



Fact Sheet: How to do 'Acacia Agroforestry'

Acacia Agroforestry is a farming system for arid and semi-arid zones that involves planting acacia trees alongside traditional food crops and regenerating indigenous trees.

Increase reliable production of food and wood as well as farm income in semi-arid tropical regions by improving the farm environment and diversifying crops. Begin by cultivating existing indigenous trees from stumps. Annually rotate food crops alongside the regenerating trees. Plant fast-growing Australian acacia trees around crop boundaries to provide a windbreak, mulch, food and wood. Adapt the system to suit your land and objectives.

Getting Started

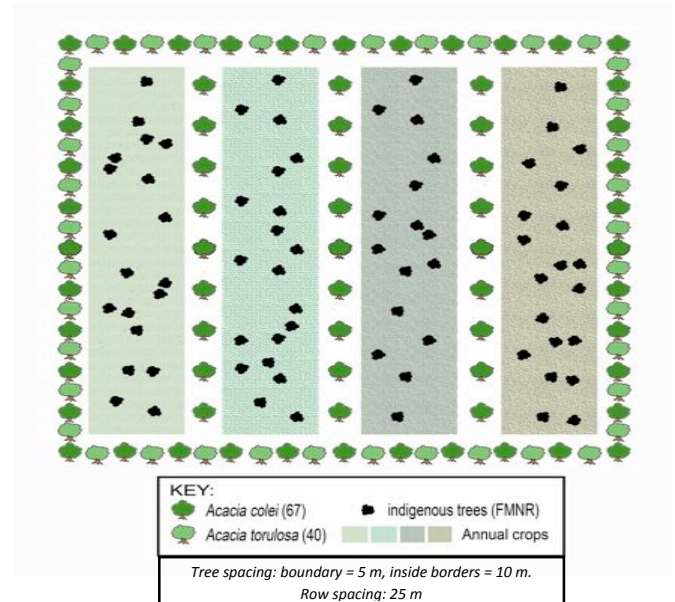
1. Start with Farmer Managed Natural Regeneration (FMNR). Sprouting tree stumps and roots may look like shrubs and are often ignored or even slashed. The FMNR method involves selecting and pruning the best stems and culling the excess so that regrowth can rapidly grow into trees. For more information, see 'Fact Sheet: How to do FMNR'.



Two farmers on their Acacia Agroforestry farm in Niger standing within a row of *Acacia coleii* and next to a crop of Sorghum

2. Plant food crops on annual rotation alongside the regenerating trees to provide food and

generate income. You can also use crop residues for animal fodder and Crop Residue Mulching (CRM) to increase food production. CRM involves cutting crop residue after harvest and laying it on the soil surface. Ground cover is increased, and soil organic matter and soil fertility are improved as termites cycle the nutrients. CRM also reduces evaporation while enhancing water infiltration.



Example Acacia Agroforestry plot on one hectare, which includes 40-120 FMNR trees, annual/perennial crops in rotation and over 100 acacia trees. Orientate rows of acacia trees to act as a windbreak.

- Plant Australian acacia trees (such as *Acacia coleii*, *A.torulosa*, *A.tumida*, *A.elachantha*) around the boundaries and inside crop borders. These select species of fast growing, domesticated desert trees annually produce edible seeds for food, protect crops and increase the fertility of the soil. Prune acacia trees every second year. See 'Fact Sheet: Australian Acacia' for more information.
- Make a plan that best adapts the system for your land and objectives.

Propagation

Planting trees takes skill and care. Australian acacia trees are most successfully introduced by planting seedlings that have been grown in village or individual tree nurseries. Acacia seeds need pre-treatment, such as soaking in boiling water overnight, before they are placed in small containers to germinate. Once the resulting seedlings are planted in the field, they tend to establish rapidly and begin to produce edible seeds in the second year.

Tree nursery and farming systems training courses for villages in tree propagation, planting and care are important to develop successful tree nurseries and give trees a good chance of survival.

Questions to think about

- What are my objectives?
- What is the prevailing wind direction?
- What land area can I use? What shape is it and how do I best plan the area with borders?
- Which tree stumps do I want to regenerate into trees?
- What type of trees do I want to plant?
- Which food crops will I plant?

The site

Estimates from trial sites show that two to three hectares of well-managed Acacia Agroforestry will provide adequate firewood for an average family for a year, and will also provide a surplus from food crops for sale and income generation in an average year.

The practice of FMNR regenerates the farm environment, making it more fertile and productive, as well as providing wood fuel and timber and other native tree products such as fruits and medicines.

Adapt the model explained above to suit your site and objectives.

Factors to consider

Farmers' objectives determine how Acacia Agroforestry is practiced. According to your objectives, determine the density and layout of tree

plantings, the types and numbers of indigenous trees you want to regenerate and which annual crops you will plant.

There might also be other valuable agroforestry trees you want to plant along the borders to produce fruit and wood.

Pits designed to catch water with added compost or dry manure can be used to start growing trees and crops. Some examples of these are contour ditches, 'zai holes' (which are about 30cm diameter and 30 cm deep) and half moon shapes. You could also spread compost or animal manure to your annual cropping area.

Farmers typically provide the labour for Acacia Agroforestry. Labour and income can be spread over the year, increasing the resilience of the farm. Acacia Agroforestry has been shown to more than double annual farm income.

The diversification and rotation of annual crops can increase food production, income and reduce the disease incidence that is often associated with monoculture and continuous cropping.

Acacia trees are fast growing, provide a windbreak for crops, fix nitrogen in the soil and provide firewood, timber and mulch. Certain types of Australian acacia trees (see above) produce food as edible seeds every year from the second year after planting. Acacia seed is tasty and can be used in most local dishes after grinding into a flour or paste. The seeds can be stored for up to ten years. Current acacia species and provenances have been developed for 350-500 mm rainfall areas.

The leaves of some Australian acacia species, such as *A. victoriae* and *A. ampliceps*, are fodder for farm animals. The leaves of *A. Saligna*, prevalent in Ethiopia, can be picked and dried in the shade to increase their nutritive value and fed to animals.

Cautionary note: Some Australian acacia species in some environments have the potential to become environmental weeds. Therefore, consultation with authorities and controlled testing before release is recommended.