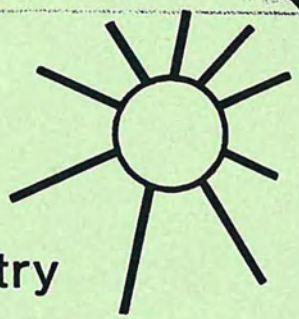
Agroforestry Update



Newsletter for Agroforestry Researchers and Practitioners

Department of Conservation and Land Management

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Editorial: Thanks to all those who have contributed to this issue. Your efforts make it possible to produce this newsletter.

To all our readers; if you have any news, reports, articles or comments about integrating trees and farming, please send them to us as we'd like to hear from you.

Contents

PRACTICAL USE OF AGROFORESTRY WITHIN A WHOLE FARM PLAN

FROM A FARMERS POINT OF VIEW

by Bev Lynch

"Wilgi Creek", PO Box 249, Mt Barker, WA 6324

Throughout the late 1970s and early 1980s an awareness has developed in our farm management that somehow we must arrive at a balanced farm economy using trees as well as pasture and crops. We have to place enough trees and perennial grasses in the landscape to control groundwater but not decrease the earning capacity of the farm as a whole. Our movement towards such a plan is ongoing and a learning process.

Our farm is 15kms west of Mt Barker [South West Western Australia] in 700mm rainfall area. Medium to heavy soils - Jarrah, Marri, Wandoo type. We have 3 winter flowing creeks running through the property. Unfortunately we do not control the headwaters of any of them. Clearing began on the farm in 1962 and was completed in 1972. All pastured except for shade and shelter (not enough) and 8 Ha of bush for timber.

Looking back now it is very had to say what actually started us on any form of conservation work. Maybe a desire to aesthetically improve the property was why we began to look at it more closely. No doubt it influenced us in the early stages. Certainly our need for a timber resource was an influence. All the buildings on the farm had been built with timber off the farm and we could see that we were running out and had no replacement. When Ian was left a small legacy by his Grandmother we decided to use it to plant a small woodlot. The area we selected was a very degraded creekline with hillside seeps showing up. All the large trees were dead and stock still had unlimited access to the area. One of the main reasons for choosing this particular site was because "we would not be loosing any good ground".

We contacted Forest Dept in Perth and outlined what we wanted to do and asked for information on how to go about it. After some time an officer from the Manjimup office contacted us. Our timing had been perfect. The Department was looking to expand into less high rainfall areas in which they had traditionally operated and our project was just what they were looking for. So a mutually profitable association was formed. They supplied the trees and the know how and we supplied the land and the labour.

We planted 2300 trees that first year (1983) - 1600 eucalypts and 700 pines. The area was deep ripped, sprayed with Vorox, fenced and trees planted 3 weeks after spraying. By Christmas some of the trees were 6ft high, but 1 month later we had 1 eucalypt and 50 pines left. Wingless grasshoppers

had eaten the rest. Subsequently we have learnt to control these pests - but that is another story.

With the encouragement of Forests Dept we replanted the following year. Twenty three different types of eucalypts were planted and from this original plot we can now determine the best trees for our area.

Our original intention was to run stock through these trees when trees had grown sufficiently - we estimated about 3 yrs. However it was 5 years before we allowed them access because we had such a large number of self sown Wandoo and Melaleuca that we wanted to allow them to grow up as well.

Because of the close plantings (3m x 3m) we have found that after a couple of years grazing we have very little pasture left amongst the trees because of the shading and moisture stress.

In early 1989 Peter Beatty from the Department of Conservation and Land Management [CALM] spent 2 days with us showing us how to prune and thin the trees. This will be an ongoing process. Where this management has taken place we are finding more and more clover coming back due mainly, we feel to more light penetration.

Our grazing management of the woodlot area now is to allow stock access on a limited basis. When grass is green and as it dries up or they have eaten it, the gate is closed. Also we have found that when the pines are pruned and the needles start to turn yellow, the sheep eat both the needles and the small branches with relish.

By late 1984 more and more people were becoming aware of water-logging and salinity. We attended many field days and looked at all sorts of different types of drainage and tree growing. One of the main things we learnt from that time was that drainage on its own would not do the job and trees on their own would not do it either. There is no way a tree will grow well with wet feet. Therefore a combination of the two seemed to us to be essential.

With these ideas in mind we arranged an on-site meeting in late 1984 with Ag. Dept., Forests Dept., two upstream neighbours and ourselves. We wanted to draw up a plan to control waterlogging on a 12 ha area adjacent to one of our creeks. The problem we had was not of our making but was coming from upstream and what we had to do was persuade the 2 neighbours to use drainage and tree planting to control their water and prevent it spilling out onto our saucer shaped problem area. What we hoped to do was follow up their work with our own the following year. However, as it turned out, the farmer at the top of the catchment said he didn't have a problem - his bare patches were only where he had spilt some chemical when he was doing his fire breaks!! The farmer in the middle was not sufficiently convinced of the merits of

the plan. So faced with this we decided to bring our own programme forward a year and hope to at least stop the problem from getting any worse. The Ag. Dept. agreed to survey the drains for us and Forests Dept. agreed to supply the trees. We decided on an agroforestry type planting using pines and eucalypts.

Three shallow grader drains were placed on the eastern side of the creek and one bulldozer interceptor drain with grade on the western side. The central creekline was dug out with a backhoe to a depth of 1 metre. The Dept. of Agriculture were not happy with this drain because they feared it would erode badly. However five years later it is holding up extremely well and the marks of the backhoe are still clearly visible. It was decided to plant trees on the drains both upslope and downslope. The drains were spaced to allow for full width runs with farm machinery. Pinus radiata cuttings and 8 species of eucalypts were supplied by CALM. Puccinellia was planted on what we regarded as the more saline area and Tall Wheat Grass on the areas we regarded as being water-logged only. The remaining area was planted down to oats for hay. The drainage went in in February 1985, the oats in June 1985 and the trees planted in July 1985.

As always, Murphy's law prevailed. Firstly, the pine cuttings were a disaster. We notified CALM when they arrived that we felt there was not enough root establishment but they said to go ahead and plant them anyway. Some of the areas recommended for pine plantings were not suitable so most of the pines either died or did not grow at all.

We had a very dry beginning to winter that year but when it rained it really rained and large numbers of trees were washed away or drowned out. However the drains were working really well.

Consequently we had to look at a fairly large replanting the following year. One good result we had was that our neighbour immediately above us decided that he wanted to go ahead after all which meant we were able to work on an integrated system of drainage which has proved to be enormously successful.

In fact that first year (1985) we cut 85 large rolls of hay off the cropped area between the trees. Not only was the crop very productive but we also felt it helped to protect the small trees that did survive the other disasters.

