Agroforestry Update

Newsletter for Agroforestry Researchers and Practitioners

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EDITORIAL

Welcome to the first Western Australian edition of Agroforestry Update. We would like to recognize the hard work and excellent standards in issues of Agroforestry Update produced by the Victorian editors, Robin Youl and Brad Lynch (DCFL) and Ian Hamer (DARA).

Contributors are keenly sought on all agroforestry topics - please note our broad definition of agroforestry. Also, if you know of someone who should be on the mailing list, and isn't, please let us know. Thanks to all those who have contributed to this edition.

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CORPORATIZATION WILL BOOST AGROFORESTRY

by Geoff Wilson

AGROVISION
MELBOURNE

(This article was reprinted from the National Farmer, May 27, 1987, with kind permission of the author and National Farmer.)

A bold new experiment in agricultural extension is taking place in New Zealand.

One of the biggest advantages tipped for the experiment - called "Corporatization" - is a significant advance in New Zealand's investment in agroforestry, aimed at vastly improved farm productivity and profits.

Agroforestry, or the growing of tree crops in conjunction with mainstream enterprises, gives at least a 20 per cent productivity boost on most farms. On some, the agricultural and tree crop output can boost revenues more than 100 per cent, and give farmers much greater financial resilience. New Zealand authorities have long recognized this, but have lacked the structure to promote the idea effectively. Agricultural extension has always failed to mesh properly with tree-growing extension by foresters.

But, with "corporatization" of both the Ministry of Agriculture and Fisheries and the New Zealand Forest Service from April 1, the two extension services have had to look at a marriage partnership at the grass roots or farmer level.

The marriage now about to be consumated in New Zealand can be expected to trigger an interest in similar marriages in Australian States.

If it works in New Zealand, then "corporatization" of farm extension services is almost a certainty for Australia for two reasons:

- Because Australian governments are looking for every cost saving they can achieve in the bureaucracy without jeopardizing mainstream votes.

- Because the New Zealand move to "corporatization" will mean New Zealand can claim much less subsidization of its farmers, and this has implications for the Closer Economic Relations treaty - which aims at equality of farm support in both Australia and New Zealand.

What is "corporatization"?

In New Zealand it means that nine government departments are being given a private enterprise structure, similar to that of electricity and gas authorities in Australia. Under this new structure the Ministry of Agriculture and Fisheries and the Forest Service of New Zealand have been:

- given the power to raise funds on the stockmarket, and to operate as a public company,

- forced into a strict "user-pays" principle.

Nine government departments have been given a private enterprise kick that has enormous ramifications both sides of the Tasman. In April, for example, the nine raised $NZ180 million from private investors, to begin a whole new approach to government services and their financial accountability.

The aim, of course, is to improve the performance of government departments, and to have them as a much-reduced financial burden on the taxpayer. It takes little thought to see the appeal of this to the Federal and State treasurers - if the experiment works.

Many public servants to whom I spoke in New Zealand in April are confident it will work, despite problems some public servants will have in adapting to it. They see it as "unleashing the true potential of the movers and shakers" in farm and forestry extension.

Others, however, are pessimistic. They see it as a temporary change, which will be rescinded when the next election tips out the current government. But, even if there is a new government in New Zealand, the pessimists may be wrong. There are sufficient innovative public servants backing the "corporatization" concept to make it work, and the taxpayer, and hence the government, is certainly keen to reduce government costs that can, in turn, mean reduced taxation.

The "corporatization" has already given the New Zealanders new approaches to agriculture and forestry - and agroforestry.

The New Zealand ministry of Agriculture and Fisheries (MAF) now has four "business groups". These are:

1. MAFTech - a consultancy business selling its services to farmers, to boost farm productivity.

2. MAFFish - charged with the responsibility for economic management of New Zealand's fish resources, including fish farming.

3. MAFQual - which is a quality management business that will be vital to New Zealand's output of top quality produce for world markets - including Australia.

4. MAFCorp - which provides management support to the first three.

The New Zealand Forest Service has been split up too, with its forestry advisory service to have 100 per cent cost recovery, from farmers and forestry investors, within four years.

The plan now being implemented for farmers is to provide a tree-growing advisory service through farm discussion groups - in conjunction with the MAFTech consultants. Thus, farmers participating will be organized into small, regional groups of eight to ten with common or similar interests. The basic charge will be $80 to $100 per farmer for monthly meetings that have the input of appropriate agriculture and forestry experts - plus agricultural and forestry research units.

Each farm will receive an on-farm visit once a year. If the participating farmers want other services then the charge will be $30 to $40 an hour. The expectation by those now implementing the "corporatization" of farm extension in New Zealand is that the average farmer client will spend $600 to $800 a year on government advisory services related to improving farm productivity and profit (not necessarily farm output).

Heavy emphasis will be on making farms pay more than they are at present, and in the context of today's environmental demands.

The aim is to offer farmers, in small groupings, the most sensible management consultancy service that can be tied in with New Zealand's impressive research stations involved in agriculture, forestry and agroforestry.

In addition to the farm management input, however, the new government structure will be used to offer farmers an alternative marketing service - either in advice only, or in negotiating sales of farm produce on behalf of groups. MAF and Forest Service officers believe there is great scope for this aggregating of farm produce for sale, so that their marketing specialists can get a better overall price than farmers operating by themselves.

This concept has important advantages in agroforestry, where speciality timbers can be grown on wide spacing for specialist markets.

The opportunity now open to New Zealand in producing both speciality timbers of high value, and sawlogs and peeler logs for the top end of the existing timber market, is forcing a re-think of most land use management. It is also being pressed for by conservationists.

Thus, the new consultancy approach by government services is forcing both the agriculture and forestry arms of government to link up more closely with land conservation elements, which can add inputs on wise (and economic) soil conservation, water conservation and landscape design for improved regional tourism in which farmers can participate.

The New Zealand "corporatization" programme thus has great potential interest to Australia, and deserves extremely close watching by everyone concerned with land management in Australia. The New Zealanders feel they are the first in the world to show where sensible, economic farmland management and extension services should go. They may well be right.

CARNGHAM STUDY SITE - VICTORIA

Activity at Carngham has become intense. There are currently three post-graduate programmes being undertaken. U Tin Tan (Burma) is investigating the interception and throughfall of rain in the various tree spacings; Deddy Hadriyanto (Indonesia) is investigating the effects of competition for light and water on tree and pasture growth; John Kellas (Australia) has finally started work on a part-time Ph.D., investigating tree and pasture interactions with light and soil moisture across shelterbelts/windbreaks/timberbelts.

Recent visitors to Carngham have included David Stene (Tasmania), 8 Chinese visitors together with Geoff Wilson and Robin Youl as part of the ITCI study tour, and the Australian Forestry Council whilst meeting at Creswick.

REPORT OF THE NATIONAL AGROFORESTRY WORKSHOP

David Bicknell
Department of Agriculture
Manjimup
Western Australia

Agroforestry activities in Western Australia had a national airing at a recent meeting of agroforestry representatives.

