

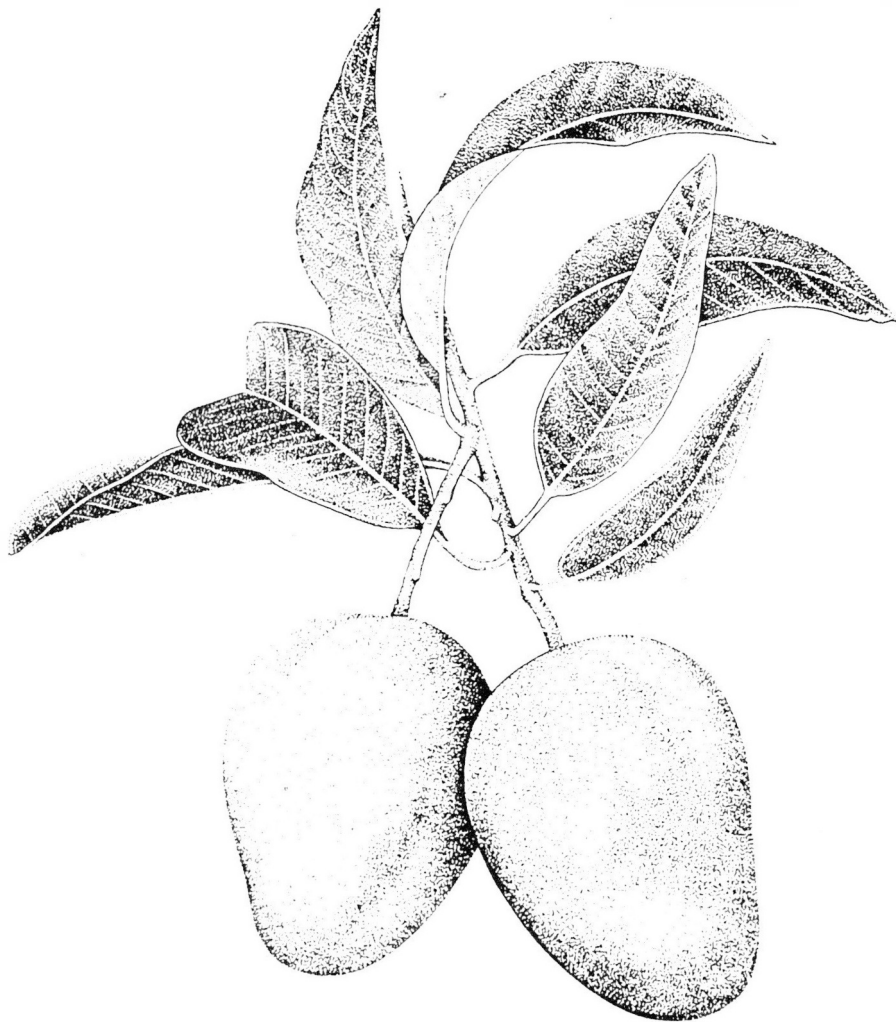


Quandong

magazine of the
West Australian Nut & Tree Crop Association (Inc)

Third Quarter 1997 • Vol 23 No 3

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The Mango (*Mangifera indica*) (See: About the Cover, p. 2)

Quandong • Third Quarter 1997 • Vol 23 No 3

NEXT MEETING: Tuesday August 19: 7.30 pm

This meeting will focus on a topic of increasing interest in WA:

High-value and Specialist Timber Trees for WA

We expect to have as special guests at this meeting, Andrew Thamo of Small Tree Farm nursery, Balingup, developer of the 'Fat Eucalypt' concept for appearance-grade timbers, and Dr Sujit Dey, who is an expert on high-value timbers (among many other things). In addition, David Noël will put in a bit about the mixed-species cabinet timber strategy successfully developed in northern NSW.