So 1986 saw us replanting about 5000 trees on our area and helping plant 10000 on the neighbours area which we supplied. In the areas where we had lost trees through water inundation in 1985, we hilled extensively. We did not plant any more pines because we felt they were too slow growing in this particular situation so we opted for E.globulus. We chose these mainly because of their fast growing ability and we felt we could not afford to wait that extra year for

something else to catch up to the growing trees. 1986 was a very dry year and we lost some trees because they were too dry on the mounds! However we felt we had enough trees left without any more replacements. We sowed oats and vetches in between the trees and cut 80 large round bales of hay.

Because we had dug out our central drain before our neighbour, we had a lot of silting in 1986. However in May 1987 we had 9 inches of rain which flushed the whole system out and all drains are working well. In fact at this stage (1990) the shallow grader drains on the eastern side have almost become redundant because the trees are now really soaking up the water.

In late August 1987 we planted all the non-treed areas (except for tall wheat grass and puccinellia area) down to Sirolan Phalaris. After cutting hay for two years we had a very thick growth of capeweed which was sprayed with 1.5 litres Roundup and 500 mls Dicamba which was not all that detrimental to the trees. However the capeweed did not have time to rot down so the seed was spread on top of it. In fact the capeweed was the only reason we did not get bogged. The Phalaris came up very dominant the first year and very little clover germinated. What did was droughted out by the Phalaris. We allowed the Phalaris to seed that year. In 1988 the clover started to come back into the pasture. We cut it for hay again and took 34 round bales off it. After cutting, it was stocked and has been ever since on a rotational basis with large numbers of sheep at a time. Averaged out over a year it has worked out at 10 sheep to the acre. This year we lambed out maiden ewes in the area at this stocking rate and we achieved a percentage of 80% lambs marked which is our highest ever. We did not lose a ewe.

The paddock is currently closed up for hay. We intend doing this every year because it takes the pressure off the trees at a vital stage of the year.

At the present time we have approximately 70000 trees growing and we expect to be able to take a first thinning for woodchips in 1995. Nearly all our treed areas are stocked - the exceptions being on very wet areas where we feel stock would damage trees and compact the soil. This would amount to less than 5% of the area.

When we started planting trees we had about 6% of the farm left in bush. We have increased this to about 18% and our aim is for 20%. This will be achieved when we plant shelter rows in all our laneways.

Even though we have had an enormous amount of help form Government Departments we have found that any form of conservation work is expensive. When we started out it was our aim to spend 5% of our income each year on drainage, fencing improved pasture including perennials, and trees.

Overall we have achieved that with what we believe are excellent results.

We have expensive land and the reason it is expensive is because of our good rainfall. Therefore to get the best out of it we must endeavour to use as much of that rainfall as we can where it falls and not let it drain off to the valleys and ultimately cause problems. To do this we use trees and perennial grass, controlled drainage and cropping. If we are going to drain off the best water from the top of the hills and into dams then we must use that water for high production crops. We have a Cherry Orchard, Passionfruit and Quince trees all of which are high return crops and use the water efficiently.

When we talk of cropping we not only refer to traditional crops such as oats and lupins etc. We also regard trees as a crop. They take longer to mature than the others but we feel that the perception of trees must change. People have to believe they are a crop and treat them as such.

After 7 years of combining farming with forestry on a whole farm basis we can see enormous changes on our farm - all of them good.

Land that was lost for production because of waterlogging is now producing again. Hillside seeps are reducing dramatically in size; areas we thought puccinellia would grow now haven't enough salt to sustain growth and ryegrass is taking over.

We are losing fewer and fewer ewes each year at lambing; our lambing percentages are going up and lambs are cutting more wool; overall our wool cut is rising every year and our stock numbers have been maintained even though we have had quite large areas closed up each year for tree planting. Now that tree planting is almost complete we are looking to actually increase our stock numbers.

Maybe we cannot attribute all these things to the Agroforestry Management system but it is too coincidental for it not to be a major factor.

We feel our goal of leaving our farm better than we found it is being achieved. We certainly have a lot more to learn and a long way to go. Maybe some of the things we are doing will not be correct when we look back in a few years time but we are sure we are dong most things 'right'.

THE ROLE OF TREES IN SUSTAINABLE AGRICULTURE

A NATIONAL CONFERENCE:
Being organized by the National Agroforestry Working Group with the support of the National Farmers Federation under the auspices of the Standing Committees for Agriculture and Forestry.

DATES:
30 September to 3 October 1991

PLACE:
Albury/Wodonga

AUDIENCE:
People involved with tree planting on farms; including farmers, landcare groups, agriculturalists, farmer organizations, foresters, advisors, researchers, and policy makers.

AIMS:
To familiarise participants with the latest technical and economic information about using trees in agriculture for conservation, combatting land degradation and improving farm productivity.

To determine research and extension gaps, obstacles to implementation, and action that needs to be taken to overcome these.

FORMAT:

Day 1
Conference opening
Keynote paper to set the scene about the development of a landcare ethic in agriculture.

Review papers which present quantified information about the benefits of using trees in agriculture. Topics include the role of trees in combating salinity and wind erosion, and in producing shelter and income from timber and other products.

Presentations by State winners of national competition - "TREES FOR CONSERVATION AND PRODUCTION - THE AUSTRALIAN FARMER'S VIEWPOINT"

Day 2

Field tours to view examples of trees integrated with farming.

Day 3

Technical topics on management and practices for 3 topics; land protection, economics, and trees for timber
.

Workshop sessions to determine:
- research and extension gaps
- impediments to implementation and
- achievable action to should be taken to resolve gaps and impediments

Topics include:
- management of shrubs in rangelands
- soil productivity - the place of trees
- marketing timber from farms
- incentives and disincentives
- management of savannah woodlands for grazing
- specialist timber
- management of native vegetation for timber, land protection and conservation
- advisory services
- landcare groups - their role in sustainable agriculture
- farmer/scientist co-operation
- "hands-on" MULBUD [economics of agroforestry systems]
- whole-farm planning - how do you do it?
- establishing and managing fodder trees and shrubs in temperate and tropical areas
- provenance selection - for timber production and land protection
- tree data bases
- insects and farm trees
- hobby farms - trees for production
- conservation and production from trees - compatible?

Day 4

Workshop sessions continued.
Plenary session with reports from workshops
Conference closing

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ON DEVELOPING A RATIONAL FORESTRY SECTOR

by Ranil Senanayake

Centre for Farm Planning and Land Management
University of Melbourne

Forestry, by dictionary definition, is a human endeavour centred around the management of forests. The definition of a forest is an ecosystem dominated by trees, a wide definition, but of utility when the diversity of vegetational forms are considered. Rainforests, cloudforests, deciduous forests and pygmy forests, are but some examples. Most of the types of forests described have unique taxonomic and ecological characters. Therefore the activity of forestry has to be defined vis-a-vis its goals, or its very action can disrupt natural ecosystems by replacing valuable or environmentally important ecosystems with non-sustainable or environmentally unsuitable substitutes. This consideration is especially poignant due to the fact that certain natural ecosystems are essential to convey stability on the human environment.

