

Managing trees is a long term business. Quite often the person who plants the tree will not be the one who benefits from the products it provides at final harvest, although they may have the joy of watching it grow towards maturity. A plan is needed regardless of the number of trees planted. Even a single tree can have a significant impact and the planting of it should be considered carefully.

Trees take up space, they grow high and wide, use water and nutrients, cast a shadow and provide habitat for animals, plants and fungi. Before you plant a tree, let alone a plantation or forest, you should consider all the positive and negative effects it will have on your farm, home, driveway, services, crops, stock and all the other assets on the farm.

You need to consider why you are planting the tree. This will lead you to choose the species, where to plant it and how much time and money is required for management.

Trees can be a lot of work. A plan will allow you to decide when work is to be done and the resources required to complete the job. A plan will assist with budgeting for management.

Finally, the day will come when the tree, plantation or forest will have to be cut down. If you have planned well, the tree will have some commercial value, it will be accessible for harvest and transport and it may provide some products that can be used on farm.

Two things should be paramount in your thinking when planning a farm forest:

1. Keep it simple.
2. Only do as much as your resources will allow (i.e., don't bite off more than you can chew).

### **Who can help?**

There is a wide range of assistance available to help with planning a farm forest. It is essential that you receive appropriate professional advice. This can save a lot of unnecessary work and expenditure.

Resources that can assist in the planning phase include:

- Private Forests Tasmania
- Forestry Consultants
- Forestry Companies (Joint Venture and Lease Programs)
- Whole farm planning courses
- Other land owners who have commenced harvesting their well-managed plantations or forests

### **Planning Considerations**

The planting of trees should form part of the "**whole farm plan**".

The following checklist assists with development of a tree planting plan. It applies whether you are planting a single tree in the garden, a large plantation, small shelterbelt, or sowing

seed to produce a natural forest.

What is the purpose of the tree, plantation or forest (e.g., amenity, shelter, food crops, windbreak, future pulp and sawlogs or a combination of these)?

- Is planning approval required? Is it appropriate to apply for a Private Timber Reserve (PTR) for my proposed plantation? (*see Private Forests Tasmania website*).
- Location of services and easements (e.g., powerlines, water pipes, phone cables, road reserves).
- Location of buildings, stockyards and other assets which might be affected by the trees.
- Paddock design, fences, gates, roads and tracks.
- How will a plantation be laid out in the paddock (size, shape, row spacing, tree spacing etc.)?
- Topography – How will this affect access, cultivation, maintenance and harvesting? Will erosion or landslip problems need to be considered?
- Soil types and depth - Impact of these on erosion, cultivation, nutrition and weed management.
- Creeks, springs, dams which will be effected by tree planting, management and harvesting operations.
- Pre-planting management of pastures and future weed control considerations.
- Potential for browsing, pests and diseases. What are the control options and how will they be implemented?
- Resources required and available to establish and manage the trees for 15 to 40 years.
- Financial costs and returns.
- Taxation considerations.
- Securing your interest in the forest if you sell the land but want to retain rights to the trees. You can register a Forestry Right on the title.
- Environmental benefits and risks of establishing the trees.

### **Commercial forest planning**

The following discussion is aimed at plantations and natural forests, which have been established on farms for the purpose of commercial harvesting.

### **The Forest Practices Code and Private Timber Reserves**

The Forest Practices Code is the practical part of the *Forest Practices Act* (*see [www.fpa.tas.gov.au](http://www.fpa.tas.gov.au)*).

You should consult the Code during the planning phase of your tree planting project. If you have any doubts you should seek help from qualified Forest Practices Officers. Private Forests Tasmania Advisors and most Forestry Consultants will be qualified.

