors. Agromisa's address is on the cover of this book.