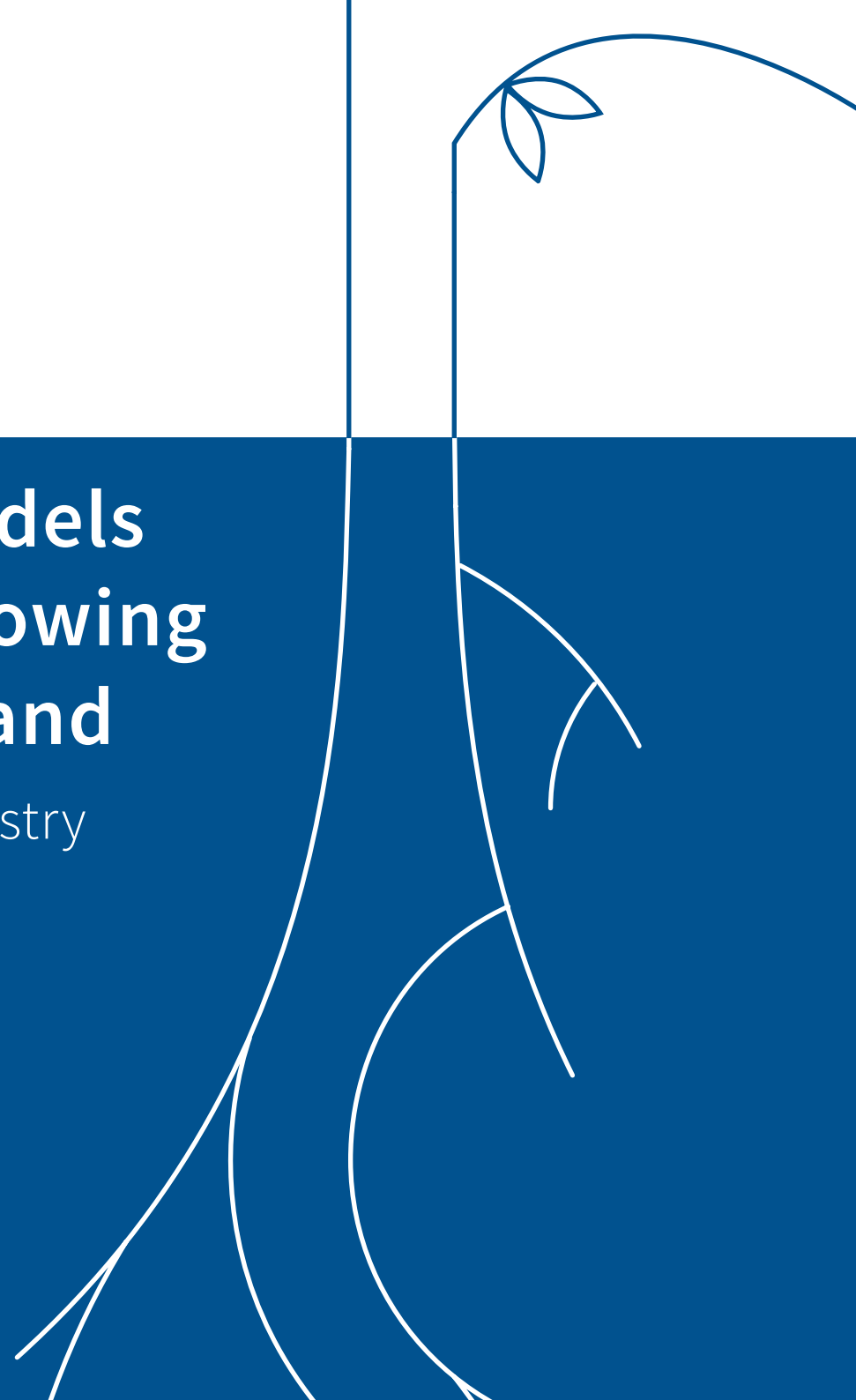

REPORT 9 OF THE NEXT GENERATION PLANTATION
INVESTMENT PROJECT

Designing business models for commercial tree-growing partnerships on rural land

A guide for the Victorian forest industry

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Designing business models for commercial tree-growing partnerships on rural land

A guide for the Victorian
forest industry



This report draws on numerous reports from the project. Relevant reports are referenced at the end of each section.

Anderson, N 2018, 'Integrating trees in rural landscapes: Landowner Assessment', Report 3.

Dembek, K & York, J 2019, 'Next Generation Forest Plantation Investment: Financial Sector Report', Report 7.

Jenkin, B, Keenan, R & Bull, L 2019, 'Tree plantation investment and partnerships in Australia: an analysis of past experiences', Report 1, Next Generation Forest Plantation Investment Research Project, The University of Melbourne, School of Ecosystem and Forest Sciences, Melbourne. <<https://cpb-ap-se2.wpmucdn.com/blogs.unimelb.edu.au/dist/d/279/files/2019/03/MELBUNI-Treeplantations-A4x16p-FINART-revised5-002-1wq2ef1.pdf>>

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Severino, D, Hasanka, C & Costello, L 2018, 'Next Generation Plantation Investment Land Capability Assessment', Report 3.

Report structure

This report is divided into four parts.

1. Project aims and purpose

Part one describes the project aims and purposes.

 **1.A** Background

 **1.B** Project aims

 **1.C** Principles for effective partnerships

 **1.D** Activity areas

2. Setting the goal

Part two is aimed at company executives and governments. It provides guidance on developing a project, setting goals and targets, developing the business case for landowner partnerships, and ensuring that the right trees are planted in the right places.

 **2.A** Defining goals and outcomes

 **2.B** Developing a business case

 **2.C** Right trees, right places

3. Preparing the ground

Part three provides a guide to identifying and engaging with relevant participants and stakeholders, including potential investors. It contains required actions from different levels of government.

 **3.A** Building support

 **3.B** Communicating benefits

 **3.C** Activating the sector

 **3.D** Engaging with governments

4. Growing partnerships

Part four is designed for company staff considering or actively working to develop landowner partnerships. It provides guidance on developing collaborative models, including types of partnership, requirements for agreements and contracts, and farm tree design and business negotiation options.


 **4.A** Engaging with landowners

 **4.B** Landowner partnerships

 **4.C** Rural advisors and partnerships

 **4.D** Collaborative business models and partnerships

 **4.E** Agreements and contracts

 **4.F** Aligning industry and landowner needs

The next generation of forest investment needs strong roots.

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Summary

This report is the final output of the Next Generation Forest Plantation Investment project. It provides guidance for developing collaborative business models between the timber industry and rural landowners. It draws on experience with past plantation investments, research on the attitudes and needs of rural landowners, analysis of suitable land areas, and the requirements of different types of investors.

The report informs senior managers wanting to expand their wood resources about the factors to consider in their planning. It outlines approaches for goal setting and for identifying and engaging with partners and stakeholders (including government and potential investors). The report also provides guidance for those working directly with landowners about how to develop mutually beneficial, collaborative business models. It also informs those working in plantation policy or forest management about strategies and supportive policies to increase commercial trees in rural landscapes.

Realising opportunities from investing in more timber trees on rural land will require the Australian timber industry to change the way it interacts with rural landowners. Working together, the sector can promote a consistent message that producing timber is a normal farm activity that complements other forms of agriculture, and that it is willing to work with farmers to achieve common goals.

This transformation will not occur overnight. Companies need to acknowledge past problems and commit to a long-term process of change, in both the industry and the farming community. This commitment can build a positive legacy for future investment. The companies investing in this research have shown the leadership, and accepted some of the risks in taking the first step, to work with farmers on a new way of doing business.

The situation

Demand for wood is growing. The use of wood in construction and packaging is increasing and wood is replacing plastics and petrochemicals in the emerging 'bioeconomy'. An estimated 500,000 ha of new softwood plantations are required to meet domestic timber demand for housing by 2045. Environmental policy is driving demand for more trees in rural landscapes to sequester carbon, improve water quality, reduce soil erosion and provide biodiversity habitat. The right tree species in the right locations can increase farm production, providing shade and shelter for stock and crops, and income from timber.

Plantations currently supply 80% of wood for the timber industry in Australia but despite increasing demand and rising timber prices, investment in new plantations is at a standstill. Generating more wood is a growth opportunity for the sector, but with no expansion of the commercial estate, timber supply will remain flat, constraining new investment and limiting opportunities for forest processing and regional industry development.

The timber industry and the Federal Government have set national goals for new plantation forests but the source of investment in these new trees is unclear. To expand plantation timber production, the plantation sector has three options:

1. Increase the productivity of the current estate,
2. Buy rural land for new plantations, or
3. Engage in partnerships with landowners and investors.

Plantation companies can make their own decisions about the relative merits of these options. Financially, there may not be a large difference between land purchase and forming landowner partnerships. The decision will likely depend on other factors, such as land and capital availability and a desire to share more benefits with the community.

The project

The goal of this component of the project was to investigate new business models between the timber industry and rural landowners. These models build on the concept of ‘shared-value’. This is not only about sharing financial returns. These partnerships can also build stronger links with the community, provide more co-benefits, and be more politically and socially acceptable than large-scale purchase of agricultural land. In forming strategic partnerships with landowners and with investors, the industry can generate wider social and environmental benefits from their investment in trees.

If done well, partnerships with landowners can enable greater access to land with lower initial capital outlay, diversify sources of supply, and share the benefits of the investment more widely. These models involve a shift from transactional negotiations, focusing on minimising costs for industry, relationship-building, explicitly revealing preferences and interests, and working toward a shared long-term vision.

The project identified about 1.5 million ha of suitable cleared, private land in target regions in western Victoria and Gippsland. However, many rural landowners are unaware of the opportunities in commercial trees. Those who are aware have mixed views about plantations and commercial tree-growing, given their experience with the forest sector.

Potential investors in trees fall into three broad classes: large fund managers, individuals with significant independent capital, and rural landowners. Capital is potential available in large funds, if the investment provides an acceptable rate of return. Many investment managers are also unaware of, or have negative attitudes towards, commercial tree-growing. Large investors require suitable investment vehicles through which to make investment. Views of the forest sector are generally more negative in the community, and are reflected in the attitudes of decision makers and stakeholders, including in governments.

What kinds of business models might attract and engage investors and landowners? An effective business model involves all links in the value chain and benefits must outweigh the costs for all the partners. If financial returns for farmers are modest, trees will need to provide on-farm benefits and provide for timber industry needs. Tree crops require longer timeframes to generate returns than most other forms of agriculture, with different risks and uncertainties. Model design needs to identify and manage these risks.

Three business model options are recommended: land lease, joint venture and outgrower models. These models will enable the industry to engage landowners with different scales of available land, interests in growing trees, needs for immediate income, or risk appetites. The models all allow for landowners with varying needs for permanent plantings, subject to industry constraints. Developing tree-growing partnerships is a social learning process involving sharing knowledge, taking action, assessment, reflection and review in a process of continuous improvement. Models will develop and evolve over time as companies engage and learn, and as landowners build knowledge and confidence in the benefits of commercial trees and in working with the sector.

While many of the ideas presented in this report are not new, the research and underlying analysis provide a comprehensive description of the requirements to make partnership models work at a scale that will make a difference to future wood supply. The aim is to avoid the problems experienced with past investment programs and address issues raised during the research. By being more proactive, engaged, flexible and collaborative, the industry can build confidence among landowners about working with them and addressing potential risks and concerns.

PART 1.



Project aims and purpose



1.A Background



1.B Project aims



1.C Principles for effective
partnerships



1.D Activity areas



1.A Background

Demand for wood products is increasing. Wood is the ‘ultimate renewable’ resource with growing use in construction and packaging, and as replacement for plastics and petrochemicals. More trees in rural landscapes can sequester carbon, improve water quality, reduce soil erosion and provide biodiversity habitat. Trees on farms provide shade and shelter for stock and crops, and income from timber.

Plantations currently supply 80% of wood for Australia’s timber industry but despite increasing demand and rising timber prices, investment in new plantations is at a standstill. This relatively flat supply is a constraint on new investment and expansion in the forest processing sector. For example, an estimated 500,000 ha of new softwood plantations could be required to meet domestic demand for housing by 2045 (Zed 2017). Significant capital is available to invest in trees but given experiences, capital investors and many in rural communities have mixed views about plantations and timber-growing investments.

To expand timber production, the industry has three options: increase productivity of the current estate, provide capital outlay to buy rural land for new plantations, or adopt partnerships with landowners to increase the area of commercial tree plantations. All options require new investment and have challenges. Companies will make their own decisions about the relative merits of these options on a case-by-case basis.

If done well, partnerships with landowners can provide greater access to land with lower initial capital outlay, provide more co-benefits and be more politically acceptable than land purchase. The Australian Forest Products Association (AFPA) has recognised this potential and recently formed a partnership with the National Farmers’ Federation (NFF) to collaborate on tree-growing on farms.

Australian and international evidence shows that rural landowners are generally more motivated to plant trees when external financial and technical support is provided, for example through tax incentives, or with a willing wood buyer in the private sector. Government support has often been in poorly designed, short-term programs, resulting in ‘stranded assets’ and frustrated landowners. Internationally, governments have often been motivated to support tree-growing when farm commodity markets are unfavorable, to provide immediate support or an alternative source of future income.

To promote tree-planting, the focus needs to be on the requirements of farmers and how trees fit within agricultural systems. Australian farmers generally seek advice from trusted advisors, who have previously had limited knowledge of or interest in afforestation. Educating and informing advisors is important to encourage tree-planting in agriculture as part of a broader strategy.



1.B Project aims

The aim of the NGFPI project was to support the design of collaborative business models for trees in rural landscapes. The project built on the concept of ‘shared-value’, with industry forming strategic alliances with landowners to provide wider benefits from investment in trees. This report does not address traditional large-scale plantation development models, nor is it a guide for traditional, independent small-scale farm forestry.

This report draws on experience with past plantation investments, research on the attitudes and needs of rural landowners, analysis of suitable land areas and the requirements of different types of investors. This information was integrated in a design process to explore possible new models that could work for all partners.

The goal is to create an environment in which landowners in rural Australia actively seek strategic alliances with the timber industry as a trusted partner, and for timber production to be considered a complementary farm use providing benefits for the farm, the environment and local communities.

The project focused on two regions in Victoria: Gippsland and the region west of Geelong to the South Australian border, but the aim was to develop methods that can be applied throughout Australia. The project identified over 1.5 million ha of suitable cleared agricultural land in these regions in appropriate locations for industry and with sufficient tree growth potential. Planting timber trees on 10% of this area would contribute significantly to local economies, carbon sequestration and other environmental benefits. Social research indicated that a significant number of landowners in these regions would be willing to plant trees on their properties with the provision of appropriate financial arrangements and planting designs.



