

Overview of farm based forestry in South Australia

Introduction

This fact sheet provides an overview of the typical activities and considerations for landholders to establish and operate a farm-based forestry business in South Australia.

Australia's first commercial plantation forests were established in South Australia in 1876. Since that time, the state's forest industry has been a national leader in the sustainable management of its plantation forestry. Today, the industry is a significant part of the state's economy with a supply chain value of \$1.4 billion and 168,000 hectares of softwood (pine) and hardwood (eucalypt) plantations across the Fleurieu, Adelaide Hills, Mid North, and Limestone Coast.

The state-of-the-art wood processing facilities produce radiata pine (*Pinus radiata*) framing timber and panels for the construction industry, fence posts for livestock farmers, trellis posts for grape growers, and pallets for a range of industries. Forest products are also used for making compost, potting mix and animal bedding, while premium export Tasmanian bluegum (*Eucalyptus globulus*) wood fibre is used to create high-quality writing and printing paper.

Farm-based forestry involves establishing, maintaining, and harvesting a commercial crop of trees on land that has previously been used for other forms of agriculture. Commercial crops are those that increase wood supply for the South



Figure 1. South Australian grown and processed sawn timber (source: PIRSA)

Australian forestry industry by utilising two main species: radiata pine and Tasmanian bluegum. The integration of trees into farming presents an opportunity to increase South Australia's long-term wood supply while also meeting landscape management objectives.

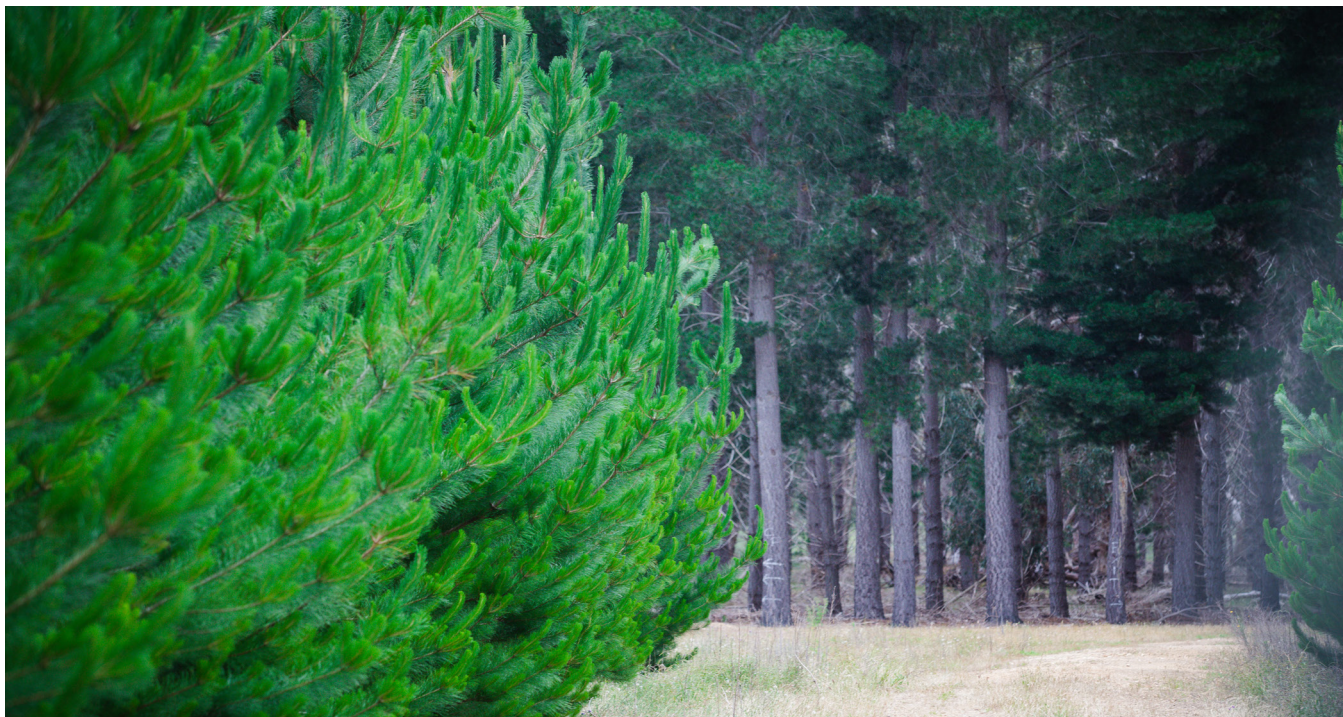


Figure 2. On-farm pine plantation in the Limestone Coast.

