

**Submission to the House of Representatives Standing Committee on
Agriculture, Resources, Fisheries and Forestry**

Inquiry into the Australian Forestry Industry

1. Summary

Farm Forestry, in addition to being able to provide the same range of products as the broader forest industry, also adds value to the industry a number of ways, ranging from enhancing diversity to reducing community conflict over access to land and water. It does this by virtue of its ability to straddle the farming - forestry divide, whilst linking closely across a broad spectrum of the community at a grass roots level. In affect farm forestry epitomises the "win win" situation, and the Australian forestry scene would be the poorer without it.

2. Introduction

2.1.Objective

This submission is prepared on behalf Farmed Forests of the North East (FFORNE) and seeks to outline the case for farm forestry and the potential role it might play in current and future prospects of the Australian forestry industry, within a Victorian context. Its purpose is not so much to outline the general benefits and opportunities of farm forestry per se, but rather to draw attention to and emphasise those areas where farm forestry can either add value to or provide additional opportunities to those offered by the broader plantation industry. In doing so it not only addresses the point "opportunities for farm forestry" within the terms of reference for this enquiry, but seeks to consider each of the other major points of reference where appropriate from a farm forestry perspective.

2.2. FFORNE BRANCH AFG

Farmed Forests of the North East (FFORNE) Branch of Australian Forest Growers had its beginnings in the late 1980's when, following an Agroforestry Field Day at Rutherglen, the general assembly voted to form the North East Agroforestry Network. In the ensuing years, there has been several farm forestry groups form in northeast Victoria, but gradually they have combined to form the one entity to become a branch of the national body - Australian Forest Growers. FFORNE currently has 74 members with an interest in farm forestry on private land spread across the north east of Victoria, aiming to produce a variety of products include hardwood and softwood sawlogs, firewood and poles. The wide range of forestry species and products grown by members reflects both the varying scale of operation and also the diversity of the landscape in which farm forestry occurs.

3. Farm Forestry

3.1.Why farm forestry

Farm Forestry is a land use which has the potential to expand and provide commercial returns from a range of economic, environmental and social values in the rural landscape. Best practice farm forestry can play an important role in ensuring productive, resilient farming systems that can sustain the natural resource base whilst generating a range of commercial timber and non timber products (Herbohn et al 2000). Most importantly farm forestry can be a complimentary enterprise on farms that contributes positively to the broader forest industry sector without significantly reducing food or fibre production.

3.2. What is Farm Forestry?

There are a variety of views as to what is or isn't farm forestry, and so for the purpose of this exercise we have adopted the definition of farm forestry described in the Commonwealth Government's Farm Forestry National Action Statement 2005. This statement has been formerly endorsed by the majority of state and territory governments including Victoria, as well as the leading grower associations.

"The focus of the farm forestry activity is primarily commercial, although there may also be other objectives including shade and shelter for stock or crops, natural resource management including soil and water protection, habitat conservation, landscape and amenity values.

Farm forestry can take many forms, including plantations on farms, woodlots, timber-belts, alleys, wide-spaced tree planting and sustainably managed private native forests.

Farm forestry plantations are predominantly of a smaller scale than industrial plantations and may have less emphasis on timber or fibre production as primary outputs.

Importantly farm forestry is practiced by farmers and other landholders, using the resources and knowledge available to them. The farmer or landholder makes the critical decisions, from establishment and management to marketing of products and services".

An important point to note about this definition is that the key determining points as to what is or isn't farm forestry are not based on plantation size, configuration or product type. But rather upon who makes the decisions and why. Under this definition commercial product derived from tree growing are not restricted to traditional wood products such as timber, posts, chips and firewood. Consequently any trees established for the purpose of generating income from carbon sequestration or other environmental services are also a form of farm forestry.

Furthermore plantations established on farms by other organisations, whether through lease, cost share or outright purchase of the land, does not constitute farm forestry, even if the trees are integrated with other agricultural practices, unless the landholder is the one making the critical decisions concerning management. In some cases however this decision may be based on advice from other parties, such as where a consultant has been engaged.

Farm Forestry is about farmers making the decisions about where trees are planted and why.

3.3. Where is farm forestry?

Determining the nature and extent of farm forestry is problematic as not all states have methods for collecting such data and the industry by its very nature is highly dispersed and variable. To exacerbate matters not all farm foresters see them selves as such, as the forestry aspect of their business is not usually their main game or source of income.