1.C Principles for effective partnerships

Partnerships for reliable future timber supply from rural land require collaboration between the timber industry, private landowners and other stakeholders. The project identified the following four principles to guide collaboration:



Determine and express clear goals and desired outcomes for all partners



Create enduring collaboration across the system



Involve all potential partners in the initial planning and decision-making



Develop innovative and flexible partnership models



1.D Activity areas

Developing successful collaborative models requires the following steps:

- 1. Defining goals and outcomes for proposed investment in tree-growing.** This includes a statement of intent, considering risk and uncertainty, capital needs and the desired economic, social and environmental outcomes from the investment.
- 2. Building support for long-term tree-growing partnerships.** This section describes the stakeholder landscape for growing trees in Victoria. It provides advice on engaging with and informing different levels of government and the policy requirements and incentives that can support tree-growing partnerships.
- 3. Identifying and engaging with landowners.** Many landowners are not aware of, or particularly interested in, opportunities from tree investment. Guidance is provided regarding different types of landowners, how to connect with them, the information landowners need to enter into tree-planting partnerships and the role of rural advisors and other participants. It also describes partnership options, legal agreement requirements and payment models.
- 4. Designing innovative and flexible tree-planting on farms.** Planting trees on rural land to meet the needs of landowners and the timber industry requires flexibility and creativity. Every farm owner has different needs, and desires different outcomes from the incorporation of more trees on their farm. The industry and investors also have operational requirements and logistical constraints. This section describes the processes for negotiating these business arrangements.

PART 2.

Setting the goal



2.A Defining goals and outcomes



2.B Developing a business case



2.C Right trees, right places



2.A Defining goals and outcomes

Clear goals are important in informing stakeholders of the potential economic, social and environment benefits from increased commercial tree plantations.

Any industry project to expand commercial tree plantations requires a comprehensive project plan that fits within broader regional plans for plantations and processing. Regional plans have been successfully used internationally to guide afforestation and industry development. These can be facilitated by the State Government and developed collaboratively with the forest sector and landowners, local government, other agriculture interests, natural resource management organisations, environmental organisations and the broader community.

The plan should specify the target land-base and the proposed fit with existing land uses. For example, the Government in Uruguay set plantation estate targets and specified the land that could be planted at the individual property level, based on farm productivity classification. This was successful in gaining support from the agricultural sector. Selecting appropriate species for sites based on biophysical requirements (e.g. rainfall and soils) can support planting of the right trees in the right places for target markets and regional conditions (see Right Trees, Right Places below).

Planted area targets may be useful but have been counterproductive in some settings. For example, the Plantations Australia 2020 Vision established a narrative that forestry was competing with agriculture. To address this concern, New Zealand's One Billion Trees Programme states that it does not intend to support whole farm afforestation.

Clarifying the purpose of the project is important. How can partnerships work best for the parties involved? Many companies will have their own process for determining their goals. This needs discussion with project team members and key collaborators, including landowners and investors to ensure a clear understanding of the current situation, the desired future situation and the change required to achieve this state.

Senior decision-makers, who have ownership of, or a key stake in, outcomes of projects, need to participate in defining project goals. Goals are used to assess progress on project operations and consider what is working, what is not working and what needs to change.

To achieve wider support, targets and goals should be framed in terms of desired outputs and outcomes, such as increases in timber supply, regional investment, jobs, improved water quality, conservation or other community benefits.

These targets can be linked to state, national and international goals, including current policies and the Sustainable Development Goals (www.un.org/sustainabledevelopment/sustainable-development-goals).



2.B Developing a business case

To expand plantation timber production, the timber industry has three options: (i) increase the productivity of the current estate, (ii) buy rural land for new plantations or (iii) engage in partnerships with landowners.

All options require new investment and have challenges. For example, increasing productivity will require funding research and development (R&D) to develop new tree-growing technologies, new genotypes, fertiliser, or other productivity improvers. Land purchase requires a large capital outlay and depends on the availability of suitable land on the market at an appropriate price. Partnerships with landowners can require lower initial capital outlay, but higher transaction costs in engaging with and maintaining relationships with landowners.

Partnerships between large-scale timber processing companies and smaller private landowners have been implemented around the world for many years and take on numerous forms. These are described in Section I (Agreements and Contracts). Partnerships have benefits and risks for each partner (Table 1).

	BENEFITS	RISKS
Company	<p>Additional, more secure, and sometimes cheaper raw materials.</p> <p>Access to suitable land close to the mill.</p> <p>Improved public image.</p> <p>Increased engagement and community support.</p> <p>Fewer environmental problems and social conflicts as risks are spread across many small plantations.</p>	<p>Loss of the timber resource due to land sale.</p> <p>Competition from other land uses or for labour.</p> <p>Contractual price disputes and security on loans.</p> <p>Unpredictable policy changes.</p> <p>Conflict with environmental organisations.</p>
Landowner	<p>Additional income through lease payments, sale of timber, employment or profit share.</p> <p>Diversified farm production and use of underutilised land.</p> <p>On-farm, aesthetic, environmental or social benefits.</p>	<p>Unfair leasing rates.</p> <p>Market uncertainty, with price and credit fluctuations.</p> <p>Viability of the company partner.</p> <p>Change of company policies.</p> <p>Closure or sale of the company.</p> <p>Environmental risks and on-farm impacts, including impacts on future farm production.</p> <p>Whether tree growth, management and product give optimum value.</p> <p>Costs to change land use (i.e. out of forestry) during the contract period or after contract expiry.</p>

TABLE 1. BENEFITS AND RISKS OF TREE-GROWING PARTNERSHIPS FOR THE DIFFERENT PARTNERS

Benefits need to outweigh costs for all partners for partnerships to succeed. Participants need to be informed of both commercial prospects and wider implications of the arrangements and both partners need to remain motivated to contribute. Governments can provide strong and consistent policy support and incentives, market information and a fair negotiating context.

Landowner partnerships involve significant transaction costs to identify suitable land and locate, engage with, build and maintain relationships with potential partners. Costs are also involved in consulting with state and local governments and other interest groups. These costs are potentially higher than those of purchasing land, and planting and managing trees. Companies need to consider if the additional investment is worth the effort.

For large projects, companies need to be mindful of their community obligations. The potential for public backlash against plantation development should not be underestimated. If partnership programs are widely perceived to be fair and beneficial for the participating landowners and their associated communities, there is the potential for wider and more enduring benefits to flow from these types of investment.

Experience suggests that large-scale land purchases will incur significant costs in managing interactions with neighbours, local governments and communities. Providing for greater buy-in and building community support will result in reduced losses to arson or other risks and less direct land management costs such as weed control or illegal dumping.

Companies can make their own decisions about the relative merits of these options. If done well, partnerships with landowners can provide greater access to land with lower initial capital outlay and more co-benefits, and be more politically and socially acceptable than large-scale purchases of agricultural land.

The investment decision

A simple calculation compares land purchase versus lease costs for a 1,000 ha plantation (Table 2). Key differences in costs are interest and transfer costs (duty, legal costs) for land purchase, and staff costs to maintain landowner partnerships (assumed to be 0.5 FTE). This is a simple example and may not fully reflect current land values or all costs involved.

The total investment outlay is higher in the partnership case, and NPV and IRR are lower. Key considerations for a company making this type of decision might include the following:

- Access to capital capacity to service debt.
- Potential capital appreciation of the land.
- Tax treatment of debt and land.
- Risks and uncertainty in developing partnerships.
- Availability of suitable land for purchase.
- Benefits of investing with the local community rather than paying bank interest.

Financially, the difference between land purchase and forming landowner partnerships may not be significant. Other considerations such as access to debt, tax, land availability for purchase and sharing more benefits with the local community will probably drive the decision.

Part 2: Setting the goal

COSTS	LAND PURCHASE	LANDOWNER PARTNERSHIP
LAND PURCHASE (STAMP DUTY, LEGAL COSTS, RATES)	\$750,000	
LANDOWNER LEGAL AGREEMENTS @\$2,000 EA)		\$100,000
PARTNERSHIP STAFF (0.5 FTE)/ YR		\$1,500,000
PLANTATION ESTABLISHMENT (\$2,000/HA)	\$2,000,000	\$2,000,000
ANNUAL MANAGEMENT (\$100/ HA/YR)	\$1,000,000	\$1,000,000
INTEREST (@5%/YR)	\$3,500,000	\$1,000,000
LAND LEASE (\$320/HA/YR)		\$2,880,000
TOTAL INVESTMENT OUTLAY	\$7,450,000	\$7,850,000
NET REVENUE (20M3/HA/YR, @\$60/M3)	\$12,000,000	\$11,000,000
NPV/HA @ 7% DISCOUNT RATE	\$1,173	\$304
IRR	7.8%	5.8%

Table 2. Investment in land purchase compared with landowner partnerships. A comparison is made between the purchase of two 500 ha blocks of land, at a price of \$8,000 per hectare, with partnerships with 50 landowners contributing 20 ha each. Both are planted with blue gum, managed on a 10-year rotation with a mean annual growth of 20 m³/ha/yr. The cost of capital for land purchase and tree establishment is assumed to be 5%/yr. The cost of land lease is 4% of the capital value (a standard figure for leasing rural land). Plantation establishment and management costs are assumed to be the same. Harvest costs are assumed to be 10% higher in the smaller blocks. This is a hypothetical example. Lease costs and harvest returns will vary with location. Carbon payments would increase the IRR. This does not include any additional benefits to the farmer in improved productivity.



2.C Right trees, right places

Why is this important?

The 2016 report of the Forest Industry Advisory Council (FIAC) to the Australian Government proposed a national vision, objectives and recommendations to increase the potential for Australia's forest industry to have a sustainable and vibrant future to 2050. The following recommendation was made:

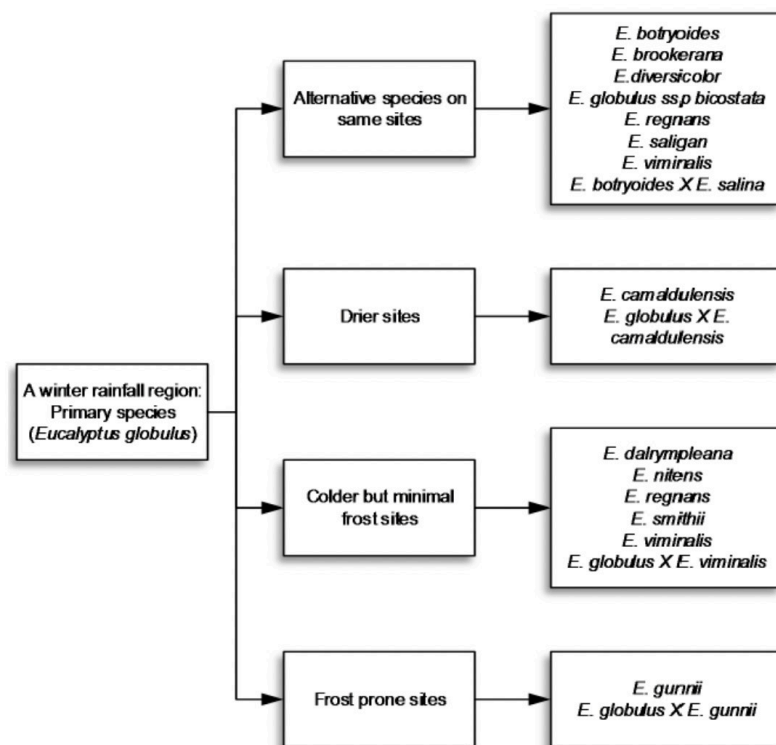
'The establishment of future plantations must be based on matching the ideal species to the right location and for plantations to be at the appropriate scale. Considerations include matching species with soil and climatic conditions, deciding whether to grow short or long rotation plantations, and proximity of infrastructure for processing. The FIAC report went on to suggest that the market must drive industry – the types of trees being planted must reflect market demand for particular products.'

Right trees

Plantation timber production in Victoria is based on relatively few species: radiata pine, Tasmanian blue gum (*Eucalyptus globulus*) and a smaller area of mountain ash (*E. regnans*). Research has supported the commercial development of these species. These form the primary resource for domestic timber processors and the bulk of raw material for timber export as logs or woodchips. Ongoing R&D and genetic improvement is improving growth rates. These species will therefore be of most interest to the current timber industry. There is also considerable experience in managing these species in configurations that can benefit farm production, such as shelterbelts and woodlots.

Analysis of past plantation investment indicates that successful projects have focused on tree species with a proven market. New developments need to align the scale and product mix from the resource base with the processing facility, infrastructure and markets.

Some farm foresters have planted alternative species because their properties were not suited to current commercial species, or they considered that they could obtain better prices for timber from these 'niche' or 'high-value' species rather than competing with large-scale, commodity producers of mainstream species. Management, site requirements and growth rates for these alternative species are more uncertain. They require a long-term commitment by investors or government to build the knowledge base and sufficient investment to create a large enough resource to support a market, either for export or for domestic processing. Alternative species might be considered for different sites (Figure 1).



Landowners forming partnerships with industry where benefits are tied to market prices at the time of harvest, need assurances that the species planted will return the highest value. Timber markets are also changing rapidly. Innovation is creating new uses for wood products, such as new wood-based materials or bioenergy. These developments can add value to lower quality wood or processing residues or increase demand for existing products.

Expanding log export markets are providing new outlets for timber. Demand for durable timber species, such as spotted gum (*Corymbia maculata*) and yellow stringybark (*Eucalyptus muelleriana*), is increasing as supplies from native forests decline. Sugar gum (*E. cladocalyx*) has been widely planted in the past for windbreaks and shelterbelts in western Victoria and there is now a significant resource available for market development and potential to expand supply through new planting.

The timber industry, or other tree investors, could explore opportunities for a selection of high prospect alternative species. They might open up a wider area of land with different growing conditions for future plantations and could provide the basis for potential future, high-value timber markets.

FIGURE 1. EXAMPLE OF CHOOSING DIFFERENT SPECIES FOR DIFFERENT CLIMATIC SITUATIONS WITHIN A PLANTATION PROJECT (JENKIN 2019).

Right places

Choosing the right places to invest in trees means considering: (i) suitable growing conditions for the tree species and (ii) proximity to infrastructure and markets. In southern Australia, tree productivity is primarily driven by rainfall, temperature and soil depth. Previous land use can impact on suitability. For example, tree form of radiata pine can be poor on sites with a history of fertilisation.

Proximity to markets is important. It makes sense to focus future tree planting investment near existing processors. However, existing processors may close and new infrastructure or processing investments can open markets in new areas.

The 2016 FIAC report recommended that future timber industry development be based on a 'hub' model. In these hubs, groups of closely located timber businesses connect through their value chains, using common resources and technology, and producing complementary products and workforce needs. More collaborative business models can improve innovation, productivity and efficient use of resources, and provide more commercial opportunities for products from tree-growing partnerships.