Planning

Preparing plans for establishing, managing, and harvesting tree crops is an essential part of forestry and farm-based forestry activity. Forestry practices need to abide by laws and regulations including those governing the protection of native flora and fauna, soil and water resources, and safe work practices. Seeking and applying professional forestry advice improves the commercial viability of a farm-forestry venture. Advice can be obtained from forestry professionals registered with Forestry Australia.

Development approval

In South Australia, intended landuse change from agriculture to commercial forestry (including farm-based forestry) requires development approval. Development Applications are assessed against the Planning and Design Code under the *Planning, Development and Infrastructure Act 2016*.

The Code defines commercial forestry as the practice of planting, managing, and caring for forests that are to be harvested (or intended to be harvested) or used for commercial purposes (including through the commercial exploitation of the carbon absorption capacity of the forest).

For example, forests planted for trading carbon rights, firewood production, or timber production

are all commercial forests, and are subject to forestry policies in the Code. It is, therefore, important to consult with the relevant local council about planning requirements.

Water licences and permits

The Lower Limestone Coast Prescribed Wells Area (LLCPWA) is a Declared Forestry Area as per the *Landscape South Australia Act 2019*. This means all commercial forests are required to have a forest water licence, with a water allocation that offsets the impact of the plantation on the groundwater resource, unless the forest is classified as farm forestry.

The Water Allocation Plan for the LLCPWA defines farm forestry as a commercial forest that is situated on a farm where the net planted area does not exceed:

- i. 10 percent of the land described in a Certificate of Title or Crown Lease; or
- ii. 20 hectares – whichever is greater

In the Eastern and Western Mount Lofty Ranges Prescribed Water Resources Areas, forestry is a water affecting activity that requires a commercial forest water permit. Once again, it is necessary to consult with the local Landscape SA Board about water permit requirements.

Establishment

Site and species selection

Tree growth is affected by site conditions including soil type, rainfall and the management practices used (fertiliser, pruning and thinning regimes). It is therefore important to match tree species to the right site and grow them at an appropriate scale. Factors that influence the commercial viability of a plantation include:

- area – planting at least 20 hectares is suggested as fixed costs associated with harvesting machinery may make it uneconomic to harvest smaller areas
- distance from mills – transport costs are significant, which can be minimised by planting closer to sawmills
- proximity to similar forests – smaller plantations close to other forests of the same species and approximate age could be harvested at the same time, offsetting the need for a larger area

Stocking

Plantation forests are established in rows. The inter-row distance and direction of rows needs to allow for vehicle access during site preparation, weed control, thinning, and harvesting. The density (known as stocking) at which trees are initially planted influences the size of branches and therefore the knots in wood, as well as the type and volume of wood products that can be harvested later (for example, pulp wood or saw log).

Tasmanian bluegum is generally planted at a stocking of 1000 trees per hectare: 4.0 metre (m) between rows and 2.5 m between trees, whereas radiata pine is planted at 1600 trees per hectare: 2.5 m between rows and 2.5 m between trees (or 3.0 m between rows and 2.1 m between trees). Sites with an annual rainfall below 600 millimetre are generally established at lower stockings.

Site Preparation

The type of cultivation used to prepare the land for planting will depend on the site and the species grown. For instance, if a rocky or hardpan layer occurs within a metre of the

surface, ripping is done to allow seedling roots to grow more easily. If water ponding occurs on the site, mounding may be required to elevate the seedlings. Other considerations in site preparation include the management of existing or remnant vegetation.

Weed Control

Effective weed control is essential for the growth and survival of plantations, particularly in the first two years of plantation establishment. While it maximises the soil moisture available to seedlings, poor weed control can significantly decrease seedling growth and survival. A combination of knockdown and residual herbicide is usually an effective weed control method.

Planting

Planting is usually done by hand during winter months when soils are moist. Suitable forestry seedlings or cuttings need to be ordered from a reputable nursery six to twelve months in advance of planting.