The Code provides a set of standards to protect environmental values during forest operations. The Code is designed to take a practical approach to the protection of the following environmental values:

- Soils
- Site productivity
- Landscape

- Geomorphology
- Water quality and flow
- Flora, fauna and genetic resources
- Archaeology and cultural values

The Forest Practices Act also provides for the registration of Private Timber Reserves. As part of the planning process for your farm you should apply to Private Forests Tasmania for Private Timber Reserves for any existing or planned commercial forests. A Private Forests Tasmania Advisor will inspect the proposed area to determine whether it is suitable for commercial forestry and whether there are any environmental considerations that will need to be accounted for in future planting and harvesting plans.

### **Plantation size**

The size of the plantation should be appropriate to the resources that you are prepared to commit to management of the forest.

Large commercial operations such as sawmills, woodchip operations, pulp and paper companies like to achieve economies of scale. Plantation or native forest areas should be at least 20 ha in size and have good access so that harvesting and transport costs can be kept to a reasonable level. The trees must be of a species that they commonly process and should be well managed. Quite often the most appropriate way to achieve these aims is to enter into a Joint Venture or Lease with a large processor as the time, costs and resources of farm owners is not available to achieve all these requirements. Consider that these agreements will be in place for at least 20 years so they may cross generations in your family or business. Be prepared to negotiate terms that suit both parties for the duration of the agreement.

Smaller plantations can be harvested and transported to large commercial processors, however you should be prepared to organise this yourself. Remember, your few hundred tonnes of wood is a small drop for a processor who may be processing hundreds of thousands of tonnes per year. Alternatively, your small plantation may be used to provide products for use on farm, or you may wish to sell to a small local processor. The portable sawmill technology is improving rapidly, so there may be opportunities to add value to your timber before you go to market.

Small plantations of exotic timber species can be lucrative provided you can market these timbers appropriately. If you are not prepared to do this then you may end up with a plantation for which there is no sale or you may end up receiving a lot less income than you expected. You might be better off to harvest and process the trees yourself, however, you will still have to market the processed products. Be prepared to do this.

If you are prepared to manage the plantation yourself the annual planting program should reflect the resources you can devote to management. A single person could probably manage no more than two hectares per year on their own, especially where trees are to be pruned up to 6 metres. The time and labour requirement to establish and manage the trees must fit into all the other farm activities. Many farmers are now planting a couple of hectares per year over a number of years rather than a single large planting in one year.

This will ensure a regular work program can be devoted to the forest and in future the income and expenditure stream will be more uniform.

### **Location**

The location of farm forests will have a significant impact on silvicultural management, (e.g., weed control, later age fertilising, pruning, thinning, pest and disease control) harvesting and transport operations. These factors should all be considered carefully in the planning process.

Future access must be considered in the planning process. Are existing roads satisfactory? If all weather roads are to be constructed, consider where the road will be located and the nearest source of rock and gravel. The Forest Practices Code gives a good guide as to the standard of road that is required. At harvesting time the road should be capable of carrying conventional log trucks in all weathers, farm tracks will not be suitable. However, it is not necessary to construct high quality roads until close to harvest time. Any roads and tracks up until this time should allow good access to the plantation, especially during the fire season. However, road construction requirements for small planted woodlots (<10 ha) have been reduced. Check the FPA website or call Private Forests Tasmania for more information. ([www.fpa.tas.gov.au](http://www.fpa.tas.gov.au))

Water quality and supply for the farm and the community should be considered in the planning process. How will the forest operations effect these? Quite often the forest may bring about an improvement in water quality but flow may be reduced as the forest grows.

Steep slopes or broken country can add to logging costs and may preclude the use of commercial thinning as an option in management of the forest. There is technology (e.g., cable logging systems) available to allow commercial harvest of these sites but plantation design will need to be carefully planned to minimise harvesting costs.