Members of the National Corresponding Working Group on Agroforestry held their second workshop in Perth and Bunbury, Western Australia, on October 13 to 16, 1986. Twelve members and five invited participants represented Victoria, New South Wales, A.C.T., South Australia, Western Australia and New Zealand.

Participants of the Workshop visited some of the oldest agroforestry trials in Australia, established by Geoff Anderson, CSIRO, and Frank Batini, Conservation and Land Management, Perth. Other pine and eucalypt agroforestry sites near Busselton (South of Perth) were inspected, as well as a Wood Utilization Research Centre at Harvey (see the article in this update, by Graeme Siemon).

Agroforestry activities in each State and New Zealand were described in State Reports and invited papers. Technical information and developments in agroforestry were discussed by participants and papers are available in the full report of the meeting.

Recommendations and findings arising from the workshop have been passed to the Standing Committee on Agriculture and the Standing Committee on Forestry for appropriate Federal and State action.

The following is a summary of points put to the SCA and SCF.

Economics in agroforestry

- Australian data on agroforestry is available but needs pooling and economic evaluation to be of use.

- The New Zealand Pine Model, developed by the New Zealand Forest Research Institute, has some application to Australian data. Investigation of commercial co-operation with the FRI is warranted.

Information resources

- TREDAT, a computerized, co-operative tree crop data base jointly developed by CSIRO and the Queensland Department of Forestry, was recognized as valuable. Each State was recommended to make direct use of TREDAT.

- The Australian Forest Development Institute's (AFDI) magazine "Australian Forest Grower" should be used by State Agencies as a medium for agroforestry extension.

- "Agroforestry Update" will be edited in Western Australia in 1987 and 1988.

Marketing

- Marketing and production of agroforestry timber is operating against disincentives i.e. stumpage premiums are not paid for the large, high quality logs expected from agroforestry, and small scale mills are needed for farm size forestry/agroforestry.

Funding

- Agroforestry research and development needs access to specific funds. The proposed Forest Industry Research Trust was suggested.

Education

- Agroforestry should be recognized as a formal discipline, and a Chair of Agroforestry should be established at the University of Melbourne.

Tree Breeding

- Improved genetic material for forestry and agroforestry should have a standard certification scheme.

Programmes of action

- The establishment of a formal structure for inter-agency co-operation in each State was recommended by the Working Group.

- Programmes in each State should include:

  (i) Nominated 'trees on farms' staff based in district offices.
  (ii) Establishment of agroforestry demonstrations on a regional basis.
  (iii) Skills training in agroforestry management.
  (iv) Establishment of formal education in agroforestry.
  (v) Research on agroforestry systems, including testing of alternative species and shelter belts.

Note: The definition of agroforestry used by the Working Group was accepted at the first National Meeting on Agroforestry in Australia (Canberra, 1984). That is, "Agroforestry is the management of land for increased nett social benefit by simultaneous production of farm and forest products".

The National Working Group interprets "simultaneous production" as production from one management unit (where the unit could be as large as a farm or even a catchment) and that "forest products" includes direct products such as timber and fodder, and indirect benefits such as shelter and lowering of water tables.

AGROFORESTRY PROMOTION IN VICTORIA

A. Lyons
Department of Conservation, Forests and Lands
Melbourne

The Ministers for Conservation, Forests and Lands and Agriculture and Rural Affairs recently agreed to set up an Agroforestry Extension Committee under the following terms of reference:

The Agroforestry Extension Committee is responsible for the active promotion of agroforestry principles and practices throughout Victoria and will;

1. report to the DCFL-DARA Joint Agroforestry Management Committee;

2. collect, produce and disseminate objective information about agroforestry;

3. provide operational advice and extension to assist the development and management of demonstration agroforests on private and public land;

4. contribute to training courses and educational programmes for government, industry and the public;

5. liaise with landowners and research bodies to encourage exchange of information and identification of directions for agroforestry research;

6. liaise with organizations which promote and teach agroforestry or represent existing or potential agroforestry practitioners;

7. provide assistance to persons visiting Victoria who are involved in agroforestry extension and/or the establishment and management of agroforests;

8. prepare draft DARA/DCFL Ministerial statement of agroforestry extension programmes.

The 13 Committee members represent the following agencies and/or professions:

- Department of Agriculture and Rural Affairs (Extension and Research areas)
- Department of Conservation, Forests and Lands (Extension, Resource Conservation, and Forest Management areas)
- Victorian Rural Industry Training Centre (associated with Victorian Farmers Federation)
- Victorian College of Agriculture and Horticulture
- Australian Forest Development Institute
- Australian Conservation Foundation
- Potter Farmland Plan
- Agroforestry/Forestry consultants
- Freelance journalists specializing in agroforestry/forestry

The Committee first met in October 1987 to develop a programme for 1987/88 and will forward reports of its achievements to Agroforestry Update next year.

Further details are available from Arthur Lyons, DCFL, 2 Treasury Place, E. Melbourne, Victoria 3002, (03) 651 1112.

Agroforestry research trial field days

A recent workshop (October 20) organized by Peter Davies, Victorian Rural Industries Training Committee, was held at the Dairy and Irrigation Research Institute at Kyabram. The morning session was devoted to reports from farm tree groups throughout northern Victoria. One common objective of these groups is to identify local native tree and shrub provenances for promotion and propagation.

During the afternoon the participants inspected the agroforestry research trial and the irrigated tree plantations also located at the Research Institute. The agroforestry trial has involved evaluation of species suitable for irrigated agroforestry. Results after two years indicate that flooded gum (E. grandis) and two poplar clones (P. deltoides and P. deltoides x nigra) have superior height growth (2.3, 2.0 and 4.7 m respectively) and survival (80, 82, 95% respectively) than the other 12 species tested.

Field days at the Myrtleford and Rutherglen Research Institutes are being planned for inclusion in the AFDI Conference field days in April 1988.

NEW AGROFORESTRY DEMONSTRATIONS IN VICTORIA

A. Lyons
Department of Conservation, Forests and Lands
Melbourne

The Victorian Government's Timber Industry Strategy includes actions to promote agroforestry, one of which is to establish commercial agroforestry operations to demonstrate to rural land managers that agroforestry can be a viable and praticable land use.

Forest Management and Research Branch, Lands and Forests Division, Department of Conservation, Forests and Lands is responsible for developing this project and has to date:

(1) Identified areas of different agricultural land uses (sheep, beef and dairy production, irrigated and non irrigated) likely to be suitable for commercial agroforestry operations.

    Of the total agricultural area in Victoria at least 8 per cent is estimated to be particularly suitable for the commercial production of Pinus radiata under agroforestry systems. This estimate was derived by mapping land types suitable for plantation forestry and assuming that agroforestry was equally suitable. The acceptable lower annual rainfall limit was 700 mm per annum. Mr H. Stewart, Research Officer, DCFL estimated in 1985 that about 30 per cent of the State's agricultural area was suitable for agroforestry. This estimate allowed for a lower annual rainfall and placed less emphasis on the production of wood for profit.