Financially viable locations for commercial tree-growing can also change. Prices for many timber products are increasing, and transport costs fluctuate with fuel prices and technology improvements. A carbon price may change the economic viability in some locations.

Research project results

The NGFPI project followed the recommendations of FIAC and AFPA and analysed land areas that combined growth potential and location in relation to current industry centres. The analysis identified suitable land areas within a 200 km radius of the plants of the industry partners in the project, in Gippsland and western Victoria. It excluded existing native forest cover, small land parcels (<10 ha) and planning overlays that would exclude plantation development. It considered temperature and rainfall suitability for the target species (radiata pine and blue gum), and transport and harvest costs.

About 1.5 million ha of potentially suitable cleared, private land were identified in the target regions (Figures 2,3 and Tables 3,4). Land capable of growing commercial tree species exists outside these areas, but its suitability for existing commercial investment is more marginal and subject to variation in market conditions and other costs.

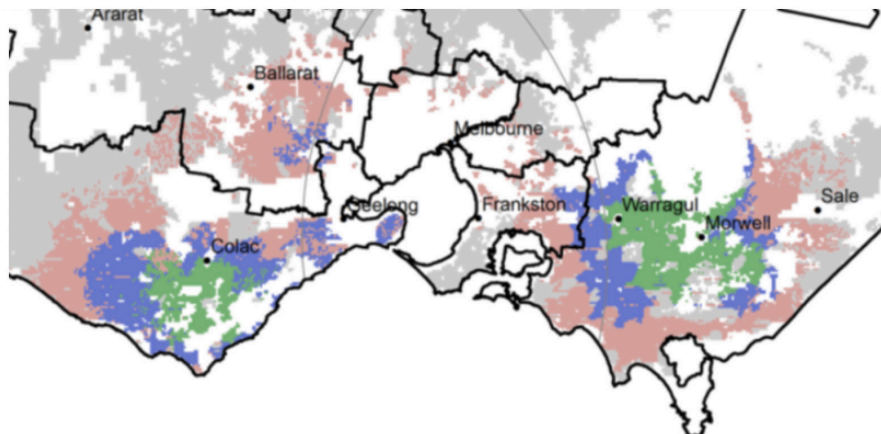


FIGURE 2. SUITABLE CLEARED, PRIVATE LAND FOR INVESTMENT IN HARDWOOD PLANTATIONS IN GIPPSLAND AND THE COLAC REGION IN VICTORIA. GREEN INDICATES HIGH SUITABILITY, BLUE IS MEDIUM SUITABILITY AND PINK, LOWER SUITABILITY. GREY AREAS ARE LIKELY TO BE UNPROFITABLE. SEE TABLES FOR AN EXPLANATION OF THE SUITABILITY CLASSES.

PROCESSOR / LOCALITY	PII > \$3,000/HA	PII > \$4,000/HA	PII > \$6,000/HA
AUSTRALIAN PAPER / GIPPSLAND HARDWOOD PULP	361,590	197,630	170,280
MIDWAY LTD / GEELONG HARDWOOD PULP	380,370	57,770	9,580

TABLE 3. AREAS OF SUITABLE LAND IN DIFFERENT INVESTMENT INDEX CLASSES FOR HARDWOOD PLANTATIONS (PII IS PLANTATION INVESTMENT INDEX, EXPRESSED IN DOLLARS AS INDICATIVE NET HARVEST RETURNS).

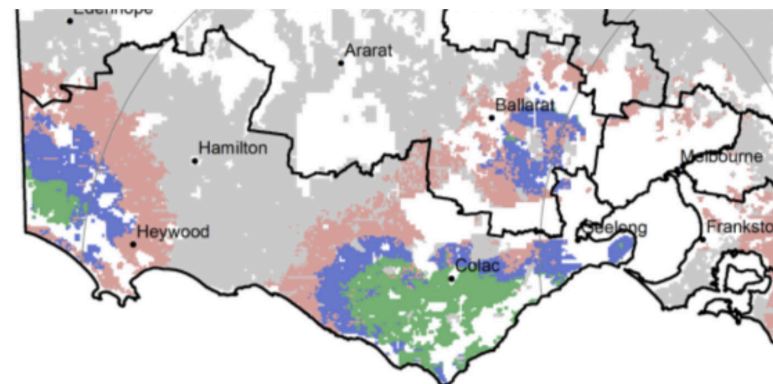


FIGURE 3. SUITABLE CLEARED, PRIVATE LAND FOR INVESTMENT IN SOFTWOOD PLANTATIONS IN WESTERN VICTORIA. GREEN INDICATES HIGH SUITABILITY, BLUE IS MEDIUM SUITABILITY AND PINK, LOWER SUITABILITY. GREY AREAS ARE LIKELY TO BE UNPROFITABLE. SEE TABLES FOR AN EXPLANATION OF THE SUITABILITY CLASSES.

PROCESSOR / LOCALITY	PII > \$3,000/HA	PII > \$4,000/HA	PII > \$6,000/HA
AKD SOFTWOOD / COLAC SOFTWOOD SAWLOG	359,940	157,330	218,360
ONE FORTY ONE / MT. GAMBIER SOFTWOOD SAWLOG	251,870	69,650	30,370

TABLE 4. AREAS OF SUITABLE LAND IN DIFFERENT INVESTMENT INDEX CLASSES FOR SOFTWOOD PLANTATIONS (PII IS PLANTATION INVESTMENT INDEX, EXPRESSED IN DOLLARS AS INDICATIVE NET HARVEST RETURNS).

Figures 2 and 3 indicate broadly where investment in tree planting should be focused in western Victoria and Gippsland to be of most interest to the timber industry. Within these areas, the following factors should be considered in deciding whether a particular property is suitable for a tree-growing partnership:

- Local site conditions such as slope, soil type, soil depth, or waterlogging.
- Local access and infrastructure.
- Proximity to existing plantations.
- Local planning overlays or constraints.
- Fire risk.
- Potential environmental benefits, such as areas where tree planting might improve water quality or reduce salinity.

Adapting to climate change

The climate is changing rapidly, with warmer mean temperatures and reduced precipitation over much of the temperate plantation estate. This is changing growing conditions for tree species. The incidence and severity of extreme events such as droughts, catastrophic fires, heatwaves and intense storms and floods are projected to increase. Such changes will affect pest distribution and abundance, and fire hazard.

These changes will impact on tree productivity in the short and longer terms. Plantation growth may increase with rising levels of atmospheric carbon dioxide but may decrease with increased temperature and increased water loss (evapotranspiration), and lower rainfall. Increasing temperatures may increase growth in cooler areas. Climate change therefore presents significant challenges, and some opportunities, for forest-based industries.

Forest managers need to be aware of climate risks in their region, and consider increasing risks in planning and managing plantations. This includes risks to infrastructure and other aspects of the supply chain.

Adaptation is the process of undertaking action to deal with the effects of climate change to either reduce harm or promote benefits. Adaptation requires changes to strategic and operational planning at the individual enterprise level and across the industry. In the short term, it involves managing risks to plantation productivity and health. This may include managing drought risk through thinning and weed control, managing fuels to reduce fire risk, and improving stand vigour through fertilising, weed control and managing pests. These types of actions may not be appropriate for addressing increases in extreme weather events. In the longer term, managers may need to consider changing genetics, using different tree species, or moving preferred planting locations, and consider new types of products (Figure 4).

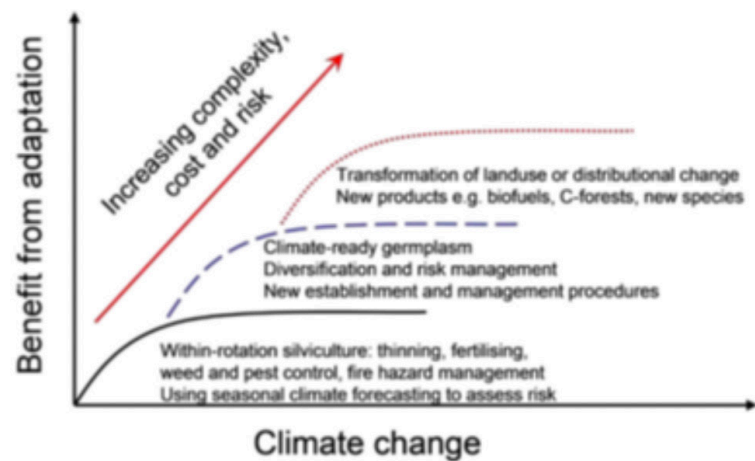


FIGURE 4. RELATIONSHIP BETWEEN CLIMATE CHANGE IMPACTS, ADAPTATION RESPONSES AND THE POTENTIAL BENEFITS FROM ADAPTATION (PINKARD ET AL. 2010, ADAPTED FROM HOWDEN ET AL. 2010).

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PART 3.

Preparing the ground



3.A Building support



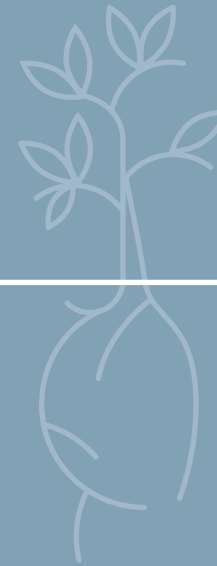
3.B Communicating benefits



3.C Activating the sector



3.D Engaging with governments





3.A Building support

Mapping and engaging stakeholders

Stakeholder mapping helps identify people and interest groups and their potential roles in tree-planting programs. Stakeholders have diverse and potentially conflicting needs. A stakeholder map illustrates the individuals and organisations that need to be engaged in developing collaborative business models, including the less obvious ones, affected by the program. Landowners, industry and investors (including, potentially, governments) need to be fully engaged for the program to work, while others are involved in supporting the program. Mapping the system and all involved will allow the project team to consider what it means to be a stakeholder.

To develop a stakeholder map for tree planting, the following steps need to be taken:

1. **Brainstorming.** To consider all possible individuals or stakeholder groups who might be affected by or engage in tree-growing partnerships.
2. **Grouping stakeholders.** To distinguish useful categories, including core (i.e. stakeholders at the centre of the collaboration), adjacent (i.e. indirectly involved stakeholders) and extended (i.e. stakeholders with no direct involvement but potential to influence) stakeholder groups. These stakeholders may be subdivided at a cohort level, e.g. investors, landowners, government etc.

Multiple stakeholders have a potential interest in a tree-planting program. Understanding the stakeholder landscape helps identify the key decision makers, collaborators and influencers who are important for the success of the program (Figure 5).

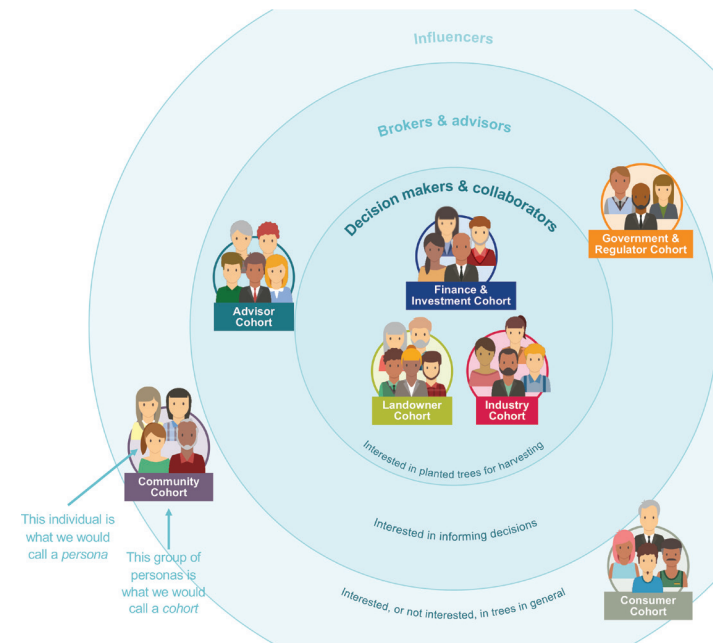


FIGURE 5. THE STAKEHOLDER LANDSCAPE FOR TREE-GROWING PARTNERSHIPS. STAKEHOLDERS CLOSER TO THE CENTRE ARE MORE LIKELY TO FOCUS ON PLANTED TREES FOR HARVESTING WHILE THOSE ON THE OUTER EDGES OF THE SYSTEM HAVE A MORE GENERAL INTEREST IN TREES AND THEIR PRODUCTS AND SERVICES.

Personas related to the different stakeholder cohorts were developed for designing and prototyping potential collaboration models. The personas can be used by industry to develop scenarios to help design and prototype potential collaboration models prior to engaging directly with stakeholders.

The personas can be used to inform collaboration scenarios in the following ways:

1. **Determine steps for collaboration.**
Through hypothetical scenarios, determine the steps required for the cohort personalities to collaborate.
2. **Identify tools and information required.**
As the steps of collaboration are defined, the tools and information the personas need will become clearer.
3. **Describe brokers and advisors involved.**
Since brokers and advisors play a key role in any collaboration, personas can be used to understand their realms of influence, who to involve and how and when to involve them.
4. **Confirm outcomes that can be achieved.**
Push these hypothetical scenarios through to an outcome to determine what is possible.
5. **Test suitability for social license and buy-in.**
Once a model of collaboration is developed, test this with the appropriate personas for social license and likely buy-in.

For this type of scenarios-based process to succeed, it should be engaged in by a group of people from within a company that includes:

- People who will make key decisions about the change.
- People who will design or draft details of the change.
- People who will implement the change.
- People who will be affected by the change.

This activity is most successful when facilitated with people with varied backgrounds, knowledge and experiences. Since these people play a certain role/persona, they bring a unique perspective to the activity.

The attitudes and behaviours of stakeholders shape the decisions and processes for successful tree-planting programs. The following need to be considered for each stakeholder cohort:

- What might this group/cohort bring to the collaboration?
- What might this group/cohort be able to gain from the collaboration?
- What questions will this group/cohort have?
- What answers can this group/cohort provide?

Engaging with investors and investor requirements

Commercial tree-growing partnerships require financial investment, therefore investors are key stakeholders in collaborative business models. To attract increased investment, industry needs to understand investor needs, increase investor awareness, break down stereotypes, demonstrate social and environmental benefits, lower the investment threshold, provide sufficient returns and work with government to design suitable investment vehicles.

If well informed and engaged, investors should be involved in shaping tree-growing partnerships. The following actions are needed to engage investors and determine their requirements.

1. Increasing the level of awareness

Many investors are not aware of trees as an investment class. Currently, plantations as an investment class are not widely understood by individual or major institutional investors. Investors who do invest are familiar with large plantation estates that generate immediate cash flows and have secure markets and usually invest only a small portion of their portfolio in trees. Current and potential investors need to become familiar with the concept of collaborative partnerships with landowners as a viable investment option. Relevant case studies could be used to drive an awareness campaign. Since collaborative models combine tree-growing with agricultural activity, investors already involved in agriculture could be a particularly receptive group.