### **Planning Establishment of the Farm Forest**

Once you have decided on size and location, the next step in the plan is to establish the plantation using a timetable. Planning will be required for the following:

- **Fencing** - Best done after ground preparation and before planting. Should be low cost. Sections may need to be removed for thinning or harvesting operations.
- **Species selection and ordering plants** - Carefully select tree species and provenance to match site conditions (soils and climate). Order nursery stock up to 9 months ahead of planting and insist it is grown to a quality standard and to be supplied to you at planting time.
- **Site preparation** - Deep rip planting lines with a winged ripper when the soil is dry (summer) to shatter heavier sub-soils. This, and or other cultivation, may improve tree growth. Mounding top-soil over the ripline can improve grass control and tree growth and will aid planting. There is little benefit in ripping wet soils.
- **Weed Control** - Control of competing weeds and grasses for up to two years after planting is essential for both good tree survival and growth. To maximise tree growth, an area of at least one metre radius around each tree needs to be weed free for the first two years after planting. Consider options to control weeds both before and then after planting with combinations of knockdown and residual herbicides. In some cases (e.g.,

pine) chemical weed control can be done after planting (late winter - early spring) whereas with eucalypts weed control is cheaper if done before planting. *Poor weed control is the main reason seedlings fail to survive or grow because weeds and grasses choke and smother out seedlings.*

**Note:** *Combined ground preparation and weed control greatly increase tree survival and growth.*

- **Vermin Control** - Control vermin (fence, bait, shoot, fumigate etc.) before planting and thoroughly follow up after planting until either trees can withstand browsing damage or vermin are controlled.
- **Planting** - Plant bare rooted stock (pine) in cold months. Plant wet or frosty sites in spring. Seedlings are best planted on cool, damp and wind free days.
- **Replanting** - About 2-4 weeks after planting check for losses and replant immediately or in the following year. Before replanting determine the reason for seedling failure and take action to correct it.
- **Fertilising** - Trees grown on pasture do not usually require fertiliser. Annually monitor tree health in the early years. Any leaf discoloration or distortion may indicate nutrient deficiency. Fertiliser can then be applied.
- **Insect Control** - If young native trees with blue-grey leaves are defoliated by insects, application of insecticides (in spring and summer) may control damage if done early before insect populations peak.
- **Fire Protection** - If necessary construct and maintain firebreaks prior to and during summer.
- **Survival** - Survival assessment and remedial planting if required.

### **Planning Ongoing Management of the Farm Forest**

Once the forest is established it will require further management. Silvicultural management is an ongoing process and the effort put in will be reflected in the quality of material harvested. Operations to be considered include:

- Maintenance of firebreaks and other fire protection
- Pruning
- Thinning
- Pest and disease monitoring and control

All these operations will require man power and resources to complete. These should be appropriate to the other commercial activities which occur on the farm.

### **Financial Planning**

A financial plan can be drawn up which estimates the various costs and returns over the life of a plantation. In drawing up this plan you need to consider the "time cost" of money. Compound interest on your costs from day one onwards will affect the financial viability of your project. It is important that you understand this and have realistic expectations of the investment potential. Computer spreadsheet packages can be used to develop the financial plan, taking into account the effects of costs and returns over time. The results will often be expressed as an Internal Rate of Return (IRR) or Net Present Value (NPV) for the plantation project. In very simple terms, if the IRR is greater than the interest rate on money you borrowed for the project, or the NPV is positive, then the project is a good investment. There

are many other considerations to be taken into account in the financial plan including the taxation situation (income and capital gains), the availability of funds over time, management of risk, insurance to name a few.

### **Planning for Harvest**

Whether you plan to process the timber yourself or sell it to someone else you will need to carefully plan the harvesting operation. In addition you will need to think about road construction and maintenance to allow transport of harvested timber in an efficient manner. If roads are not built to an all-weather standard then harvesting will be restricted to summer months only when you are likely to be busy with other jobs on the farm. If the timber is to be sold off the farm, in most cases, a Forest Practices Plan (FPP) will be required.

If you want to get the best price for your timber you will have to market it. Markets include local sawmills, veneer mills and pulp companies. See Private Forests Tasmania website for marketing information.

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