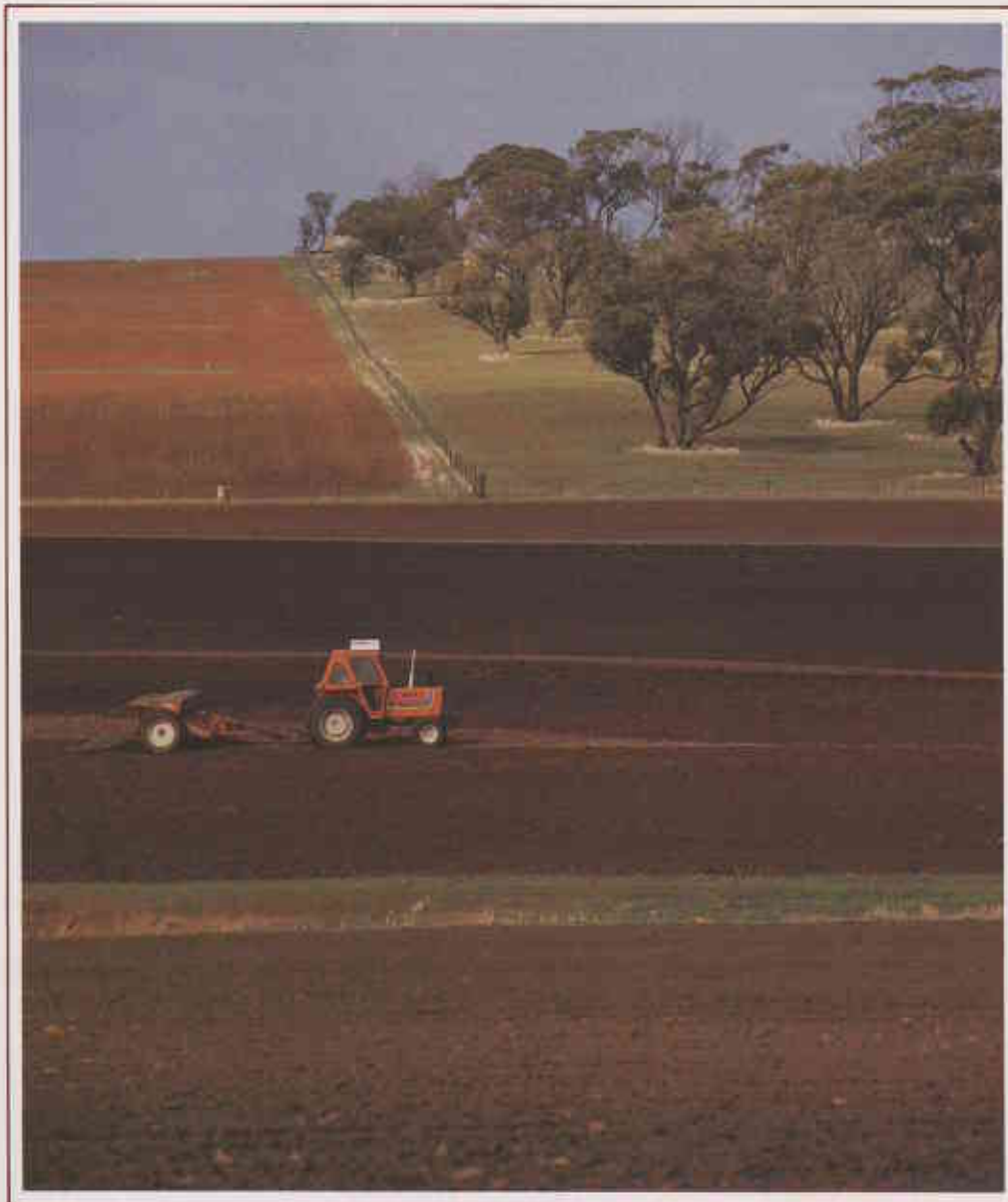


GREENING THE WHEATBELT



S. Eves/Department of Agriculture

by Kevin Goss

While it is true that clearing for agriculture is the cause of many conservation problems in W.A.'s wheatbelt, today's farmers are just as likely to be planting trees as clearing them.

FARMING families who have been in the wheatbelt for years have shifted in their attitudes to trees. The Coakleys, for example, have been farming near Shackleton (200 km east of Perth) for over 50 years. In 1948 John Coakley took up some new land south of his father's farm.

'It was 4 444 acres of salmon gum, morrel and mottelcah on the sandy country. We left some of the big trees for shade, but boy did we have trouble getting rid of that mottlecah.'

Mottlecah (*Eucalyptus macrocarpa*) has all but disappeared from the wheatbelt now, but, as John points out, new land developers were glad to see it go.

To clear the new block John bought a bulldozer, and to pay for the bulldozer he began clearing on contract. He saw thousands of hectares of native bush pass beneath his blade — 14 000 ha in one year.

'Most of the farmers were pretty good, and so I was able to talk them into leaving a bit of bush for shelter, but the banks were the problem. If a fellow

was developing the land with borrowed money the banks used to inspect the property; if he'd borrowed money to clear the land then to the banks that meant cleared of every stick in some cases - or they didn't come good with the loan.'