2. Breaking down specialisation stereotypes

Specialisation is considered critical to investment success. This is driven by economic theory, but is not particularly relevant to land resources with variation in natural cycles and resource quality across a landscape. It may be a barrier for investors in collaborative models, since it focuses attention and resources on a single activity. For example, it favours investing in large plantations of trees or one type of crop, building knowledge and competencies in that activity and providing scale benefits. Investors may need to be convinced of the value of integrated tree investments by demonstrating the different benefits of investing according to natural variation across landscapes and considering variation in climate over space and time.

3. Proving and demonstrating social and environmental impact

While requiring a minimum rate of return, many investors increasingly focus on social and environmental ‘impact’. Tree-growing provides many opportunities for positive impacts, representing a significant potential advantage over other investment options. However, many investors are not aware of these benefits and some even rule out commercial forestry based on perceived negative impacts. In contrast, renewable energy has similar risks and benefits to tree-growing but is perceived as a modern green option that is often favoured by investors. It is important to understand the basis of these perceptions and address these by engaging and briefing the investment community, reporting impact and communicating benefits to the public.

4. Lowering the investment access point

Investment in trees occurs at different scales. Large institutional investors have invested in commercial plantations in Australia and New Zealand, requiring tens to millions of dollars. Collaborative models could be scaled up through an investment vehicle (see below), or targeted at smaller-scale investors. Experience with Managed Investment Schemes indicated the high interest in tree-growing from retail investors and the pitfalls in poor policy and investment design. Industry or government could develop new investment options allowing buy-in at low amounts in partnership models in which trees are integrated with agriculture and generate positive social and environmental outcomes. Creating secondary markets in these options may be important tools for attracting investors, particularly for longer-term sawlog plantations.

Educating and involving financial advisors in designing and communicating new types of tree investment options is important. The process would result in improved understanding of costs, risks, market prospects and potential returns. However, it is worth noting that financial advising is highly regulated and advisors can only provide advice regarding investments for which they have a license.

5. Addressing the level of return on investment (ROI)

Low returns on investment discourage new investment in tree-growing, from both existing and new investors. Investors compare investment in trees to other available investment options/asset classes. Common benchmark asset classes may include real estate, infrastructure and renewable energy.

Strategies for meeting acceptable ROI in collaborative models include the following:

1. Holistic calculation of returns. Returns are commonly calculated for separate activities. However, this may be misleading as it does not reflect cross-benefits of combined investments. Collaborative models create opportunities to match different trees, crops or pasture to the most suitable areas. Trees also create benefits for other farm activities. Including increased farm returns in the 'share' to landowners may mean increased ROI for other investors.
2. Timeframe of assessment and inclusion of appreciation of land using natural value methods. Common financial practices may disregard the long-term implications of the value of the quality of land and the opportunity to grow crops. Poor practices that may harm the source of value creation (e.g. the quality and fertility of the land), are often favoured for producing better short-term returns. Adjusting the timeframe for returns and including valuations that consider natural cycles and values may highlight the real costs of poor practices and benefits of sustainable tree-growing (e.g. improved land value and productivity).
3. Involving debt capital. Use debt instead of equity-based capital. This could position investment in trees in a less competitive area in terms of ROIs compared with other asset classes. While banks or other creditors might lend at lower interest rates, they may often require security or underwriting of risk.

Industry

"We need wood and are willing to provide a good return."
 "We'd rather spend our money on more efficient processing than buying land."
 "Trees can provide more jobs farmer income, and benefit the environment."
 "What do you need to know to make the investment?"



Investor

"Is this worth my time?"
 "Can I get this type of project through our investment screening?"
 "What's the actual IRR/ROI, how long will it take to get a return?"

Creating an investment vehicle

Investors require mechanisms through which to invest. Listed plantation companies can use current investor capital or seek additional capital in the market (including landowner partnerships) to raise funds for plantation expansion.

Other potential investment vehicles include the following:

1. Companies formed by private individuals can provide investment scale. These were used to facilitate investment under Uruguay's Second Forest Law.
2. Limited partnerships (managed investment schemes) that facilitate merging of multi-party investments into a single project investment. These have a range of legal restrictions on scale and management. In New Zealand, a scheme is not an MIS if the investors principally produce the financial benefits or have day-to-day control of the operation of the scheme.
3. Investment facilitators have operated in New Zealand since the early 1970s to broker arrangements between parties willing to enter into joint-venture agreements or to form syndicates. Currently, under the One Billion Trees Programme, state-owned Crown Forests is the developer, facilitating afforestation via leases and joint ventures.
4. A fund with contributions from larger-scale investment entities. Funds can be closed- (limited duration, perhaps 10 years) or open-ended (continuing duration but individual investors can withdraw funds). NewForests Ltd manages investment funds invested in plantation assets in Australia, New Zealand and South East Asia. HVP is owned by a combination of Australian, Canadian and US superannuation and investment funds. The Hancock Timber Resource Group (HTRG), based in Boston, acts as overseeing manager on behalf of investors. OneFortyOne Plantations Ltd is owned by a fund managed by the Campbell Group that includes Australian superannuation and sovereign wealth funds and US pension and other overseas funds.
5. A Green investment bank (GIB) backed by government has been recommended in a recent report on sustainable finance for climate change action <<https://www.uts.edu.au/about/uts-business-school/news/unlocking-australias-sustainable-finance-potential>>. This bank could provide low interest loans and issue green bonds for high risk or long-term projects. A bank could leverage balance sheet and capital adequacy ratios to provide credit for long-term investments to address climate change or other environmental challenges. This could include investment in trees that provide carbon sequestration and other environmental benefits. The GIB would be wholly owned by the government and would not impact public finance.
6. Raising finance through green bonds. Proceeds from a green bond are used to fund environment-friendly projects. These are increasing in popularity with investors seeking positive impacts from their investments. The World Bank started issuing Green Bonds in 2008 and has since raised over \$13 billion to address climate change <www.worldbank.org/en/news/immersive-story/2019/03/18/10-years-of-green-bonds-creating-the-blueprint-for-sustainability-across-capital-markets>.

An example of green bond finance for forest plantations is the Tropical Landscapes Finance Facility (TLFF). The TLFF leverages public funding to unlock private finance for sustainable land use in Indonesia. This includes smallholder bamboo, cocoa, coconut, coffee, palm, rubber or timber. Investment is 'impact'-focused and aims to support local incomes while providing forest management, biodiversity and ecosystem restoration benefits, and achieving sustainable development goals (SDGs). Key elements are product purchase agreements with buyers to assure future income, effective due diligence to manage risks and public sector finance underwriting minimum returns for investors <http://tlffindonesia.org/>. A farm tree investment fund supported by government could similarly facilitate investment in trees on farms, support local businesses and fund outcomes for the public good such as improved water quality or habitat benefits.

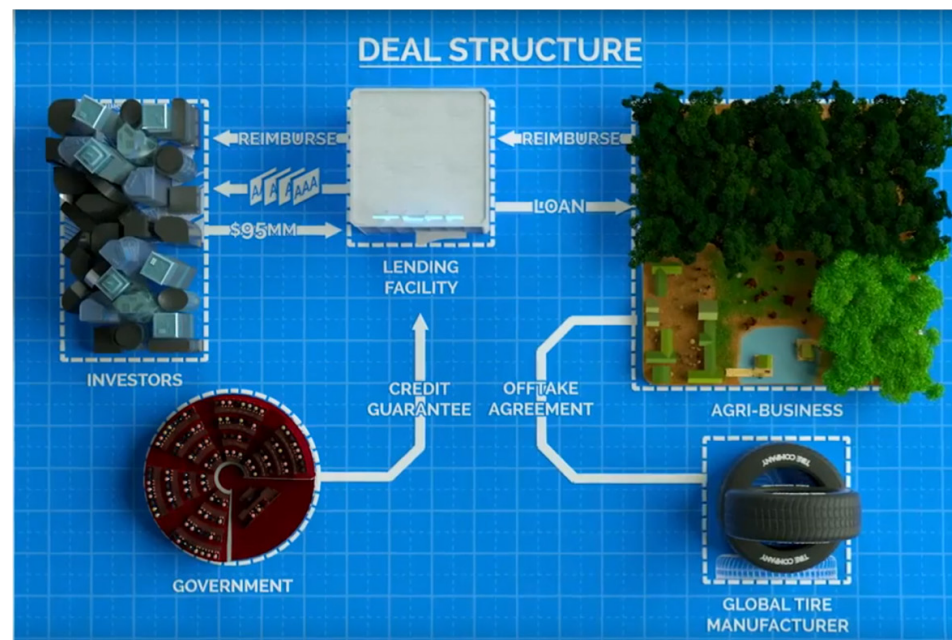


FIGURE 6. AN EXAMPLE OF AN INVESTMENT VEHICLE FROM TROPICAL LANDSCAPES FINANCE FACILITY



3.B Communicating benefits

The potential benefits from tree planting are more than simply producing timber. Documenting, understanding and communicating the full range of environmental, social and economic benefits provided by integrating trees in rural landscapes will help build support for commercial tree-growing.

Commercial tree plantations in rural landscapes can also contribute to achieving the United Nations SDGs. For example, Goal 8 (Decent Work and Economic Growth), Goal 12 (Responsible Consumption and Production and Goal 13 (Climate Action). Goal 15 highlights the importance of protecting, restoring and promoting the sustainable use of terrestrial ecosystems, including sustainably managing forests, halting and reversing land degradation and halting biodiversity loss. Some forestry companies are already incorporating reporting against relevant SDGs in annual reports or company sustainability reports (see resources below).

Results from the landowner survey undertaken as part of the NGPI project research showed that on-farm benefits are important in landowner decision-making. Communicating the social and environmental benefits from integrating tree plantation on farms builds on land stewardship goals, causing farmers to be more receptive to partnership opportunities. Communicating the multiple benefits of integrating tree plantations on farms will build support from other stakeholders such as local and State Governments, Catchment Management Authorities (CMAs) and environmental groups, and enhance acceptance of forestry on agricultural land within the wider community.

TABLE 5. ECONOMIC, ENVIRONMENTAL AND SOCIAL BENEFITS OF INTEGRATING TREE PLANTATIONS ON RURAL LAND FOR THE LANDOWNER AND WIDER COMMUNITY.

LANDOWNER	REGIONAL	NATIONAL AND GLOBAL
Additional and more diverse sources of income, including from timber or environmental payments, e.g. carbon, ecosystem services	Enhanced rural landscape aesthetics Biodiversity habitat conservation Improved air and water quality Increased local employment	Export markets pulp and solid, wood, biomass Carbon sequestration—contribute to climate adaptation and mitigation Decreased reliance on natural forests Renewable resource: energy and fibre (pulp and solid wood)
Productivity increases on farm e.g. shelter, pasture and livestock, reduced livestock mortality, improved animal welfare		
Improved on-farm aesthetics and amenity		
Biodiversity and habitat conservation—integrated pest management, pollination services		
Soil conservation—reduce wind erosion, improved nutrient cycling		
Water management—reducing dry-land salinity and waterlogging		
Management of excess nutrients and water quality		

Communicating social, environmental and economic benefits

Landowners have different goals and objectives, perceive different barriers to participating in forestry, and are likely to respond to different signals. Communication approaches therefore need to specifically target the perceived benefits and barriers relevant to different types of farmers.

Some strategies for communicating benefits include the following:

1. Social diffusion. To raise awareness of the benefits of trees as a land use option amongst landowners and the wider community. This can be achieved by providing information and support through 'trusted' channels, including farm advisors, farming support groups or extension agencies [e.g. Victorian Farmers' Federation (VFF), NFF and other industry and community groups such as Landcare], land management agencies, CMAs and local and State Governments. Sharing information through social media and other online platforms is also an option.
2. Promoting success stories. These can be used to highlight the benefits to landowners already integrating trees for harvest on their land. These would benefit from case studies that document actual returns and benefits using rigorous quantification.
3. Engaging with 'communities of practice'. These groups provide opportunities for more informal knowledge exchange and collaborate to find solutions to problems, increase awareness and understanding and develop new practices. Local 'champions' or influencers can be identified to facilitate engagement with these groups to encourage peer learning.



Selected resources

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- NewForests 2018, Sustainability Report. <<https://newforests.com.au/wp-content/uploads/2019/05/New-Forests-2018-Sustainability-Report-Interactive-PDF.pdf>>
- APRIL International Enterprise Pty Ltd Sustainable Development Goals (SDG) Prioritisation Study: Summary Report. <https://issuu.com/rgei/docs/april_-_un_sdgs_prioritisation_stud>
- 'EverGraze Shelter for Lambing Tool' and online tool to calculate the return from investment that shelter provides for lambs born from Merino ewes. <<http://www.evergraze.com.au/librarycontent/shelterinvestment-tool/>>
- IDEEA 2018, 'Making Every Hectare Count', Environmental-Economic Accounting for Forico's Surrey Hills Estate, Tasmania. <https://www.ideeagroup.com/wp-content/uploads/IDEEA_Forico-Forest-Ecosystem-Accounting-Nov-2018.pdf>
- i-Tree, a state-of-the-art, peer-reviewed software suite from the USDA Forest Service providing urban and rural forestry analysis and benefits assessment tools. The i-Tree tools can help strengthen forest management and advocacy efforts by quantifying forest structure and the environmental benefits that trees provide. <<https://www.itreetools.org/about>>



3.C Activating the sector

Increasing investment in planted forests requires collaboration across the sector. This can provide a consistent message for more effective policy, stimulate greater investment, provide common approaches to quantify and derive income from co-benefits (such as farm production, carbon or water quality) and provide a stronger basis for engaging with landowners and the community

This section describes actions the sector may take to build collaboration with rural landowners as genuine partners. These are based on an action plan developed at a national meeting of the NGFPI project in March 2018, that was attended by approximately 80 delegates, including people from the forestry sector and NGOs, landowners and university researchers. The following four strategies were identified:

1. Setting more effective policy

- Engage proactively with governments to develop policy supporting sustainable development of plantations that complement agriculture.

2. Stimulating investment

- Implement transparent pricing for different products from plantations.
- Invest in value-adding through the supply chain to lift potential returns.
- Establish an agency to work as an 'honest broker' to facilitate trust between the industry, tree growers and the general public, and stimulate and expand markets for farm-grown timber products.

3. Quantifying and deriving income from co-benefits

- Encourage and promote studies that quantify co-benefits of tree plantations, including farm production, carbon and biodiversity.
- Work with the finance sector and landowners to design and implement innovative investment instruments that support sustainable approaches to plantation development.

4. Communicating and building capacity

- Build stronger relationships with landowners.
- Develop and support new plantation forestry models that integrate with on-farm activities and production more effectively.
- Provide long-term community support around plantations.