The farm forestry estate in Victoria (excluding private native forests) has been estimated at approximately 25,000 ha, representing six per cent of the State's plantation estate. Sawlogs from farm forests and plantations have been seen as an additional supply to native forests with a few hundred Victorian landholders being offered government incentives to supply sawlogs from their farm forests (Stewart 2010).

Farm forests are owned and managed by more than 1000 growers, who vary significantly in terms of production area, species grown, enterprise mix and capability and many forest management decisions are strongly influenced by factors other than maximising tree productivity (Stewart 2010). Farm forestry adoption across the state is geographically dispersed and the type of agricultural enterprises associated with it highly varied. However, grazing and livestock production are the most common forms of accompanying farming enterprise.

The most common species grown are Radiata Pine (*P.radiata*) and Tasmanian Blue Gum (*E.globulos*), with Sugar Gum (*E.cladocalyx*) and Red Ironbark (*E.tricarpa*) more common in lower rainfall areas. While production of sawlogs is the primary objective of many farm foresters, pulpwood, firewood, poles and posts are often also important products where markets exist.

Farm forestry is supported by seven regional farm forestry grower associations who are collectively represented by Farm Forest Growers Victoria (FFGV). Many of the regional groups also double as regional chapters of Australian Forest Growers (AFG), which seeks to represent the interests of private forestry and farm tree growers nationally.

4. Opportunities for and constraints upon production

A significant current constraint upon expansion of the plantation industry in Victoria is the value of suitable land being driven well above its productive value. This is especially prevalent in the west Gippsland and north east regions of Victoria where the processor has the markets and capital required to expand but is unable to secure sufficient additional plantation resources to safely do so. The plantation estate in those areas has been relatively static for several years and a major factor behind this has been the high price of suitable land which is also in high demand for residential and lifestyle uses.

Land for the current plantation estate was established through a combination of clearing public native forests and purchasing of farm land. As neither of these options are now suitable, a new approach is required and farm forestry provides the opportunity to do this. If plantation companies and processors were to jointly develop farm forestry programs, whereby the landholder was provided with technical assistance, access to the best germ plasm and a guaranteed purchase. This would allow the industry to access land without having to purchase it and thus overcome the growing constraint of high land values.

A new approach is required to expand our timber resource base and farm forestry provides this opportunity.

5. Opportunities for diversification, value adding and product innovation

Farm Forestry provides a range of opportunities for increasing diversification, adding value and developing innovative products within the forests industry. By having large numbers of growers spread over a wide range of environmental sites farm foresters are well placed, even forced in some cases to explore and exploit species and products outside the mainstream industry. For instance in Victoria the plantation industry is largely based upon to two species (*E.globulos* and *P.radiata*), where as the farm forestry sector has major interests in these plus several others such as; *E.cladocalyx*, *C.maculata*, *E.muellerana*, *A.melanoxylon*, *E.tricarpa* and *E.camaldulensis*.

As farm foresters often cannot realise the costs savings delivered by operating at large scales, this has driven them in many cases towards markets and activities that are less attractive to the plantation industry in an effort to obtain a complete advantage;

- (a) Small but high value niche markets such as Shitake mushrooms; and
- (b) Value adding practices, such as the pruning of trees to produce clear wood.

Production of hardwood sawlogs from native forest in Victoria has also been steadily declining as access to native forests decreases. However the industrial plantation sector has failed to invest in this area and currently farm foresters are the only growers seeking to fill this gap. In part this is due to a range of government programs offering incentives for the establishment of hardwood sawlog plantations. However it also indicates a higher willingness on the part of farm foresters to invest in higher risk and longer term projects than the mainstream industry. This in return reflects the multiple values farm foresters employ when making investment decisions about tree planting, with the other non timber values often seen as offsetting some of the financial risks involved (Jenkins 2010).

Farm Foresters are better placed to explore and evaluate products and innovations outside the mainstream.

6. Impacts of plantations upon water availability

There have been a number of studies into plantation water use and the potential impacts of this on water availability. Most notably the Zhang curves (Zhang et al 2001) which clearly show plantations will intercept and use more water than an equivalent area of grass land. Allowing the broad assumption that increased plantation area must equal reduce water availability within a catchment. However Zhang's study also demonstrated water use by plantations varied significantly with both location within the catchment and the degree of rainfall.