Tree Crops Fair — Bring & Buy

Sunday September 14, 9 am-12 noon, at the Shenton Park Hotel Car Park, opposite the Tree Crops Centre at 208 Nicholson Road Subiaco. See article page 4.

Visit to Hillside Farm, Gosnells

Sunday August 24 at 10 am. See article page 6.

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About the Cover

The cover illustration shows the Mango, *Mangifera indica*, from Glenn Tankard's book *Tropical Fruit, an Australian Guide to Growing and Using Exotic Fruits* — Penguin, 1990. The Mango is one of the major tropical fruits but varieties can be grown over much of WA. See the article on page 27.

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Web reference source for tree croppers breaks new ground

A new information site on the World Wide Web promises to bring major new benefits to people growing trees for products and profits.

Called Atcros On Internet, the website has two major divisions. The Atcros Knowledge Base contains tables of information about growing all sorts of useful perennial plants, with emphasis on fruits and nuts.

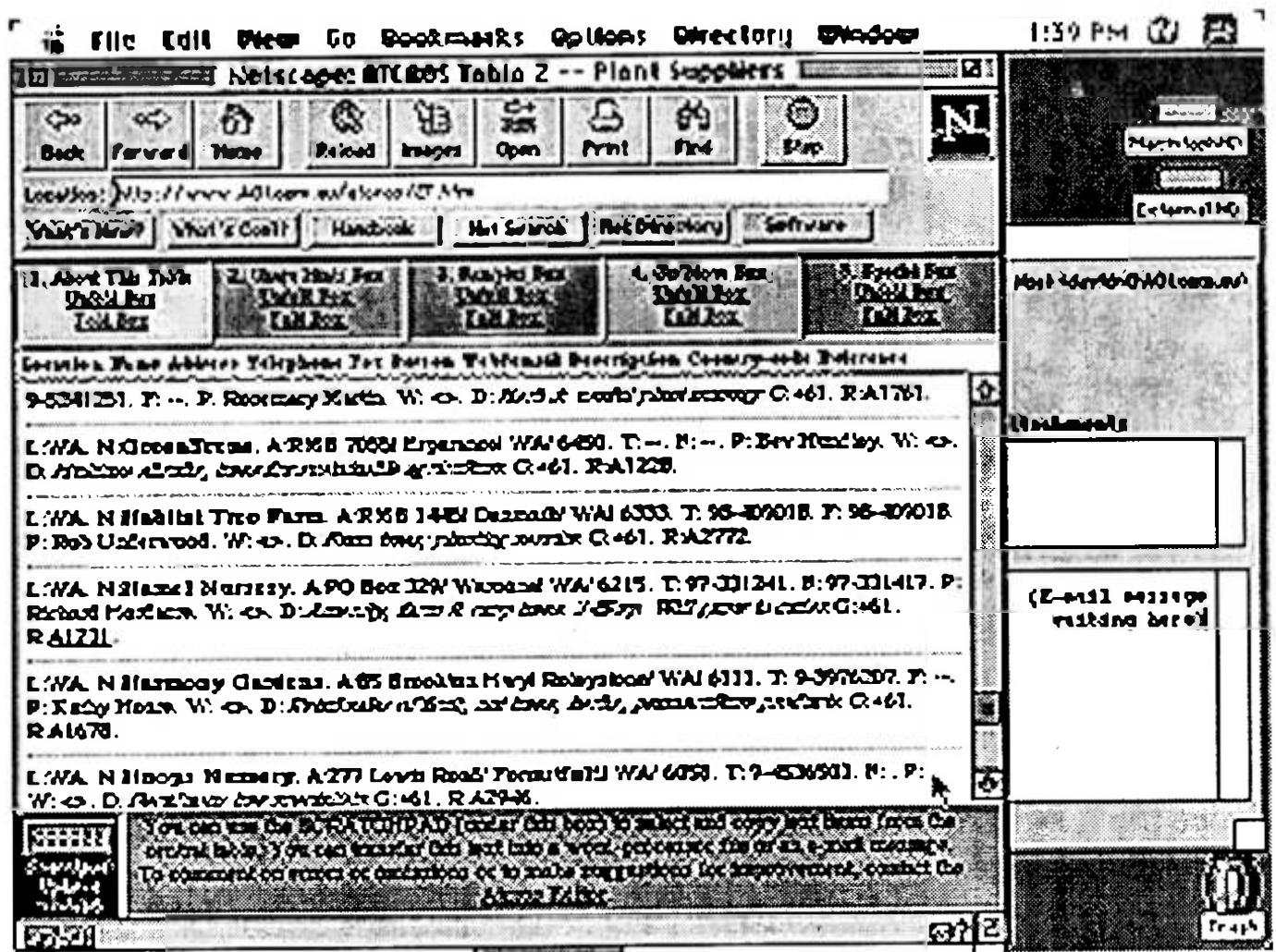
The Atcros Directory has contact information, such as phone, fax, e-mail, and website addresses, for well over a thousand organizations within Australasia and elsewhere concerned with tree crops.

