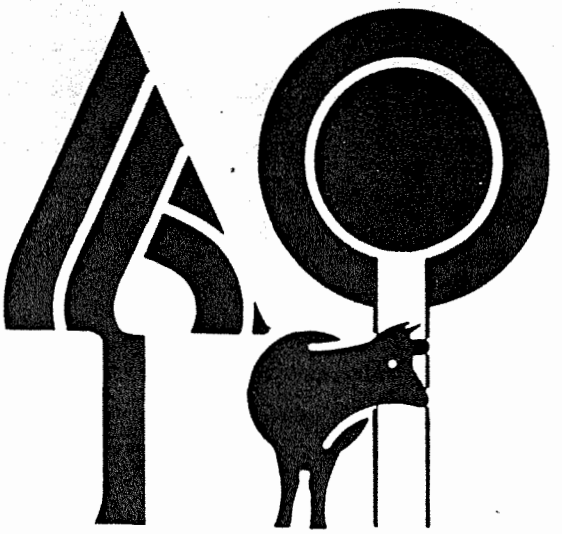

Agroforestry Update

Department of Agriculture and Rural Affairs

Department of Conservation, Forests and Lands

Victoria

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Agroforestry Update - *an occasional newsletter for agroforestry practitioners, research workers and extension specialists*

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EDITORIAL

There have been few articles this period so the directory dominates the issue. We intend to publish one more edition in Victoria and then pass the task to our Western Australian colleagues, Richard Moore and Geoff Anderson. We leave them with one minor problem - the circulation of Agroforestry Update has grown to around 200.

To our contributors and helpers - thank you very much. To those (few, we hope) who have written to us asking for reprints and have not received them, we apologize - it's been a hard year. Kindly write again and we will do our best to help.

We apologize if we tend to show a Victorian bias. The regular biennial changeover of editors will mostly compensate for this. (Wait till we get a Kiwi editor though!)

WE WERE WRONG; NO MALPRACTICE SUITS PLEASE AS WE ARE NOT INSURED

The reprint of 'Agroforestry in Australia and New Zealand' by Rowan Reid and Geoff Wilson is about to hit the bookshops. Congratulations, Rowan and Geoff!

The publishers are Goddard and Dobson as before - we apologize for mistakenly indicating another firm was involved. Incidentally the claim to it being the first book on agroforestry was challenged by the German publisher of a short report on agroforestry in the Pacific Islands. We award the gong to Ozzie battlers!

Geoff Wilson has another booklet on sale:

> *H Esbenshade and G Wilson. 'Growing Carobs in Australia.' (Goddard and Dobson : Box Hill, Victoria) 1986.*

The price is $22 - this includes $4 for postage from the publishers, PO Box 148, Box Hill 3128 Victoria.

Geoff would also like us to point out that, as indicated in Agroforestry Update 4, Ed Adamson is now Australian President of the International Tree Crops Institute, but Geoff remains very closely involved as Honorary Executive Director. ITCI has just issued a booklet on its world-wide activities; this gives brief notes on a range of tree crops but largely covers the work of the institute in numerous countries and lists its various publications. To obtain the booklet free, and further information, including how to join the institute, write to Geoff Wilson, ITCI, P O Box 283, Caulfield South 3162 Victoria.

DARA/DCFL CO-OPERATION IN VICTORIA

WE'RE NOT ALL STRAIGHT (RADIATA AND ROMNEYS THAT IS!) IN THE GARDEN STATE!

Peter Baldwin (soon to move to Hamilton) provides this summary of Victoria's official agroforestry trials:

A range of agroforestry research trials has now been established in Victoria, covering a broad spectrum of agricultural and potential forestry pursuits.

Carngham - the basic sheep/pine trial which looks at three agroforestry tree spacings and controls of pasture and plantation. Trees were planted five years ago and are being variable-lift pruned this year to 10 cm stem diameter. Growth has been fairly slow but is about right for the 650 mm rainfall the site receives. Sheep are currently stocked at 10 DSE/ha in all treatments. The University of Melbourne is conducting research on the site in water relations and nutrient balance.

Hamilton - largely devoted to basic species selection. Over 70 species have been planted over a range of sites including salt-affected areas. Also studied are the effects of tree density on pasture production using a parallel row design (a type of modified Nelder wheel). Management systems for sustainable timber production and stock protection are also being studied. Work is being conducted mostly on the Pastoral Research Institute, with private farmers also providing sites. The trials were planted in 1984 and 1985 and survival and growth have been excellent for most species. Rainfall over the sites ranges from 600 to 700 mm annually.

Kyabram - a trial located on the Animal and Irrigated Pastures Research Institute. The major part utilises flooded gum (Eucalyptus grandis), which has performed well under irrigation on this and other sites around Victoria. The combination of eucalypt and pasture is being studied in a parallel row design covering tree densities ranging from 40 to 1,111 trees/ha. The Irrigation and Salinity Research Institute from nearby Tatura is using the site for parallel research into water relations.

Fourteen other tree species are also being tested and coppice management research will be conducted on existing plantations commencing this year. Annual rainfall is about 470 mm, with irrigation expected to provide another 500 - 700 mm. This trial was planted in 1985.

Rutherglen - on the Rutherglen Research Institute investigating the effects of shelterbelts on cereal crops. Basic information on crop performance will be collected before the shelterbelt begins to exert an influence. The shelterbelt will then be manipulated by trimming so that it gives consistent shelter performance over a number of cropping years. The shelterbelt can then be changed to give, for example, greater permeability, and a measured sequence can commence again. Finally these results can be compared with the base data. The performance of 17 species is also being assessed. Rutherglen receives about 580 mm of rainfall each year. This trial was planted in 1985.

Myrtleford - located on the Tobacco Research Station. This trial again uses the parallel row design to investigate the effects of tree spacing on agricultural production. Here the agricultural input is the production of mint for essential oil extraction. The tree component comes from two clones of poplars (ANU 70/51 and ANU 65/31). The site is very fertile and is sprinkler irrigated to add 600 mm each year to the natural rainfall of 1025 mm. Trees and crops were planted in 1985 and survival and growth so far have been excellent.

Neerim South - a trial on an old farm block. These tree species were established on the site in 1985: radiata pine, mountain ash (Eucalyptus regnans) and black walnut (Juglans nigra) in three parallel-row designs. Poor quality radiata cuttings have led to poor survival and these will be substantially replanted this year. Black walnut also performed poorly and the use of this species may be reconsidered. Pasture and lucerne plots have been sown on the site and forage harvesting will continue until grazing can commence. Annual rainfall at Neerim South is approximately 1100 mm.

BETTER FARMING AT BUNGENDORE

The Conservation Farming Demonstration Area at Bungendore (between Canberra and Braidwood) is being developed to demonstrate various aspects of conservation farming to ensure sustainable agricultural production. The site, 3 km east of the town (on the Braidwood Road), is being managed by the NSW Department of Agriculture, Forestry Commission and Soil Conservation Service with help from other organizations such as National Parks and Wildlife Service, agricultural firms and landholders.

The area, representative of many on the tablelands, is set up to include 15 ha for conservation tillage trials, a water supply system, ridgeline windbreaks and an untreated erosion gully. A dam has been built on the gully to provide water for stock and to prevent more erosion. The dam has been fenced to create a wildlife habitat and to keep out stock. A trough, filled by a polythene pipe through the dam wall, supplies the needs of the animals.