There have been a number of attempts to model this impact at a catchment level and to produce modelling tools for evaluating individual plantation proposals, such as DPI's Catchment Analysis Tool, for use by agencies concerned with catchment management and water allocation. These have found that accurately measuring the impacts of land use change below a 10% threshold (ie less than 10% of catchment converted from grass to trees) or for plantations of less than 10ha of intensive contiguous planting was extremely difficult (DPI 2005). This was mainly due to the low degree of the impact and the tendency of other land use changes (e.g. pasture improvement, raised bed cropping) to cloud the results. Indeed even in areas of recent rapid plantation the area of plantation forestry remains small relative to other land uses and the cumulative impacts of trends into higher yielding and more drought tolerant pasture and crop species and alternative crop and pasture systems could exceed those of forestry (ACI Tasman 2010).

Farm Forestry by its very nature is a dispersed activity across the rural landscape. It is quite rare for farmers to plant out significant proportions of their properties and often their plantings are spread over a number of small plantings or may even be wide spaced trees within a pasture. If one assumes an average planting level of 10% of the farm then this cumulatively equates to around 10% of a catchment, well below the thresholds of concern for impacts on water availability. Farm Forestry therefore offers a tree cropping system that could be widely adopted that guarantees no significant impacts on water availability.

7. Creating a *The dispersed nature of farm forestry offers a tree growing system that does not significantly affect water availability.*

Encouraging a *tree growing system that does not significantly affect water availability.* contribute to a better operating environment for the forest industry in a number of ways.

Firstly, as the number of farm foresters increases it creates a growing pool of people with a shared interest in maintaining a favourable operating environment for forestry and several areas of common concern such as road access for timber trucks and land use zoning. This in turn should positively influence planning and decision making by local government and regional authorities with regard to forestry.

Secondly, as the number of landholders in the community with a sound knowledge and understanding of the forest industry increases, so too is the level of understanding of the industry and its benefits growing within the broader community. This should lead to a reduction of issues arising between the community and the industry and a more equitable approach to dealing with them when they do.

Farm forestry can assist the forest industry to maintain its' social licence to operate.

8. Social and economic benefits of forestry production

Plantation expansion can contribute to stable economic growth in regional areas, particularly if processing facilities are present (BRS 2005). However this growth tends to mainly accrue in regional centres and where plantation expansion is rapid, may be perceived negatively by the community and give rise to social conflict. In contrast small scale farm forestry is perceived by rural communities to have more positive and less negative impacts than large scale plantation developments by non farmers. Farm forestry is viewed as being more equitable sharing of benefits generated by afforestation, whilst also maintaining rural populations, and traditional agricultural activities/landscapes (Schirmer 2007). Farm Forestry therefore offers a mechanism to expand the forest industry and realise the associated social and economic benefits with minimal social conflict.

Rural communities perceive farm forestry as being beneficial

9. Potential energy production from the forestry sector

Biomass generated from forestry is a promising source of bioenergy which can be used to produce a range of energy forms including electrical, heat, liquid fuels and charcoal. The international Energy Agency estimates that biomass has the potential to meet as much as 40% of the world current energy demand (JVAP 2).

Farm Forestry offers the same range of potential energy production options as the broader forest industry and has already made considerable progress in exploring the possibilities. Farm Forestry Growers North East has recently completed an investigation into the use of farm based gasifiers to generate electricity from farm forestry residues. In this study it was proven that it was feasible for farms to be self sufficient and greenhouse neutral by means of farm forestry coupled with on farm gasifiers. Furthermore Blue mallee (*E.polybractea*) is a species currently being researched for the Australian wheat –sheep belt by the Future Farm Industries Cooperative Research Centre where it is planned to be grown in 2 row belts for biofuels.

10. Land use co-benefits

Farm forestry can assist farms to be carbon neutral and energy self sufficient.

Farm Forestry is being followed, this should be aimed at increasing the net productivity and sustainability of the overall farm enterprise. In this context tree crops are just another form of agriculture for the farmer and arguable there is no net loss of land of productive land for agriculture.

Farmers engaging in farm forestry usually target tree planting towards those parts of the farm that are the least productive (too wet, too dry, saline, rocky) for their main enterprise. Or alternatively they adopt designs which will enhance the associated agricultural activities e.g. shelterbelts, stock havens. In such situations the landholder is then able to concentrate their agricultural efforts upon those parts of the farm with the greatest potential to respond. For example Jigsaw farms in SW Victoria, a 2000ha beef cattle property, has a long term tree planting program aimed at converting approximately 20% of the property to a combination of environmental and sawlog plantations whilst simultaneously renovating pastures and boosting stock numbers. Consequentially many successful farm foresters have been able to report no net loss in productivity despite the planting out of up to 25% of their farm (Reid & Stephen).