Industry can make use of complementary capacities, resources and assets through working collaboratively. A collective voice to government can provide a stronger platform for driving the policy and regulatory changes required to support long-term investment.

The project addresses some of these actions, for example developing investment models that integrate trees on farms and approaches for building stronger relationships with farmers. Significant progress has been made regarding reporting co-benefits at a business level and stronger relationships are developing between forest industry and farmer organisations at a national level.

State-based industry associations can present the proposed policy changes required to support investment in plantations. Ideally this would be presented after wide consultation, with the support of farmer groups and relevant local governments.



3.D Engaging with governments

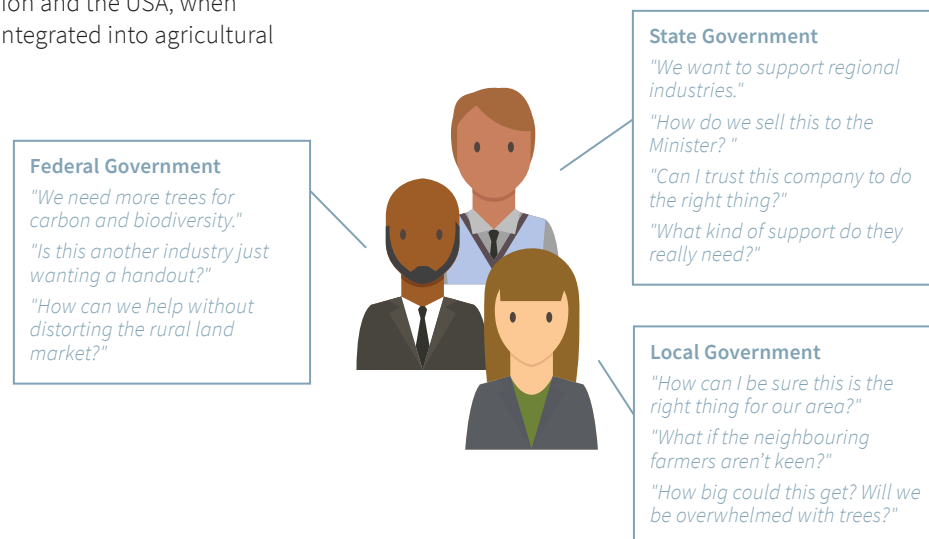
Governments play a critical role in supporting increased commercial tree-growing in rural landscapes. This includes clear policy and planning frameworks, political support, financial incentives and enabling the implementation of policies regarding information provision, research and education.

It could be extremely effective if Australia's three levels of government could adopt a consistent approach to supporting plantation development and tree-growing on farms. The Federal Government has responsibilities for taxation, trade and other fiscal policies. The main benefits from increased economic turnover from trees will therefore flow to national revenue. On the other hand, state governments have the constitutional authority for land and environmental management and planning, and local governments can influence the development of commercial tree plantations through planning schemes and approval processes. All have an interest in employment generation, especially in regional areas.

Integrating commercial tree-growing into federal and state agricultural policies is important, rather than rural trees being considered only in the context of forest or environment policies.

Agricultural policies have often ignored or been opposed to commercial tree-growing. Integrating trees into agricultural policies sends a clear signal that trees provide a commercial option for farmers and with good design trees can provide many benefits to the farm operation and the environment. Successful outcomes have been achieved in New Zealand, Uruguay, the European Union and the USA, when trees have been integrated into agricultural policy.

Government policy can support collaborative business models by improving landowner negotiating power through access to information and supporting cooperative tree-grower organisations. Information needs to include market trends, product prices, calculations of royalties and dividends, and risk assessments. Governments can also develop standard legal agreements, provide concessional finance, co-invest in public good values of trees with direct grants, or underwrite risks in investment.



PART 4.

Growing partnerships



4.A Engaging with landowners



4.B Landowner partnerships



4.C Rural advisors and partnerships



4.D Collaborative business models and partnerships



4.E Agreements and contracts



4.F Aligning industry and landowner needs



4.A Engaging with landowners

Active engagement with landowners is needed to expand commercial tree plantations on farms. Identifying and engaging with potential landowner partners are major challenges. Some landowners will be interested and actively seek engagement, while others may be interested but have little knowledge. Others may be unaware or may not have previously considered commercial tree plantations, or may not be interested. Each type of landowner will require different approaches for effective engagement.

Landowners are more likely to pay attention to information that applies to their situation. It is important for landowners to perceive investment in trees as personally relevant: that trees can complement their farm enterprise and provide them with multiple co-benefits.

Distributing information through letter drops or public meetings may help engage landowners who are already interested, but may not be enough to motivate landowners who are unaware or who have not previously considered trees. Landowner beliefs and attitudes towards planting trees are generally shaped by personal experiences, through interacting with other landowners or by hearing about the experiences of others through ‘trusted’ sources (e.g. agricultural consultants or extension agencies), or through the media or industry groups.

Raising awareness and creating an environment where partnerships with timber companies are viewed positively requires a broad, targeted approach to communication and engagement.

This could include:

- Holding public meetings and community workshops.
- Advertisements, articles and positive stories in the rural media (state, regional and local).
- Organising events at farm field days or other workshops or conferences attended by landowners.
- Presenting positive case-studies and hosting field tours to current partner properties.
- Attending farm development group meetings (Southern Farming Systems, Mackinnon Foundation) and regularly contributing to articles in newsletters.
- Supporting Master Tree Grower programs.
- Collaborating with Landcare and other support networks.

Employing farmer liaison staff who are based in the target region and have good connections with the rural community can raise awareness and establish trust with landowners, while also helping counter negative perceptions about trees as a commercial land use. Farm advisors are becoming increasingly important as Australian farming becomes more commercial and business-oriented (Part C.2).

Providing more transparent information on prices, market reports and trends, like those available for other agricultural commodities, will also help reduce uncertainty and build landowner confidence in commercial trees as investments.

Engaging with individual landowners

Landowner willingness to engage with timber companies is influenced by personal, social, cultural and economic factors, the attributes and standing of the company, and the characteristics of the proposed partnership. Personal factors include values, beliefs, goals and objectives. Landowners vary in how they prioritise these different values and objectives.

These priorities also depend on factors such as commodity terms of trade and the farm's financial situation, including debt levels. Beliefs about the likely outcomes of engaging in commercial forestry are important for decision-making. Other factors include off-farm income, life stage (young landowners versus those nearing retirement age), land use or farming enterprise (e.g. livestock—dairy, cattle, sheep, goats etc.; cropping; hobby farms; recreation or other land use), whether the landowner is a first-generation landowner or multigenerational landowner, the landownership structure and prior experience with forestry.

A large survey of landowners undertaken as part of the NGFPI project identified three broad types of beliefs about commercial tree planting:

- That they provide a range of economic, social and environmental benefits
- Maximising income from commercial plantings is important
- Commercial plantings are incompatible with current land uses

Landowners vary in degree of agreement with each of the three belief types. Five groupings of landowners were identified based on their beliefs (Box 1).

Five 'types' or groupings of landowners share similar beliefs about integrating trees for commercial harvest on their land. These have implications for developing acceptable business models and partnerships. The implications are generalised and indicative only with the specific needs of individual landowners varying within each group

Type 1: The main aim is to maximise financial returns from the enterprise: although commercial plantings are believed to be a good way to diversify the farm business, financial returns from trees need to be as good as or better than the returns from current activities, and/or provide additional on-farm benefits.

Implications: The focus of acceptable business models is to maximise financial returns.

Type 2: Commercial plantings provide multiple social, environmental and economic benefits, offer a good legacy for future generations, provide satisfaction and add to the enjoyment of owning land, are a good investment that diversifies the business, and are considered good use of the land that would increase its value.

Implications: Business models may focus on providing additional on-farm benefits and financial returns.

Type 3: While landowners generally prefer to focus on current land uses, commercial plantings are also considered to provide some benefits, including being a good legacy for future generations, or providing other on-farm benefits, such as providing shade and shelter or dividing paddocks. While financial returns are important, enjoying the rural lifestyle is also important.

Implications: Similarly to Group 2, acceptable business models are likely to focus on providing additional on-farm benefits and financial returns.

Type 4: Enjoying a rural lifestyle is more important than financial returns from the land. A great deal of satisfaction ensues from growing high quality trees for commercial harvest.

Implications: The focus on enjoying the rural lifestyle suggests achieving other benefits from tree planting, such as environmental and aesthetic benefits, is likely to be important for this group.

Type 5: Landowners prefer to focus on current land use and need to use all their land for existing agricultural enterprises. Income maximisation, although relatively important, is not a major concern.

Implications: The preference for current land uses means landowners in this group are less likely to consider tree-growing partnerships.

Landowners are more likely to consider commercial forestry as an investment on their land if it is perceived to offer advantages relative to other land uses. Acceptable business partnerships and collaborative partnerships are those that align with the landowner's goals and objectives, and address factors that influence their decision-making.

Developing collaborative partnerships requires frank discussions to understand the goals and objectives of the landowner, and to ensure the landowner understands the company's needs and intentions.

The following questions can guide discussions. Responses will help tailor business models to landowner needs, while also helping identify where expectations may not align with those of the company.

- Tell me about your farm operation.
- What are your main objectives for trees on your land?
- What other objectives (environmental, social, economic) are important to you?
- How much land are you prepared to plant to trees?
- Where would you like the trees to be planted on your land?
- Describe the access to this land.
- What configuration of plantings would you prefer (belts, along fence lines or gullies, block plantings)?
- What is your preferred timeframe from planting to harvest (length of rotation)?
- What financial returns from the trees would be acceptable to you?
- Over what timeframe would you prefer financial returns (short, medium, long-term)?
- Do you prefer returns to be secure and certain (e.g. upfront payment or annual annuity), or more speculative based on future market prospects?
- Are there any species you would not be willing to have planted?
- Would you like to be involved in establishing and managing the trees, and if so, in what way?
- What (if any) financial or other resources (e.g. labour, equipment, fencing) would you be willing to contribute?



Landowner

"How will this work and how do I know I'm getting a fair share of returns?"
 "What happens if you lot go broke, or the bottom drops out of the timber market?"
 "Can you use my poorer paddocks and can I graze stock under the trees?"
 "Who decides when to cut the trees and what will this do to my land value?"

Industry

"We've been in business for 50 years and know the sector."
 "We're investing in new processing plant, so we're confident in the future market."
 "We'll work with you on the right design."
 "We're flexible on where the trees are located, but need at least 10 hectares (25 acres)"





4.B Landowner partnerships

Uncertainty often prevents landowners from committing land or other resources to commercial forestry, particularly when it potentially conflicts with the main farming business. Uncertainty can arise from lack of knowledge, perceived lack of skills, or from the variability inherent in natural systems and/or the markets.

Providing landowners and their trusted advisors with information about plantations investments is important to achieving desired outcomes and can reduce the risk of future misunderstandings or conflict. The landowner survey in the NGFPI project identified information landowners considered important for assisting decision-making when considering tree-growing partnerships (Table 6). Information needs and the level of detail required varies according to the landowner's situation.

Parties involved in partnership design are landowners, company representatives, landowner advisors such as financial and legal advisors, and agricultural consultants. Other parties who may influence landowner decision-making include the following:

- State and local government (due to planning controls, such as road access limitations).
- CMAs, relating to catchment implications.
- Banks (e.g. implications of potential encumbrance on titles).
- Insurance companies (e.g. for fire and storm or other adverse events).
- Statutory authorities (e.g. fire ratings).

BUSINESS ARRANGEMENTS	SITE AND TREE SELECTION	OUTPUT AND POST-HARVEST
Information about the partner company, including company structure, corporate goals and value chain	Biophysical constraints of site	Intended products and markets
Partnership and payment models (e.g. lease, joint venture, share farming)	Operational constraints, e.g. slope and site access requirements	Potential for on-farm and wider benefits e.g. shade and shelter, integrated pest management, biodiversity, carbon sequestration, water and soil movement
Potential commercial returns from different models	Options for planting design including costs and return impacts of different design options	Potential for additional income e.g. carbon payments
Establishment and management arrangements—responsibilities of the different parties involved in the agreement	Potential species including projected growth rates, rotation and limitations of the species	Post-harvest arrangements, likelihood of second rotations, whether site returned to the previous state e.g. stump removed and returned to pasture
Legal arrangements, including ownership and rights to the trees; contingency arrangements e.g. in the event of one-party defaulting.	Minimum area or volume, operational requirements, rotation length	
Potential for cooperation with neighbouring landowners to achieve economies of scale	Management needs: thinning, pruning and harvesting	
Potential impact on land values and taxation implications	Contingency plans, e.g. for drought, fire, insect attack, wind and storms	

TABLE 6. INFORMATION FOR LANDOWNERS TO ASSIST DECISION-MAKING WHEN CONSIDERING TREE-GROWING PARTNERSHIPS.

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4.C Rural advisors and partnerships

Farming has become more capital intensive and more business focused. Farmers rely heavily on professional advisors such as agricultural consultants, accounting/financial advisors and solicitors in making farm management and investment decisions. The timber industry can work with rural advisors to engage farmers in collaborative models (Jenkin 2018).

Australian farming is changing. While some farms have become part of corporate enterprises (including via investment vehicles), many remain as family-based enterprises. While some farms have been subdivided and become smaller, the size of other farms has increased. Larger landowners are more commercially-oriented and make more use of advisors in business decisions.

Agricultural advisors understand farmers' motivations and objectives. These may not simply be financial, e.g. a farmer may emphasize respect of peers in having the best breeding animals or production rates. The level of sophistication in the advice needed to support tree-growing partnerships has increased compared with previous periods of investment. To promote opportunities, information provided must be robust and withstand professional scrutiny. In many cases, advisors will dismiss information if not satisfied.

Agricultural consultants can have many clients and may visit their farms many times each year. Targeting professional advisors may be more efficient and effective in connecting the timber industry with prospective landowners.

Investing in relationships with farm advisors is likely to be more successful than employing company-trained foresters or farm forestry extension officers. Relationships can be built through offering briefings and information sessions, meeting farmers with advisors and engaging advisors in dialogue with company staff to educate company staff about farmers' motivations and decision-making.

Advisors will assess proposed tree-growing partnership models and advise landowners regarding the feasibility of projects and the credibility of information provided. If advisors see value in partnership, they will seek to fit such opportunities into farm enterprises. If better informed on how to best incorporate trees into the farm operation, advisors can identify appropriate arrangements for clients and scrutinise information regarding likely returns compared to other crop options.

The livelihoods of farm advisors depend on their reputations. Before recommending the commitment of farmer's land and other resources to a tree-growing partnership, advisors will require satisfaction that the investment information is robust, the partner company has a long-term prospect of success and that any risks for the landowner are managed appropriately.

How can the timber industry work with farm advisors?