The conservation tillage area has been very well used with trials being carried out using many different methods and crops on varying areas and soil types. Another major area being looked at is soil erosion control. One of the main controls used at the site is tree cover. A lot of work is being carried out on aspects such as tree planting, raising seedlings, regeneration of trees, direct seeding and also how they can be used for fodder and to create wildlife habitat. The design of windbreaks and fencing techniques are also being examined.

The main aim of this site is to get landholders thinking along the lines of conserving their land and then giving them advice and demonstrating how this can be done.

For more information, contact:

Greg Harris
Soil Conservation Service
7 Morrissett Street
Queanbeyan 2620 NSW

Telephone: (062)97 6477

CANBERRA CORRESPONDENT KIM WELLS WRITES (13 MAY 1986):

CSIRO Division of Forest Research is not active in agroforestry though I do see application for some 'hillside hydrology' modelling being done by Dr Emmet O'Loughlin. Analysis of topography and soil transmissivity leads to prediction of saturated zones in a landscape. This approach could provide guidance as to where to plant trees for best results or best effects. My own work in agroforestry is at a standstill.

I visited the Bungendore Conservation Farming Demonstration area last week. It is in its infancy yet but promises to be a useful site incorporating aspects of agroforestry. (See above for a summary of this project .)

THE OMNIBUS APPEARS ON THE HORIZON

Kurt Cremer (CSIRO Division of Forest Research, Banks Street, Yarralumla 2600 ACT) is revising 'Growing trees on Australian farms', written by Brown and others in 1968. He would be happy to receive contributions, copies of useful articles and examples of pamphlets on treegrowing.

MONTEREY CYPRESS - WHEN WESTERN RED CEDAR RUNS OUT

M. Blakeney and the Utilisation Development Division of NZFS have supplied this article, which may well surprise Ocker readers:

Macrocarpa cypress grows well and moderately fast in all areas of New Zealand but appears to thrive best on lowland soils where the annual rainfall is 750 to 1250 mm. Most of the timber that has become available is from shelterbelts or untended stands, and this frequently yields a high percentage of low-grade material.

Total New Zealand production of macrocarpa sawn timber over 5 recent years has been:

	1978	1979	1980	1981	1982
Volume in thousands of cubic metres	15	18	18	16	21

(NZ Forest Service - Statistics)

Of the sawn macrocarpa produced, about four-fifths is from the North Island, but comparatively little of this is from central North Island.

The sapwood is confined to a relatively narrow band and can usually be easily distinguished from the yellowish-brown heartwood. It is the only exotic timber in the grading rules NZX 3631(1978), where special recognition is given to heart quality.

The standing tree is particularly susceptible to attack by the two-toothed longhorn beetle (Ambeodontus tristis). If any infestation is found in the timber it should not be used. Once the insect becomes established in the sapwood, it may attack neighbouring heartwood also. Common borer (Anobium punctatum) is not a problem in heartwood, which is one of the most durable of all exotic species grown in New Zealand. The sapwood however is non-durable and preservative treatment is advisable. The Timber Preservation Authority has approved macrocarpa for C8 (low decay-hazard) preservative treatment by the diffusion process. The species is not suitable for pressure treatment with water-borne preservatives.

The wood has a pleasant characteristic smell. If this becomes objectionable in products such as bedroom suites, a coat of sealer should be applied.

The timber is fine and even in texture and wears well. It is preferable to air-dry and finish the seasoning in a kiln rather than kiln-dry from green because of the risk of collapse and internal checking. Sawing, machining, and painting present no special problems. Pre-boring is usually necessary if nailing dry, particularly near the ends of pieces.

Typical density, shrinkage and strength values for New Zealand-grown macrocarpa are:

Density at 12% moisture content	Modulus of rupture		Modulus of elasticity		Maximum crushing strength parallel to the grain		Percentage shrinkage from green to 12% moisture content	
kg/m^3	(MPa) G	(MPa) D	(GPa) G	(GPa) D	(MPa) G	(MPa) D	R	T
496	56.7	78.7	6.4	7.6	28.1	41.0	1.8	3.0

* *G = green timber; D = timber at 12% moisture content; R = in radial direction; T = in tangential direction*

* *Strength values refer to 20 mm clearwood specimens*
* *Modulus of rupture is a measure of bending strength and modulus of elasticity is a measure of stiffness in bending*

Much of the macrocarpa available in New Zealand is of relatively low grade, which therefore restricts its use.

Where good quality timber is available it can be used for a wide variety of purposes, such as boat-building, turnery, furniture, joinery, and a range of building purposes including exterior cladding. Because of the good durability of the heartwood, it is used for purposes such as survey pegs and palings without preservative treatment. As a building timber it is beginning to find favour with architects.

WHY IS THAT FENCEPOST SLIPPERY?

McKimm, R. J. 1983 Wood properties of trees irrigated with sewage effluent in relation to their suitability for fence posts. Forests Commission Victoria, Research Branch Report 230, 16 pp. (unpubl.).

ODC 812 : 831.51

Keywords: fence posts, irrigation-effluent, preservative treatment, wood properties-strength

(Research Branch, Forests Commission Victoria; now Von Mueller Institute, Department of Conservation, Forests and Lands.)

Summary

Posts and wood samples from plantation-grown trees, almost four years of age, irrigated with sewage effluent at Mildura, Victoria, were tested for basic density, strength properties and preservative absorption.

The full range of tests was made in Eucalyptus grandis W. Hill ex Maiden (flooded gum) and E. botryoides Sm. (southern mahogany), whereas only density measurements could be carried out on Casuarina cunninghamiana Miq. (river she-oak) because of severe splitting of the post sections on drying. It is unlikely that marketable roundposts can be produced from trees of this species grown under such conditions.

The proportion of sapwood in trees of all three species was found to be high, and density values were considerably lower than those for the heartwood of butt logs from mature trees of the same species. However, measurements of maximum load and modulus of rupture showed that strength properties of the two eucalypts were sufficiently high for posts of these species to meet any strength requirements for fencing.

The sapwood of both eucalypts was found to be easily and uniformly penetrated under pressure with either CCA or creosote preservatives. Sap-replacement treatment, on the other hand, although producing adequate retentions, gave variable penetration patterns.

APOLOGY

Pages 7, 8 and 9 have been withdrawn.

Editors

TAXATION OF DEVELOPMENT EXPENDITURE

A New Zealand Government press statement from the Ministers of Forests and Agriculture (Hon K Wetere and Hon C Moyle) dated 12 December 1985:

The present immediate write-off of development expenditure in agriculture, aquaculture and forestry will start to be phased out from the income year commencing 1 April 1987 and be replaced with a depreciation regime which allows depreciation of capital assets to be written off against income.

While the major policy has been established, the farm tax consultancy committee will look at the application of the tax deductibility of development expenditure and its replacement by a depreciation regime under the phase-out measures.

The major rationale for phasing-out the development expenditure concessions is that they artificially increase the rate of return on qualifying assets compared with conventionally taxed assets, thereby encouraging over-investment in these assets, putting pressure on land prices and encouraging capital-intensive production. In some cases, investment has been motivated by tax advantages rather than by the true profitability of the activities concerned, based on market returns.

It is intended that development expenditure will be capitalised and depreciated or written-off over the period during which assessable income is produced as a result of the expenditure. The appropriate depreciation rate will vary according to the nature of the asset. Any excess or shortfall of depreciation would be treated in the same way as depreciation of plant and machinery. Expenditure on repairs and maintenance will be deductible in the year incurred.