(2) Completed a Statewide inventory and description of demonstration, research and commercial agroforestry operations on private and public land in Victoria.

A summary of this inventory is shown below:

Research, demonstration and commercial agroforestry in Victoria, July 1987 (areas in hectares)

Agricultural uses	Research		Demonstration		Commercial		Total			Forest species	
										Pinus radiata	Other
	area	no.	area	no.	area	no.	area	area %	no.	area	area
Cropping	6	1					6	1%	1		6
Sheep	94	7	9	3	260	10	363	74%	20	131	312
Cattle	6	1	5	1	79	6	90	18%	8	30	60
Dairy					7	1	7	1%	1	4	3
Goats					20	1	20	4%	1	20	1
Irrigation	11	2			na	1	11+	2%	3		11+
Total	117	11	14	4	366	18	497	100%	34	185	312
% Type	24%		3%		73%		100%				
% Species										37%	63%

(3) Identified target areas for large scale commercial agroforestry operations and within these areas commenced negotiations with co-operative land holders.

(4) Developed draft agroforestry management plans and Land Management Co-operative Agreements for selected properties. These Agreements formalize arrangements between the Department and the landowner to ensure sound land management, or in this case, agroforestry practices which result from the provision of financial grants, and that the agroforestry projects are accessible to the public.

It is anticipated that Agreements will be finalized in 1987 and at least two or three large scale (about 30 hectares) softwood and hardwood commercial agroforests will be established on private land in 1988 and 1989.

Further information is available from Arthur Lyons (03) 651 1112.

AGROFORESTRY AS MENTIONED IN THE VICTORIAN GOVERNMENT'S TIMBER INDUSTRY STRATEGY

Agroforestry is a land use which has considerable potential to increase the overall long term productivity of land, provide higher levels of environmental protection, increase economic returns and augment wood supplies.

Agroforestry involves the integration of forestry and agriculture on the same land. Farming activities such as livestock raising or cropping are undertaken between widely spaced trees.

Agroforestry is not practised in Australia as much as in New Zealand, where an increasing number of farmers rely on trees to provide part of their income. A considerable amount of research has been done on the benefits of managing land under agroforestry systems and there are a significant number of agroforestry projects in Victoria. However, most farmers have been reluctant to manage their farms in this way. This is due to;

(1) uncertainties about profitability,

(2) perceived management problems in successfully handling complex interactions between the soil, agriculture and forestry,

(3) lack of objective information about the interaction between trees and agricultural crops on specific categories of land to enable farmers to select appropriate agroforestry combinations,

(4) lack of appreciation of the diverse role and benefits of agroforestry in terms of

- economic stability
- complementary production
- environmental protection and control
- better use of poor land
- aesthetics.

Although considerable knowledge has been accumulated on the integration of trees and agriculture in general, and specific agroforestry combinations in particular, it has not been presented in a way which encourages its general application.

The Government proposes to overcome these problems with the following action:

- the Department of Conservation, Forest and Lands and the Department of Agriculture and Rural Affairs will continue to establish agroforestry research projects directed at determining the costs and benefits of a wide range of agroforestry combinations.

- the Department of Conservation, Forest and Lands will establish commercial agroforestry operations on suitable Crown land.

The recent agroforestry research project initially funded by Victoria's 150th Anniversary Board and jointly managed by these two departments, is an example of the sort of research required. In this project, agroforestry research trials were established at six locations throughout Victoria between 1983 and 1985 to examine interactions between:

(1) sheep grazing and radiata pine (Carngham),
(2) sheep grazing and a mixture of tree species (Hamilton),
(3) irrigated pasture and flooded gum (Kyabram),
(4) cereal cropping and shelterbelts (Rutherglen),
(5) irrigated mint and two clones of poplar (Myrtleford),
(6) cattle grazing and a mixture of tree species (Neerim South).

° A system will be developed to provide farmers with authoritative information to evaluate agroforestry in terms of,

- combinations of agroforestry systems
- economic viability of various agroforestry combinations
- management practices to be followed
- financial management
- marketing.

° The Department of Conservation, Forests and Lands will provide increased technical advice and assistance to farmers who wish to undertake agroforestry schemes.

The increased use of suitable agroforestry systems encouraged by these strategies will benefit both the farmer and the community. Farmers will have the opportunity to earn additional income from more diverse land use practices. This should also increase the long term productivity of their land and improve it aesthetically. The community will gain through mitigation of soil erosion and salinity, higher wood production and the provision of additional wildlife habitat.

Careful management of agroforests can provide shade, shelter and fodder for stock as well as a range of timber products.

THE SOFTWOOD SHARE FARMING SCHEME - WESTERN AUSTRALIA

by Peter Beatty, Department of Conservation
and Land Management, Manjimup, Western Australia

Consider the well established farmer (sandgroper, this time) who sums up his situation like this:

"The workload on this place is beyond me; no sons to take on the cleared country. I need to intensify - livestock and pasture - on a smaller area. What to do with the rest of the farm? Don't want to sell. Growing trees is a good investment for the future they reckon, but we need income right away, not expense. What I need is a long term partner to pay for using part of my land on a sharefarm basis. Maybe he could put up the funds and do most of the work!"

This fellow would be a good candidate for the Softwood Sharefarming Scheme which has been developed in the rural areas of south-west Western Australia.

In this past season, over 1,000 hectares of farmland were planted to pine under this particular scheme. Five separate owners are involved.

If the farmer above lived near the south coast and had put up 200 hectares of his grazing property for Sharefarming, he could have pocketed about $13,000 in the first year.

And what's ahead? That amount would be indexed for inflation each year. A bonus would be to incorporate sheep grazing amongst the pines from the third year - with most fences still intact. Then there would be paid contract work, if he wanted it, for plantation management jobs like pruning or firebreak maintenance.

What of the Sharefarm sponsor? It is the Department of Conservation and Land Management (C.A.L.M.) - the Department responsible for forest development in the State.

The concept of producing timber from agricultural land was looked at more than three years ago. After Government endorsement of a joint venture approach, then extensive property assessments, detailed costing and economic evaluations, the Scheme was officially launched in 1985. It is now envisaged that the bulk of new softwood plantings by CALM will occur under the Scheme. All land offered which fits the criteria for profitable sharefarm forestry is being investigated. In close liaison with the landholder, CALM uses its resources to arrange all management planning, and operations. For this 30 year rotation project, the schedule of tasks, from initial soil survey to final harvest, is exhaustive.

Such an exercise in the rural setting has, in a positive way, focused on prospects for farm diversification, particularly for communities between Manjimup and Albany. Many more landowners than those so far having entered into an Agreement, have had direct on-farm liaison with foresters. Farm site assessment and pine growing considerations are usually dealt with. Some farmers have deferred their interest in the project after weighing up how it would affect farm income.