At present, there is no recognition of these realities in forestry planning for much of the globe. A consequence is the current widespread destruction of dozens of unique forests leading to the extinction of hundreds or thousands of species. Often international planners, having no sensitivity to a nations natural heritage, begin to count timber present in protected areas such as national parks as an 'unutilised resource'. For example, a master plan for forestry prepared for Sri Lanka by an international consulting agency began with the assumption "Forestry, which covers only unprocessed wood...". Forestry , in this context seems to refer only to the production of wood. The agency implementing such a plan can wind up as an efficient producer of wood, but the impact of this activity on natural systems will go unaddressed. A clearer definition of the scope and responsibilities of the forestry sector is needed so that an efficient infrastructure, capable of dealing with all forestry needs, can be established.

In the following discussion the forestry sector will be described in terms of three distinct units. These units will encompass all the needs and concerns expressed in forestry and can be used to give some resolution to the present controversy over the scope and nature of forestry. The three units are termed 'conservation forestry', 'analog forestry' and 'industrial forestry'.

Conservation forestry

Conservation forestry refers to the management of wild or natural areas of vegetation, the rehabilitation of endangered

species or ecosystems, the planting of vegetation to control erosion or pollution, and all related research, development and extension work.

Conservation forestry protects the immensely valuable genetic stocks present in many natural forests, which are threatened with being dangerously depleted. It is this wild genetic stock that makes modern agriculture possible and which carries the potential to meet with the future needs of humanity.
The conservation of natural areas in this manner yields ecological benefits such as soil and water stabilization, and provision of habitat to the many species of plants and animals that cannot survive without the original vegetation. Conservation forestry will also address all aspects of maintaining wilderness areas.

Analog forestry

Analog forestry refers to the branch of forestry that concentrates on the developing of tree crops and cropping systems that produce ecological and environmental benefits as a part of its design.

All forests tend to possess a distinct architectural form that creates a modified environment. This form is the most stable formation of vegetation that can be establish in that geographical and climatic zone. Tropical rainforests for example have closed, diverse canopies established at great heights, allowing many species of plants and animals to specialize in the constant environment created below. Analog forestry creates a physical structure similar to the original forest and creates a similar environment below, allowing many species that were once confined to the original forest to extend their ranges.

Analog forestry encompasses the diverse types of tree farming termed village forest, forest gardens, mixed tree farming etc. This method of land use has been recorded in many traditional societies. The development of analog forestry will be based on the traditional paradigm and will aim to attain physical structure and set of ecological relationships that is analogous to the natural climax state. The climax state being the end condition of an ecological process termed succession.

Ecological succession begins on newly cleared land with the growth of fast growing weedy plants called colonizers which change their immediate soil and surface conditions by their life's actions. This change in turn, creates a microclimate amenable to the growth of more woody, longer lived species. These latter species, in their turn create climates suitable for the seeds and seedlings of the larger species to survive. This process continues until no further major changes occur, culminating in a mature forest termed the climax state.

Studies of traditional forms of land use in Sri Lanka suggest that a process of mimicking ecological succession is already being practised in many rural areas. Here, the natural seral stages are followed by the farmer but the forest species are substituted by species with economic value. This activity is management intensive and will require the practitioner to live on, or close to, the land being thus managed.

There is also the need to conserve rare or endangered species of plants by planting out or extending their ranges into man modified habitats in order to increase the phenotypic stock. This activity too can be considered as part of analog forestry.

Industrial forestry

Industrial forestry refers to the branch of forestry that concentrates on the production of biomass (wood) as its major area of activity. Its silvicultural research will concentrate on short rotation species and management techniques applicable to extensive planting.

Industrial forestry still remains the fastest way by which fuelwood and timber can be produced on a large scale. However few commercial species are available because of the need for low maintenance and rapid growth rates. The few species presently identified have the unfortunate character of creating ecologically poor substitutes for natural forests when planted as monocultures.

Table 1. Forestry needs at a national level

	FORESTRY TYPE		
	conservation	analog	industrial
1. Sustainability of genetic information	X	-	-
2. Sustainability of the environment	X	X	-
3. Potential of non timber income	X	X	-
4. Potential of fuelwood production	X	X	X
5. Potential of timber production	-	X	X
6. Potential of human habitation	-	X	-
7. Pot. of timber prod. over the shortest time	-	-	X

If the three branches of forestry discussed above are evaluated in terms of forestry needs, it will be seen that each answers a set of needs not addressed by the others (Table 1). Conservation forestry being the only way to ensure the sustainability of genetic information, analog forestry being the only practice that will allow human habitation and industrial forestry being the fastest methods of wood production. When common risk factors are taken into consideration, it will be seen that conservation and analog forests are the least vulnerable.

It is suggested that most official organizations involved in the implementation of forestry policy do not possess the infrastructure to respond to the forestry needs outlined in Table 1. Restructuring these organizations to respond to these needs will result in greater efficiency in supplying all forest needs equitably. One possible policy outcome can be the creation of three distinct sections each with a section head and staff to represent the forestry sector.

AGROFORESTRY...WHAT'S <u>YOUR</u> VIEW?

Gerry Shea of the Queensland Forest Service is working to develop an informal network of people interested in agroforestry (see accompanying story).

If you're a landholder, industry rep, or government officer, Gerry would like to hear your views!
Contact Gerry Shea at the Queensland Forest Service,

GPO Box 944,
Brisbane QLD 4001

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YALLABUP CREEK CATCHMENT STUDY

STRATEGIES FOR BALANCED WATER USE

by Ted Lefroy

Department of Agriculture, South Perth, Western Australia

Editor's note:
Ted Lefroy is an agricultural scientist currently employed with the Western Australian Department of Agriculture on a Fodder Shrub Project funded by the National Soil Conservation Program.

INTRODUCTION

The Fitzgerald Biosphere Project's Rural Landscape Advisory Service began in September 1989 as a study of a 27,000 ha catchment east of Hopetown, on Western Australia's South Coast. The aim was to address problems of land degradation, mainly salinity and water logging, on a scale larger than one paddock or one farm at a time.

The idea was to work with a group of farmers who contributed $500.00 each towards the project and draw up plans to rehabilitate their land through farming. As a pilot study, it was testing the water to see if farmers, shire councils, government departments and the rural community in general, saw the need for a Rural Landscape Adviser.

THE "MAIN DRAIN"

The boundary of the study was the watershed of an unnamed creek locally referred to as the "main drain". The project's first task was to put a name back on the creek. A quick search of some old maps showed a large fresh water lake near the middle of the catchment marked variously as Yallabup or Youlabup swamp. The name Yallabup has been adopted for the whole drainage system and has been put up to the Geographic Names Committee.

The term "main drain" does tell us something of that creek's recent history. Since the early 1960's, 70% of the catchment area has been cleared for farming. As the runoff from this area has increased with the removal of the original vegetation, the creek has been seen in purely functional terms; as a drain to get water away.