The new tax regime for development expenditure in agriculture and aquaculture will be as follows:

- *Expenditure on items which are akin to depreciable plant and machinery and structures will be subject to annual depreciation allowances at rates yet to be determined*
- *Some types of land development expenditure, such as expenditure on clearing, grassing and roading, which in general do not lose value, may not be depreciable but upkeep and maintenance will be fully tax deductible*
- *Expenditure on repairs and maintenance, including the replacement cost of non-depreciable assets, will be fully deductible in the year incurred*

Because of the long-term nature of forestry investment, foresters have less scope to adjust in the short term to a new tax regime than do farmers or aquaculturalists. Accordingly:

- *The immediate write-off of forestry development and growing (sections 127A, 74 and 134) expenditure will be retained for a further 10 years (that is, until the end of the income year commencing 1 April 1997) in respect of existing forests. An existing forest will be defined as plantings of forests where these plantings occurred prior to 31 December 1986 on land owned (or held*

by equivalent contractual arrangement such as a lease) on or before the day of the economic statement. The 10-year period is to cover the bulk of silvicultural and related costs

- *Development and growing expenditure (covered in sections 127A, 74 and 134) on new forests, that is, all forests, other than existing forests defined immediately above, will be subject to the same five-year phase-out as for agricultural and aquacultural development expenditure*

The development expenditure concessions in agriculture and aquaculture will be phased out on the following timetable:

Income year commencing 1 April	*Proportion of development expenditure eligible for immediate write off (%)*
1986	*100*
1987	*90*
1988	*75*
1989	*55*
1990	*30*
1991	*0*

The situation before these changes is:

- *A wide range of land development expenditure in agriculture, horticulture and forestry is eligible for immediate write-off in terms of sections 127 and 127A of the Income Tax Act 1976, while aquacultural development expenditure is eligible for immediate write-off under section 128*
- *Forestry tree planting and maintenance expenditure is eligible for immediate write-off under section 74 while the costs of planting and maintaining trees for agricultural purposes (such as shelter and erosion control) are immediately deductible under section 134*

By contrast, most other types of expenditure on capital assets must be capitalised and written-off (that is, depreciated) over the economic life of the asset. For example, expenditure on buildings and plant and machinery is capitalised and depreciated against the income stream derived from those assets. For plant and machinery, any excess depreciation is taxable on sale or disposal while any shortfall of depreciation is allowable as an additional deduction in the year of sale or disposal.

AGROFORESTRY - ONE CHOICE FOR NEW ZEALAND HILL COUNTRY FARMERS DIVERSIFYING

Allan Gillingham of Whatawhata Hill Country Research Station, Private Bag, Hamilton has provided us with a paper he presented at the Wanganui agroforestry seminar in November 1985. Proceedings have not yet been published. Knowing the country that he writes about, the editors ask, 'Is this a case of vertical integration?'

With the current financial crisis facing many sheep and beef farmers on New Zealand hill country, the search for viable diversification options is greater than ever before. Agroforestry appears on the list of possible options.

The agroforestry trial at Whatawhata Hill Country Research Station near Hamilton in the North Island of New Zealand began in 1971. It has demonstrated that radiata pine can be successfully established on steep, dry slopes and that such areas have a relatively high site index. Following initial establishment studies, the trial is now monitored on a '3-year-on/3-year-off' basis. Pasture and sheep production measurements (grazing days and liveweight gain) are made in both spring and autumn of each 'on' year. Trees were planted at three contrasting densities and received similar proportional thinning to reach either 100, 200 or 400 stems per hectare at age 10. Currently, at tree-age 15, there is no available grazing remaining in the 400 sph stands. Following a year 'off', measurements recommenced in the spring of 1985 to measure production in the 100 and 200 sph stands. Initial results indicate that the lower pasture quality effects reported in other trials may now be appearing in the Whatawhata experiment.

Agroforestry as a diversification option for hill country farmers seems economically attractive. Nevertheless there are three major constraints.

Establishment

During this phase, the agroforestry area will be completely or largely removed from grazing with increased grazing pressure on the remainder of the farm. Care must be taken to ensure that trees are properly planted or significant toppling from poor root development could result as trees mature. Increased brush and weed regrowth may occur, and require spot spraying, and in some areas grass grub may appear as beetles are attracted to the area of rank pasture in late spring.

Management

The cost of poor tree management is high. The farmer must therefore acquire the necessary forestry proficiency, or have access to skilled labour, and must schedule pruning and thinning operations when they are needed, not when they can be worked around other duties. The presence at times of considerable slash slows or complicates such farm operations as mustering, lambing or spraying for weed control, especially in the first 10-12 years.

Financial

Although the above establishment and management constraints should be known and publicised, the major constraint with agroforestry as a practical diversification option for most farmers is financial. The difficulty lies in reconciling the requirement for intermediate investment with the long-term financial return. The short-term monetary costs of planting (about $110-160/ha) and management up to final pruning and thinning (about $400/ha) in year 8 or 9 have to come from farm income or very-low-interest loans (rates less than 10 percent). A farmer operating on a small scale, and completing all tasks himself, could keep total costs down to less than $100/ha. Where the plantation is too large to be handled personally, a farmer must obtain some intermediate return from the venture if it is to appear to be a viable and attractive option. In the absence of any Government interest in such schemes, the best opportunity for farmers to get into agroforestry would seem to lie in the establishment of contracts

or cooperative agreements between a forest company and farmers prior to planting. These agreements can vary substantially, but in general terms, the farmer provides the land, which saves the company considerable expense, and the company provides the farmer with some intermediate funding as rent or down-payment or both for the final crop. The farmer also in this situation has a known outlet for his trees and close contact with forestry expertise to ensure correct management is applied.

For most farmers, a second major constraint relates to the long-term (that is around 30 years) nature of the investment, considering that the average term of farm ownership is more like half that period. When a farm is sold therefore, the price must either adequately incorporate the value of the forest stand, or where relevant, allow any previous forestry contract to be continued, or reflect both of these factors.

Recent economic analysis has shown agroforestry to be a generally profitable venture. Well tended trees grown on easily logged country can be worth $20-30,000 per hectare at 30 years of age and 4 to 5 hectares harvested every second year (for 30 years?) could dramatically alter the economic viability of most hill country farms. The extent to which forest companies have become involved in agroforestry is a measure of their confidence, their expertise and their adaptability. Their co-operative presence seems likely to be a major factor in any success that landowners, especially hill farmers, might achieve.

ROTORUA REPORTS

Martin Hawke writes (26 May 1986) from Sulphide City:

Flavour of sheepmeat from agroforests

In 1985, a trial was conducted at Tikitere looking at the effects of pine needles on meat flavour.

Three groups of lambs were fed on pasture for seven weeks - one area had no trees, one had 10 stems per ha, and the other had 200 stems per ha of 12-year-old radiata. Each week the groups were moved to a fresh area and offered the same allowance of 'green' pasture dry matter. Two more groups were stall-fed (indoors) for three weeks and they were offered fresh pasture and initially 30 percent of their allowance as either fresh (green) or decaying (brown) pine needles.

At the completion of the trial, all lambs were slaughtered and the meat tested for flavour by trained analytical taste panels.

Preliminary results indicate there are no differences in flavour between any of the groups. It is interesting that no adverse flavours were detected in the stall-fed groups. Feed allowance measurements have given much other valuable information that is still being analysed.

