Plant more trees!

Never before has there been such widespread support for the establishment of trees on Australian farms. The threat posed to farm productivity, water quality and our unique biodiversity arising from over clearing has inspired extraordinary government funding and community support for revegetation. At the same time, concerns over the harvesting of timber from Australia's publicly owned native forests and the importation of tropical timbers has spawned widespread public support for timber plantations. The emotion and resolve generated by such issues highlights the importance that many Australians place on the environmental, economic and social benefits of forests.

Despite this support, the conversion of farmland to industrial monoculture timber plantations on a large scale has meet with opposition from rural communities and conservation groups. Notwithstanding the environmental and economic inadequacies of some farming practices, the conversion of farmland to industrial plantations is seen by many as leading to greater social and environmental degradation.

Although some farmers would see plantations as a threat to agricultural development there are many who would argue that forests are an essential...
component of an environmentally, socially and economically sustainable agricultural landscape. Rather than replace farms with forests they favour the integration of multipurpose plantations into their existing farming landscapes in a way that enhances farm productivity, protects the natural environment, and revitalises farming communities. Across Australia - from the wheatbelt of Western Australia to the tropical coast of North Queensland - farmer groups, supported by governments, industry, professionals and conservationists, have sprung up in support of commercial agroforestry and farm forestry.

The prospect of the sale of tree products and environmental services is seen as an opportunity to stimulate farmer participation in the establishment and management of forests that will also provide non-commercial benefits for the landowners and their communities.

But can agroforestry and farm forestry deliver? Do they really represent a new and more widely acceptable approach to the establishment and management of commercial and non-commercial forests? What's a farm forest anyway, and what has it got to do with farmers?

So what is farm forestry?

Most formal definitions of agroforestry and farm forestry focus on the role the trees play and their location or arrangement. The Federal Government suggests that farm forestry is "the incorporation of commercial tree growing into farming systems; it can take many forms: plantations on farms, woodlots, timber belts, alleys, wide-spaced tree plantings, and native forests". The anticipated or desired advantages are commonly included in their definitions: "It improves agricultural production by providing shelter for stock and crops. It also provides substantial environmental benefits such as water table and salinity reduction." (National Farm Forestry Program 1995).

The widely accepted definitions of agroforestry are similar. The International Centre for Research in Agroforestry (ICRAF) defines agroforestry as a "dynamic, ecologically based, natural resources management system that, through the integration of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic and environmental benefits for land users at all levels".

If only this was always the case. Unfortunately not all agroforestry and farm forestry projects have been so successful. We believe it is not sufficient to simply define agroforestry or farm forestry as a predefined set of land use practices with attractive outcomes. In practice you cannot distinguish these forms of forestry from industrial, corporate or government forestry by how it looks. It is not the scale, the planting pattern, the species or the purpose of a forest that makes it a "farm forest" or "agroforest" - it is ownership. Not just ownership of the land or the trees, but ownership of the decision to do it and how it is done. We see farm forestry and agroforestry as the result a farmer's decision to practice forestry. The terms can be used interchangeably. Our definition for both is:

**Farm forestry is the commitment of resources by farmers, alone or in partnerships, towards the establishment or management of forests on their land.**

Farm forestry and agroforestry are therefore about choice; farmers choosing to commit their resources to the development and management of forests for, amongst other things, commercial return. Farmers may establish and manage their forests for any mix of the benefits that forests can provide.
They may place an emphasis on a single outcome such as timber production or biodiversity or they may seek to balance a range of benefits in a multipurpose planting. Their priorities may vary over the farm or change over time.

A forest initially established or managed for wildlife or land protection might later be harvested for timber or valued for its beauty. Forests on farms may increase agricultural production or simply displace it. They might be sustainable, even improve economic, social and environmental capital, or they may deplete these assets. The farmer, or their partners, may profit from farm forestry or come to regret their involvement. Making a commitment to forestry is not necessarily a good decision - it is simply a decision. There are many examples of poorly designed and managed revegetation projects on Australian farms.

The many small, unmanaged pine plantations established during the 1970's under farm forestry incentive programs are a testament to how farm forestry can fail. The farmers who accepted these incentives commonly chose to put the trees on their less productive farmland - not surprising given the long-term nature of timber production. Because the plantations were based on the industrial models they involved a high initial tree stocking rate and required a commercial first thinning after 10 or 15 years.