Released for general use on August 1, the Atcros Website was built by the Tree Crops Centre in Perth, under a contract with the Australian federal government's RIRDC (Rural Industries Research and Development

Corporation).

Tree Crops Centre Director, David Noel, said the new facility should greatly benefit tree crops trade, research, and education throughout the region.

"We believe this project will break new ground in two ways", he said. "First, it provides a whole-industry information source, extending over an expanding and diverse industry area, at your fingertips. Unlike broad-acre farming, which produces a relatively small number of different products, tree cropping encompasses hundreds of different products ranging from major export items to high-value niche industries".



Snapshot of an ATCROS screen image

"Second, the whole approach to building the web pages has differed from the usual idea of 'attention-grabbing' devices such as such as large flashing graphics, which take ages to download. Atcros is almost entirely text-based. But it uses techniques called 'frames' and 'stripped HTML coding' to deliver information quickly in an attractive format".

"The end result is that a user can quickly look up, say, suppliers of macadamia harvesting equipment, colleges which teach horticulture, sources of pistachio trees, olive oil processors, botanical names of plants called walnut, or suppliers of exotic fruit seeds".

Behind the scenes, Atcros also uses another highly efficient technique, called HTC (HTML Data-tag Concatenation), which automatically creates web pages from an underlying industry-information database maintained by the Tree Crops Centre.

"This database started off as a 'List of Useful Addresses' in the 1982 Yearbook of the West Australian Nut & Tree Crop Association", Mr Noel said. "It was expanded and improved over the years, and eventually published as a separate book called the 'Australasian Tree Crops Sourcebook' or 'ATCROS'. A second edition was published in 1994".

"The usefulness of these books was acknowledged world-wide, but there was always the problem of changes in organization details. In 1995 we put a proposal to the RIRDC to transfer all this information onto the World Wide Web for public use. They were able to allocate funds for the project, which not only had obvious benefits for tree-crop industries, but could also serve as a model for other high-diversity rural industries, such as fish farming, or wild-flower production".

Mr Noel pointed out that the website approach to the problem not only solved the problem of changes in organization details, which could be updated easily and frequently, but also gave other advantages.

"All web browsers incorporate a 'Find' facility", he said. "This makes it simple and quick to find sources of a particular product in a particular area, or look up a name like 'North American Black Walnut', which could be entered in a variety of ways".

"Organization entries in ATCROS are free, funded by RIRDC in the public interest", Mr Noel said. "They are similar to Yellow Pages phonebook entries. But AOI also offers two paid services, Web Boxes and Web Pages".

"The Web Boxes are mini-pages which open up below the Directory tables, and are similar to a box advertisement in the Yellow Pages, or the box office in a multi-screen cinema. And like the cinema, the box can lead you into the full screening, or full web pages. We have set up boxes and pages for Hamel Nursery which not only give price lists for their farm trees, but also give growing conditions, heights, soils, and uses for the hundreds of species they sell".