Feed value of pasture growing under radiata pine

This year we have commenced a series of short-term experiments at Tikitere investigating the feeding value of pasture under different densities of

radiata (13- and 14-year old pines). Our agroforestry experiments have consistently shown poorer performance of sheep when grazed under radiata pine. The effects appear to increase with tree density and also as the trees mature.

The experiments are designed to quantify this effect, enabling greater precision in economic evaluations of agroforestry. The short-term experiments being run at Tikitere involve feeding young sheep at a range of intakes on open pasture and under radiata pine at 50, 100 and 200 stems per ha. Any differences in growth can then be ascribed to changes in pasture quality. At the time of writing, the first experiment is nearing completion.

Forest grazing

Allied to agroforestry is the concept of forest grazing. This has tremendous potential in NZ and both MAF and FRI are involved in research projects.

Projects planned for Tikitere include determining the relationship between mountain ash and pasture growth/stock-carrying capacity and looking at the role of feral goats in breaking down thinning and pruning debris and controlling understorey weeds in pine plantations.

General doings

Tikitere continues to be a popular stopping-off place for visitors; during the past six months we have hosted delegations from China, Mexico and Iran.

A new era in Government policy means that we will need to retrieve some of our research funding on the user-pay-basis. This could involve some new directions and most certainly tighter financial control of our projects.

Don Bond has moved recently to greener (computer) pastures and now works at Ruakura.

ANOTHER BOOK FROM THE FODDERLAND OF INNOVATIVE AGRICULTURE

A recent book 'Fodder trees : a summary of current research in NZ' (Report No. 106, CRD - DSIR, August 1985) will be of interest to our readers. The list of authors and papers is too long to be reproduced but subjects covered include:

- *integration of fodder trees with farming*
- *browse*
- *research reports from various agricultural institutes*
- *tagasaste and tree medick*
- *use of herbicides*
- *honey locust*
- *more tagasaste*

The book is available in Oz from The Rural Store, Lowdens Rd, Kilmore 3601 Vic (057 821 118) for $7.25 plus postage and handling. This business, run by Jim Lowden (also a publisher) seems to specialise in hard-to-get books on rural themes.

STOP PRESS FROM OUR FAR EAST!

Graeme West splits enz

Graeme, from FRI, Private Bag, Rotorua NZ (telephone 47 9879) will visit Oz in September 1986 on a research fellowship. He works with Leith Knowles and specialises in computer modelling and the use of legumes in agroforestry, especially for their value in increasing tree growth. Graeme hopes to visit all mainland States. If you wish to meet him please contact him as soon as possible in Rotorua.

The reorganisation over there

Forestry in NZ will be in three groupings:-

- *native forests will be managed by the Department of Conservation*
- *plantations will be managed by the NZ Forestry Corporation (this may not be the exact title of the corporation)*
- *central services, such as FRI, policy, advisory groups, training, and timber inspection, will reside with the Ministry of Forests, which will have about 750 employees*

FARM FORESTRY AND THE ENVIRONMENT - A NEUTRAL INVESTMENT POLICY NEEDS A POSITIVE INFORMATION POLICY

Bruce Treeby writes from NZ on the subject of the politics of privatisation:
The Government has shown an awareness of the need for the conservation of our landscape in the recent changes in Government departments, to better safeguard the environment. But does the Government have a real policy on the environment or was it just appeasing the conservation lobby vote? Was it just a reaction to a pressure group, and was it on that basis that decisions were made? Surely there is a need to be proactive; better to have a policy that is being positively pursued?

What is going to happen on private land? Who gives the lead? Conservation is said to be long-term economics. If the landuse decisions are to be 'market' driven, what will be the result? The 'market' does not care about the environment. Only dollar values will register.

When times are difficult as now, when resources are scarce, the viable options are reduced for the individual and for the Government. The 'market' will look short-term. I am not at all certain that the 'market' ever looks long-term, because it becomes increasingly uncertain as the risk gets greater.

There used to be a perceived and promoted role for the small forest grower, the farm forester. Farm forestry was seen as being much more than just the

creation of a wood resource on farms. There was also an appreciation of non-wood values as well. There was a political belief in the desirable socio-economic and environmental benefits of small-grower involvement, and that multiple land-use on the basis of the best land-uses in terms of site capability was good for New Zealand. To that end, there was a series of Government-sponsored incentive schemes to financially encourage tree planting. These recognised that the long-term nature of the investment was very different from most other investments. A positive investment policy was applied to farm forestry. Tree crops were seen as a desirable part of the total rural economy, worthy of promotion, to be integrated into what was a largely pastoral economy.

For the genuine small farm forester and the rural community, the emerging benefits were good. People with a traditional tree-clearing pastoral background were encouraged to diversify into trees. Present-day wood sales by farm foresters show the wisdom of such investments some 20 years ago. The landscape gains from a more diverse land-use pattern.

There were problems along the way for the new treegrower. The rules kept on changing. Loan schemes were replaced by grants, which were replaced by tax deductibility, and now 'cost-of-bush' is coming. Treasury argues that forestry had an advantage for the investment dollar. The distortion arose through putting the farm forestry scheme onto a national forestry scheme basis, and in the end, the farm forestry incentive was the victim of changes aimed at larger-scale forestry. Small-scale farm forestry was no longer to be actively promoted. Is lip service all we can now expect? A neutral investment policy, driven by market forces, is the order of the day.

Does the Government accept that it has a responsibility to foster wise land-use in New Zealand? Does it have a policy in real terms other than a neutral investment policy? Any political party worthy of widespread public support should have a landscape policy that is clearly stated and pursued. It's not a matter of doing a 'Jim Bolger', and asking what do we want, and waiting to see where the next pressure group will take us. The State does have a positive role to play in all this.

If the present philosophy is that the private investor should be allowed to make investment decisions in a 'neutral climate', how does the Government achieve the landscape ideals of the environment policy, if one exists?

In the rejection of financial incentives at the treegrowing end, and reliance on the profit motive at the harvesting end, the Government incentive must come through information. The 'why and how to', the promotion of ideas and ideals.

The present rural economic situation has arisen in large part through the landuser not getting accurate information on which to base investment decisions. Misplaced incentives caused major distortions in investment. While this is clear in agriculture, it is also becoming clearer in forestry as well. For example, through lack of accurate information, or mis-information, the present position of radiata pine and our major competitor, Chile, was not realised. We were led to believe that Chile posed no serious threat, that their tree management was crude, they did not have the silvicultural and marketing expertise. In other words there was no problem. We would lead the way. How wrong 'we' were!

In the light of the present position in respect to radiata pine, Treasury are probably right in not positively promoting more radiata pine plantings, particularly by the small grower. I have no argument with that. It is increasingly obvious, that special-purpose species could be a sounder investment for the small grower if the right decisions are made, that is decisions based on the best information, including markets.

Assuming that there is a Government policy that is positive towards landuse and landscape values, for the policy to be achieved in a 'neutral investment environment' there needs to be a much better availability of accurate information than has been the case in the past. This information must be relevant and with a global perspective. It would seem from our present situation in agriculture and forestry that this has been lacking. The New Zealand Farm Forestry Association felt that this was lacking in the perspective of selecting special-purpose species. Hence the request that was made to the Minister of Forests for the Forestry Council to look into the world scene.

The agencies of the State must see that the policy of the Government in respect to landuse and landscape, and the environment, is positively promoted through the collection and transfer of information of the highest quality as easily as possible to the investor. If this happens, there is a better likelihood of better landscapes resulting, both productive and protective in nature.