For its present purpose it is underbuilt and inadequate.

Problem 1: Too much water

Solution 1: Make the creek bigger

However, the increased runoff and waterlogging at the bottom end of the catchment, is only one aspect of bigger problem. Of the water that doesn't run off immediately, some is used by crops and pastures and some soaks beyond the reach of their roots. This water often appears lower down in the landscape as a problem - a rising water table carrying with it tens of thousands of years of accumulated salts.

The approach taken by this project has been to try to make use of this water where it falls.

Problem 1: Too much water

Solution 2: Find a way to use it

This picture is complicated by the fact that the area is dotted with naturally saline lakes and swamps.

STRAIGHT LINES AND CURVES

Unfortunately all this water moving around above and below the ground has absolutely no regard for straight lines. It moves on regardless of gazetted roads and surveyed property boundaries and usually stops for longer than necessary where it is least wanted. It is for that reason that the catchment approach is being used today.

Where the grid of human activity, evident on a map as roads and fences, has been put down with no attention to the shape of the land, conflict arises.

The problems in Yallabup Creek Catchment have arisen in such a way. When the land was sub-divided for agriculture, two decisions were made that have had considerable impact. One was the orientation of the farm boundaries, the other was the size of the blocks.

The first decision was influenced largely by the most prominent man made structure present at the time - the rabbit proof fence. Built in 1904 it runs from the coast at Starvation Boat Harbour through the catchment on a bearing twenty degrees west of north. Most of the property boundaries were surveyed parallel to this, while the main drainage in the catchment runs from North East to South West.

The second decision was made using the well-accepted but arbitrary parameters of economics which in 1963 said a living area was 2,250 acres per family. The size of that living area has effectively doubled since then as most families in the catchment (18 out of 25) now farm on two or more blocks.

The problems of land degradation started when the deep-rooted scrub that grew for 12 months of the year was replaced with short-lived shallow-rooted crops and pastures.

Whatever else happens to the land, its cover must become deeper-rooted and longer-lived to make full use of the water and hold down the soil. It must also take on another characteristic of the bush - diversity.

In this way the land may stay in one place. Since its 'release for agriculture' in the language of the time, much of it has quite literally been released, and is now a kilometre or two down wind of its original position.

It's with these objectives in mind that eight farms in the project area have had landscape plans drawn up. A variety of perennial plants have been used wherever appropriate, fences moved to fit in with drainage lines or soil types and remaining bush fenced off to prevent its decline.

For these farmers the re-landscaping of their farms is a long-term project and the time-table has been worked out to fit in with their existing wool and grain growing. In fact this process is presently limited by the assumption that these activities will remain the only significant ones on their farms.

The potential for reversing soil degradation could be accelerated by looking outside the "sheep/wheat" enterprises because just as diversity of plants and animals better protects the farm, so a diversity of enterprises and incomes better protects the farmer.

Most of the commercial perennials being used are exotic - plants like tagasaste and lucerne, pasture grasses like fescue, rye and lovegrass, trees like Pistachio for nuts or blue gums for timber. A huge potential remains untapped amongst the 2300 or so plants of this area.

Three examples are worth mentioning. Eucalyptus spathulata, the swamp mallet, is well known for its tolerance of water logging and mild salinity. It also happens to have a highly desirable mixture of essential oils - the eucalyptus oils Australia as a nation imports from East Africa among other parts of the world.

So it is exciting that a group of South Coast farmers near Needilup are getting organised to replant this local tree in waterlogged areas and set up a still to extract the eucalyptus oil.

Another example has no takers as yet, but presents a great opportunity to turn liabilities like those at Yallabup Creek into assets. Melaleuca alternifoli is a tea tree native to NSW. The essential oil from this tree has natural anti-fungal properties and is gaining increasing popularity as a medicinal treatment.

One Californian importer, Teaco International, is reported to have wholesaled $100 000 worth per month in 1988. Two of the

WA peppermint trees, Agonis flexuosa and A. parviceps, when recently tested showed similarly high levels of desirable essential oils.

Thirdly a plant that is so far known only from three properties within the catchment area, the green salt mallee, tentatively named Eucalyptus famelica, naturally occurs on the margins of saline swamps. It has potential for use in rehabilitating saline areas throughout Australia, in the same way that another local salt tolerant tree, the Swamp Yate, (Eucalyptus occidentalis) has become widely used.

The report of the Yallabup Creek Catchment Study was compiled for the Ravensthorpe Land Conservation District Committee in April 1989. Copies of the study are available for $14 (includes postage) from the Secretary, Ravensthorpe LCDC, PO Box 165, Ravensthorpe, WA, 6341.

FORESTERS AWAKE! - THE COUNTRY NEEDS YOU - A CHALLENGE TO FORESTRY AND TO FORESTERS

Guest comment for 'Australian Forest Grower' Murray-Darling Basin Feature

by Andrew Campbell

A striking contrast provides an intriguing backdrop to public debate about the environment and land use in Australia. On the one hand we have the Year and Decade of Landcare, for which state and national governments have allocated more than $340M over ten years, in response to a joint submission by the National Farmers Foundation. These unlikely bedfellows are supporting the actions of well over 400 community landcare groups, and both are enjoying the political potency and public acclaim their union has sparked.

On the other hand, we have litany of media accounts of confrontations between loggers and environmentalists, of arrests and tree top hunger strikes, and misleading use of nebulous terms such a 'National Estate', as the issues of native forest management become ever more polarised, bitter and confused.

While foresters and forestry look inwards and backwards, fighting a rearguard action in a battle for public opinion which was lost years ago, a magnificent opportunity is being missed. Land degradation.

Land degradation is, and is seen to be, Australia's most serious environmental issue, way ahead of rivers, reefs or rainforests. As a forester and a farmer who gets to travel a fair bit, I know that foresters have a great deal to offer in

the battle against land degradation. But with few exceptions, we are not doing much, and are seen to be doing even less.

It is a matter of professional shame that we have a Billion Trees program that is not identified in the public mind with forestry or foresters. In fact many foresters see it as 'Mickey Mouse', a public relations stunt to be sneered at rather than a golden opportunity to show what they are worth. Putting trees back into rural landscapes has simplistic appeal. But the Billion Trees can also provide fundamental benefits including land protection, nature conservation and timber production. That is the beauty of it, and inputs from foresters can only help both the land and the profession.

Foresters can grab their public image - currently low profile, misunderstood and misrepresented - and shake the living daylights out of it, if they take up the challenge land degradation offers. Just as the farmers have done, forestry and foresters can nurture a constructive working relationship with the conservation movement by combining forces on an issue where they have some common ground. This is impossible in the less fertile atmosphere of suspicion and environmental espionage surrounding old growth logging and pulpmills.

Enough of the motherhood statements and gauntlet throwing, what can the profession, government and industry actually do?