The Atcros website is at <http://www.AOI.com.au/atcros>.

Wanted

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WA Representative for the

Australian Walnut Industry Association

[Countryman / July 17, 1997]

Trench tree system proves effective

Growing trees in farm tree nurseries is now big business.

Julie Firth's ground nursery in Waggrakine, near Geraldton, is an example of innovation.

This year her permaculture property just north of Geraldton has seen the establishment of a trench system nursery for farm trees.

The set-up allows for more natural germination and growing conditions for the tree seedlings.

"The whole idea of the trenches is to encourage the roots to grow down, rather than in circles," she said.

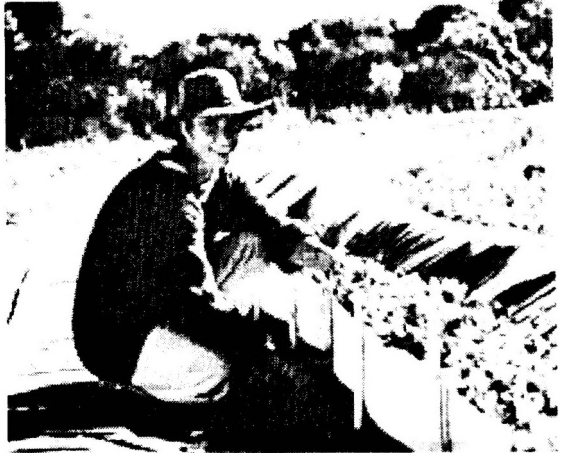
"Some other ground based nurseries also use this principle, but the management of them means the tree roots are cut five to six times in a season," Ms Firth said.

All up, 230 metres of trench have been constructed. Set-up costs were substantial but all materials can be re-used next year. If demand is strong this winter, Ms Firth has plans to triple the length of trenches.

The nursery operates on a system which maximises the effects of the microclimate created. Seedlings are reared in trenches of soil and fed by a dripper. A central mound provides some wind protection and moisture is harvested from the covering plastic.

Ms Firth has grown 55,000 trees this year plus another 12,000 in pots. The trench seedlings will be sold bare rooted to farmers for just 35¢ each. On sale of trees, the trench is collapsed in sections, and the soil removed from the trees without root damage.

"I chose species that can withstand bare-rootedness," Ms Firth said. "River gums, for example can survive up to a week in a bucket



Julie Firth tends seedlings in her nursery

of water — they throw out water roots which helps them. I have also grown acacias and other eucalypts which are widely planted in the area.

"I am really confident that the bare rooted trees will be a lot better than the potted trees. They will also be a lot easier for farmers to plant because they won't have hundreds of pots and trays to deal with.

Ms Firth says she has been working on the system for some time and conducted a small trial last year with impressive results.

"I did a small scale trial of the system last year and was completely ruthless in my treatment of the trees. I gave all the seedlings away, and the guy said that the bare rooted excelled over the potted trees," she said.

There have obviously been some hiccups with the new nursery. The proximity to ground level has meant new problems have emerged, including ants and mice which were keen to

have their share of seed.

"One of the big problems I discovered was that the soil heated up over summer when I was planting. I was doing a lot of temperature monitoring and the soil in the trench system reached 38 C. The plants tolerated it, though and are probably tougher because of it," she said.

Ms Firth's interest in landcare stems from her extensive work in permaculture. She has

developed a model farm, frequently conducts tours and trains others interested in the system. She has spent a great deal of time in the Middle East and desert regions of Australia studying the relationships between plants.

She is considering the possibility of running courses to teach others the benefits of the tree growing system. Julie Firth can be contacted on (08) 99381 628.

— Jane Keeffe

YOUR CHANCE TO GET RARE FRUIT AND NUT TREES

In 1995, WANATCA held its first 'Bring & Buy' meeting, where members and others had the chance to buy and sell all sorts of crop trees, many of which were just not available through ordinary sources. This was a great success.