The question is, does the Government have a real policy that is being actively promoted, or do the landuse decisions emerge out of the interplay of free market forces, where the Government stands to one side and observes, and only acts when a pressure group gets active, and it is electorally damaging not to act?

How is the policy being promoted, who is responsible, and who monitors it?

DAGS AND SCRAGS

The agroforesters union!
All agroforesters should be members of the Australian Forest Development Institute. This progressive and energetic organization publishes 'Australian Forest Grower' each quarter. To join, and to receive the magazine as well, write to AFDI, Box 515, PO Launceston 7250 Tasmania (telephone (003)313 666).

Trees and productivity - a global study
Ed Adamson, formerly with the Victorian Farmers Federation as the state farm trees co-ordinator, has commenced a six - month study on the effects of trees on crop and animal growth.Whilst it is largely a literature survey, Ed would like to locate properties with farming systems that could be written up as case studies of the beneficial effects of trees. You can contact him for further information at Ministry for Planning and Environment, 477 Collins St., Melbourne 3000 Victoria (telephone (03)628 5182 or 628 5177). The aim is to produce a brochure on the subject for wide distribution, a sort of meaty successor to the 1984 pamphlet 'Financial Benefits of Farm Trees'.

The definitive work on tagasate

Dr Laurie Snook of Western Australia has published a comprehensive work on this species.The book is available for $7.50 plus postage from the Rural Store, Lowdens Road, Kilmore 3601, Victoria.

A salute to our typist

Thanks very much to Jeannie Wannan of Keith Turnbull Research Institute for her industry, tolerance and skill in helping us prepare this issue.

Adjust your address

Peter Baldwin, contrary to the directory, will not move to Hamilton until early 1987 (he thinks). His current location is Department of Agriculture and Rural Affairs, State Public Offices, corner of Mair and Doveton Streets, Ballarat 3350 Victoria (telephone (053)370 784). We should point out here that Peter, a forester, joined DARA recently as an agroforestry scientist. We believe this is the first such appointment in Australia and it is very welcome.

For your diary

** Agroforestry seminar, Ringwood Cultural Centre, Wednesday 8 October 1986 - a joint venture by DARA and DCFL. For further information, contact Stuart Margetts' office at DARA, 166 Wellington Parade, East Melbourne 3002 Victoria (telephone (03) 651 7011).*

** Agroforestry workshop, Western Australia: 13-16 October 1986. This is being organised for the National Correspondimg Working Group on Agroforestry by John Kellas and Stuart Margetts. Attendance is restricted.*

Trees and Natural Resources

The December issue of this quarterly will be devoted to agroforestry.

DIRECTORY

AUSTRALIAN CAPITAL TERRITORY

Chris Borough PH: (062)81 8308

CSIRO Division of Forest Research
PO Box 4008
CANBERRA ACT 2600

INTERESTS

- Research in the integration of commercial tree species with grazing in med/high rainfall zone
- Clones of radiata pine for agro-forestry

CURRENT PROJECTS

- Evaluation of range of strategies for management of pine/sheep combination
- Development of clones of radiata pine suited to wide spacing
- Development of pruning systems for trees at wide spacing
- Examining the physiological differences between clones of radiata pine - a collaborative project in NSW, ACT and Victoria forming part of a Ph D thesis

David Brett PH: (062)48 8588

ACIAR
First Floor
Reserve Bank Building
10 Moore Street
CANBERRA ACT 2601

INTERESTS

- Extension of research results in agroforestry

Alan Brown PH: (062)81 8351

CSIRO Division of Forest Research
PO Box 4008
CANBERRA ACT 2600

CURRENT PROJECTS

- Tarago agroforestry trial (with Dr R Colman, NSWDA, and Francis Clarke)
- Treecrop database (with T N Johnston, Queensland Dept. of Forestry)

Dan M Etherington PH: (062)49 4699

Development Studies Centre
The Australian National University
PO Box 4
CANBERRA ACT 2600

INTERESTS

- Economics of tree crops

CURRENT PROJECTS

- The economic assessment of agro-forestry landuse systems in the tropics

Dr Clive Hackett PH: (062)46 5842

CSIRO Division of Water & Land Resources
GPO Box 1666
CANBERRA ACT 2601

INTERESTS

- Land evaluation for plant production
- Plant descriptions

CURRENT PROJECTS

- PNG subsistence agriculture and cash crops (see Agroforestry Update 4)

Kim Wells PH: (062)46 5241

CSIRO Division of Water & Land Resources
PO Box 1666
CANBERRA CITY ACT 2601

INTERESTS

- Replacing trees lost from the rural landscape
- Direct seeding
- Wood as fuel

CURRENT PROJECTS

- Mapping forest and woodland modification since settlement

NEW SOUTH WALES

Dr George Alexander PH: (02)631 8022

CSIRO Division of Animal Production

R A Hynes PH:(07)223 2398

Department of Biology and Environmental Science
Q I T
GPO Box 2434
BRISBANE QLD 4001

INTERESTS

- **Flooded gum in agroforestry**

CURRENT PROJECTS

- **STAG, Samford**

Peter Johnston PH:(07)224 6022

Queensland NPWS
PO Box 190
NORTH QUAY QLD 4000

INTERESTS
- Retention and re-establishment of natural areas for wildlife on private land

Terry N Johnston PH:(07)229 6500

Department of Forestry
Box 5
Roma Street PO
BRISBANE QLD 4000

INTERESTS
- General agroforestry
- Fuelwood
- Tree performance databank

CURRENT PROJECT
- Tree performance databank that will summarise growth and management requirements of trees used for agro-forestry and land rehabilitation in Queensland

Dick Jones PH:(07)377 0351

CSIRO Division of Tropical Crops and Pastures
306 Carmody Road
ST LUCIA QLD 4067

INTERESTS
- Pasture growth as affected by trees

CURRENT PROJECTS
- Assessing effect of tree spacing and species on pastoral yield and composition. The two species are *E. grandis* and *Leucaena leucocephala*

J K Leslie PH:(07)227 6380

Deputy Director
Division of Plant Industry
Department of Primary Industries
GPO Box 46
BRISBANE QLD 4000

INTERESTS
- Administration of research and extension in plant production and related land use

D I Nicholson PH:(070)91 1844

Department of Forestry
Main Street
ATHERTON QLD 4883

INTERESTS
- Feasibility of agroforestry projects in North Queensland

CURRENT PROJECTS
- Three agroforests (including pines, eucalypts and rain forest species) established since 1983. Planted at 500 stems per ha - to be thinned to 250 stems per ha at years 3 or 4

John Tothill PH:(07)377 0344
CSIRO Division of Tropical Crops and Pastur
306 Carmody Road
ST LUCIA QLD 4067

INTERESTS
- Speargrass land

CURRENT PROJECTS
- Native pasture/tree interactions
- Speargrass ecology
- Animal production
- Ecology of improvement of native pasture

SOUTH AUSTRALIA

Peter Carr PH:(087)647 419

Department of Agriculture
SE Regional HQ
Box 618
NARACOORTE SA 5271

INTERESTS
- Economics of agroforests and woodlots

John Fargher PH:(08)391 0647

Arbutus Agricultural Consultancy
PO Box 329
BALHANNA SA 5242

INTERESTS
- Rural revegetation
- Integrated fodder/fuel/shelter plantings
- Trees and developing communities