Industry can identify and form relationships with farm advisors in their target regions. As part of project design, it is recommended that the industry consults with advisors in preparing information on prospective proposals, for these to be fit-for-purpose in supporting farmer decision-making. In some cases, it may be more appropriate for advisors to present proposals rather than the industry marketing directly to the farmers.

However, all land has different potential for tree-growing and all landowners are different. Any proposal needs to be tailored to the interests of specific landowners. A commercial forestry specialist with an understanding of agriculture should be involved in technical discussions with the farmer advisors, and it is likely that an initial discussion considering a forestry project will take place between the landholder and the farmer advisor.



Landowner

"Is this a good deal?"

"How does it fit with my business strategy?"

Farm advisor

"I've been through it with them and the numbers are solid."

"It gives you a nice additional income and the agreement manages your downside risks."

"The company is sound and has a good trading record."



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4.D Collaborative business models and partnerships

A business model represents how a company structures its resources, partnerships and customer relationships to create and capture value, i.e. to generate income. Business models are collaborative when they involve close working partnerships and share value, for example between a company with local landholders and suppliers.

Business models for timber production link landowners, the timber industry and investors. Government and industry bodies can provide supporting information, model contracts, finance guarantees or concessional financing.

Collaborative business models between the timber industry and landowners can be expressed in different forms including contract farming schemes, joint ventures, management contracts and supply chain relationships (Table 7). No single model best fits all circumstances.

PRODUCTION LED BY:	LAND HELD BY	
	FARMERS OR LANDOWNERS	TIMBER COMPANIES
Farmers or landowners	Contract farming Informal product purchase agreements Formalised offtake agreements or wood supply arrangements Supply chain relationships	Tenant tree-growing Share cropping
Timber companies	Management contracts Land lease contracts Joint ventures	Community involved through provision of labour or contracts for services

TABLE 7: TYPOLOGIES OF COLLABORATIVE BUSINESS MODELS BY LANDHOLDER AND FARM OPERATOR (VERMUELEN AND COTULA 2010).

Partnership arrangements that have been used in Australia include the following:

1. **Management and lease contracts** involve a landowner leasing land to a company. These involve some level of stewardship, with the company managing the land on behalf of the owner. In Australia, lease rates for agricultural land are typically 3–4% of the capital value. The rent can be a set annual rate, increase over time with CPI or other indicator, or adjusted with mutual agreement at specified times. Lease agreements may have some form of profit-sharing rather than a fixed fee.
2. **Joint ventures** entail co-ownership of a business venture by two independent market actors, such as an agri-business and a grower. A joint venture involves sharing of financial risks and benefits, with decision-making authority in proportion to the equity share.
3. **Contract tree-growing** involves supply agreements between landowners and a timber company. Landowners grow and deliver timber to a specified quality at an agreed date. The company agrees to buy the timber at a specified price, or a market-linked future price, under an ‘offtake agreement’. This can be first right of refusal, take-or-pay or supply-or-replace. Each of these allocates market risk between the parties. The company may provide upfront inputs, such as credit, seedlings, fertilisers, pesticides and technical advice, all of which may be charged against the final purchase price.
4. **Cooperatives or farmer-owned businesses** are incorporated structures for groups of landowners to pool their assets to engage in activities such as processing or marketing, gain access to finance, or limit the liability of individual members. These have been common in dairy and sugar sectors but not for timber production.

5. **Upstream and downstream business links** along supply or value chains are important parts of business models. These can involve relationships that might form with local enterprises like nurseries or contractors for site preparation, planting, harvest or transport and with secondary processors or downstream users of wood.

These different models can be considered building blocks that can be combined to meet the needs of different partners.

Some models could include both larger-scale plantations and involvement of neighbouring landholders. Others might bring farm tree-growers into the timber value chain by providing information, advice or inputs like seedlings.

Why use a collaborative model?

Collaborative business models are needed if the companies decide not to incorporate all assets or functions needed within the firm. By using a collaborative model, the company may be able to reduce capital costs, increase access to land, increase resource security, diversify sources of supply, share the benefits of the business more widely, and build stronger links with the community.

Collaborative models can benefit landowners through finance, advice and technical inputs for establishing and managing trees, annual returns through lease payments and reduced market risks under forward sale agreements. In determining the extent of shared value, contractual details are important in tailoring abstract models to specific situations. Understanding how risk is allocated and shared is important for drafting contracts that are fair to all parties. Under some models, a great deal of the revenue may accrue to the company as 'costs' and in practice, farmer influence over decisions may be nominal.

Joint ventures between multiple farmers and a company can give the farmers greater control over business decisions, and ensure that leases and management contracts are structured to enable farmers to benefit from timber markets in some way.

If power is not equal, relationships may be exploitative where farmers provide cheap land or labour and may carry high production risks.

What is required to make collaborative models work?

In Australia, companies or governments have implemented some models for tree-growing with varying success. The most successful options have been land leases and joint ventures. Key elements in successful partnerships are transparency, trusted and trained staff, a science-based species and tree-growing package, clear markets for products, and long-term investment and commitment.

Business models need to be financially viable and supported by sound financial analysis. However, sharing value is not only about sharing financial returns. The following factors are part of 'shared value':

1. **Rights.** Establishing ownership rights to business assets such as land, trees or processing facilities; and the level of control and rights to make key business decisions, rights to information on market prices and costs, and arrangements for review and grievance.
2. **Responsibilities.** Clearly defining who is responsible for the key activities.
3. **Relationships.** How relationships are developed and supported over the long-term.
4. **Rewards.** What the financial costs and benefits are, including price-setting and finance arrangements, and how these are shared.
5. **Risks.** Who bears the different risks, including commercial (i.e. production, supply and market) risk, and wider risks such as political and reputational risks and what steps are to be taken when these risks eventuate.

These factors are interconnected. For example, agreed ownership-share influences the level of control in decision-making, and control in price-setting affects the distribution of rewards. Ownership also determines risk, e.g. a greater share in a joint venture may expose farmers to more risk. To make the models work, companies need to genuinely engage in the details of models that are structured to be fair, and socially and environmentally responsible.

Government policies can support collaborative business models that improve landowner negotiating power. Negotiating power can be shaped by collective action, access to information, and/or the effectiveness of tree-grower organisations. Information can include market trends, product prices, calculation of royalties and dividends, and risk assessment.

The extent of legal protection and grievance mechanisms is important. Differential access between the parties to institutions (banks, insurers, law firms, courts) can be major constraints to genuine collaborative partnerships.

Training for parties advising farmers (brokers and facilitators) can lead to appropriate model and design. Government or industry bodies can provide flexible model contracts for joint ventures or management agreements. Collaborative investment models can be facilitated through loan guarantees or other forms of financing.

A broader perspective shows that policies need to minimise possible negative impacts of large-scale land acquisitions, target plantation development in the right locations, support research on species and products, and provide infrastructure and other enabling incentives.

Recommended commercial tree-growing business models

This section provides a brief description of recommended models. All partnership models should be based on sound financial analysis and good technical information. These agreements should also be transparent, clearly assigning ownership of different assets (land or trees) and indicating the rights, responsibilities, risks and rewards for each party.

Three collaborative business models are presented: land-lease, joint venture, or outgrower partnerships. Companies have used all three successfully in Australia and internationally. These are part of a broader spectrum of tree-growing business models, extending from large-scale plantation ownership by growers to small-scale farm forestry focused on producing on-farm benefits or specialty timber for niche markets (Figure 7).

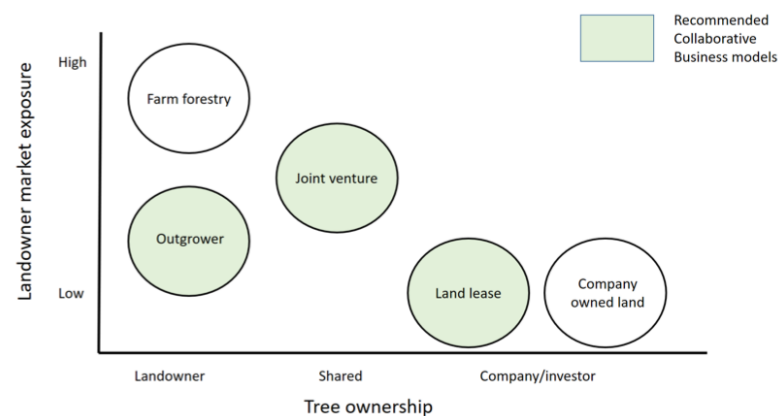


FIGURE 7. THE SPECTRUM OF BUSINESS MODELS FOR COMMERCIAL TREE-GROWING

Elements of commercial tree-growing business models

Commercial tree-growing business models have five elements: land, capital, labour, technical package, and market.

- **Land** needs to be capable of supporting growth of the desired tree species at an acceptable rate, within a suitable economic distance of a mill or port, accessible by harvest machinery and appropriate transport, and of sufficient area to ensure a viable harvest volume.
- **Capital** provided by a company, landowner or third-party investors pays for land costs and establishment and maintenance of the trees until harvest. In some cases, governments may contribute funds through grants or payments for tree-growing. Grants or payments linked to benefits such as carbon sequestration or water quality can improve the overall return on investment and make investments more attractive by providing income while trees are growing. They can improve the overall return on investment and make investments more attractive by providing income while trees are growing. Governments should clearly link these payments to public benefits or environmental services, such as water quality or carbon sequestration. Grants should be geographically targeted and performance-based, and consider all positive and negative impacts.
- **Labour**, the human input required to plant and manage trees, can be provided or paid for by the company, the landowner or a third-party contractor.
- **A technical package** is the understanding of site and management requirements for tree species with improved growth and form and the wood properties that the market wants. A science-based package reduces risks of adverse site selection for tree species or poor tree growth, and underpins value by generating wood with a known market.

- **A market** (Figure 8) is generally through a future purchase (or offtake) agreement between a wood buyer and the tree owner(s). This gives confidence in the future market for landowners and investors. The buyer could be a timber processor, or a third party. The purchase agreement can be based on a set future price, or linked to a market index, for example, export prices. It can be 'take-or-pay' or 'first right of refusal'. The latter allows tree owners to sell to another buyer offering a higher price but the party to the agreement has the opportunity to buy at that price.

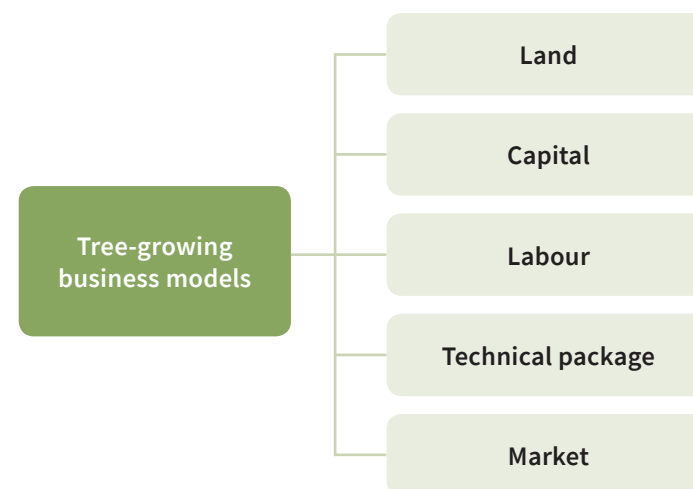


FIGURE 8. ELEMENTS OF COMMERCIAL TREE-GROWING BUSINESS MODELS

Part 4: Growing partnerships

Engaging
with
landowners

Landowner
partnerships

Rural
advisors &
partnerships

Collaborative
business models
& partnerships

Agreements
& contracts

Aligning
industry &
landowner
needs

In each of the recommended models, a landowner provides the land. A timber purchasing or forest management company provides the technical package (required tree species and management requirements). The models are not definitive and can be tailored to suit the needs of different parties. Variable elements in the models are the source of capital (company, an independent investor, or the landowner), the nature and timing of payments to landowners, inputs by landowners, ownership of the trees, who receives payments for services such as carbon sequestration, and the landowner exposure to market risks.

The models can apply to short rotation or longer rotation softwood or hardwood plantations. Flexible configurations of trees on the land (wider windbreaks, strips, areas around irrigators or in larger blocks) are possible.

Models are underpinned by agreements that indicate: the timeframe; any interest on the property title; lease payment and cost or profit-sharing arrangements; responsibility for rates, taxes, or insurance; condition of land at the end of the agreement (e.g. who is responsible for the stumps and site clean-up); transfer rights, treatment of carbon or other obligations; consultation and grievance arrangements; termination, review and renewal; and compliance with relevant legislation, planning or forest certification requirements.

Agreements also need to cover risks such as bankruptcy of either party, plant closures, or major changes in market conditions. Government could provide underwriting or insurance arrangements, as in other sectors, such as construction. Management activities and responsibilities can be attached to these agreements.

Model 1: Land lease or crop-share

CONTRIBUTOR	INPUTS				
	LAND	LABOUR	CAPITAL	TECHNOLOGY	MARKET
Landowner	●				
Company		●	▨	●	●
Investor			●		
Tree ownership	Company and/or investor				
Landowner risk	Low				
Landowner control over tree management	Low				
Most likely of interest to	<ul style="list-style-type: none"> Larger, commercial-scale farmers who want regular and secure annual income, who do not want to commit their own time, machinery or capital to treegrowing and with low risk appetite. 				
Scale	<ul style="list-style-type: none"> Minimum area of 20 ha, depending on location. 				
Variations	<ul style="list-style-type: none"> Crop-share, the landowner agrees to delay income until harvest. This may suit landowners with high current incomes. Income might be accumulated lease payments, or an agreed proportion of the final harvest value. In the latter case, the landowner would have more market risk, and therefore expect a higher return. Reduced annual lease payments in return for permanent plantings for on-farm, aesthetic or biodiversity benefits. 				

TABLE 8: LAND LEASE OR CROP-SHARE BUSINESS MODEL

- This model involves the company or investor leasing land. The company or investor provides the capital to establish and manage trees. Costs of fencing, or roading to access the trees, are agreed between the landowner and company.
- The company and/or investor owns the trees, controls management and timing of harvest, and bears the market risk.
- Carbon or water quality payments are made to the lessee(s). The lessee(s) bears the risks and transaction costs.

Key

- Input required from contributor
- ▨ Input potentially required from contributor

Model 2: Joint venture

CONTRIBUTOR	INPUTS				
	LAND	LABOUR/MACHINERY	CAPITAL	TECHNOLOGY	MARKET
Landowner	●	●	●/		
Company			●	●	●
Investor			●/		
Tree ownership	Agreed share between parties according to inputs				
Landowner risk	Moderate				
Landowner control over tree management	Shared with company and investors				
Most likely of interest to	<ul style="list-style-type: none"> • Larger-scale commercial landowners willing to commit their own resources or funds to commercial tree-growing. • Landowners who can bear more risk in return for a greater share of the final profit. 				
Scale	<ul style="list-style-type: none"> • Likely >50 ha to justify the transaction costs of establishing the joint venture, depending on location and tree growth rates. 				
Variations	<ul style="list-style-type: none"> • Landowner may receive intermediate payments, as agreed between the parties. • Reduced final crop share in return for permanent plantings for on-farm, aesthetic or biodiversity benefits. 				