The <u>forestry profession</u> will soon be as threatened as the Long-footed Potoroo, with a similar distribution, unless it:

(i) **Gets on the front foot in the environment debate.** This involves far more than making submissions to the endless succession of government inquiries, or writing letters to the editor, or taking out media advertisements saying what a good job is being done. It means getting involved and actually doing things, not talking about them. It means having articulate, engaging spokesmen who can talk candidly about issues, without having to stick rigidly to the company line or boring readers, viewers and listeners into submission with jargon or government policy. The profession cannot afford to have the 'forestry' view purveyed solely by timber industry spokesmen.

(ii) **Shows it has the skills, knowledge and experience needed.** It is time to shift our sights down the rainfall scale, away from public land, and towards slower growing, more durable, higher value species. Tackling land degradation with a significant reforestation effort of hungry sites is the best way to do this.

(iii) **Initiates and sustains a greatly enhanced research effort** in areas such as:

- rural tree decline
- direct seeding
- tree establishment for salinity recharge control
- agroforestry
- cost effective techniques for protecting trees from browsing animals and insects
- water re-use and effluent disposal
- clonal propagation
- genetics, silviculture and marketing of durable species

There is valuable work being done by dedicated foresters (and many more farmers, agricultural scientists and horticulturalists) in all these areas, but it is a drop in the ocean compared with what is needed. These are the areas in which forestry can make a major contribution, but which the upper levels of government and private organisations seem to have forgotten. If we had put decades of research and development effort into rural reforestation and hardwood plantation research as we have into Pinus radiata, we would have many more viable alternatives today. We cannot afford to dither any longer.

(iv) **Develops a more constructive relationship with the greens.** This means real dialogue, away from the glare of the TV cameras where posturing along party lines always carries the day. It means sitting down and identifying those initiatives which are in the common interest, seeing how cooperation could achieve them, and presenting the necessary requirements for additional information or resources to appropriate institutions and people. Join the ACF!

Politicians have shown they are very responsive when groups with constituencies from opposite ends of the spectrum come up with a joint proposal. Just as it did for the farmers, land degradation offers the forestry profession an opportunity for interaction with the greens on a new footing, which can only be to the long term benefit of the profession and the land.

Foresters in **state government departments** must become more effective in influencing these agencies to:

[i] **Stop paying lip service to plantation sharefarming** (WA excepted) and agroforestry; and develop sharefarming schemes which are attractive to farmers. Even more importantly, departments need to implement aggressive, farmer-oriented extension strategies to support these schemes and train a new breed of 'dryland foresters', who can communicate effectively with farmers, helping farmers to become foresters.

While the Western Australian Tree Trust is a great step in the right direction, it remains essentially a forestry solution to a forestry problem, rather than a program designed to change the attitudes and practices of land users, as well as solving regional forestry supply problems. It provides a useful platform however, for foresters to develop some of the skills and experience needed to play a much more constructive role in rural land management.

It is hard to beat the face to face contact with other land users which comes about through schemes such as sharefarming or tree establishment incentive schemes, which have great long term spin-offs for government agencies. I believe one of the main reasons why Victoria has such an active and mature farm tree movement is because of the contact between foresters and a large number of farmers who were planting trees for the first time, and also the skills gained by foresters, during the Forests Commission's Tree Growing Assistance Scheme from 1981-84. The TGAS scheme has since been absorbed into a wider land protection incentive scheme, and many of the people directly involved have moved to other jobs, but the skill and knowledge base has been established.

A simple plantation sharefarming scheme can achieve the same benefits, although with a more limited clientele, provided farmers are involved in a partnership, developing and promoting sharefarming alongside government, so that farmers perceive some ownership of the idea, as is the case with landcare. It is a great way to extend the boundaries of forestry and to engender a better understanding of forestry among farmers, who are as ignorant about forestry as the rest of the community.

Most of the best ideas in rural revegetation have come from non-foresters, proving that, as in most fields, the enthusiastic, practical amateur is as useful as his/her professionally trained counterpart. Farmer-foresters demonstrate there is nothing mystical about forestry, however the country and the profession badly need foresters to get more involved.

(ii) **Develop education programs** (from primary schools upwards) explaining the role of forestry and foresters in contributing to our standard of living, emphasising ecology and economics. Education and public consultation (like environmental impact statements or consultant's reports) must be carried out long before there is a confrontation, not during the bunfight. We had the ludicrous situation in Victoria last year of farmers arguing against pine plantations on the grounds that they cause salinity, they cause cancer, they ruin the soil, they lower the rainfall and they are full of chemicals.

You may laugh, but why does such ignorance still exist and still get peddled in public? Because the profession and government agencies have been complacent about explaining what is being done and why. It is no good covering yourself after the dispute, when people have already made up their minds.

(iii) **Stop giving away timber from public native forests at ridiculously low prices.** If the royalties from native forests (particularly slow growing durable species) reflected their replacement value (or even approached it), plantations and privately grown forests would be far more attractive to growers. Private forest establishment would be stimulated on small and large scales. Forest managers would have the resources to observe scrupulous standards of management and follow to the letter the various codes of forest practice which have been or are being prepared.

There would be no excuse for inadequate flora and fauna surveys, or accidental incursions into water catchments, wildlife corridors, buffer zones or reference areas. Road and snig track design, construction and maintenance could be to the highest necessary standards, and adequate attention could be given to logging coupe design, regeneration and visual landscape management.

Of course such changes (including the rise in building costs) would need to be carefully explained to the community (as part of the comprehensive education program mentioned above) so that the public is aware of the full cost of providing alternatives to logging native forests.

The challenges for private forest industries are very similar to government. Private forestry companies are really just farming on a longer rotation than most other farmers, but they have not sold this notion well. Such selling should not be via the newspaper or television, but by making an investment in goodwill through sharefarming, much more extensively than at present. ALCOA in Western Australia is associated as much with tree planting as with mining, because it has helped farmers with the tree growing technology developed during minesite rehabilitation. ALCOA is now contributing $1M per year for five years into a community based landcare project over 25,000 square kilometres of the Avon catchment.

Assisting local farm tree or landcare groups (particularly in kind) would be a very small investment for most forestry companies, but would greatly improve their image.

AFDI members would stand to gain a great deal from such developments.

Finally, at an individual level, I reckon every forester should be physically involved in establishing trees

every year, preferably side by side with farmers. There are plenty of groups around who can organise a social weekend for any urban foresters who don't know anyone with land. The reality of planning and implementing a tree growing project, with a total budget of $1000 - 2000 (including fencing), with 400-600 mm annual rainfall, pasture grasses, fertilised weeds, rabbits, stock and frosts to contend with, is something few foresters have confronted. It should be compulsory.

It would do the profession and its image the world of good if we were seen to be planting rather than pulping, and if we were seen out in the cleared country, rather than wasting energy around the wet edges of the continent introspectively whingeing about the greenies.