CURRENT PROJECTS
- Fuel plantation (5 ha, Clare)
- Shelterbelts for several northern SA Aboriginal communities
- Direct seeding with local seed (Yorke Peninsula)
- Timber production from Australian species

Peter Lock PH:(086)65 4044

SAWFD
Bundaleer Forest Reserve
PO Box 103
JAMESTOWN SA 5491

INTERESTS
- Agroforests
- Fuelwood
- Fodder trees

CURRENT PROJECTS
- Managing forestry/sheep operation in SA Mid North
- Salinity control with agroforests

John Pratt PH:(087)25 7900

SAWFD Regional Offices
Jubilee Highway
MT GAMBIER SA 5290

INTERESTS
- Radiata pine management

TASMANIA

John E. Lake PH: (004)30 2345 work
(004)31 3034 home
Forestry Commission of Tasmania
Box 68
BURNIE TAS 7320

INTERESTS
- All aspects of agroforestry extension work

VICTORIA

Ed Adamson PH:(057)77 5663
MERRIJIG VIC 3722

INTERESTS
- All aspects of rural re-vegetation
- Influence of trees on productivity

Peter Baldwin PH:(055)72 1133

Pastoral Research Institute
PO Box 180
HAMILTON VIC 3300

INTERESTS
- Agroforestry research

CURRENT PROJECTS
- Field co-ordination of DCFL/DARA agroforestry trials in Victoria (see article Agroforestry Update 5)

Dr Rod Bird PH: (055)72 1133

Department of Agriculture and Rural Affairs
Pastoral Research Institute
PO Box 105
HAMILTON VIC 3300

INTERESTS
- Fodder, trees, shelterbelts

CURRENT PROJECTS
- Honey locust - 3 spacings (rows 10 m apart, with tree densities 100, 175, 250/ha) with lucerne between the rows. Aim to evaluate productivity in this environment (700 mm rainfall, basalt soils on top of slope)

Tim Cox PH: (054)76 4217
Australian Farm Tree Regeneration Committee - Chairman
PO Box 105
SPRINGVALE VIC 3171

Australian Trust for Conservation Volunteers - Chairman
PO Box 412
BALLARAT VIC 3350

INTERESTS
- To assist farmers and any other landowner to understand the value of trees and the associated vegetation to improve farm productivity and the natural environment

CURRENT PROJECTS
- AFTR conducts statewide competitions to find farms where trees have been used to increase farm productivity and the general appearance for community benefit. These farms then to be used to illustrate and educate to other farmers through seminars
- ATCV An organisation to link the land-owner and volunteers so that non-commercial regeneration or planting of vegetation can be carried out. Having developed local, regional and state experience, ATCV is looking to interstate development and has commenced operations in WA and NSW

Peter Durkin PH:(03)663 1561

Conservation Council of Victoria
Victorian Environment Centre
285-7 Little Lonsdale Street
MELBOURNE VIC 3000

INTERESTS
- Native vegetation on private land

CURRENT PROJECTS
- Conserving threatened species on private land
- Education kit on threatened species
- Evaluation of financial incentives to landowners to protect natural features

Peter Fagg PH:(03)651 1837

Department of Conservation, Forests and Lands - State Forests and Lands Service
GPO Box 4018
MELBOURNE VIC 3001

INTERESTS
- Research into establishment and e... tending procedures for conifers o... pasture sites

CURRENT PROJECTS
- Establishment of clones of radiata... pine at wide spacings (Otway Range...
- Establishment of radiata pine on ... sites (in the Otway Ranges) where ... toppling is a problem
- Establishment of eucalypts in past... (including weed control and guards ... especially)

Bill Fisher PH:(03)651 7558

Economics and Marketing Branch
Department of Agriculture and Rural A...
GPO Box 4041
MELBOURNE VIC 3001

INTERESTS
- Economics of agroforestry

David Flinn PH:(03)651 1751

Department of Conservation, Forests an...
Lands - State Forests and Lands Servic...
GPO Box 4018
MELBOURNE VIC 3001

INTERESTS
- Research into the integration of pin... pasture production on moderately fer... sites

CURRENT PROJECTS
- Field trials underway in co-operation ... with the Department of Agriculture a... Rural Affairs

Ken Garland PH:(03)810 1512

Division of Plant Research
Department of Agriculture and Rural Affa...
PO Box 4041
MELBOURNE VIC 3001

INTERESTS
- Systems, benefits, research, commercia... ventures

RRENT PROJECTS
evelopment of report on 'Agroforestry
n Victoria' with Bill Fisher and
eter Greig

er Greig PH:(03)617 9626

W
Little Collins Street
BOURNE VIC 3000

TERESTS
conomics of agroforestry

RRENT PROJECTS
Economic desk-study of an agroforestry
proposal in Victoria
Measurement of rural tree decline
Joint authorship with I S Ferguson of
'Trees for Profit' - Chapter for
revised version of 'Growing Trees on
Australian Farms'

chael Hall PH:(03)74 1896

esident
stralian Forest Development Institute
Ethel Street
RARALGON VIC 3844

NTERESTS
Private forestry in Australia

URRENT PROJECTS
Political lobbying for agroforestry and
private forestry, taxation, land-use,
planning, insurance
Correspondence course - McMillan Rural
Studies Centre, Warragul Vic 'Trees on
Farms'

an Hamer PH:(03)651 7712

epartment of Agriculture and Rural Affairs
O Box 500
AST MELBOURNE VIC 3002

URRENT PROJECTS
Executive officer, Victorian agroforestry
research project

avid Johnson PH:(03)341 5240, (03)341 5253

University of Melbourne
Faculty of Agriculture and Forestry
Royal Parade
PARKVILLE VIC 3052

INTERESTS
- Extension, 'agroforestry systems' over the range from commercial interests to people interested in self-sufficiency

CURRENT PROJECTS
- Masters in Forest Science looking at yield regulation using linear programmin as a means of achieving this

Richard Loyn PH:(03)755 1803

Arthur Rylah Institute
Brown Street
HEIDELBERG VIC 3084

INTERESTS
- Wildlife, insects and forest managenent

CURRENT PROJECTS
- Psyllids
- Habitat value of fragmented forests

Stuart Margetts PH:(03)651 7241

Department of Agriculture and Rural Affair
Box 4041 GPO
MELBOURNE VIC 3001

INTERESTS
- Revegetation of landscape, salinity and erosion control, fodder trees, extensio of agroforestry

CURRENT PROJECTS
- Member, Victorian Garden State Committee

Joanne Millar PH:(060)24 1811
Department of Agriculture and Rural Affai
PO Box 551
WODONGA VIC 3690

INTERESTS
- All aspects farm trees

CURRENT PROJECTS
- Livestock marketing
- Kiewa Farm Trees Group

John Obst PH:(055)72 1133

Pastoral Research Institute
PO Box 180
HAMILTON VIC 3300

INTERESTS
- Trees-crop-pasture-animal systems

Pat O'Shaughnessy PH:(03)874 9211

MMBW
Watersheds Department
Private Bag 1
MITCHAM VIC 3132

INTERESTS

- Water consumption of forest stands of varying age and density. Effect of tree growth on wastewater renovation efficiency

Rowan Reid PH:(03)344 4000

Department of Agriculture and Forestry
University of Melbourne
PARKVILLE VIC 3052