Naturally, there are land criteria on which profitability of the Scheme is based. Thus many properties offered 'on spec' do not measure up.

So what are these criteria?

Firstly, annual rainfall needs to be adequate. In the south coastal area, where summer evaporation is low, this can be a little below 700 mm. Near the lower west coast, 750 mm is the limit.

Secondly, the quality of soils is critical. Depth, type and drainage are considered. Some classes, while acceptable for P. radiata growing, require a generous fertilizer regime. Shallow soils and sites prone to water logging are excluded.

Thirdly, the minimum nett area required under the Scheme for planting is about 40 hectares in one property. Efficiency in the commitment of resources and for future harvesting is the reason.

Other factors such as terrain, status of uncleared bush, and distance from a future market centre are also considered.

Once a detailed management plan is drawn up and agreed to by both parties, a set of costing and yield data are used to calculate the annuity payable to the farmer for the duration of the Agreement. At clearfelling, when the State recovers the principle share of revenue, the landowner receives a payment to make up his residual 5% share of total profits. Obviously, lower management costs and higher timber yields dictate a higher annuity. The range of annuities on a reasonably productive site is from $65 to $85 per hectare planted.

Landowner experience of the Scheme is still fairly limited. Less than 12 months have elapsed since the first contracts were signed. Interest amongst farmers has ranged from tentative to enthusiastic. Many of those specializing in livestock have closely examined profitability of Sharefarming in relation to the currently firm wool and meat market. It is usually the income "diversification" factor which attracts them into the Scheme.

For those anxious to enter it, but whose property is marginally outside the criteria, there is no alternative tree growing scheme available which provides income from the outset. So, for them, its back to routine operations, or better still - a self sponsored mix of agroforestry - perhaps an activity promoted elsewhere in this Update!

For further information contact Peter Beatty, Department of Conservation and Land Management, Manjimup.

A NOTE TO "AGROFORESTRY UPDATE"

Neil Barr
Agroforester
New Zealand

The planting of agroforestry blocks has taken on some impetus of late. Harry Bunn (formerly the Director of Production, Forestry Research) and I have been conducting what the new Ministry of Forestry (M.O.F.) is pleased to call "Clinics" to service this. These are usually three day affairs, with travelling and farm walks with our hosts extra. Attendances have been good according to population density; most often around 70, up to 120 at times. At one meeting in the rain and sleet, no one turned up. We found them around the kitchen fire down below.

Generally, initial stockings have plummeted; mostly around 450 trees per hectare, with groups of three at 8 m centres with a number of good practitioners, down to the final spacings of 100 to 150 trees per hectare using cuttings (P. radiata, 268 series). Cuttings from 4 year old selected trees give very good form with little pruning, but the preference now is for cuttings from 2 year old trees. Control pollinated stock is now being bedded and cuttings of this breeding will be available in quantity in the 1989 season. Pre-emptive pruning is, of course, a necessity with early 'stability' lightening of crowns.

To prevent toppling, efficient planting is absolutely necessary. Some of us used planting heads on diggers with hand placing of roots ("Palming").

Geoff and Gill Braun, our top exponents, have overcome problems with cuttings (Agroforestry Update, May 1987) and now use the younger cuttings - but may revert to cuttings from 2 year material.

Some contractors are planting on the group system and will gain clients. Many companies and old-guard operators take some weaning off the old, work-hungry regimes. Quite a number of farm forestry members have their own portable mills with some sons setting up logging outfits after training at Rotorua.

The trend is away from radiata pine in agroforestry. With mixtures of Acacia melanoxylon, some trial areas of Acacia dealbata (spectacular), Leyland cypresses, Cupressus macrocarpa (preferably clonal or seed selected),

Eucalyptus saligna, E. regnans, E. delegatensis and E. nitens, Pinus radiata proves a good nurse tree, especially when pruned and thinned to waste or for poles. It is much easier to drop among the crop trees than eucalypts or poplars. Alders are being tried.

It has been the policy of the New Zealand Farm Forestry Association and the clinics to set up one hectare agroforestry demonstration areas where local groups can discuss pruning and spacing of the chosen species, preferably pine. These sites will be recorded and measured. As an example, six will have been set up in my own branch (zoned North Land); three of pine, two of Tasmanian Blackwood (1. Pure and 2. under light indigenous cover) and one of Cupressus macrocarpa. The whole set up is fairly informal; practical rather than research orientated.

Clonal selection of that remarkable but essentially rough species, Cupressus macrocarpa, is on the way at FRI Rangiora (Dudley Franklin). This promises well, as the cypresses produce a world class timber. Wide spaced cypresses Cupressus macrocarpa, C. lusitanica, the Leyland cypresses, especially the new ovensii (C. lusitanica x Chamaecyparis nootkatensis) and Leighton green (another Leyland selection), are almost unrecognizable trees when grown wide spaced in among a mild light well of pruned radiata pine.

This is something of what the farm foresters are up, to agroforestry wise, in New Zealand.

Kia Ora
Neil Barr

NEW ZEALAND AGROFORESTRY COMPUTER MODEL APPRAISAL - VICTORIA

One of the objectives of the Timber Industry Strategies Agroforestry component is to develop a system to provide farmers with an authoritative information system from which to evaluate agroforestry in terms of:

- combinations of agroforestry systems,
- economic viability of various agroforestry combinations,
- management practices to be followed,
- financial management, and
- marketing.

As Victoria's current agroforestry research programme will not satisfy these objectives for some years, an alternative is to investigate the applicability of the New Zealand agroforestry model. As a consequence, a party of four New Zealand scientists, including Leith Knowles, will be visiting Victoria in February.

During the visit it is proposed to hold a one day seminar (February 16, 1988) for the forestry, agroforestry and agricultural sectors to demonstrate the use of the modelling system. The balance of the visit will entail discussion and negotiation on the possible business arrangements for Victorian access to the modelling system.

BACKGROUND NOTES ON THE ITCI AUSTRALIA - CHINA EXCHANGE PROGRAMME

1. Aims of the exchange programme

- To provide travel opportunities not otherwise available to agroforestry scientists and extension staff, plus farmers and consultants interested in agroforestry and tree crops.
- To improve the international exchange of information and appropriate plant material suited to agroforestry and tree crop development.
- To promote networking between ITCI offices, and people interested in tree crops for all reasons.

The programme also has an important cultural exchange element that well serves the interests of improved international understanding.

2. Funding

Each group of exchangees pay their own air fares to and from the host country.

The host country's ITCI office meets all accommodation, meal and transport costs within the country.

3. How the exchange began

The Australia-China exchange programme between ITCI offices in China and Australia began in 1986, upon the suggestion of Mr Zhu Zhao-hua, the world's foremost authority on agroforestry using the Chinese Paulownia tree.

The first exchangee was Mr Geoff Wilson, International Secretary of ITCI, who visited China in August-September, 1985, as guest of the Chinese Academy of Forestry.