1991 DIRECTORY OF ASSISTANCE SCHEMES
for
TREES ON FARMS AND RURAL VEGETATION
by
Annie Boutland, Neil Byron and Roslyn Prinsley

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SUSTAINABLE GROWING

By Wilfred Crane, Canberra, A.C.T.

Editor's Note: Reprinted from Aust. Nutgrower, Winter '89

Dorothy Greenbaum's letter, Vol 3(1) on the need for more information on sustainable cropping inspired this response. The subject is dear to my heart as a forester, nutritionalist and nutgrower. But most of all as an Australian. Because unless we address this subject in the face of 200 years of degradation and misunderstanding of our land, then sustainability of our society itself-much less our agriculture will become beyond our reach.

To emulate nature let us first examine our unique Australian soils, particularly the 'podsolics' which are widespread in arable Australia, and which are now more commonly referred to as duplex-profiled soils. 'Duplex' means 'of two parts', and refers to the remarkable physical and chemical distinction between the upper 20cm or so of relatively fertile loam overlying distinctly coloured red or yellow (occasionally grey) horrendous clay. Some nutgrowers will be growing their crops on 'gradationally' profiled rather than duplex soils. These also will most likely have a clay subsoil and a loamy surface, but the boundary and contrast between the textures is likely to be less distinct. None-the-less, the principles hold for a majority of arable Australian soils.

What is often not well appreciated about duplex soils, is that the two distinct layers (or 'horizons' as they are termed), are in fact an entity - meaning that the two parts are forming in nature in situ as a single soil. One might initially think that the loam was deposited on top of the clay in a separate process.

The distinction between the two layers or the question of entity was not of immediate significance to the early European settlers who were interested almost solely in the surface 6 inch plough layer (i.e. the loam). From the surface, Australian soils looked just like the deeper 'gradationally' profiled soils of their European experience and they acted accordingly-firstly with a system of treeless agriculture and later, by deep ploughing the clay back up into the fertile layer-both processes disastrous in the long term.

It is only recently that we have realised that our soils are unique (although it was hard to ignore the unique flora and fauna!), and seriously asked how our soils are forming - how they work and then how might we best sustain their fertility in perpetuity without excessive artificiality and environmental risk. Note a deliberate use of the present tense when talking of soils and sustained fertility. Soils

are not something which formed long ago in some undefined geological era and now exist as once-off antiques which have to be 'preserved'. Rather soils and fertility must continuously form - the better word being 'conserve'. I am also using teleological personification in referring to nature in person and conferring it an intelligence - a scientific no-no, but it makes for more readability.

Let us look then at how our soils (and the flora and fauna which is a necessary part thereof) evolved in nature - at least until European man came along. The unique feature of Australian soils is the geological material ('parent material') from which the soils are forming. Australian landscapes are so geologically old and tectonically quiet (no earthquakes or volcanoes), that many of the parent materials have been geologically recycled one or more times over. Even material in a first cycle is often leached and depleted at depth. The result is material in which essential plant nutrient such as calcium (Ca) and phosphorus (P) have been used, leached out and depleted, while insoluble elements which are not nutritionally useful such as aluminium (Al) and iron (Fe) in excess, are concentrated. These residual elements, particularly Al, are actually toxic to plants. It is the excess of these toxic elements [Al and Fe] which give Australia its red colours. Australian soils are so rich in Al and Fe that we actually mine some 'soils' for these metals.

In fact Australian parent materials can be likened to mining spoils - most of the 'goodies' taken out, leaving a 'spoil' of toxins. Australian ecosystems (the soils, flora and fauna) have uniquely evolved as much to cope with excess toxins as to cope with deficiencies of nutrients. Mostly one hears about the deficiencies.

How then does nature form a fertile soil out of toxic spoil?

The basic agency in forming soil and fertility is vegetation with a lot of help from microbes). Plants add organic matter and the essential major plant nutrient nitrogen (N) into the soil from the air. On some parent materials such as the ash of Mt. St. Helens (USA), this process alone is good enough to transform sterile rocks and parent material into fertile soil. There are few toxins in the ash and several years after that volcanic eruption there was a fertile soil and a growing forest on the slopes of Mt. St. Helens.

But not so in Australia. An additional essential process on Australian parent materials is a separation of the goodies from the toxins. This is done by 'pumping' up from depth essential nutrients and concentrating them in the surface layer by uptake through the roots of trees which extend down into the parent material. The essential nutrients are taken up into the plants and subsequently recycled into the surface soil by the process whereby fine roots continuously form and die - thereby enriching the surface soil with organic matter.

But just as importantly, the toxins (Al and Fe) are leached to the lower levels in the soil and away from the fine roots that occupy the surface layers. The vegetation does this by powerful organics which they produce - humic and fulvic acids. Iron and aluminium are normally insoluable but fulvic acid produced exclusively by woody vegetation (trees) is powerful enough to not only solubilise (complex) Fe and Al and move it out of the upper layer of the soil in solution, but it also (physicochemically) moves clay particles. This explains both the chemical and the physical textual fertility which develops in the surface soil horizon.

The upper layer of the soil thus becomes 'fertile' - sufficient to support an herbaceous flora of grasses and legumes (and via man - ceral crops and pastures). But in nature the fertility is dependent in the medium to long term on the associated deep-rooted perennial component of the system. A simplistic summary might say that a two parted soil is essential for fertility on many Australian parent materials and a two-parted soil needs a two-parted flora; trees and understorey in combination.

Much of the agriculturally viable Australia, into which European man settled 200 years ago, carried a combination of trees and grass - 'savannah woodland'. Savannah woodland on podsolic (duplex) soils (the soils and the plant community being one entity), evolved and stood the test of time as stable systems. It was from these systems which European man systematically commenced to remove an essential agency of their very existence - trees. The removal of trees was also to have several other adverse effects. Soils were thereby opened to the elements of erosion: wind and water. And yet further consequences were to emerge; salting and then acidity - both now recognised economically as major processes of degradation. All would appear to be a reversal of nature's system of sustainable vegetative systems. And for a direct effect on the soil, with the advent of more powerful machinery, we attempted in traditional European style to improve the fertility of the remnants of the surface loam by deep ploughing. This resulted in mixing the toxins and the clay from depth back in with the fertile loam at the surface; a further reversal of nature's long process in separating the two layers.

The 'podsolisation' process was first discovered and named by the Russians just over 100 years ago, thereby founding modern soil science. Most of the soil terms we use such as cherozem and krasnozem are Russian words. And it was the Russians who first recognised the essential role of plants in cycling nutrients and toxins as well as their previously recognised role in fixing atmospheric carbon and nitrogen into the soil. The Russians have come to appreciate that cycling is essential to a sustainable society based on a sustainable agriculture.

A new word, 'agroforestry', is being increasingly used for man-made combinations of trees and herbaceous crops or pasture. It is no coincidence that this duplex form of agriculture is now being increasingly used in many third-world countries as the basis for stabilising agriculture and societies. China is one of the leading countries now reliant heavily on agroforestry as a stable form of land use. Ironically, although there would appear to be no other country where the integration of trees into agriculture is more basic and essential than Australia, we have not embraced the concept of agroforestry widely - despite the double irony that many Australian scientists now advise China and other overseas countries on agroforestry.

