Agriculture
WESTERN AUSTRALIA

Farm Forestry Advisory Service

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TreeNote

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Farm forestry definitions and designs

Introduction

Trees are grown on farms for a variety of commercial and non-commercial purposes, including timber production, shade and shelter, ground water control, prevention of nutrient pollution, erosion prevention, scenic enhancement, and nature conservation. Although some trees are grown for a single purpose, such as timber production, or nature conservation, many are planted to achieve a number of aims simultaneously.

The Farm Forestry Advisory Service provides information and advice about growing commercial trees on farms, with an emphasis on integrating trees into farming systems, to maximise total productivity and enhance sustainability.

Defining farm forestry, agroforestry and landcare plantings

Trees planted on farms may be labelled 'farm forestry', 'agroforestry' or 'landcare planting', depending on their main purpose. However, the distinction is often artificial, as the names have considerable overlap, especially where trees are managed for multiple purposes.

Farm forestry

A broad definition of farm forestry includes any trees on farm land which are managed to produce saleable products such as timber, oil, tannin, charcoal or carbon credits.

The 'farm forestry' label is now being used to include the commercial management of native forest on farms as well.

Agroforestry

The purpose of agroforestry is to incorporate trees and shrubs into farming systems to gain from their positive interactions with agriculture. Benefits gained from trees and shrubs may be direct (timber), indirect (shade, shelter and fodder), or a mixture of both.

The terms agroforestry and farm forestry are often used interchangeably.

Landcare plantings

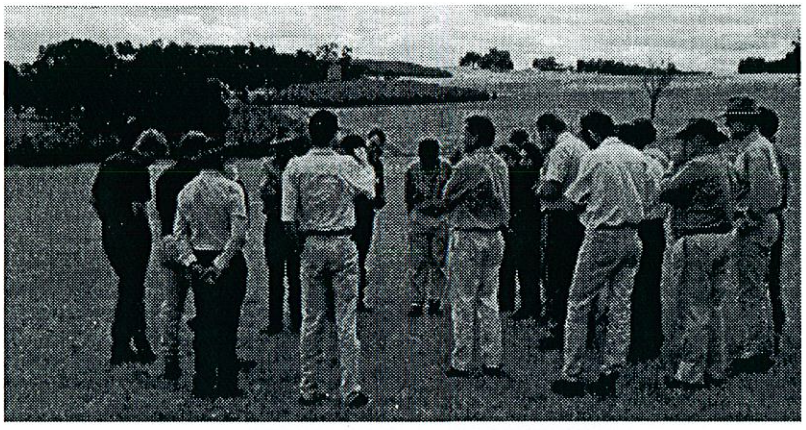
Landcare plantings are a form of agroforestry at the non-commercial end of the spectrum. Trees and shrubs are grown with the primary aim of protecting land and water, and enhancing nature conservation. The benefits to agriculture are usually indirect, through improved farm productivity and sustainability.

Different tree layouts in farm forestry

Many different tree layouts have been developed by farmers trying to find the optimum way to fit trees and other farming enterprises together. Typical layouts range from large plantations, to smaller blocks or woodlots, belts, windbreaks, alley farming and widely spaced trees.

Since each farmer has a unique set of goals, and a unique piece of land, the optimum farm forestry layout varies from farm to farm. Three different farm forestry layouts are shown overleaf. In each diagram, 20 to 25 per cent of the land area is planted to trees.

(see over for diagrams)



A field day tour on a Boyup Brook property discusses the role of these 16-month-old bluegums, planted to combat a salinity problem associated with rising watertables.

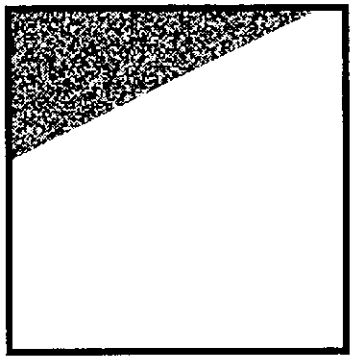
Continued overleaf...

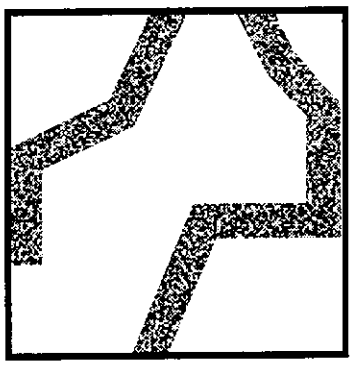
(from page 1)

Examples: farm forestry layouts

Part of this farm is planted to a woodlot or small plantation, with timber production and agriculture being managed as separate enterprises. However, there may still be a degree of interaction between the two. Stock may graze and shelter beneath the trees, and the trees may enhance the productivity of part of the farm by lowering ground water, or providing protection from prevailing winds.

This layout is suitable for producing pulplogs or sawlogs with minimum management. Because competition between trees in plantations produces tall, straight crop trees with small side branches, labour requirements for pruning are lower than in more integrated layouts. Plantations are suited to areas where tree farming is a more profitable long term pursuit than other agricultural activities.

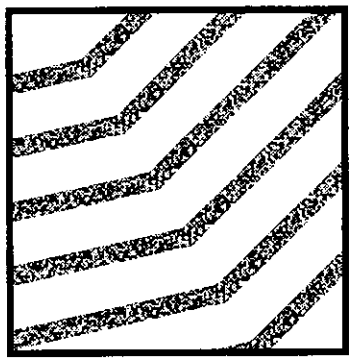




Trees planted in this way are integrated into the farm to achieve land management goals. Typical examples are protection from wind, ground water control, erosion prevention, drainage line protection, aesthetic enhancement, and provision of wildlife corridors. As well as producing commercial products, tree belts can increase farm income indirectly by raising the productivity of adjoining agricultural enterprises.

Trees grow faster in belts than in blocks, because more of the trees are at the edge, where there is less competition from other trees. However, edge trees grow larger side branches and are more likely to need pruning to produce high quality sawlogs, or logs suited to mechanical harvesting for pulp. The fencing requirement is also greater than for a plantation.

In alley farming, narrow belts of trees are planted in straight rows or along contours, with grazing and cropping between the rows. The aim is to maximise returns per hectare from an integrated system. This type of layout is ideal where the trees enhance agricultural production by sheltering stock, lowering ground water or reducing wind erosion.



Alley layouts with a standard width of trees are especially suited to tree crops such as oil mallees, where the foliage will be harvested regularly by machine.

Timber trees can also be grown successfully in alley layouts. With good access to light, water and nutrients, they can grow very quickly. However, the trees are more likely to develop curved and forked trunks, and produce large side branches because of the reduced competition for light. Intensive management, especially form pruning and branch pruning, may be needed to produce high value timber.

Recommended reading

'Design Principles for Farm Forestry: A guide to assist farmers to decide where to place trees and farm plantations on farms' (1997).

Contains comprehensive information on planning and the growing of trees on farms. Many diagrams; 102 pages.

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