Subsequent to this, the ITCI-China office was set up by some 30 Chinese agroforestry research scientists. Mr Wang Shiji became inaugural President, and Mr Zhu the inaugural Executive Director.

Mr Wang is a world authority on poplar trees in agroforestry. He is Director of the Research Institute of Forestry of the Chinese Academy of Forestry, and Mr Zhu is his Deputy.

4. The ongoing programme

The second stage of the ITCI Australia-China exchange programme occurred in October 1986, when three ITCI-China members visited Australia as guests of ITCI-Australia. This group, led by Mr Wang Luding, Deputy Director of the Forestry Department of Anhui Province, visited forestry and agroforestry projects in Victoria and New South Wales over three weeks.

The third stage was when an ITCI-Australia group visited China in August-September, 1987. The party was led by ITCI-Australia President, Mr Bill Sharp, a sheep producer from Hamilton, Victoria. (See the article in this issue by Richard Moore.)

The fourth stage comprised a group of seven Chinese agroforesters, in Australia from October 17 to November 7, 1987, led by Mr Wang Shiji, President of ITCI-China. They visited projects in New South Wales, Victoria and South Australia.

STUDY TOUR OF DRY COUNTRY AGROFORESTRY IN INNER MONGOLIA - SEPTEMBER 1987

Richard Moore
Department of Conservation and Land Management
Western Australia

We had travelled west, about 1,000 km by train, from Beijing to Inner Mongolia. As we neared the town of Deng Kou, the main location on our study tour of dry country agroforestry in China, the landscape was flat and mostly desolate. How could they possibly turn this barren windswept desert of sand into a green and productive environment? Apparently they are, and that is what we had come to see.

Our party consisted of Robyn Russell, a forester now living in Malaysia, Peter Rutherford, plantation manager with APM in Albury, John Fenwick, doctor and farmer from Esperance and myself, an agroforestry researcher with the Department of Conservation and Land Management in Busselton, Western Australia. We were accompanied by Zhuo Shi Wei, a senior researcher of shelterbelts, who was our tour guide, and Zhang, a young forestry graduate, who was our interpreter. Both were from the Chinese Academy of Forestry in Beijing.

Our visit to Inner Mongolia was part of an Australia/China exchange programme co-ordinated by the International Tree Crops Institute. Nine Australians and one American were taking part - the other six were travelling south from Beijing to study flood-plain agroforestry in Anhui and Shandong provinces.

Once in Deng Kou, we were looked after by members of the Chinese Academy of Forestry's Research Station. The Research Station was established in 1978 after the Chinese Communist Party had embarked on a massive revegetation project known as "The Norths" (referring to the North West, the North and the North-East of China). The project, also called the Great Green Wall of China, aims, in a number of stages, to stabilize and make productive some 1,400 square kilometres of desert. Even though much of the area receives less than 200 mm of rain per year, it was well covered in shrubs and even some trees at one time. Erosion by wind and water causes huge losses in agriculture and much human suffering. It has been estimated that each year 1.6 billion tonnes of silt is carried down the Hwang Ho, much of it coming from the middle reaches of the river in the region of Deng Kou.

At Deng Kou, there are two distinct types of desert land; that which can be irrigated and that which cannot. The first and most important task on the non-irrigatable land is to stabilize the sand dunes.

In the depressions between the dunes is a silty material. It has been found that if this silt is laid out on the dunes in small ridges on a 1.5 metre grid, the sand is held firmly enough to allow seeds to germinate and seedlings to grow. About 6,000 hectares of desert land, under the control of the Research Station, have been stabilized in this way. The species used are mostly indigenous shrubs which can be used for fuel and fodder.

An entirely different revegetation method has been developed for land which can be irrigated. Here the aim is to grow agricultural crops, but to be able to do this, there needs to be protection from the strong winds and driving sand. A shelterbelt system, called a forest net, is used.

Trees are planted once the earthmoving work, such as canal digging and dune leveling, has been done. The main tree is poplar, which also provides timber. The usual spacing of the forest net is a grid 430 m x 130 m and it is orientated to provide protection from the strongest winds.

Within 5 years the belts of trees provide enough shelter for agricultural crops to be grown. We saw recently built villages to house the people who work the land which has now been made productive. At breaks during the inspection of these areas, we enjoyed fresh watermelon, rockmelon and grapes grown on land that, only a few years earlier, had been desert.

Throughout our journey, we were looked after with warmth and hospitality. A typical example was the stop at a small Mongolian town during a 12 hour drive across the desert. We were invited to sit at a table filled with a feast of local dishes surrounded by the friendly smiling faces of the chief of the district and his family.

I was also impressed by the way the Chinese tackle land management problems. I felt their approach was considered, practical and vigorous.

During the visit, we made contact with people who are working on basically the same problems as we are in parts of Australia - problems of shifting sand and strong winds. This contact, I believe, leads to mutual benefits through exchange of ideas and information. Even though details of techniques and species are perhaps not directly applicable, the principles certainly are. For example, the benefits of shelterbelts to agriculture in harsh environments are clearly demonstrated in China.

TIMBER INDUSTRY STRATEGY (TIS) FUNDING FOR AGROFORESTRY

This financial year $100,000 has been allocated from TIS funds toward agroforestry. Primarily, funding is for the establishment of a series of commercial agroforestry demonstrations throughout Victoria. In addition the Department has employed Brenda Gruer, a graduate of Ballarat CAE to assist in the measurement, maintenance and data analysis of the agroforestry research trials.

$55,000 GRANT FOR STUDY OF ECONOMIC RETURNS FROM TREES ON FARMS

The Department of Conservation, Forests and Lands together with the Department of Agriculture and Rural Affairs has been successful in obtaining a grant of $55,000 from the Australian Special Rural Research Fund to evaluate, in economic terms, the private and social costs and benefits of trees on farms in Victoria.

Bill Loane, a resource economist with experience with the IAC and CSIRO Division of Forest Research, has agreed to an initial secondment of one year to undertake the study, commencing in early 1988. Bill's primary objectives will be to estimate the private and social rate of return from tree planting, regeneration and clearing on farms using economic cost-benefit studies. The results should quantify financial returns to farmers and provide encouragement for further tree plantings. The social benefits will indicate to governments whether and where greater financial inducements for tree planting are warranted. Additionally, this project will form an integral part of the Victorian Government's agroforestry and land protection programmes.

Bill will likely be based with DARA at Burnley and his programme will be co-ordinated by the Joint Management Group for the Agroforestry Research

programme under the chairmanship of Dr Wally White (DARA). Other members of this committee include Stuart Margetts (DARA) and DCFL representatives, Dr David Flinn and John Kellas.

WOOD UTILIZATION RESEARCH CENTRE AT HARVEY, WESTERN AUSTRALIA

Graeme Siemon
Department of Conservation and Land Management
Western Australia

The Department of Conservation and Land management has a Wood Utilization Research Centre (W.U.R.C.) at Harvey, about 140 km south of Perth. The Centre was set up in late 1984 at a former commercial softwood sawmill.