When it came time to thin most farmers found it impossible to attract buyers for the small diameter unpruned trees. Almost all these plantations have proven to be economic failures despite the fact that well pruned and spaced pines planted in small lots on New Zealand farms during the same decade commonly fetched more than NZ$50,000 per hectare at final harvest during the early 1990's.

Another example of a missed opportunity is evident in the state of many of the native forests on farms. As areas of public native forests are withheld from harvesting the value of good sawlog, of selected native timber species, is increasing rapidly. Unfortunately, few farmers are able to take advantage of the price rises due to years of "high-grading" and neglect which has dramatically reduced the economic and environmental value of their forests.

Different people value trees and forest in different ways and these values change over time. Anyone who plants or manages a forest has the potential to open or close opportunities that they or others may not recognise for many years. If we are going to encourage farm forestry we must ensure that farmers have the knowledge, resources and confidence required to design
and manage their forests for the good of all Australians, now and well into the future. Such is the aim of the Master TreeGrower Program and of this book.

The Farmer’s Forest

This book has arisen out of the Australian Master TreeGrower Program, initiated and conducted by the Department of Forestry from the University of Melbourne. The program provides education and support to farmers willing to have a go at developing and managing forests on their farms for commercial and/or non-commercial reasons. More than 800 farmers right across Australia have participated in our regional programs. In turn, they have shared their experience with thousands of others.

The Australian Master TreeGrower (MTG) Program began in 1996 with funding from the Myer Foundation, for 7 regional programs. Each program involved around 20 landholders working together to investigate possible markets for their forest products and services, review the design and management of their own forests, and share ideas on the future potential of farm forestry in their region. The programs were based in areas where individual farmers had begun establishing and managing forests for multiple values. With further funding from the Federal Government through the Joint Venture Agroforestry Program and the Natural Heritage Trust an additional 30 MTG Programs were conducted over the next five years.

Part of what the farmers learn in the program is included in this book. There are chapters on the design of multipurpose farm forests, tree and forest measurement, silvicultural management and economic evaluation. These are all important aspects of farm forestry taught during the 8 sessions. But the MTG is more than just a training program. Farmers also get to share their experiences, knowledge and views about forestry with others from their region.

Since 1996 the Australian Master TreeGrower program has been conducted across Australia.
They develop friendships and support networks that commonly lead to the formation of farm forestry groups or marketing cooperatives. They learn from the experiences of others and draw confidence from the enthusiasm within the group. They recognise that they must take responsibility for their own farm forestry decisions and that they can make a real contribution to the development of farm forestry within their region.

The importance of diversity

The photographs and case studies in this book draw on the work of farmers and their supporters to highlight the breadth of experience and diversity inherent within farm forestry in Australia. Because farmers have different interests, resources and aspirations their farm forestry activities are far more varied than those seen in conventional forestry.

Industrial plantation forestry in Australia has always tended towards increased uniformity and greater scale. Huge monoculture plantations that cover entire landscapes are now considered "best practice". Although simplicity and size have provided economies of scale, ease of management and a uniformity of product it also has a cost. In a changing and unpredictable environment uniformity and scale also increases exposure to threats such as climate change, unpredictable markets, new diseases and pests, fire, and the loss of other values such as diversity in the biological, social and economic landscape.

Because there is unlikely to be a single farm forestry option suited to all farmers, farm forestry is likely to increase, rather than reduce, the diversity and resilience of agricultural landscapes. Rather than limiting viability, appropriate diversity can ensure that farmers and their communities are not susceptible to fluctuating markets and unpredictable policy changes. The key is for farmers to design and manage their forests for a range of benefits and in a way that ensures that scale and uniformity are not critical for success. The cost of producing timber or environmental benefits from many small multipurpose plantations is often much less than for large single purpose plantations because no single product or service must repay the full costs of production.
Multipurpose forestry makes common sense

Timber shortages, land degradation, low farm incomes, habitat loss, lack of shade and shelter, and our dependence on shallow rooted agricultural crops are all important problems that suggest that protecting remnant forests and planting new ones is critically important. Based on these concerns, the premise of most revegetation and conservation programs is that there is a particular problem that must be solved. Farmers aren't growing enough trees to combat land degradation. Industry hasn't access to enough timber to remain viable in a competitive international market. More forests must be grown to offset carbon emissions.