Now WANATCA is moving to expand and improve this concept at a new and convenient location.

Under the title 'Tree Crops Fair —Bring & Buy' the event will be held from 9 am to 12 noon on Sunday September 14 at the Shenton Park Hotel Carpark. This is opposite the Tree Crops Centre at 208 Nicholson Road Subiaco.

Commercial nurseries involved with fruit and nut trees, and sister organizations such as Men of The Trees and the Palm & Cycad Society of WA, will also be invited.

While there won't be restrictions on most of what is bought or sold, WANATCA will be releasing, to members only, a number of rarer trees which were brought in or specially raised for WANATCA. These include some *Syzygium* species (White Apple, Rose Apple) which originated with Oliver Carter, some Argentinian Ombu (mentioned elsewhere in

this *Quandong*), and possibly some really rare species raised from seed by Nola Washer of Avowest.

There will also be Kei Apples, Pitangas, *Leucaena*, Jakfruit, more common nut and fruit trees and many more for general sale, but sometimes only one or two specimens of each.

Most items are expected to be sold from car boots, trailers, or the back of utes, there won't be formal stands. There are no charges or fixed fees, but sellers are asked to donate 10% of sales money to help the Association.

The Tree Crops Centre and Granny Smith's Bookshop will be open for the event. Booking is not essential, but prospective sellers are asked to notify the Tree Crops Centre on 08-9388 1965 by Thursday September 12 to ensure they are allocated a good place for their vehicles.

Make sure you come, and do bring some of your own raisings if you can!

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Hillside Farm and the 'Dandy' Chestnut

In another forward-looking event, WANATCA has taken up an offer from the Gosnells City Council to establish a Tree Crop planting at an ecologically-slanted centre now being set up in Gosnells.

Called Hillside Farm, the 100-hectare site at the end of Hayward Road is on the lower slopes of the Perth Hills. Under the Council's Hillside Farm Management Committee, the whole site is being developed as 'a community farm which promotes ecologically sustainable living practices'.

Different community groups are cooperating with the Council plan by developing areas to reflect their special interests. WANATCA has been allocated an area of about 2 ha for tree crops.

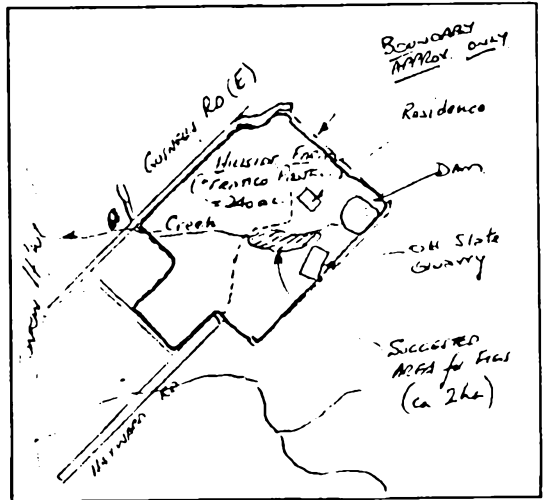
The WANATCA site lies between the old farmhouse and the farm entrance at the east end of Hayward Road. The area, which has been mostly cleared, is on red soil and slopes up towards a small valley which still has retained bush vegetation.

Suggestions and offers from members on the use of this site are invited. As a start, we propose to set out the collection of Fig varieties which Alex Hart has been gathering over the years.

The Dandy Chestnut

By a fortunate coincidence, WANATCA has recently been offered for transplanting an unusual Sweet Chestnut (*Castanea sativa*), grown by Jim and Mary Dandy in the Perth suburb of Kewdale.

Most chestnuts do not grow or produce very well on the Perth Sandplains, but prefer the cooler conditions and heavier red soils of the Hills. Also, many chestnuts are poorly self-fertile and need companion varieties for good yields.