John recalls some interesting incidents which reflect the differences in thinking between then and now.

'One chap out east of here asked me to do an 800 acre block for him. I asked if he wanted me to leave some trees for shelter and he said yes, so I left clumps here and there - about 50 acres in total. I was quite proud of the job, it looked good. When the owner came to see it he hit the roof and accused me of trying to pull a swifty on him by leaving all those trees. He made me go and knock most of them down.'

John continued his clearing business for 20 years, and he speaks of it more as a craft than a task.

Since he started, however, things have changed dramatically. There has been a 'quiet revolution' in attitudes towards the land.

'I think farmers could see the deterioration of the land - after all we rely on it for our livelihood, and we look at our farms every day. When we look we see ways we could improve our productivity and our quality of life.'

'I think the drought in the seventies, and then cyclone Alby, really influenced people to start plant-

ing trees. Up till then we'd only ever planted a few exotics around the house.'

June Coakley took on the task of managing the farm's tree planting program. Five years ago they planted about 100 a year; last year that figure was more like 1 000.

'City people might think that's a lot of trees,' says June, 'but you can hardly see where we've been.'

And there is more to it than just planting seedlings. The Coakleys raised their own seedlings last summer in a nursery converted from a chook pen. The areas to be planted are fenced off from stock for a few years, so the more trees to be planted the more fencing there is to be done.

The young trees need to be watered in their first summer, and sprayed against insects from time to time through the early years. John and June estimate that they spend as much as 10 per cent of their work-time in tending trees.

Last summer the Coakley farm again echoed to the rattle of a bulldozer. This time it was preparing about 12 ha of land for a direct seeding experiment by deep ripping through the clay crust. This allows the seedlings to get their roots well down into the soil, so they require less watering. The tree seed is sown straight into the ground, and in ideal conditions tens of thousands of seeds will germinate, and the toughest will survive.

When successful, direct seeding saves time and money. Like all aspects of farming, however, direct

Mottlecah, a very attractive plant that has largely disappeared from the wheatbelt.



About 10 per cent of each wheatbelt farm remains uncleared.

The Coakley family spend a tenth of their time tending trees on the Shackleton farm.



Cliff Winfield

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seeding programs are at the mercy of the clouds. Last year, for the first time ever the Coakleys didn't sow a crop. Shackleton received only a few millimetres of rain for the whole winter.

In many ways, the Coakley's experience typifies the changes that have been occurring in the wheatbelt. There has been a great deal of support off the farm for tree planting programs such as the Coakleys. The National Tree Planting Program, jointly funded by Federal and State Governments, has given more than \$100 000 to 200 projects. In 1984, 270 000 seedlings were planted. The great majority of these were on farms, with typical grants of \$100 to \$1 000. Many of these plantings would not have occurred without the money to partly offset the cost of fencing.

The National Tree Planting Program aims to prevent tree loss, and help restore adequate tree and vegetation cover over the Australian landscape. Greening Australia, its community branch, has been operating in W.A. since 1984, and supports the national program with promotion, sponsorship and public awareness activities.

Planting thousands of trees has caused an expansion in the nursery industry. Many country towns now boast a nursery; the one at Wickepin, for instance, provided 5 000 seedlings for the Lake Toolibin project (see below). The Department of Conservation and Land Management's nurseries at Narrogin and Hamel increased their supply of Eucalypt species to the wheatbelt from 160 000 in 1980 to 180 500 in 1985. More than 90 groups have ordered nearly 300 000 trees from Alcoa's Marrinup nursery during 1986.

A good example of the people and resources that are involved with revegetation is a project near Wickepin. Lake Toolibin, 20km south-east of Wickepin, is one of the only major fresh water sources in the district. Monitoring studies since 1977 confirm that it is threatened with salinisation - a legacy of earlier timber clearing, the consequent

rise in the salt water table, and the increased salinity of runoff in the catchment. Action was taken in the form of a cooperative project involving:

Department of Agriculture
Greening Australia (W.A.)
Department of Conservation and Land Management
Wickepin Soil Conservation District
Wickepin Shire Council
Local schools in Wickepin and Narrogin.

In June 1985 24 000 trees were planted, many grown from locally collected seeds, including flat-topped yates (*Eucalyptus occidentalis*) and swamp sheoaks (*Casuarina obesa*). A similar number of trees is being planted in 1986.

Planting of individual seedlings and follow-up watering is very labour intensive, however, which puts severe restrictions on how many trees one farm family can cope with. Because of this there has been a significant shift in the approach to revegetating agricultural areas. The development of mechanical planters, and the availability of contractors, increases the potential plantings from thousands to tens of thousands. With correct site preparation, deep ripping and good weed control, most seedlings will survive without summer watering.

Several farmers have had real success with direct seeding of tree and shrub species. Here the seeds are mixed with superphosphate and dropped onto prepared ground with a combine seeder, at a rate of 250 g to 1.5 kg/ha. Potential re-establishment can now be measured in hectares, with much less labour needed.