The need for increased research in timber utilization is related to the changing forest resource. The available sawlogs of mature eucalypts in Western Australia (mainly jarrah and karri) will be depleted in about fifty years. Harvesting of regrowth forest has commenced, and in the future all hardwood will come from regrowth forests. Eucalypts native to eastern Australia are also being grown. Pine, particularly radiata pine, will provide an increasing proportion of the State's timber resources.

The W.U.R.C. research is supervised by a Management Committee of Mr Phil Shedley (Senior Utilization Officer), Mr Des Donnelly (Chief Utilization Officer) and Dr Graeme Siemon (Principal Research Scientist), assisted by Mr Don Challis (Secretary) and Mr John Dorlandt (Accounts). The Management Committee is responsible to a Department Policy Panel which ensures that research programmes are in accord with the Department's policies. The Panel comprises Mr Peter Hewett (Director of Forests), Mr Don Keene (Divisional Manager, Forest Resources) and Dr Per Christensen (Senior Principal Research Scientist).

The W.U.R.C. has programmes covering research into hardwoods and softwoods, as well as looking at viable commercial developments. The major research at present is on regrowth hardwoods, with Commonwealth funding under a Public Interest Project.

An important feature of the research is integrating forest growers, producers, manufacturers and consumers so that available timber resources are used as efficiently as possible. Industry participation in technical advisory groups is regarded as important.

Hardwood research trials

Research trials include the following projects:

Harvesting

A major harvesting trial compared five different machines and methods for felling and snigging in regrowth jarrah stands, and showed a range of options was commercially viable. Long length logging was recommended.

A study of forest residues showed that even after six years on the ground the moisture content of jarrah logs remained above fibre saturation point (f.s.p.); the moisture content at which cell walls start to dry out.

Stockpiling

A stockpiling trial comparing five different watering regimes on jarrah logs showed that a 'one hour on, three hours off' regime produced logs with limited end splitting and reduced growth stresses, similar to the results with continuous watering. A further trial has commenced to assess watering rates to as low as 1:11 which will result in further considerable savings in water and energy.

Sawmilling

Strategies in this field of research will include developing sawing principles and details for green and seasoned products. Sawing principles will cover breaking down methods using edger saws, through and through sawing, conventional and line-bar cutting patterns. Sawing details will take into account differing log dimensions and product requirements using patterns established and published by other research workers.

Seasoning

Seasoning research is concentrating on producing furniture grade timber and other value added products. Previous research showed that eucalypts should be dried in two stages, from green to fibre saturation point and from f.s.p. to final moisture content. Current research programmes are using the batch kiln to develop efficient schedules to prevent checking in the few days after milling. Research and commercial practice have both shown this period to be the most critical in the development of seasoning checks. After developing a reliable schedule for that initial stage, conventional CSIRO schedules will be tested and modified if required in drying down to f.s.p. The final stage will be to dry timber from f.s.p. to final moisture content, and to compare timber dried using conventional kiln schedules with similar material which is high temperature dried. Detailed assessment of moisture gradients at each stage will be made.

High temperature seasoning of jarrah boards has been successfully carried out in both the laboratory high temperature kiln and the commercial kiln.

Wood properties

Preliminary strength tests which compared regrowth and mature specimens of jarrah, karri and marri indicated that regrowth material has similar strength to mature wood. Further testing is planned. The species of particular interest is jarrah, which in the limited sample tested, had strength values higher than published data.

A durability trial has been commenced with the CSIRO Division of Chemical and Wood Technology to compare resistance to fungal attack of selected regrowth and mature Western Australian hardwoods, and several Eastern States species grown in Western Australia. The testing will be done in CSIRO's accelerated field simulator at Highett.

Product development

A project on sliced veneer production and plywood manufacture from regrowth jarrah and karri has commenced. Slicing of figured veneer is also being researched in a search for higher value products.

A furniture blank manufacturing trial using regrowth jarrah will commence in the next few months. The concept of standard edge-jointed panels for use as furniture blanks is designed to increase the efficient use of high value timber in manufacturing.

Management

"GUMTREE" (c) (General Utilization Model of Timber Resource Economic Evaluation) is being developed to model all aspects of a vertically integrated forest-based industry, from standing tree to the marketing of manufactured timber products. The purpose of the model is to provide policy makers and managers with a management tool for planning the efficient production and use of forest resources. Alternative wood processing and marketing strategies can be evaluated, and strategies decided. The sawmilling sector model has been completed, and is being tested.

Softwood research trials

The softwood research programme has concentrated on sawmilling studies of fast-grown pine, particularly radiata pine. The most recent study compared the sawn graded recoveries of similar sized logs milled from an agroforestry trial, a fuel reduced buffer, three conventionally grown plantations, and a private plantation. While sawn graded recoveries and the percentage of F5 stress grade timber were similar, there was a higher proportion of short length F5 pieces in the fast-grown pine. Milling agroforestry logs into boards produced higher recoveries than milling structural timber.

A previous study had compared recoveries from radiata pine of the same age, grown under different thinning treatments. The fast-grown stands produced less volume overall, but substantially more sawlogs, with much higher recoveries.

General

The W.U.R.C. is now a major research centre with excellent facilities for timber utilization research. As stated previously, liaison with the forest grower, the producer, the manufacturer and the user is considered important to make sure that research is "needs-based" as much as possible, with a balance of applied and fundamental research.

Enquiries on timber utilization matters are welcomed by the Department of CALM's timber advisory service on (09) 367 0333.

GROWING TAGASASTE AS A GRAZING AND FODDER CROP IN THE ESPERANCE REGION

by Dean Savage - Farmer
Esperance, Western Australia

History

In 1985 I had an area of some 23 hectares comprised of very deep sand hills, waterlogged and salt affected land in between, and a small percentage of "good" country. That is, 1 metre of sand over gravel/clay. This country had performed very poorly in the past, with cropping and pasture, and I decided there had to be a better system of achieving higher returns from that land, and at the same time, stabilizing the country.

The options, to my mind, involved trees of some sort or another; for salinity and waterlogging control, preventing wind erosion on sandhills, stock shelter, possibly some fodder value, and improving the capital value of the land. Having had some previous experience with pines, they were my first option as an agroforestry project. However, the returns are long-term and the country is not totally suitable.

Having heard of the experiences of Mr John Cook (Dandaragan, Western Australia) and Mr Colin Dunham (New Norcia, Western Australia), I decided to diversify into tagasaste.

Commencement of project

In April 1986 I ripped to a depth of 60 centimetres in two rows two metres apart, with eight metres between each grove. The reason for rows set two metres apart is that the machine is set at this spacing, and I was aiming for the maximum number of trees per hectare. After ripping, I then ran back over the line to compact it to avoid cavity problems during seeding. Two weeks later I sprayed 4 litres per hectare of Vorox AA over the ripped lines.