TABLE 9: JOINT VENTURE BUSINESS MODEL

- In this model, the landowner contributes land, labour and equipment and, possibly, part of the capital. The company provides tree seedlings and specialised equipment, and prescribes management inputs. Third party investors potentially provide capital to establish and maintain trees.
- The market is secured through a ‘take-or-pay’ wood purchase agreement.
- The landowner, the company and potentially an investor, jointly own the trees.
- Parties share decision-making on tree management and timing of harvest.
- Parties share government payments for carbon or water quality benefits according to tree-ownership share.

Model 3: Outgrower

CONTRIBUTOR	INPUTS				
	LAND	LABOUR	CAPITAL	TECHNOLOGY	MARKET
Landowner	●	●	●		
Company			▨	●	●
Investor			▨		
Tree ownership	Landowner				
Landowner risk	Moderate-High				
Landowner control over tree management	Moderate-High				
Most likely of interest to	<ul style="list-style-type: none"> Farmers who want a higher degree of control and take a greater interest in managing and marketing their trees. 				
Scale	<ul style="list-style-type: none"> 5 ha upwards. Absolute minimum depends on the volume of wood. 				
Variations	<ul style="list-style-type: none"> Wood purchase agreement is 'first right of refusal', allowing sale to another buyer offering a higher price. 				

TABLE 10: OUTGROWER BUSINESS MODEL

- In this model, the landowner provides land, labour and capital to establish and manage trees. The landowner might borrow funds from a third-party investor or a lender. The company could provide seedlings of the desired species at cost and management information.
- A future market is secured through a wood purchase agreement, either 'take-or-pay' or 'first right of refusal'. The latter provides less security for the grower but the prospect of a better price in a rising market, if there are alternative buyers.
- The landowner owns the trees, and has more control over tree location, integration with the farm operation and management decisions, such as the time of harvest. The landowner bears more risk but has the potential for greater reward, depending on the market.
- The landowner receives government payments for carbon or water quality benefits and bears the associated transaction costs.

References

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<https://cpb-ap-se2.wpmucdn.com/blogs.unimelb.edu.au/dist/d/279/files/2019/03/MELBUNI-Treeplantations-A4x16p-FINART-revised5-002-1wq2ef1.pdf>
- Vermuelen, S & Cotula, L 2010, 'Making the most of agricultural investment: A survey of business models that provide opportunities for smallholders', IIED/FAO/IFAD/SDC, London/Rome/Bern.
<https://pubs.iied.org/12566IIED/>

Relevant case studies

ATTIA Ltd representing the Australian Tea Tree Industry

This national body promote the interests of Australian tea tree oil producers, exporters and manufacturers to develop a stable, cohesive and internationally competitive tea tree oil industry. It promotes support and advocacy, leadership and representation in the formulation of industry strategy, generic industry promotion and the collection and compilation of market data to inform all sectors of factors influencing demand and supply. <<https://teatree.org.au/index.php>>

Farm Forestry New Zealand

The New Zealand Farm Forestry Association is a network of tree-growers that provides support for landowners with small forestry blocks—farmers, foresters, investors, growers and managers. The Association is resourced through a Forest Growers Commodity Levy and provides a range of services to small growers, including market information. <<https://www.nzffa.org.nz/>>

Quality Timber Traders

This cooperative of forest growers in Northern NSW and SE Queensland, provides marketing and sales assistance to tree growers, with the aim of setting the highest possible price on high quality timber. The longer-term strategy is to provide a guaranteed stream of timber from a wider range of species to specialty markets. <<https://www.qualitytimbertraders.com/about-us>>

SAPPI Khulisa

This program works with small farmers in South Africa to encourage tree-growing. Site assessments ensure that plantings do not take place in environmentally sensitive areas and that planted areas are economically sustainable. Sappi provides improved seedlings and technical advice and training in entrepreneurial, negotiation and financial skills. Sappi commits to buying timber from growers at a market related price. <<https://www.sappi.com/sappi-forests>>

WA Plantation Resources (WAPRES)

WAPRES has a large and secure share of the woodfibre industry in Western Australia (WA) based on leasing land from private landowners. <<https://web.wapres.com.au/land-leasing/>>

Part 4: Growing partnerships

Engaging
with
landowners

Landowner
partnerships

Rural
advisors &
partnerships

Collaborative
business models
& partnerships

Agreements
& contracts

Aligning
industry &
landowner
needs



4.E Agreements and contracts

Agreements and contracts establish the nature of the relationship between the timber company, landowners, investors and others in a collaborative business model. Agreements can be for land lease, wood supply or sale offtake, or joint ventures. Well-structured partnership agreements reduce uncertainty, allocate risks and returns and provide secure business linkages between the timber industry and landowners.

Types of agreements

1. Land lease agreements

A lease is a contractual agreement between a landowner (the lessor) and a company (the lessee). It specifies the nature of a rental agreement over a defined area of land, for a specified use and time frame (term) in exchange for a defined rent. Leases have been the most popular form of agreement in tree-growing partnerships in Australia. The landowner receives a guaranteed income and is shielded from production and timber market risks. Leases for planted forests differ from other agricultural land lease arrangements in time span (10–30 years) and management activities.

Land rents can be set based on capital value (typically 3–5% of the capital value for agricultural land), or relative to returns from the sale of wood. Companies deciding on rental rates consider tree growth rates, establishment and management costs, prices at the mill or export point, and harvest and haulage costs.

2. Joint venture agreements

Joint ventures are legal contracts between two or more parties combining land, capital, management and market opportunities to produce a commercial tree crop. Typical partners in farm forestry joint ventures are landholders (providing land and/or management) and industry or government, providing initial finance/capital, management and market opportunities.

Many agreements described as joint ventures are not legally binding if a legal partnership is not formed. This has been explicitly stated in some 'Joint Venture' agreements. For example, the 1989 APM Forests Farm Forestry Agreement stated, "Clause 16: Nothing in this Agreement shall be constructed to create a partnership between the parties" (Jenkin 2018).

Ideally, joint ventures should be clearly distinguished from land leasing, market and timber purchase agreements or agreements that provide technical support or inputs such as seedlings.

The parties to a joint venture can include two or more of the following: landholders (providing land and possibly capital or management inputs), investors (providing finance or capital), the timber industry (providing technical inputs and possibly capital, and the market) and government (providing finance, underwriting and risk management).

3. Outgrower agreements

In this model, the landowner provides land, labour and capital to establish and manage trees. They may borrow funds from a third-party investor or lender. The company provides the seedlings of the desired species at cost and management information.

The landowner owns the trees, has more control over tree location, integration with the farm operation and management decisions, such as the time of harvest. The landowner bears more risk but has the potential for greater reward, depending on the market.

The landowner receives government payments for carbon or water quality benefits and bears the associated transaction costs.

4. Wood supply or offtake agreements

Forward commitments to purchase wood can encourage more investment in commercial tree plantations. Timber companies can commit to purchase via contracts with landowners or investors under an offtake agreement. These underpin the types of agreements indicated above. Supply agreements involve a commitment to supply wood through a forward contract by the landowner.

Offtake agreements provide assurance that there is a market for the product at the time of plantation establishment. The timber seller can negotiate a price that secures a minimum level of return and lowers the risk associated with the investment. Offtake agreements also allow buyers to secure future resources at an agreed price and can provide a guarantee that the wood will be delivered. These agreements generally include force

majeure clauses. These allow either party to cancel the contract if events occur that are outside the control of either party.

Supply or offtake agreements can be flexible for the buyer or seller, depending on how these may be specified. For example, a company might specify first right of refusal for timber. If the landholder can get a higher price for the wood, and the company is not willing to match that price, the landholder is entitled to sell to another buyer. On the other hand, the company might put conditions on their commitment to purchase timber based on the quality of the trees, or market conditions at the time of harvest. This can leave tree-growing owners exposed during market downturns.

Setting the future price offered is a critical company business decision. If the focus is only on immediate financial efficiency, a company might set the lowest price the market will bear. However, this might not be attractive to catalyse growers or investors. Committing to a higher price may result in more landowners deciding to grow trees or enter partnerships, resulting in more long-term timber resources, greater resource security and an overall increase in company profit.

Elements required for agreements and contracts

The following factors need to be considered in agreements and contracts:

- The term or time frame of the agreement.
- Registration of interest in land on property title, that may or may not be needed depending on the type of agreement.
- Lease payment and/or cost and profit-sharing arrangements.
- Responsibility for rates, taxes, insurance, and other outgoings in relation to land.
- Condition of land at the end of the agreement (e.g. who is responsible for the stumps and site clean-up).
- Transfer rights—the capacity to transfer interests to another party, particularly, the ability of the landowner to sell the property and the capacity for the agreement to continue with a new owner.
- Force majeure, for example, responsibilities when fire, storms, flood or disease affect the trees.
- The situation with bankruptcy of either party, plant closures or other major changes in market conditions. Government could provide underwriting or insurance arrangements, as in other sectors such as construction.
- Treatment of carbon or other obligations; this deals with the question of what happens to the carbon benefit from the plantation and treatment of any resulting carbon liability during and at the end of the land access arrangement.
- Compliance with relevant legislation and planning requirements.
- Consultation and grievance arrangements.
- Termination, review and renewal arrangements.

Management arrangements are spelt in the agreement, or as an attachment. These might typically include the following:

- Arrangement and location of the trees on the property.
- Responsibility for fencing and stock management.
- Tree species and management regime.
- Company access rights to manage and harvest trees.
- Weed control, thinning, pruning or other management.
- Chemical use that might be injurious to trees, stock or crops.
- Harvesting timing and requirements.
- Capacity to graze under trees, free use of land by the company or any restrictions on land use.
- Use of fires in or near the trees.
- Company obligations to not impede or disturb farming, livestock, watercourses or dams.
- Communicating and maintaining good relations with neighbours, local government or other parties who may have an interest in trees on the land.
- Access and roading requirements.
- Repair of damage to any fences, gates, road or plant.
- Use of unplanted areas.

Selected resources and relevant case studies

Curtis, A & Race, D 1998, 'Links between farm forestry growers and the wood processing industry: lessons from the Green Triangle, Tasmania and Western Australia', A report for the Rural Industries Research and Development Corporation, RIRDC Publication No 98/41 & RIRDC Project No UCS-10A.

<<https://www.agrifutures.com.au/wp-content/uploads/publications/98-041.pdf>>

Dairy Australia 2019, 'Model Lease Agreement for Dairy Property Quick document guide'. <www.thepeopleindairy.org.au/LiteratureRetrieve.aspx?ID=150587>

Jenkin, B 2018, 'Next Generation Plantation Investment Research Project Benchmarking analysis: Part 1 Australia's history of plantation development, policy and incentives', Report 2, Next Generation Forest Plantation Investment Research Project, The University of Melbourne, School of Ecosystem and Forest Sciences, Melbourne.

Sample timber sale contract. <<https://content.ces.ncsu.edu/sample-timber-sale-contract>>



4.F Aligning industry and landowner needs

To work for landowners, situate trees to provide farm benefits and satisfy industry requirements for timber.

The needs of farmers and the timber industry differ. Farm plantations differ from traditional industry plantation models. To meet the needs of both parties, consultation and negotiation are required, using an approach sometimes referred to as diagnosis and designs. Landowner needs may include shade and shelter for crops or stock, or utilising underperforming land. The industry may have operational requirements, minimum size areas and profitability requirements.

Farmers often have a whole farm plan that may specify land uses and areas for future development, including the potential location of trees. Farmers may have developed this themselves or with a consultant.

The personal and family circumstances of the landowner (age, health, family life cycle and potential future owners or succession arrangements) and the financial position (debt load, cash flows, overheads, disposable income, tax position, need for quick returns) are important in designing the desired business arrangement.

Trees can contribute to improved environmental outcomes of the farm. This can help address animal welfare, soil erosion or water quality concerns, offset greenhouse gas emissions, and improve wildlife habitat and farm aesthetic values. This can allow farmers to promote produce to consumers and markets and demonstrate that land is managed according to best practice standards, that can be benchmarked and documented.

The forest sector has considerable experience with Environmental Management Systems (EMS) for product certification and quality assurance standards. This experience could benefit farmers in presenting evidence of environmental management.

Locating trees on farms

Commercial tree plantations can be integrated into farm plans and designed to provide benefits for farm operations in ways that do not conflict with other plans for development of the property

Farm plans capture the desired future condition and uses of different parts of the property, intended farming practices, and the location of proposed buildings and other improvements such as sheds, dams and fences. Factors such as topography, natural features, built features, soil type(s) and conditions and the current and intended land use are important in deciding where to plant trees for different purposes. Timing of planting might be arranged to fit in with realigning fences as part of the farm plan.

The following items provide a checklist for the development of a farm plan and are generally required for planning approvals (<http://agriculture.vic.gov.au/agriculture/farm-management/business-management/planning-applications-in-rural-areas/checklists/checklist-for-applications-with-wfp>):

- Topography main contours, ridgelines or steep rises.
- Soil conditions, including erosion sites, salinity.
- Existing native vegetation (includes trees, shrubs grasses and herbs).
- Indigenous plant species intended for rural landscaping and revegetation on the property.

- Wildlife habitat areas (includes rock outcrops).
- Pest plants/weed infestations.
- Pest animal habitats.
- Waterway/drainage networks and dams (current and proposed dams).
- Classification of water resources.
- Total farm water balance; determine the amount of water required: domestic, stock, environmental, fire-fighting and general farm water requirements.
- Surrounding land uses e.g. cropping, dairy, grazing, urban/rural, mixed farming etc.
- Proposed future use of the land and location of the trees. Include predicted impacts of future use/change of use of the land/intensive animal industries, particularly potential impacts on direct neighbours and/or catchment issues.
- Existing buildings and structures including house site(s).
- Proposed buildings and structures in accordance with the planning permit, servicing and infrastructure standards and availability e.g. road, bridge standards, land capability assessment power supply telecommunications.
- Existing and proposed roadways and tracks in accordance with the planning permit: is access to the proposed dwelling/development via an all-weather road with dimensions adequate to accommodate farm activity or emergency vehicles?
- Existing and proposed fences.

The extent and location of commercial trees will be an individual decision and a result of negotiation with industry and possibly the investor.

“Trees become very large and remain in the landscape for many years. If scenic views are important to you, drawing sketches from different perspectives will help you visualise the landscape when your tree crops have grown 20 metres tall, and also when they’ve just been harvested” (AFG 1998).