These different perspectives invariably lead to arguments about whose problem is the most important. The interest groups compete for funding, legislative protection and electoral support. But who can judge whether the supply of timber to industry is more important than controlling land degradation or protecting water quality? Or, whether the establishment of forests in order to enhance biodiversity is more worthy than growing trees to enhance agricultural production?

The reluctance of farmers to establish, manage or protect forests for the values that government, industry or conservation groups see as critical commonly leads to simplistic problem/solution type scenarios. More or better, forestry of the type that best matches the interests or perspective of a particular group becomes the goal or vision. Industry wants more timber plantations while catchment groups want more trees planted on salinity recharge areas and along water courses. The incentives and land use policy changes proposed by interest groups tend to focus on their single issue or problem of interest in a way that actively discourage multipurpose solutions.

Development programs that are focused on promoting predefined "best-bet" forestry options tend to follow a predictable sequence: land considered appropriate for the preferred development, or in need of the solution, is used to identify the target audience; the concerns or constraints of the farmers in the area are seen as impediments to adoption that must be overcome; like-minded stakeholders join forces to develop strategies to overcome the
apparent obstacles to adoption and nullify those who threaten their goals; where existing farmers are still not interested, or are unable to adopt the new technology, attention shifts towards ways of "re-educating" them or encouraging others to gain control of the land.

The problem/solution approach encourages researchers to evaluate forestry options against a narrow range of problem-specific performance criteria and conclude by simply recommending the "right answer", "bet-bet", or a "recipe for success".

The foolishness of establishing and managing trees for a single purpose when there are clearly other opportunities and impacts is rarely lost on farmers. The development of plantations for timber production cannot be viewed in isolation to land degradation, biodiversity, rural communities, agricultural production and other related issues. Researching and promoting simple "answers" to complex problems in isolation of the physical, social and economic landscape in which they occur is clearly wrong.

Rather than viewing the current status of farming or forestry as a problem requiring a solution it is more appropriate to think of it as a starting point. Forests take many years to mature and over the years the original purpose or intent often becomes less important. There are 400 year oak forests in Europe, originally planted for the production of wooden ship masts, that are just reaching maturity now. If we plant and manage our forests with a single purpose in mind we may well be foregoing future opportunities.

The Joint Venture Agroforestry Program have shown how research and development can be focused on gaining an understanding of the underlying processes behind the problems and identifying the principles of farm forestry design while still allowing farmers and policy makers to make the final decision as to the most appropriate course of action.

The alternative approach - farmer first

Too often interest groups try to change farmers so that they think like them - as foresters, naturalists or greenies. They want farmers to see the problems their way and adopt the solutions they consider to be the best. If farm forestry is to meet the needs and aspirations of all, we require a new approach to identifying forestry opportunities and of engaging farmers and stakeholders. Like an approach born out of the potential to build more resilient rural landscapes for the future rather than simply solving the problems of the past.

Rather than trying to sell "best-bet" forestry options, those seeking particular outcomes, such as timber production, land degradation control or biodiversity, must try and marry their needs to those of farmers. For example, research suggests that for many farmers being able to hand their farm over to their children in a better condition than they found it and to farm within the environmental capacity of the land are important goals. Amongst those farmers who had planted trees the main immediate purposes were to provide shelter for stock and crops, address land degradation or provide wildlife habitat. Farmers rarely talk of their trees as "underpinning future timber supplies", "reducing water treatment costs", "reducing the trade deficit", or "providing an alternative wood supply to native forests". Clearly forestry has a role to play in meeting these farmers' needs and aspirations even though they are not exactly the problems identified by government, industry and community groups.

In meeting their own needs farmers can help achieve the goals of others, however, it is most unlikely that they will wholeheartedly accept the "best-bet" purpose options advocated by single interest groups.

Farm forestry is not about turning farmers into foresters but about making forestry fit into farming culture.
Alternatively, government, industry, conservation groups and water authorities could be seen as the farmers' clients or customers. By designing and managing their forests in a way that better meets the needs or interests of others, farmers may be able to negotiate an attractive "sale" of the forestry products and environmental or social services their forest provides. The return to the farmers may come in the form of higher prices for forest products, stewardship payments for provision of environmental services, rate rebates, planning support, grants, special privileges, marketing assistance, joint ventures or other incentives. The key is to allow farmers to retain the ownership and responsibility for land use decisions thereby encouraging innovation in design and opportunities for multipurpose production.