Direct seeding can be a risky venture, however. Offsetting the well publicised successes were a series of failures in 1985, including that of trial plots seeded by the Department of Conservation and Land Management. Consequently, Paul Brown of the Tree Research Centre, Narrogin, started a major research program for 1986. Direct seeding trials of ten species, using several weed control



Modern nurseries supply hundreds of thousands of seedlings to the wheatbelt.

Cliff Winfield

One hundred farmers in the Bruce Rock and Corrigin districts (representative of a large proportion of the wheatbelt) were surveyed in 1981. About 10 per cent of their farms was uncleared - mostly creeks, salt lakes and channels, and rocky areas. There was an average of 62 ha set aside for shelterbelts, salinity prevention and nature conservation. Of the farmers themselves:

47 have not cleared any land of natural vegetation.

53 cleared 15 000 ha during the period 1924 to 1981, but half was done before 1964, and half was also done by 7 farmers.

5 intended to clear 470 ha.

59 retained a total of 3 500 ha of arable land for shelterbelts.

4 reserved 990 ha for nature or fauna conservation.

56 planted 23 000 trees (not including amenity trees around the house), although more than half were planted by 7 farmers.

28 were still planting trees in 1981.

TABLE 1
THE REASONS FOR PLANTING TREES ON
FARMS,
CENTRAL WHEATBELT, 1981*

Reason	Number of Farmers
Aesthetic	32
Windbreak — preventing wind erosion	27
Lowering water table — salinity rehabilitation	25
Windbreak — stock shelter	23
Shade — stock shelter	17
Reducing runoff — water control	3
Micro climate changes	2
Agroforestry	—
Other	17

* 'Communication Networks and the Adoption of Three Farm Practices', a study funded by the Rural Credits Development Fund and the Western Australian Department of Agriculture.

techniques, have been started at many sites in the wheatbelt. A survey of existing trials, including farm sowings, may help identify the major problems.

A third way to revegetate is natural regeneration from existing trees. This approach is even less demanding on farm labour, but is limited by the distribution of trees with a viable seed source. The first step, though simple, is costly: fence the area to exclude livestock. Controlling weeds to reduce competition and prevent wildfire is much more complex. The Tree Research Centre and the Department's rural advisory officers began research and field evaluation in 1986 trying to determine the most successful methods.

A variety of new legislation provides a back-up for the 'grass roots' movement towards revegetation. The Soil Conservation Act was extensively revised in 1982. Landholder involvement is encouraged and made possible through the formation of soil conservation districts and district advisory committees (consisting of local land users, with local government representation). These committees provide a basis for cooperative action against land degradation problems which, after all, are not confined by farm boundaries.

The response of the farming community has been dramatic. By February 1986, 36 districts were declared and committees appointed, six districts are declared with advisory committees yet to be appointed, and a further 18 districts are proposed. District projects were assisted by \$128 000 granted from the State Government in 1984/85. Several of the projects include re-establishing trees.

Under the Soil Conservation Act new regulations require the Commissioner of Soil Conservation to be notified of 'intent to clear' any area larger than one hectare. Preventative action can now be taken against soil erosion and other problems. Since 1980 new settlers acquiring land under 'conditional pur-

chase' schemes have been required to submit conservation-based farm development plans to the Minister for Lands.

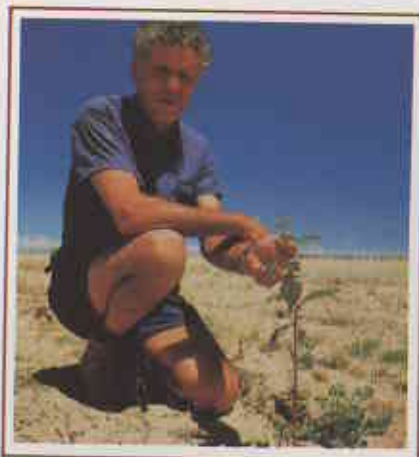
In 1983 the State Government placed a moratorium on the release of crown lands for agriculture, and that still exists with two exceptions:

Compensation for the conversion of farm land to pine plantations at Manjimup.

Farm blocks for 'build-up', adding land area to adjacent farms.

Overall, the actions of landholders and government have meant that little further clearing of wheatbelt vegetation is occurring.

The quiet revolution in the countryside has done much to reverse the trend of bush clearing and boost the re-establishment of trees, but there is still a long way to go. The single row of river gums or double rows of pines, the patches of tamarisks circling a salt area might play their part in reducing land degradation, but they do not make a viable natural habitat. They ought to be augmented with bush areas naturally regenerated or seeded with local species, strategically placed to improve soil conservation, nature conservation and the aesthetics of farm living. ☺



John Cookley

Cliff Winfield

Landscape

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COVER

Moonrise on wheat stubble.
Cover photo by Cliff Winfield.



Southern Brown Bandicoot drinking Shannon Waters.

*The more outstanding a natural
environment, the greater the
number of its potential uses, the
more heated is the debate about its
management.*

*This principle holds true in
Western Australia as much as in
Queensland's Daintree Forest
and Tasmania's Farmhouse Creek.*