Four broad forms of tree plantings on farms have been demonstrated to work with timber production:

1. **Residual.** Planting on sections of a property not required and/or less suitable for agriculture. This can include planting in groundwater recharge zones, on top of interceptor drainage banks, or as havens in stock laneways.
2. **Boundary or internal shelter belts.** Trees around the perimeter or plantings within a paddock to provide shade or shelter.
3. **Specific location.** Planting trees around farm infrastructure (e.g. around centre pivot irrigation or a farm dam) can reduce evaporation losses and improve dam water quality.
4. **Agroforestry.** Trees and agriculture crop or pasture within the same land management unit. Placing tree crops in belts at regular intervals across the landscape offers shelter for crops and livestock, enhancing their productivity, or wide-spaced trees can allow cropping for hay.

Commercial planting can be integrated with soil conservation or habitat planting. For example, multiple rows of timber trees could be added when fencing out a steep gully or creekside and planting natives. A company may offer to undertake this conservation planting in return for a reduced lease rate or reduced landowner share of the final harvest.

"Numerous studies have demonstrated that well-designed shelterbelts can increase yields by 20–30% over a distance of 10 to 12 times the height of the trees in the cropping and higher rainfall (over 600mm) areas of southern Australia.

Provision of adequate shelter for livestock in southern Australia can prevent the death from exposure of newborn lambs and newly shorn sheep. In hot areas, shade from trees can improve both crop and stock performance" (AFG 1998).

There are many ways trees can be incorporated. Some examples of how farmers have incorporated trees into their farm can be found at the following site: <https://www.pft.tas.gov.au/__data/assets/pdf_file/0018/131841/Carbon_Plantations_Kit.pdf>

Industry operational constraints

Each company will have different requirements for tree species and minimum areas for viable plantings and management and harvest regimes. This will vary with the location of the property, proximity to existing plantations and the potential to aggregate operations across a number of nearby landowners. These requirements should be clearly communicated to landowners.

Typically, a minimum area of 20 ha is required for efficient plantations. This could be in different parts of a property or across multiple properties within close proximity. Having a larger planted area on a property may allow felling a proportion of the trees at a time, rather than all at once. This can spread returns and maintain shelter or soil protection benefits.

Forestry companies require clear access for planting, management and harvest—not too steep or rocky, with roads or tracks that can support logging trucks. Other constraints such as forest management codes of practice or certification requirements need to be considered. Awareness of planning and regulatory arrangements are also important, because for example, depending on the shire, planting a significant area of trees may require planning approval.

Business negotiation

The choice of partnership model must be supported by sound financial analysis. However, sharing value with the landowner is not only about sharing financial returns.

Requirements for partnership agreements are indicated in Part 4 Section F. Different parties in the investment have different interests (Figure 9). The outcomes for the different parties are shown in Figure 10 for a blue gum investment and Figure 11 for radiata pine. Negotiation between the company and a landowner could start with an indicative annual lease payment for a minimum area of commercial trees in the most appropriate location. This would be based on the tree growth potential of the site and the location in relation to their mill.

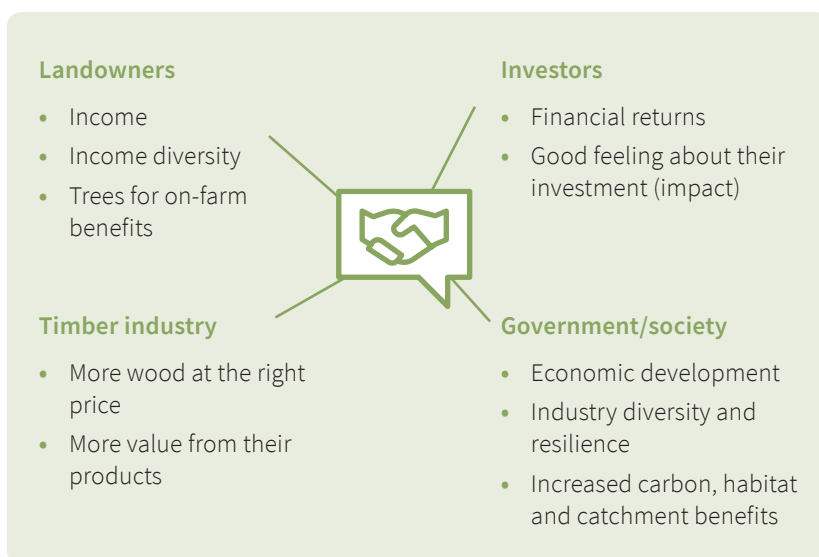


FIGURE 9. PARTNERS IN COLLABORATIVE FARM TREE INVESTMENTS AND THEIR INTERESTS



FIGURE 10. OUTCOMES FROM A HYPOTHETICAL FARM TREE INVESTMENT MODEL WITH BLUE GUM

P. radiata, 20m³/ha/yr, grown for sawing over 30 years (thinning at 15), on leased land (value \$5,000/ha), lease 4% (\$200/ha/yr), establishment \$2,000/ha, maintenance \$100/ha/yr

Landowner

- 20 ha land
- Total lease income \$120,000
- Some on-farm benefits

Timber industry

- Commits to buy timber after harvest and transport for \$110/m³ (average price after 30 yrs inflated by 2.5%/yr, today's price \$50)
- Gets 12,000m³ wood
- Pays \$1,320,000
- Bears market risk

Lease payment will vary with productivity; H&T costs vary with distance, slope, access, area



Investor

- Pays \$166,000 (establishment, maintenance and lease costs, spread over time)
- Required gross return 10%/yr = \$1,328,000 (compound each 10yrs)
- Managed risks

Government/society

- Underwrites return to 4%
- Economic development
- Carbon and catchment benefits

Potential variations for the blue gum model are shown in Figure 11. The standard lease payment is indicated at point A. The landowner at point B may want trees in multiple locations or layouts or permanent plantings for shelter or biodiversity, or erosion control on steep land. These would add to the costs for the company/investor, who could meet these costs but reduce the lease payment to the landowner.



Landowner

"Can I trust you to do the right thing?"
"I want some trees on my steep hills as well as on the flat near the road."
"Can I defer lease payment for 10 years?"
"What happens if there's a fire?"
"Who will clean up the stumps after harvest if we decide not to replant?"

Industry

"Can I trust you to do the right thing?"
"Are your fences secure?"
"How do trees fit with your farm plan?"
"What do we do if you decide to sell the farm?"



FIGURE 11. OUTCOMES FROM A HYPOTHETICAL FARM TREE INVESTMENT MODEL WITH RADIATA PINE

Landowner decision options

20 ha of Blue Gum, 20m³/ha/yr, grown for ulp over 10 years, on leased land (value \$5,000/ha), lease 4% (\$200/ha/yr), establishment \$2,000/ha, maintenance \$100/ha/yr, timber sale price \$10,000 (200m³ x \$50/m³)

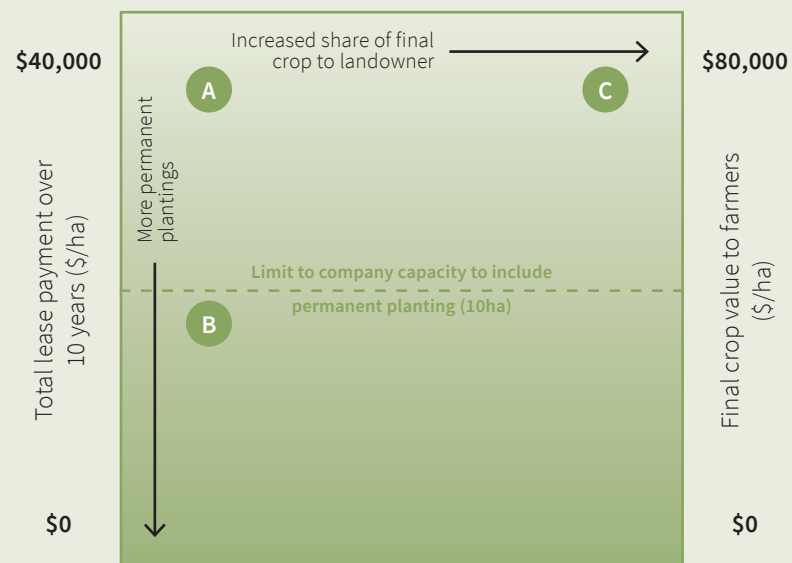


FIGURE 12. POTENTIAL VARIATIONS TO A STANDARD INVESTMENT PARTNERSHIP MODEL.

Alternatively, Landowner C, instead of a lease payment, might wait and take a share of the final harvest. This would involve lower investor input but could mean double the total payment to the landowner compared to leasing. The relative value of an annual lease income to final crop payment to the landowner will depend on their discount rate. This depends on their need for immediate income, attitude to risks and potential tax implications. Other combinations of these options are possible.

If they have available capital, the landowner or the company could be the investor, investing their own funds and getting the returns.

Governments can support the development of these models by improving access to information, increasing the effectiveness of tree-grower organisations, by developing standard legal agreements, providing concessional finance, co-investing in public good values with direct grants or underwriting risks in investment.

Incorporating carbon payments

Commercial trees can potentially receive carbon credits under the Australian Government ERF. These credits can provide income while trees are growing and make tree investment more attractive. There are currently constraints on the location of plantation projects. Projects are costly to develop and require a sufficient scale to justify the transaction costs.

Potential income from carbon benefits needs to be discussed with landowners. The company representative needs to be clear about the benefits and risks, who bears the costs, who gets carbon credits and what costs are involved.

Integrating trees on farms can provide wider environmental benefits, for example habitat or catchment and water quality improvement and carbon storage. Some of these benefits can potentially provide income to the landowner or the company.

Trees store carbon in leaves, bark, branches, trunk and roots. The rate of change in tree carbon stocks depends on species, local climate, soil factors and management. When commercial trees are harvested some of the carbon is converted into long-term storage in wood products. If the trees are replanted there is a long-term increase in average carbon stock. Carbon stored in trees can potentially offset emissions that might be occurring in other parts of the farm operation but the farmer cannot make this claim if the carbon credits have been sold to an external party.

Some new plantation forests are eligible for carbon sequestration payments under the Australian Government ERF. Concerns about the impacts of large-scale plantations on water resources mean that projects are restricted to areas with average rainfall below 600 mm per year, unless a water authority gives approval that there will be no impact on downstream users.

The Fund operates as a 'reverse auction' to achieve the greatest investment efficiency in emissions reduction. Presenting a project into the auction is complicated and requires specialist knowledge. Projects are mostly prepared by aggregators who take a share of the payment in return for their services.

The Plantation Forestry method under the ERF supports payment for carbon sequestration through the establishment of new plantation forests, or increases sequestration in existing plantations. Currently the following project activities are eligible (Smith and Ximines 2019):

1. The establishment of new plantations by planting or seeding on land on which plantations have not been established for the previous seven years. Plantation rotations must be no more than 60 years long and no more than two years apart.
2. The conversion of short-rotation to long-rotation plantations by:
 - i. Establishing a new long-rotation on land where no rotation is underway;
 - ii. Completing a current short rotation and subsequently managing a new rotation as a long rotation; or
 - iii. Changing the management of a current short rotation to become a long rotation.
3. Transitioning an existing farm forestry project to the Plantation Forestry Method.

The method requires accounting for carbon stock changes in trees, debris and HWPs using the FullCAM model. New plantations are credited up to a limit that represents the average carbon stocks of repeated harvest rotations over the long-term (100 years), with a zero baseline (Figure 13).

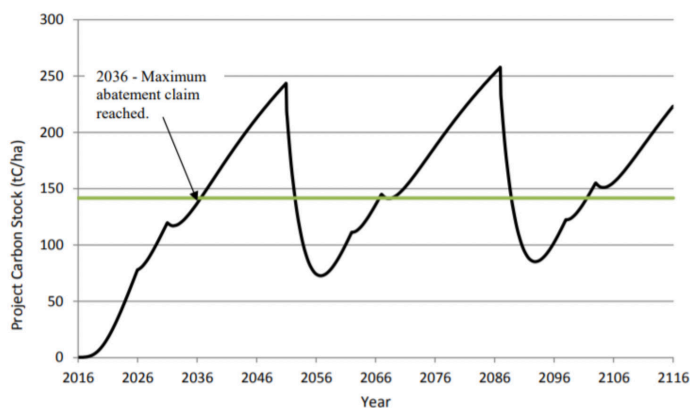


FIGURE 13. EXAMPLE SHOWING CALCULATION OF ABATEMENT FOR A PLANTATION ESTABLISHED ON AN AREA THAT IS ELIGIBLE FOR A NEW PLANTATION. NOTE THAT IN THIS EXAMPLE THE PROJECT HAS A ZERO BASELINE (SMITH AND XIMINEZ 2019).

Eligible plantations are restricted to those that are managed with the intention of harvesting forest products in National Plantation Inventory regions. These are considered potentially feasible for plantation forests, based on biophysical and logistical constraints.

The most common current plantation forestry option is converting a short rotation plantation to longer-rotation. Some new plantation projects have been approved where water or catchment authorities indicate that there will be no adverse impacts on downstream water users.

A recent analysis estimated income, carbon sequestration and break-even prices for two management options from a 1000 ha pine plantation in Tasmania: conversion from short rotation and a new plantation (greenfield). With current timber prices and a cost of capital of 8% and interest on the land of 6%, all options had a positive Net Present Value and became cashflow-positive after six years. From the farmer's perspective, the carbon payment of \$198 per ha per year provided short-term income. The overall gross margin over a 33-year rotation with two thinnings was \$586 per ha per year. This compared very favourably with existing agricultural returns in the region (Ryan and Downie 2018).

Innovation and technology development

Timber markets are dynamic and constantly shifting. New technologies such as finger-jointed beams, reconstituted wood and laminated veneer lumber suggest that future markets could be quite different from current markets. Commercial options for younger, smaller trees are improving the likelihood of earlier returns.

If they take a share of the final harvest rather than a lease, farmers and landowners will require assurance that the company is considering options for higher value timber in their planning to maximise potential returns.

References and resources

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Australian Forest Growers 1998, 'Getting started in farm forestry', AFG. <<https://www.afg.asn.au/afg-publications/getting-started-in-farm-forestry>>

Piper, A 2018, 'Trends in Forest Products Development'. Report for Next Generation Forest Plantation Investment Project <<https://blogs.unimelb.edu.au/nextgenplantations/#tab187>>

Ryan, Z & Downie, B 2018, 'Presentation to IFA/AFG Conference', Canberra September.

Smith, H & Ximines, F 2019, 'Production Forest Methodologies for the Emissions Reduction Fund', Report for project no. PNC354-1415, Forest and Wood Products Australia. <<https://www.fwpa.com.au/resources/reports/resources/1820-production-forest-methodologies-for-the-emissions-reduction-fund.html>>