Farm forestry allows timber production with out loss of agricultural productivity.

11.Environmental benefits – achieving the “win win”

The environmental benefits of growing trees on farms, is well understood and for farm forestry has often been a key driver of associated government programs in Victoria (Herbohm et al 2000). A key feature of farm forestry is the strategic placing of trees on the farm so as to maximise the environmental benefits produced in addition to the primary commercial product sought. Farm Forestry therefore offers an opportunity to deliver both environmental and commercial benefits at both a farm and catchment level in a manner that would be difficult for plantation forestry to match.

11.1. Salinity mitigation

Around 2.5 million ha of farming land in Australia is salt affected and this area is expected to increase (JVAP 1) significantly as a result of replacing native vegetation with crops and pasture. As discussed in section 4 plantations will utilise more water than equivalent areas of pasture and crops and consequently reintroducing trees into the landscape would help alleviate the salinity problem. But to address salinity problems whilst maintaining available productive farming land requires careful planning (JVAP 2000, Clifton) and farm forestry has a distinct advantage in this area. Unlike purely environmental or commercially driven planting programs which tend to result in either too few or too many trees in the wrong place, farm forestry by blending the two has the capacity to both generate the scale of planting required to impact on salinity but still avoid significant loss of productive land from agriculture (DAFF 2003).

11.2. Greenhouse neutral firewood

Woody biomass is a natural way and sustainable way of harvesting solar energy, and predictions are that demand for firewood (and woody biomass) will increase as more home, institutional and industrial heating is converted to wood to reduce electricity usage and the carbon footprint, particularly in regional areas (NE Firewood committee pers comm.)

Firewood burning is often perceived by the community to be contributing to greenhouse gas production and climate change (Sonogan 2000), as the smoke is highly visible, even though this actual particulate matter is not the greenhouse gas. The fact that what is released is only what was taken up by the plant leading to a greenhouse neutral product when compared with fossil fuels, is often overlooked.

The greenhouse benefits of various types of firewood production systems were the subject of a major study undertaken by the CSIRO in 2003. This study calculated the

CO₂ emissions from woodland, sustainably managed native forest and plantation firewood resources in the medium rainfall zone, using the Full Cam model developed by the Australian Greenhouse Office. They found that in terms of limiting net greenhouse gas emissions, firewood is generally more favourable for domestic heating than other non-renewable sources of energy. There is a direct substitution of fossil fuels emissions, with little additional emissions associated with the production and collection of firewood. They took into account all energy aspects, including harvest and transport as well as forest and individual tree growth characteristics. The CSIRO report reported that collecting firewood from the thinning, harvest residues and other material from beneath a plantation grown for sawlogs production on cleared farmland, provided the greatest benefits in terms of carbon sequestered per unit of energy produced. Harvesting 728 t DM /ha of firewood resulted in an average sequestration of carbon of 402 t CO₂. Firewood from purpose grown coppiced firewood plantations also sequestered carbon, and burning firewood from harvest residues and other material from beneath a sustainably managed native forest produced very little carbon dioxide. Firewood collection from woodlands was deemed as unsustainable, even though their carbon emissions were well below those for even natural gas.

11.3. Biodiversity

The potential of plantations to contribute to biodiversity conservation, particularly for birds in the woodland areas, has been demonstrated in a number of studies (Loyn et al 2007, Klomp & Grabham 2002). In the RIRDC study by Richard Loyn (2007) and associates they found that plantations of all sorts can provide additional habitat for native birds and mammal species compared to that of most agricultural land and that converting land from grazing/cropping to tree growing resulted in a net gain biodiversity.

Plantations can make a positive contribution to biodiversity conservation and hence sustainable landscapes (Loyn et al 2007, Dames & More). These contributions can be further enhanced through measures such planting close to remnants, retaining remnants embedded within the plantation, harvesting in patches to retain connectivity and including some rough barked species and understorey. Remnants embedded within plantations have also been found to improve in health and condition, leading to enhanced biodiversity levels.

In theory these same benefits can be generated by broad scale industrial plantation development, but farm forestry is much better placed to deliver them (Dames & More). The diversity of farm forestry and its tendency to place a high value upon generating environmental benefits, even sometimes at the expense of economic benefits, means that at a regional level farm forestry is more able to realise potential environmental benefits (Dames & More). This situation has been exploited by government programs focussed on specific and broad biodiversity outcomes. Where by farm foresters may achieve eligibility for tree growing assistance, should they incorporate certain measures designed to increase biodiversity, or simply by possessing land within the target area.