Figure 3. Landholder inspecting a mature pine plantation on his property (source: PIRSA)

Management

Survival Counts

It is essential to apply management practices in the two years after planting to ensure successful establishment. An accurate survival count and refilling, as necessary, is required to maintain the initial stocking.

Weed Control

Follow-up weed control in the second year may be required to maintain the growth and survival of the stand. Regular surveillance is important for identifying and managing reportable weeds and Weeds of National Significance (WoNS).

Fertilising

Fertilising can improve tree growth by providing adequate and balanced levels of nutrients to the plantation. Fertiliser is applied on sites with a history of poor nutrient availability or if there are signs of deficiency.



Figure 4. Landholders inspecting their farm-based eucalypt woodlot (source: PIRSA)

Protection

Forest protection includes maintenance of annual fire breaks, fire-fighting equipment, and Bushfire Action Plan. The South Australian Country Fire Service (CFS) has a state-wide program to register Farm Fire Units, which provides farmers with benefits including access to CFS resources and information. It is important to be bushfire ready and consider any additional preparations that are required for managing forests.

Protection also includes regular monitoring of plantation health for the early detection of deficiencies and damage. Fencing may be required to prevent unwanted access by stock and wildlife. Suspected plant diseases, exotic pests, or noxious weeds must be reported to the Exotic Plant Pest Hotline (1800 084 881) or by submitting an online plant pest report form on PIRSA's Biosecurity webpage.

Plantation forest insurance policies against fire and other hazards can be considered, if necessary. The factors considered by insurers include the events to be covered, plantation type and its location, surrounding land use, and management practices.

Pruning

Radiata pine trees at the edge of a plantation may be pruned for better vehicle access, fire protection or to minimise knots in wood. Pruning generally occurs in autumn and winter to minimise the risk of tree stress or insect attack. Tasmanian bluegums grown for export woodchip are usually not pruned.

Thinning

Woodlots are initially established at relatively high densities to quickly occupy a site, minimise weed growth, and enable tree selection. Radiata pine forests are thinned as they grow to ease competition between trees and to concentrate growth on the better trees.

Commercial thinning occurs when wood products are recovered (harvested) from a thinning operation. Faster growing plantations are thinned earlier and more often, than the slower growing stands, such as those in lower rainfall areas. Woodlots grown primarily for pulp and woodchip do not need thinning.

Harvesting and markets

Once development approval for commercial forestry is obtained, harvesting is considered a normal part of the process, and therefore, a specific licence or permit is not required.

Final harvest age (clear-felling) depends on the species grown and the intended product. Radiata pine is typically grown for sawlogs, posts, and pulp, with thinnings carried out throughout the 28 to 40 year rotation (time between planting and clear-felling). Tasmanian bluegums are usually grown over 10 to 15 year rotations.

A harvesting contract needs to be in place prior to harvesting. It should detail important information including the area of plantation to be harvested, any roads that need to be upgraded or constructed to allow for the movement of harvesting machinery and log trucks. The contract should also specify the products to be harvested, clean-up standards, log price and payment details.

Log markets for radiata pine exist within South Australia with processing plants located in and near Mount Gambier and Tarpeena, Adelaide, the Mount Lofty Ranges, Murraylands, and the Mid North. Significant wood exporting facilities are also located at Portland, Victoria.

If a second rotation is not pursued, it is important to understand that conversion back to agriculture is costly and time-consuming, particularly if complete stump removal is required.

Further information

Forestry Australia

Resources to support best practice tree growing and forest management are available at forestry.org.au

PIRSA Biosecurity

Weed identification resources, and emergency and significant plant pest information is provided at pir.sa.gov.au/biosecurity

Planning and Design Code

South Australian Government forestry development policies are provided at code.plan.sa.gov.au

Landscape South Australia

Eight regional landscape boards work with partners to deliver programs to manage landscapes, including those on water and soil, see landscape.sa.gov.au

South Australian Country Fire Service (CFS)

Resources to support bushfire prevention, preparedness, and response are available at cfs.sa.gov.au/home

Contact Us:

PIRSA Forestry

 pirsa.forestry@sa.gov.au

 pir.sa.gov.au/forestry

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