Rather than carry the full cost of revegetation each stakeholder need only "pay" for the outcomes they are able to capture. For example, high value sawlogs don't need to be produced in a dedicated "best-bet" sawlog plantation. They could be grown in a wildlife corridor or a shelterbelt. Prospective purchases simply need to outline their product specifications and negotiate a price and point of sale that encourages farmers to consider designs that will produce the products and services they require. The farmers must then balance the prospects for future sales with their other interests before they design and manage a forest to suit.

Penalties, like incentives, are also a legitimate tool that governments and others can use to express they interests. For example, harvesting contractors often penalise farmers for the increased costs associated with harvesting small or difficult areas. Some local governments are introducing differential rating to offer rate rebates to those prepared to protect native forests or establish multipurpose farm forestry. They may also increase rates on industrial plantations that they feel are not contributing to their vision for their shire.

Incentives, payments, penalties, regulations and codes of practice should be "outcome orientated" so as to allow farmers to develop innovative ways of managing their land. For example, codes of practice that do not permit the harvesting of timber from stream reserves or native forests because of the...
anticipated environmental impacts may actually encourage neglect. Outcome orientated codes that allow farmers to manage their land as they wish, as long as long their management does not threaten clearly defined environmental or social values, encourages innovation and development of low-impact multipurpose farm forestry options.

When the wider community recognise and accept that it is the farmers who make the final decision about the establishment and management of forests on their land, farm forestry will be able to naturally evolve as an integral part of the farming landscape. Australian farmers have a reputation for modifying and adapting farming innovations to suit their needs. The future of farm forestry in Australia will depend on what the farming community want of forestry and the preparedness of interest groups to "pay" for the benefits they wish to see. The future of farm forestry should not be seen as limited to the few options sanctioned by the experts or interest groups.

**Elegant solutions: appropriate farm forestry designs**

If farmers are going to take responsibility for the design and development of their forests, then farm forestry research, education and promotion needs to focus on assisting farmers design and evaluate farm forestry opportunities in light of their own circumstances and performance criteria. A farmer’s interest may be initially driven by an attractive vision of what forestry might offer them, their family or community. As they consider the opportunities they will continually evaluate them against their personal beliefs, aspirations and constraints. Commitment will only follow if they are able to identify an attractive proposition, access the necessary resources and build confidence in their ability to overcome the inevitable risks.

Once they have made a personal commitment (e.g., established the trees or entered into a forest agreement) future success will depend on maintaining confidence, repeated investment and continuing personal satisfaction. It is a farmer’s responsibility to ensure that their commitment of land, time, money and enthusiasm reflects their own aspirations and personal performance criteria. An initial commitment does not guarantee future satisfaction and is a poor measure of success.

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**ELEGANT SOLUTION:** These trees have been planted to shade the grass that harbours sugar cane rats. The farmer is managing the trees for high value cabinet timber.
Long-term and multifunctional land uses, like forestry, are rarely assessed on the basis of a single criteria. A farmer will judge satisfaction with the total package of financial, environmental and social benefits that he has been able to capture - or what he expects - relative to his investment and exposure to risk. Where the costs of failure are low a farmer may still be able to justify success on the basis of experience gained and lesson learnt.

Multipurpose forestry allows the costs of producing one product to be paid for by the benefits provided by another. For example, if a farmer can justify the cost of establishing commercial trees on the basis of non-timber values the forest will provide as it grows, then the traditional constraints facing commercial forestry - namely the cost of the land and the long investment period - become less important. In this way farmers are developing "viable" multipurpose forestry options for areas once considered too dry, too small, too difficult or too far away for "real" forestry.

The aim must be to design unique agroforestry and farm forestry systems that match each grower’s site conditions, non-timber interests, personal resources, market opportunities and future aspirations. This results in a diversity of ownership, layout, structure and function that reflects the physical, social and economic diversity inherent within farming communities - elegant solutions that express the unique situation facing each farmer.

Farm forestry is about fitting forestry into a farming culture rather than replacing it. If farm forestry is to contribute to the visions of industries, communities and governments, these interest groups must first ensure that farmers are able to achieve their goals. As a community we must encourage farmers to adapt and refine forestry options to best suit their own circumstances and allow those with a legitimate interest in the products and services provided to be adequately rewarded.

Farmers are keen to integrate forestry into a farming landscape rather than replace it.