From a working sketch for the WANATCA Hillside Farm proposal

The 'Dandy' chestnut, in contrast, produces abundant crops of nuts each year, in isolation, on infertile Perth sands and with our hot, dry summers. Now about 3.5 metres tall and wide, the tree is taking up space needed by the Dandys for another purpose.

The tree should transplant satisfactorily in the dormant season. Our intention is to dig it up and trim it during a Busy Bee on the morning of Sunday August 17 at the Dandy's garden (15 Connaughton Street Kewdale). Please volunteer to Alex Hart on 9490 1324 if you can help in this. Graft wood (and root cuttings!) of the new variety will be available there, this can be stored in your fridge till spring.

Meanwhile, back at the Farm...

All members and others interested are invited to a (working) Field Day at Hillside

Farm the following Sunday, August 24, to replant the Dandy Chestnut and to view the new WANATCA site. It is expected that a hole will have been prepared, and some of the site deep-ripped in advance.

This occasion may open up a new era for WANATCA in its tree crop development work, here is your chance to take place in a momentous event — don't miss it!

David Witchey on the Sapota family in Australia

Here are my impressions of the sapotaceous fruits I've come across. Some of these, the canistels I've seen here in NSW, seem to vary in shape vastly.

The "Ross" cultivar supposedly comes from Costa Rica brought into Florida back in the late 50s. It is a very flat persimmon-shaped fruit with very small rounded seeds. Highly esteemed. Up to 100 mm diameter. Easily bearing, very prolific.

"Rogers" and "Clements" are rounded fruits with a small point, 75-100 mm. I

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haven't tried these yet.

"Aurea" is a fantastic looking fruit. Doesn't bear as early (easily?) as the rest, but excellent eating qualities. The fruits look like little mangos with a curved beak in the end. They are 6 to 8 cm wide and up to 16 cm long. The leaves are long, relatively narrow and sort of whorled and slightly curled around their edges. This one sometimes splits at the stem end and falls to the ground when fully ripened on the tree.

I have also seen small seedless fruits on Paul Recher's tree in Northern NSW. The trees were 6 m tall and covered with these 3 to 5 cm fruits. These were good eating, but not quite as good as the Aurea, which had a lighter texture.

I have tried another fruit from Tropical Fruit World which they called Ross Sapote. It was 6 cm diameter with two to three fairly large seeds — very sweet and heart-shaped. Good, but awfully large seeds for the size of the fruit. Everyone I've talked to in the nurseries up in Far North Queensland says the "Ross" is the flat fruit I have described earlier.

The green sapotes I've tried were excellent. They were 10 cm diameter from one tree shaped like a top, with one or two large shiny seeds inside. Lots of brown reddish orange flesh inside the consistency of avocado. Sweet, rich, smoother than Mammey Sapote flesh. I think just about everyone would take to this fruit immediately. It seems to handle cold a little better than the Mammey. It likes water but not water logging. Some fruits I've seen from Kaspar Schuyder's trees in Redland Bay, Queensland (near Brisbane) were almost 15 cm long, 13 cm diameter. Beautiful, interesting trees.

— *David Witchey*, 19 Rifle Range Road Bangalow, NSW, 2479

Getting extra money from tree timbers

Everyone knows about the big monoculture plantations of timber trees in WA, such as radiata pine and blue gum. But conscious exploitation of much higher-value timbers, produced almost as a by-product of nut or fruit production, or of land improvement, is seldom in people's minds.

In nut production, some species such as walnut or chestnut produce highly-valued cabinet timbers, exploitable during replanting or land use change. Pecan, a hickory, is the same category, and is also valued, even as branch offcuts, for hickory-smoked foods.

Farmers are planting more and more trees for land and soil protection in WA. It makes good sense in such plantings to incorporate a proportion of species which will eventually have value as individual timber trees.

Carob, for example, makes a beautifully-marked wood which is prized for making

turned objects such as wooden bowls, but old carob trees are usually burnt or taken to the tip.