Nutgrowers are agroforesters. A well managed nutgrower is by analogy of a savannah woodland - a combination of trees and grass - albeit different species to that of 'nature'. In structure however, a nutgrove has the elements of trees and understorey to mimic nature's system on many Australian soils. We have the potential to manage these systems as some of Australia's most stable - and profitable forms of agriculture.

But one immediate consequence in recognising the importance of the balance of soil and vegetation is to highlight the importance of the understorey and herbaceous vegetation growing as an integral part of the system. Too often however, the understorey and thus the long-term fertility of the soils in our nutgroves is neglected. Maybe we don't see the grass for the trees! In some cases, nutgrowers do not mimic nature's model at the basic level of managing an understorey nitrogen-fixing legume as part of the nutgrove ecosystem. It is via the understorey and the fine-root turnover described above, that we can increase the organic matter of our soil - and organic matter is a vital key to fertility.

There are no stable ecosystems in nature in which biological nitrogen fixation does not operate. The alternative in a man-made system is greater reliance on synthetic fertilisers - and while I am not opposed in principle to judicious use of fertilisers and agrochemicals, they can be used far more effectively to enhance a balanced system rather than as a first-line approach or worse still in their increasing use as short term 'fixes' - i.e. as 'analgesics'.

The sustainable agriculture of the future - particularly on Australian parent materials, will require us to become just as good at agronomy as we are at sylviculture and horticulture. The synthesis will make us soil conservationists.

The subject of duplex systems involving understorey and legumes in combination with trees and the soil/parent material, finally gets one into the specific day-to-day aspects of stable land management. But the basics of what

our soils are and how they evolved and work in nature as I have attempted to develop in this article is, I believe, an essential start to the subject. And although we might become over-awed at the long scales of time in nature in relation to our human time frames, we do have the ability instantly and simply to conserve the precious loams we have left. And with an understanding of how nature works, we can accelerate the rebuilding of fertility lost in the past 200 years.

Book Review

'Agroforestry for soil conservation' by Anthony Young

The prime intended audience for this book is said to be scientists, and certainly it draws on a vast array of experimental evidence and practical experiences to present a fascinating review for the informed reader. However, the presentation is such that farmers, consultants and students can all benefit tremendously by careful reading of it.

The author has been awarded the degree of Doctor of Science for studies of tropical soils and land evaluation by the University of East Anglia, and he has written more than 100 scientific papers including two other books. He is currently working as a Principal Scientist at the International Council for Research in Agroforestry.

In this book, soil conservation is treated in its wider sense, to include maintenance of soil fertility as well as control of erosion. Hence much of the material presented is very pertinent to any discussion of sustainability. Both known capacity and apparent potential of an array of systems are summarised for a range of soil and climatic conditions. While the conclusions are in general very favourable to agroforestry, there are many suggestions for research which is needed to make the conclusions more compelling. The comprehensive set of references (>400) allow the reader further opportunities for study of specific aspects.

My only reservation about the book is its heavy concentration on tropical soils and systems. However, this is a mild criticism which can be well countered by the fact that many of the concepts have application in any situation. Therefore I have no hesitation in strongly recommending the book. It is an excellent contribution to the growing volume of agroforestry literature.

G. W. Anderson

FEDERAL TAXATION APPLYING TO TREES ON FARMS FORM PURPOSES OF PRIMARY PRODUCTION

by Michael Hall

Editor's note: Reprinted from Australian Forest Grower, Spring 1989

AFDI National President, Mr M. Hall, has put these guidelines together for general use.

Definition of a primary producer:
Primary producers are individuals, companies or trustees who alone, in partnership or through a trust, carry on the business of production resulting from:

- cultivating the land
- maintaining domestic animals for sale of bodily produce, carcasses or young
- fishing operations
- forestry operations up to but excluding milling.

(This is opposed to a "hobby farmer" who may want to improve the real estate value of a property for eventual sale as a capital gain with little regard to primary production.)

INCENTIVES OR TAX DEDUCTIONS

1. Taxation incentives for the retention, maintenance and establishment of trees for specific purposes in primary production is an area of confusion to many landowners and accountants alike.
2. The present Income Tax Assessment Act recognises the importance of retaining and using trees on farms for a variety of reasons.
3. Tax deductibility of expenditure from assessable income for the establishment and retention of trees on farms comes under two sections of the Act (Sections 51 and 75 D).

Losses incurred in primary production can be fully written off against non farm income without limit.

TREE ESTABLISHMENT AND MAINTENANCE FOR THE CONTROL OF LAND DEGRADATION

4. Expenditure for arresting land degradation is subject to immediate write-off and covered under Sub-section 75 D (1) as follows:

"Subject to this section, this section applies to expenditure of a capital nature incurred by a taxpayer who carries on a business of primary production on any land in Australia, being expenditure incurred in:

(c) **an operation** primarily and principally for the purpose of preventing or combating land degradation, otherwise than by the erection of fences on the land;

(d) **an operation consisting of the erection of fences** (including any extensions, alteration or addition to fences)

on the land primarily and principally for the purpose of excluding livestock or vermin from area affected by land degradation in order to prevent or limit any extension or aggravation of that degradation and to assist in the reclamation of those area;

(f) **an operation** (not being an operation consisting of the draining of swamp or low lying land) **consisting of the construction of the land,** for the purpose of controlling salinity or assisting in drainage control, of surface drainage works or sub-surface drainage works".

Hence, expenditure primarily and principally for the control of land degradation (including tree establishment and fencing) is fully deductible under Section 75 D.

5. It should be noted that there must be evidence of land degradation before fencing costs can be written off. Fences constructed for the purpose of only preventing land degradation in an area where it is not yet evident, are not deductible. An exception to this is in fencing of recharge areas for tree planting to control dryland salinity in a different area downslope. In this case the expenditure would qualify for deduction under Section 75 D.

Recent information from the Australian Taxation Office expands on this:

"From September 1985 these deductions also include capital expenditure in fighting or trying to stop land degradation generally, rather than just soil erosion or salinity.

Expenses which primary producers can claim must be for land used for primary production. The include:

- removal of animal or vegetable pests from the land
- destruction of weeds which harm the land
- fighting or stopping land degradation generally
- putting up fences to keep animals out of degraded areas
- building levee banks
- building drainage to fight salinity, but not for draining swamps or low lying land."

TREE ESTABLISHMENT AND MAINTENANCE FOR PURPOSES OTHER THAN THE CONTROL OF LAND DEGRADATION

6. Expenditure on the initial planting and establishment of trees for amenity is treated as a capital expense but their maintenance may be deducted under Section 51.

On the other hand, expenditure on the initial planting, establishment and the subsequent maintenance of trees for shelter, windbreaks, fodder and water quality etc. are deductible under Section 51 if it can be shown that they relate to farm production.