May 1, 1986 - Seeded 7 kg/ha of cereal rye and 3 kg/ha of serradella between the rows, with 60 kg/ha of Agras No. 1.

May 26, 1986 - Commenced seeding with Kimseeds Furrow-band Seeder at 0.5 kg/km of tagasaste seed. Seed was placed on the surface and pressed in with a press wheel.

June 1, 1986 - Sprayed with Rogor to control red legged earth mite.

August 2, 1986 - Sprayed some sections with 1.25 litres/hectare of Hoegrass with 1 per cent spraying oil to control large ryegrass (successful). Tagasaste seedlings were then two leaf, to 50 mm high.

Comments on establishment

1. Preparation is very important; that is, weed control, deep ripping etc.

2. Vorox treatment was successful despite later germination of grasses. It was not necessary to control these later germinations provided the soil had been deep ripped and seeded early enough.

3. Cereal rye was planted to protect seedlings on the sand ridges. This was not necessary on the remainder of the paddock.

4. Serradella establishment has been very successful in 1987.

5. Seeding rate of 500 grams per kilometre is too high in a successful establishment. This gives 8 to 9 trees per metre. I think 3 to 4 trees per metre would be ideal, and this can be achieved with a seeding rate of around 250 grams per kilometre.

6. There was some non-wetting sand on the rises. There was good germination and survival here because, I believe, the seed was placed on the surface and then pressed in.

7. It is essential to control red legged earth mite and grubs in the first month after seeding.

8. It appears that placement of fertilizer with the seed is not necessary. However, deep banding of fertilizer could be a proposition - needs more research.

Management

Rabbits - successfully controlled in the previous year and were not a real problem, although obviously they could be.

Kangaroos - were a problem but, as it turned out, they did the trees a favour by nipping the tops off, which made the tree branch out. Will have to be watched.

Grasshoppers - were sprayed in January 1987. The main damage was on the higher sand ridges, although trees did recover quite well.

By February/March some of the trees were about 1 metre high and from January to April I had approximately 500 sheep in for about three weeks at a time. Damage was minimal except, again, on the sand hills (which have since recovered). The object of putting sheep in that soon was to "top" the trees to make them branch out. However, the trees continued to grow and in April I decided to cut them back to 50 centimetres in order to make them branch out. I did this with a New Holland mower.

In May 1987 I applied 180 kg/ha of superphosphate to the trees.

Future management and problems

The trees had grown to a height of 1.5 metres by November 1987 and now present a problem of what to do with them. However, it is a pleasant problem, as there is an enormous amount of fodder there now, after some 17 months.

To cut down on machinery and labour, I originally thought of putting sheep in to eat everything as high as possible (about 1 metre) and then cut the remainder for them to eat off the ground. However, the trees are growing very fast and at this stage I am investigating the possibility of cutting and round baling, and then putting the sheep in.

The sheep must be rotationally grazed to allow the trees to recover.

Establishment is relatively easy and inexpensive. The problem is how to manage them later on, and this is an area of concern and much debate.

In summary, I believe tagasaste trees have enormous potential in the Esperance region, not only because of the fodder potential, but also their ability to use the summer rainfall we receive, along with the added benefits of controlling salt encroachment, giving stock shelter and preventing wind erosion.

Tagasaste is a vigorous grower and withstands a lot of pressure from grubs and other vermin.

There is ongoing research into fertilizer requirements and management of tagasaste. With regard to growing of crops in-between groves, I think that within two years the trees will compete with crops and reduce the yields. However, I do see a place for perennial grasses, serradella and other species.

TREES ON FARMS IN THE ESPERANCE REGION, WESTERN AUSTRALIA

David Bicknell
Department of Agriculture
Manjimup
Western Australia

Tree planting on the south coastal sandplain of Western Australia has achieved increasing importance since widespread clearing exposed the erodible sands of the region. Several farmers in the region had been prominent in their planting and initiatives in methods of establishment. In May 1987, I visited the region with Richard Moore, Agroforestry Research Officer with the Department of Conservation and Land management (CALM) and Peter Beatty, Private Forest Production Officer, CALM. Our intention was to visit some of the more notable tree plantings and discuss the potential for commercial returns from trees planted primarily for other reasons (mostly as windbreaks).

All three of us are members of the Western Australian Agroforestry Working Group. Richard Moore has also produced a submission to the National Soil Conservation Programme for funding a land care package involving the use of trees on the South Coast Sandplain.

The following points of interest arose at the various sites.

Ralph and Ada Silburn, Munglinup

Ralph and Ada have several ages of agroforestry plantings of Pinus pinaster and Pinus radiata. An older, mature windbreak of P. pinaster and Eucalyptus globulus is on the main road fronting the property.

One laneway/windbreak on the property consisted of three rows of P. pinaster, then a track, then naturally regenerated Banksia speciosa and other shrubs. The centre row of pines were suppresssed, but of good form.

Banksia speciosa is very vigorous where stock are excluded. It grows to about 5 metres high and across, and flowers profusely.

Pinus pinaster grows better than P. radiata on sand greater than 1.5 metres deep, and where the watertable is deep.

On scrubland still to be cleared, Ralph intends establishing widely spaced pine windbreaks a year ahead of clearing. This removes the necessity for stock exclusion and gives the young pines some protection.

Banksia baueri (Woolly banksia or Possum Banksia) grows in this area and is reputed to be unpalatable to livestock; it is selectively left in rough grazing. Ralph intends to investigate it as a low windbreak not requiring fencing.

Klaus Tiedemann, CALM, Experance, and Alan Herbert, Department of Agriculture, Esperance

Points arising from discussion were:

1. The 'sandplain' is about 1.1 million hectares, with variable depths of sand over clay, with good drainage on the western end and little to no drainage on the eastern end. Rainfall drops off rapidly inland.

Alan Herbert estimated 20 to 25 per cent of the area to be 'deep sand', i.e. greater than 80 cm of sand over clay or gravel.

2. The watertable over much of this area is rising by about 30 cm each year. In some places, the watertable does not appear to be rising; in others it is rising by at least 60 cm a year. As a consequence, signs of waterlogging and/or salt are appearing, over the last few years, at a rapid rate.

3. Planting trees only for windbreaks and woodlots on a small area is unlikely to halt the rise of water tables because of the scale of the problem. Perennial pastures and high water use crops are needed as well.

4. Land 'capability' mapping of the area is planned.

Garry English, Gibson

Details of this site are included in 'The Esperance Tree Book', "Agroforestry in Action" by Garry English.

P. radiata windbreaks established in 1984 are growing well on the deeper, 'good' sands (about one metre deep). Signs of zinc deficiency were present and manganese deficiency was visible on some older P. radiata on the property.

The sand between windbreaks is being cropped with a lupin-wheat rotation. This continuous cropping regime is much more profitable than previous cropping and/or pasture rotations.