Farm forestry is about strategic tree planting to achieve multiple outcomes.

12. Conclusion

Farm forestry is a growing part of the Australian forestry scene, especially within the state of Victoria, able to provide the full suite of products currently derived from broad scale industrial plantations. It is however far more than simply the small end of the commercial plantation industry, possessing a number of unique characteristics, which that allow it to provide a mixture of critical services to both the industry and the community. This submission has sought to identify and describe these characteristics, in

particularly those that can enhance the larger forest industry in which it operates, so as to support sound decision making concerning government policy and investment direction. The basic premise of this submission is that Australia's forests industries and thereby the broader community, will be better placed if they include a strong and vibrant farm forestry sector.

The farm forestry scene in Victoria, indeed in Australia, is not without its' own issues, and although showing steady growth over the last two decades, still faces considerable barriers to its development. Assistance in overcoming these barriers, so as to facilitate the successful growth and development of farm forestry is therefore a vital pre requisite, if this part of the forest industries is to play its role effectively.

13. Authorisation & further contact

This document was prepared by Charles Hajek (member of FFORNE branch AFG) on behalf of FORNE branch AFG, and has been approved for submission by Bruce Sonogan Secretary of FFORNE branch AFG.



On behalf of;

Bruce Sonogan
Secretary FFORNE AFG branch
219 Four Mile Road
Benalla 3672 Vic

14. References

ACIL Tasman (2010), Land use change and water resources – review of policy options. Unpublished.

Clifton C (undated), The role and impact of trees and pastures in dryland salinity management. Centre for Land protection research. Unpublished.

Commonwealth Government's Farm Forestry National Action Statement 2005

DAFF 2003, , Natural Heritage Trust and the National Action Plan for Salinity and Water Quality – Farm Forestry's Role. Department of Agriculture, Fisheries and Forestry.

Dames & Moore NRM/FORTECH (Undated) Integrating Farm Forestry and Biodiversity – A discussion paper. Joint Venture Agroforestry program, RIRDC publication no 99/1666

DPI (2005) Sawlogs for Salinity project: Final report (unpublished). Department Primary Industries (Victoria).

Herbohn K, Harrison S, Herbohn J (2000), Lessons from small scale forestry initiatives in Australia: the effective integration of environmental and commercial values. Forest Ecology and Management 128: 227-240.

Jenkins B (2010) Farm Forestry Research Update Seminar, Department Primary Industries (Victoria).

JVAP 1 (2000) Trees, water and salt – An Australian Guide to using trees for healthy catchments and proactive farms. Joint Venture Agroforestry Program Research Update Series No.1.

JVAP 2 (2000) Emerging products and services from trees in lower rainfall areas. Joint Venture Agroforestry Program Research Update Series No. 2.

Klomp N and Grabham C (2002) A comparison of the avifaunal diversity on native hardwood plantations and pastures in north east Victoria 1991-2001. Johnstone Centre Report no 164 ISBN 1864671084

Loyn R., McNabb E., McEach P. Noble, P, 2007. Eucalypt Plantation as habitat for Fauna in Rural Landscapes: developing appropriate designs for enhancing their values. RIRDC, Canberra. Report in publication.

Paul, K., Booth, T., Elliot, A., Jovonovic, T., Polglase, P., Kirschbaum, 2003. Life cycle assessment of greenhouse gas emissions from domestic woodheating, Greenhouse gas emissions from firewood production systems. Australian Greenhouse Office, Canberra.

Reid R and Stephen P (undated) The Farmers Forest - Multipurpose forestry for Australian farmers. RIRDC publication No. R01/33. ISBN 0 642 58352 8.

Sonogan, B., 2000. Some observations that may affect consumer preference for plantation grown firewood. National Firewood Conference, Canberra.

Paul, K., Booth, T, et al, Sept 2003. Lifecycle assessment of greenhouse gas emissions from domestic wood heating. Greenhouse gas emissions from firewood production systems. Bush for Greenhouse. Australian Government Greenhouse office, Department of Environment and Heritage. Canberra.

Schirmer J (2007) Plantations and social conflict: exploring the differences between small scale and large scale plantation forestry. *Small-scale Forestry* 6:19-33

Stewart H (2010) Understanding the nature and extent of the Victorian farm forestry sector. Farm Forest growers Victoria publication ISBN 978 0 646 54483 0.