Case studies can be cited where shelter has significantly lowered lambing losses and increased productivity of primary produce. It can, therefore, be argued that the establishment of trees for these purposes is a necessary expense incurred in the generation of assessable farm income, and as such is a legitimate business expense under Section 51.

What is more certain is that if the landowner has a clear intention of obtaining timber products for sale such as saw logs from shelter belts, all costs are deductible as if it were a wood lot. For example, intention could be proven by pruning a proportion of the trees for veneer logs.

Fencing when not associated with tree establishment for the control of land degradation, would be considered as a capital expense and as such, a claim for depreciation at 3 per cent of prime cost per annum would be allowable.

7. It can frequently be argued that the establishment of trees and other woody vegetation for shelter, windbreaks and fodder, also provides a substantial contribution towards the control of soil erosion and salinity.

8. Water conservation costs are now deductible over 3 years at 33.33 per cent per year.

"The expenses must be for land used for primary production. They must be incurred primarily and principally for water conservation or conveyance purposes and include expenses of building, buying, installing, altering and extending any of the following:

- dams, wells, earth tanks, irrigation channels, pipes, underground tanks, concrete or metal tanks, pumps, tank stands, water towers, bores, windmills."

COMMERCIAL TREE PLANTATIONS WHERE THE LANDOWNER MANAGES THE OPERATIONS

9. The definition of forest operations within the context of primary production, covers:

. planting trees in plantation or forests intended for felling

. tending trees in plantations or forests intended for felling

. felling of trees in a plantation or forest and

. transport for processing of felled trees by the person who felled them.

10. These expenses are fully deductible, as are the normal maintenance costs. (Section 51)

Initial site preparation and establishment costs often occur before and after the close of the financial year (30 June) respectively. Such costs should be claimed as deductible expenses in the financial year that the trees are planted.

11. Fencing costs are again depreciated at 3 per cent of prime cost per year.

12. Capital expenditure on road construction primarily and principally to provide access to an area to allow the planting or tending of trees or the removal of felled timber is deductible evenly over the lesser of:-

. the estimated number of years which the road will be used for these purposes, or

. 25 years.

However, costs of the maintenance of these roads are fully deductible in the year of expenditure.

13. Clearing of native vegetation for the establishment of tree plantations is not an allowable deduction. Such expenditure includes all activities that must be repeated at

the start of each replanting such as the removal of debris following logging which are part of site preparation.
14. Depreciation is covered under paragraph 54 (2) (b) of the Income Tax Assessment Act.
15. It should be noted that "calls paid to afforestation companies"" after 19 September 1985 are no longer deductible.

COMMERCIAL TREE PLANTATIONS WHERE THE OPERATIONS ARE UNDERTAKEN BY CONTRACTOR FOR THE LANDOWNER USING TAXATION RULING NO. IT 360

16. There are several tests before this special ruling can apply:-

(i) Does the taxpayer have an interest in an identifiable area of land?
(ii) Are the afforestation operations carried out on the land comparable to ordinary forestry albeit on a small scale?
(iii) Is the project commercially viable?
(iv) Are the operations being carried out in a business-like manner?
(v) Has the taxpayer a sufficient degree of control over the operations carried out on his land?

If these conditions are met, a taxpayer may enter into a contract with a management company for plantation establishment and long term maintenance on a fixed fee on land already owned, or specially leased for the purpose through the management company and be able to have immediate deductibility or services contracted and provided within 13 months of the date expenditure is incurred. Otherwise the balance of the prepayments will be deductible for income tax purposes in equal amounts annually over the lesser of 10 years or the life of the contract. (Treasurer's May 25th 1988 Statement).

In addition, even where funds to prepay the afforestation project on signing of the contract are borrowed from the promoter/contractor, the costs are seen to be incurred and may be deductible under Section 51 (1). Ref. I.T.2195. 24/9/85.

17. **TAXES PAYABLE ON BUYING AND SELLING COMMERCIAL FORESTS AND PLANTATIONS**

Taxes payable by the seller of an immature forest or plantation comes under Section 36 (1) (a). This says that when the property changes ownership, the value of the stand of trees is to be considered as taxable income in the hands of the seller.

On the other hand, the buyer of the same cannot claim a tax benefit on the value of that stand until the stand in question produces an income of which tax is payable under Section 124J. An anomalous position under the current ACT.

18. **TAXES PAYABLE**

The tax rates for 1989/90 excluding the Medicare levy are:

. $0 to $5099 - nil

- $5100 to $17650 - 21%
- $17651 to $20600 - 29% plus $2636
- $20601 to $35000 - 39% plus $3491
- $35001 to $50000 - 47% plus $9106
- Greater than $50000 - 49% plus $16156 (From 1/4/1990 this rate is expected to drop to 47%)
- (39% is the Company rate.)

Primary producers have the option of averaging their income over 5 years for tax purposes to determine the rate of tax within limits.

19. **CAPITAL GAINS TAX**

Capital gains tax has been introduced and generally applies to assets apart from the residential home and associated land (curtilage) if acquired after the 19th September 1985.

"Subject to a form of averaging, capital gains tax will be payable at your marginal rate of tax, on net gains. Gains are calculated after allowing for inflation where the assets have been held for at least 12 months and deducting expenses of acquiring and selling the asset - for example, stamp duty, conveyance fees and advertising."

EXEMPTIONS

"In broad terms the following capital gains are exempt from tax:

- gains you receive if you sell your home
- gains you receive from the sale of certain personal-use items sold for $5000 or less
- gains from the sale of certain motor vehicles
- gains from most superannuation and life assurance policies.

Where assets are transferred because of the death of the holder, the tax will not apply unless the beneficiary or trustee of the deceased estate sells the assets or the beneficiary is a tax-exempt body. This means that a farm, family business or heirloom can be passed on intact from generation to generation unaffected by the capital gains tax unless the item is sold."

It is suggested that, as the capital gains tax is a tax on profits indexed for inflation, valuations should be obtained for properties bought or inherited after 19th September 1985 and be sufficiently itemised so that part of the property can be sold at any time knowing the values that applied at time of ownership change. Areas of native forest, plantations, shelter belts should be valued when acquired by purchase or inheritance if the trees are to be sold on a lump sum basis as capital assets rather than be taxable as commercial forests.

20. **INSURANCE CLAIMS**

Monies received from insurance claims for the loss by fire of trees are taxable either in full in one year or 5 years in equal amounts.

21. **WARNING**

"These notes are for guidance only. They are based on statements produced by the taxation office and are not the acts themselves nor the results of court rulings. However they have been edited by the Assistant Commissioner (Mr P.L. Foster) in a letter * with Ref 15.87/4139-dated 17th June 1987. Several points were clarified subsequently with Mr Peter Hansell of the Australian Taxation Office of 3/7/87." For further information contact your Regional Australian Taxation Office.