INTERESTS
- Extension of agroforestry

Kevin Ritchie PH:(057)62 2466

Department of Conservation, Forests and Lands
22 Bridge Street
BENALLA VIC 3672

INTERESTS
- General treegrowing
- Irrigation and salinity
- Providing assistance to landowners

Terry White PH:(054)61 2940

37 Goldsmith Street
MARYBOROUGH VIC 3465

INTERESTS
- All aspects of trees and permacultute

CURRENT PROJECTS
- Editor, journal of the National Permaculture Association
- Project Branchout; this is a continuing regional revegetation project in the Loddon and Campaspe valleys

Geoff Wilson PH:(03)523 5025

International Tree Crops Institute (Australia)
PO Box 181
CAULFIELD SOUTH VIC 3162

INTERESTS
- All aspects of agroforestry, but especially tree crops for food and fodder in conjunction with livestock or cropping enterprises, plus fuelwood, agroforestry and tropical agroforestry

Rob Youl PH:(03)817 1381

Land Protection Service
378 Cotham Road
KEW VIC 3101

INTERESTS
- Creative government policies to promote all forms of commercial and non-commercial private forestry

WESTERN AUSTRALIA

Geoff Anderson PH:(09)387 0237

CSIRO
Division of Animal Production
Private Bag,
WEMBLEY WA 6014

INTERESTS
- **Agroforestry**

CURRENT PROJECTS
- Grazing trials with both old (20 year) and young (4 year) pines and annual pastures, near Mundaring, WA and some work with eucalypts. Gathering data on production of livestock and timber in integrated systems. Some attention to possible livestock benefits from shelter and pine needle consumption. Pasture growth patterns in relation to distance from single, double and triple rows of trees

Frank Batini PH:(09)367 6333

CALM
PO Box 104
COMO WA 6152

INTERESTS
- **Agroforestry for fire protection, soil improvement and salinity control**
- **Landuse patterns, economic and social effects of changes in landuse**

CURRENT PROJECTS
- Formerly involved with establishment of research studies, jointly with CSIRO and PWD

Dr. David Bennett PH:(09)386 8811

CALM
Hackett Drive
CRAWLEY WA 6009

CURRENT PROJECTS
- Agroforestry and regional planning
- Research co-ordination: landuse and water supply
- Tree crops including nuts and tagasaste
- Retention of native vegetation in the wheat belt

David Bicknell PH:(097)71 1299

Department of Agriculture
Rose Street
MANJIMUP WA 6258

INTERESTS
- Rural trees

CURRENT PROJECTS
- Salt-tolerant eucalypts
- Demonstration agroforest with CALM

Trevor Boughton PH:(097)71 1299

Department of Agriculture
Rose Street
MANJIMUP WA 6258

INTERESTS
- **Agroforestry systems with edible fruit and nut trees and vines**

CURRENT PROJECTS
- Walnut, chestnut, fruit tree research and extension

Hugh Chevis PH:(097)52 1677

CALM
Queen Street
BUSSELTON WA 6280

INTERESTS
- Silviculture of pines

CURRENT PROJECTS
- Establishment of pines
- Use of legumes in plantations
- Pine/pasture regimes

Commissioner of Soil Conservation PH:(09)367 0111
Department of Agriculture
Jarrah Road
SOUTH PERTH WA 6153

INTERESTS
- Various officers interested in hydrology, salinity, wind erosion

CURRENT PROJECTS
- Assessment of tree plantings on grou water levels
- Assessment of trees for stock and so protection
- Role of fodder trees (tree lucerne, tamarix)

Paul Downes PH:(09)387 0218

CSIRO Division of Animal Production
Private Bag
WEMBLEY WA 6014

INTERESTS
- Forage shrubs

CURRENT PROJECTS
- Species record system
- Evaluation of native shrubs

Ric Engel PH:(098)81 1011

Department of Agriculture
NARROGIN WA 6312

INTERESTS
- Investigations into salinity as it affects soils in agricultural areas with view to developing systems of minimising and controlling the effects of salinity

CURRENT PROJECTS
- Agroforestry management of saltland using salt-tolerant eucalypts
- Tagasaste: density effects on pasture production in Wellington catchment
- A hydrological study of a catchment in the Kent River district
- Various agronomic trials associated with establishing shrubs and grasses on saltland
- An alternative plants study for salinity control
- Drainage trials

J J Havel PH:(093)67 6333

CALM
PO Box 104
COMO WA 6152

INTERESTS
- Fodder and food trees grown to augment stock varying capacity

CURRENT PROJECTS
- Involved at research coordination level

Kerry Hawley PH:(097)71 1299

Department of Agriculture
Rose Street
MANJIMUP WA 6258

INTERESTS
- Livestock, pasture and crop production

CURRENT PROJECTS
- An examination of the benefits of trees to agricultural production in WA

Officers also involved are:

John Karlsson, Veterinary Officer
Department of Agriculture
MANJIMUP and BRIDGETOWN

Bevan Kingdon
Agricultural Adviser
Department of Agriculture
MANJIMUP

Officers of Division of Resource Management
Department of Agriculture
SOUTH PERTH

Bevan Kingdon PH:(097)71 1299

Department of Agriculture
Rose Street
MANJIMUP WA 6258

INTERESTS
- Research and extension of the use of agroforestry in native vegetation (jarrah and karri) by undersowing with legume pasture species, and the use of fodder trees (tagasaste and tamarisk) in agriculture for salinity control, shelter and fodder

CURRENT PROJECTS
- Pasture development in native forests - the trial establishment of subclover pastures under jarrah
- Tree lucerne shelterbelt project - assessing for salinity control (lowering of water table), shelter and summer fodder for sheep

L McCulloch PH:(09)376 0111 (ext 656)

Department of Agriculture
Jarrah Road
SOUTH PERTH WA 6151

INTERESTS
- Trees, salinity and windbreaks

CURRENT PROJECTS
- Currently reviewing the above
- Planned windbreak/soil erosion study

Richard Moore PH:(097)52 1677

CALM (Research Section)
Queens Street
BUSSELTON WA 6280

INTERESTS
- The pine grazing system
- Thinning and pruning regimes and techniques
- Mulching
- Grazing amongst widely spaced eucalupts (replanted farmland)

CURRENT PROJECTS
- Widely spaced pine - density, production, management techniques, cuttings
- Other species suitable for agroforestry
- Strip plantations for erosion control, Esperance

Andrew Thamo PH:(097)64 1113

Smalltree Farm
Box 27
BALINGUP WA 6253

INTERESTS
- Agroforester
- Nurseryman; large variety of farm and fodder trees

CURRENT PROJECTS
- Salt-tolerant poplars, also tagasaste, cork oak and other oaks, carob, honey locust, willows

NEW ZEALAND

John Cawston PH: 80 089

New Zealand Forest Service
PO Box 1340
ROTORUA NZ

INTERESTS
- All aspects of private forestry Rotorua Conservancy, particularly integration of farming/forestry/soil conservation on farms

CURRENT PROJECTS
- Special purpose species survey Rotorua Conservancy; agroforestry system Mamaku Plateau. Pulp-post products from 8-10 year old farm woodlots (thinnings)
- Total area of land available for forestry and agroforestry in Rotorua Conservancy

Deric Charlton PH:68 019

Grasslands Division
Dept of Scientific and Industrial Research
Private Bag
PALMERSTON NORTH NZ

INTERESTS
- Legumes for nitrogen production and grazing in exotic pine and eucalypt forests