A Pinus pinaster establishment trial was put in by CALM on Garry's farm. It is now considered that the correct use of herbicides and weed control will largely overcome the particular establishment problem of P. pinaster on previously pastured land.

Banksia speciosa flowers are being harvested commercially from two areas of natural regeneration (following clearing). However, insect damage is increasing as the stand ages.

Tony and Mike Overheu, Condingup

Pinus radiata is being planted on most of the suitable country for wide-spread windbreaks and timber.

Early plantings were close spaced double rows with late pruning. Recent plantings are double rows 100 metres apart, and the intention is to space the double rows up to 200 metres apart. The double rows are protected by two electrified wires either side.

Shallow sands and waterlogging are depressing growth in some areas. Signs of manganese deficiency were present, but the pines had very healthy crowns and good butt growth.

Management of the pines for direct cash return at some future date was important to the Overheus.

David Smallwood, Condingup

This site was different from all the others visited in that the soils were very shallow sand over clay or fine sandy clay over clay. The area is very

flat and very close to the coast. Selected Pinus radiata cuttings were established on shallow sand in 1986 using a planting machine, with 70 to 80 per cent survival.

In a 1986 windbreak planting of Eucalyptus globulus and E. bicostata, nearly all the E. bicostata died.

An older row of E. globulus has been planted into ripped, sandy clay and showed good form and growth rate. We nearly bent the penetrometer on this site!

Another windbreak was direct seeded in 1984 with a mix of 25 eucalypt species, Pinus pinaster, Agonis flexuosa (Western Australian Weeping Peppermint) and Cape Lilac. Many of the species have disappeared, and others show a marked variation in vigour. These will be monitored.

Dean Savage, Condingup

The main areas of interest at Dean's were:

1. A 1986 planting of tagasaste on moderate to very deep sand around a saline drainage line. This is described by Dean Savage in an article in this Agroforestry Update.

2. Pinus radiata windbreaks two and three years old across some of the better clover pasture areas. Strong winds along the line of windbreak had pushed over many of the pines and loosened/exposed some roots.

Les Webster, East Esperance region

This area was flat, fine sand of variable depth over clay. Les has developed his own direct seeding machinery for planting tree and shrub seed. The tractor drawn seeder scrapes off the topsoil, then tips and spreads a seed-fertilizer mix at fairly high rates. Establishment is very good compared to a commercial direct seeder also tested on the property. Benefits from quite small pines in windbreaks are obvious in this environment.

Les Webster also uses the windbreak establishment technique pioneered by Geoff Grewer (a neighbour) i.e. clearing windbreak lines and establishing trees at least one year before the remaining area is chained.

Geoff Grewer, East Esperance region

Geoff has been very active in planting, testing ideas and publicising the need for further tree planting on the south coast. An article by Geoff Grewer will be included in the next Agroforestry Update.

Geoff has several types of pine windbreaks and eucalypt plantings. There is also a fodder shrub trial area, with tagasaste and Acacia saligna the only successes.

Many of the widely spaced Eucalyptus cladocalyx were of much better form than the older, mature roadside plantings common around Esperance.

Summary

Windbreaks on farms and along most roadways on the sandplain around Esperance are of great importance. A lot more planting is needed to minimize risk from the severely erosive winds experienced on the south coast. There is still

considerable potential for managed windbreaks to produce timber. Species known to fit into the region well are Pinus radiata, P. pinaster, Eucalyptus globulus, E. cladocalyx, E. gomphocephala and Chamaecytisus palmensis (tagasaste).

Management of the rising water table on the flat, poorly drained sandplain is of major importance.

There is considerable scope for farmer involvement in testing revegetation options in the Esperance region.

PETER BALDWIN'S MOVE TO QUEENSLAND

Peter has moved from the sublime climate of Ballarat to Gympie with the Research Section of the Queensland Forestry Department. His work is with forests, fire effects and plantations.

Peter's superb effort in co-ordinating the establishment of the agroforestry research trials in Victoria is duly noted. John Kellas has now inherited many of Peter's functions associated with the agroforestry research programme.

TREES ON THE ATHERTON TABLELAND: REMNANTS, REGROWTH AND OPPORTUNITIES FOR PLANTING

J.G. Tracey
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P.O. Box 780
Atherton, Queensland, 4883

Abstract

The need to integrate tree planting with the present land use of agricultural cropping, dairying and cattle fattening on the Atherton Tableland is discussed. The impact of European settlement on the original vegetation patterns is described using specific examples of stream catchments. Community benefits derived through preservation of forest remnants and tree planting are highlighted. Some data is presented showing good growth rates of important cabinet timber species and selections of tree species suitable for the region are given. Various tree planting strategies e.g. windbreaks, woodlots for timber, aesthetic plantings all with a view to overall landscape values are covered. A farm forest subsidy scheme designed for the region and the preservation of surviving forest remnants are recommended.

EARLY GROWTH OF 36 SPECIES OF EUCALYPTS NEAR MOUNT GAMBIER, SOUTH AUSTRALIA

Paul P. Cotterill[A], Gavin F. Moran[B] and Barrie R. Grigg[C]
Aust. For. Res., 1985, 15, 409-416

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B Division of Forest Research, CSIRO, P.O. Box 4008, Queen Victoria Terrace, A.C.T. 2600

C Woods and Forests Department, South Australia, P.O. Box 162, Mount Gambier, S.A. 5290

Abstract

Thirty-six species of eucalypts were compared for growth at 18 months after planting on one site near Mount Gambier. It was ex-grazing pasture on a deep sandy soil. The largest 13 of these species were again measured for growth at 4 years. Eucalyptus globulus and E. nitens were by then the largest, but E. viminalis, E. botryoides, E. regnans, E. fraxinoides, E. brookerana and E. oreades also grew rapidly. The fastest growing provenance of E. globulus achieved a mean height of 10.5 m and a mean diameter (at 50 cm) of 20.1 cm after 4 years, while the fastest growing provenance of E. nitens achieved a mean height of 10.3 m and a mean diameter of 21.8 cm. The potential for hardwood plantations in the Mount Gambier region is discussed.

DIRECTORY

The following additions have come in since 'Agroforestry Update 6'

John Kellas
Telephone (053) 45 2100
Public Lands and Forests Division
c/o VSF and LM
Department of Conservation, Forests and Lands
CRESWICK VICTORIA 3363

Interests

- agroforestry research
- native forest silviculture

Current projects

° field co-ordination of Department of Conservation, Forests and Lands/ Department of Agriculture and Rural Affairs agroforestry research trials in Victoria

° Ph.D. programme investigating the tree/pasture interactions across shelterbelts.

Arthur Lyons
Telephone: (03) 651 1112
Department of Conservation, Forests and Lands
2 Treasury Place
EAST MELBOURNE VICTORIA 3002

Interests

Agroforestry for commercial timber production
Convenor, Agroforestry Extension Committee

Current projects

Development of large scale commercial agroforestry operations on private land.