CURRENT PROJECTS
- Evaluating 36 legume species in collaboration with Leith Knowles and Ruth Gadgil (Forest Research Institute) in forest at Rotorua, with a view to determining their ability to fix nitrogen under trees and to perform well when graze

Maurice Duncan PH:53 0815

Water and Soil Science Centre
Ministry of Works and Development
PO Box 1479
CHRISTCHURCH NZ

INTERESTS
- Research on the hydrology of pine and/or pasture catchments

John Edmonds PH:77 9662
NZ Forest Service
Box 495
DUNEDIN NZ

INTERESTS
- Agroforestry, especially related to radiata pine silviculture

CURRENT PROJECTS
- Agroforestry extension

Mark Farnsworth PH:DARGAVILLE 5455

Pouto Forest Farm Ltd
Pouto
TE KOPURU NZ

INTERESTS
- Practical applications of agroforestry
- Research in the integration of radiata pine with mixed livestock grazing in Northland
- Forest influences on microclimates

CURRENT PROJECTS
- Evaluation of 'variable' pruning lifts for practical agroforestry
- Evaluation of mycorrhizal inoculation, at establishment, of radiata pine to be planted into pasture
- Evaluation of management strategies for practical agroforestry
- The influence on radiata pine of selected climatic parameters

Fitzgerald PH:8053 RANGIORA

est Research Institute
Box 31 011
ISTCHURCH NZ

ERESTS
roduction forestry research - soils
ite productivity. Nutrition of
orest stands

RENT PROJECTS
'ertiliser trials - at establishment
nd in established stands
egume trials - in forest soils and
n dredge tailings

Allan Gillingham PH:(071)29 8789

itawhata Hill Country Research Station
ivate Bag
ILTON NZ

TERESTS
Agroforestry on steep hill country
Fertiliser requirements of hill pastures

RRENT PROJECTS
Assessment of the effect of tree density
on pasture and animal production and other
associated factors
Assessment of factors influencing the
maintenance of phosphorus requirements of
hill pastures
Mechanisms of lime response in hill pastures
Effect of season, aspect, slope and pasture
species composition on response to N fertiliser

rtin Hawke PH:47 9579

nistry of Agriculture and Fisheries
Box 951
TORUA NZ

TERESTS
Agroforestry research in temperate zones

CURRENT PROJECTS
-Officer in charge of Tikitere Forest
Farming Research Area, Rotorua
- Animal performance and behaviour in trees
- Microclimate studies under different tree densities
- Extension role - grazing management and research results to advisers, farmers and organisations in North Island

Jack Hawthorn PH:89 219

Ivon Watkins-Dow Ltd
9 Westbourne Avenue
ROTORUA NZ

INTERESTS
- Agricultural chemicals, especially for site preparation and release

CURRENT PROJECTS
- New treatments for gorse, acacia and other brush weeds
- Expansion of existing techniques for site preparation and grass control

Leith Knowles PH:47 9879

Forest Research Institute
Private Bag
ROTORUA NZ

INTERESTS
- Research into the integration of production forestry and grazing to increase profit per hectare, particularly on hill country

CURRENT PROJECTS
- Evaluation of various tree/pasture combinations using radiata pine
- Construction of a computer-based simulation model for managing radiata pine, and for predicting effects of trees on pasture and livestock
- Evaluation of forage legumes suitable for grazing in forest plantations
- Silviculture of radiata pine

Alan Koehler PH:457 674

Forest Research Institute
Private Bag
ROTORUA NZ

INTERESTS
- Combinations of livestock and trees on the same land, aimed at diversifying and improving the profitability of New Zealand hill country farmland

(Alan Koehler was in Australia during the last two years. His current address is not known.)

Gavin McKenzie PH:72 1569 (ext 788)

NZ Forest Service
Private Bag
WELLINGTON NZ

INTERESTS
- Tree use by private landowners and the provision of a government extension service

CURRENT PROJECTS
- A balanced advisory service to those in the private sector who are interested in forestry as a land use. Advice will cover all commercial aspects of tree growing as well as agricultural shelter and associated topics
- Development of courses and educational material for the benefit of both foresters and private forest growers

Dennis Neilson PH:(076)33 629

Manager, Northern Region
Tasman Forestry Ltd
PO Box 105
KAWERAU NZ

INTERESTS
- Research and extension
- Joint ventures

Neil Percival PH:47 9579

Ministry of Agriculture and Fisheries
PO Box 951
ROTORUA NZ

INTERESTS
- Agronomy

CURRENT PROJECTS
- Tikitere Forest Farming Research Project, Waratah Forest Grazing Project

J G Rawson PH:71 389

5 Rata Place
WHANGAREI NZ

INTERESTS
- Consultant

Dr S A Richardson PH:72 2474

Forestry Council
Box 5052
WELLINGTON NZ

INTERESTS
- Agroforestry in the Asia-Pacific region

CURRENT PROJECTS
- Review of agroforestry education in the South Pacific

R H Webster PH: 412 8514

NZ Forest Service RD 2
KUMEU
AUCKLAND NZ

INTERESTS
- Grazing of existing forest stands

CURRENT PROJECTS
- Grazing to control pampas grass infestations in forests
- Forage legumes to suppress pampas grass

FIJI

Dr T Bell PH:62 942

PO Box 521
LAUTOKA FIJI

INTERESTS
- Grazing in plantations, fuelwood

CURRENT PROJECTS
- *Energy plantations in the Fiji dry zone*
- *Tree spacing and cattle grazing in young Pinus caribaea plantations in Fiji*

GREAT BRITAIN

Edwin Shanks
Department of Forestry & Wood Science
University College of North Wales
BANGOR
GWYNEDD LL57 2VW

INTERESTS
- *Environmental forestry, communications*

CURRENT PROJECTS
- *Designing extension package demonstrating visually, options for incorporating trees in tropical African agriculture*

PAPUA NEW GUINEA

B. Carrad *PH:722 863*

Department of Primary Industry
PO Box 1064
GOROKA EHP PNG

INTERESTS
- *Farming systems research*
- *Economics of perennial crops*

USA

Jackson H Squarejaw Jr

Californian Development Corporation
(Peninsula HQ)
3331 Washington Boulevard
MONTEREY CALIFORNIA 72151

INTERESTS
- *Integration of grazing and trees*

CURRENT PROJECTS
- *Ranching of bison in stands of blue gum*
- *Development of self-pruning red gum*

Napoleon Vergara *PH:(808)944 7249*

Environment and Policy Institute
East-West Centre
17777 East-West Road
HONOLULU
HAWAII 96848

INTERESTS
- *Land-use, socio-economic environmental policy*

CURRENT PROJECTS
- *Agroforestry training for extension workers in Asia and the Pacific*
- *Assessment of groforestry for fragile uplands in the humid tropics*

ZIMBABWE

Robyn Haney *PH:706 216*

Forestry Commission
Box 8111
CAUSEWAY
HARARE
ZIMBABWE

INTERESTS
- *Agroforestry, especially economics, sociology, fuelwood; use of Australian and indigenous species, especially nitrogen-fixers and fodder trees*

CURRENT PROJECTS
- *Selection of tree species and crop combination*
- *Extension of information through print and film*
- *Economics research*

Hugh Stewart
c/- Australian High Commission
Box 4541
HARARE
ZIMBABWE

INTERESTS
- *Agroforestry in developing countries, wastewater management, tree nutrition*

CURRENT PROJECTS
- *Working for ADAB in Zimbabwe*