There are advances being made in this area. One advance is the realization that a mix of tree species will usually grow better, putting on more wood per hectare, than any single species. The other is the simple idea that when ordering a hundred or a thousand trees, the only extra cost in getting a mix of species may be in a little planning time.

This issue of *Quandong* features a number of articles and letters on this issue.

[Rural Research / Winter 1997]

Dual purpose trees for agroforestry

Tree species that combine fodder and timber qualities could provide an alternative source of income for graziers in northern Australia—as well as a valuable source of feed for cattle.

Principal research scientist with CSIRO Tropical Agriculture, Dr Brian Lowry, has identified a number of Australian and exotic tree species whose fallen leaves, pods and flowers could help to sustain cattle through the dry season. Most of the trees are legumes and several promote pasture growth when grown in paddocks.

The trees that Dr Lowry has identified with potential for a dual purpose agroforestry system include siris (*Albizia lebbek*), forest siris (*Albizia procera*), tipuana (*Tipuanatipu*), yemane (*Gmelina arborea*), dead finish (*Albizia basaltica*), white cedar (*Melia*

azederach) and rain tree or monkey pod (*Samanea saman* syn. *Albizia saman*). All are good timber trees (see the box).

Dr. Lowry's research into siris and its potential as a fodder tree dates back to the 1980s, although at that time no one had

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considered its potential as a timber tree.

Last year, Dr Lowry and Mrs Jayne Seebeck sent a questionnaire to more than 400 landholders in northern Australia (mainly Queensland) to assess the level of interest in establishing fodder trees for agroforestry. They received a strong response, generally favourable to the

concept and also showing evidence of growing interest in tree planting for environmental restoration. Some landholders indicated that they had already grown several of the highlighted species.

The goal of Dr. Lowry's current research is to evaluate dual-purpose trees for sustainable farming in northeastern Australia, supported by funding from the Rural Industries Research and Development Corporation (RIRDC).

His research focuses on three main areas: confirming and attempting to estimate the feed value of particular trees (utilisation of naturally fallen leaf is still a novel concept); investigating the ability of each species to modify pasture growth beneath the canopy; and investigating tree growth rate by measuring annual stem and canopy increments over a range of tree sizes. A feature of the research is that it involves trees already growing on properties or wayside areas. He will also investigate the best ways of obtaining clear logs for later timber use by carrying out pruning treatments on newly established trees.

Feed potential

In the northern Australia dry season, grazing cattle lose condition because the



Siris can grow well over much of northern Australia.

mature grass is so low in protein that rumen microbes cannot digest the fibre. In effect, they 'starve in the midst of plenty'. Plants such as leucaena are known as browse shrubs and they help bridge this nutritional gap by providing green leaf that can keep microbes active and thus make the highly fibrous dry-season grasses, like spear grass, more digestible. Dr Lowry believes that fallen leaf, flower and pod from trees too large for the animal to browse directly, may also act in the same way. With the right tree species it might be possible to have an agroforestry system where the trees themselves make a significant contribution to grazing animal nutrition at the time of greatest nutritional stress while still growing timber.

Promoting pasture growth

Besides providing a nutritious feed of leaf, flower and pod, certain trees in semi-arid to arid areas are known to actually promote pasture growth beneath the canopy. This tends to be true of nitrogen-fixing tree legumes such as Albizia spp. Dr. Lowry says that a variety of factors may have a role to play: among them shade-tolerant, nitrogen-responding grasses; increased soil nitrogen; better water

Fodder trees encourage pasture

Grain grower and pastoralist Ron Holme has planted *Albizia* species on his property, Glen Dhu, 100 km south of Mt. Garnet in the semi-arid tropics of north Queensland. His observations support Dr. Lowry's research, that these trees are rich sources of fodder as well as promoters of pasture growth beneath the canopy.

Having noted that siris grows equally well on all soils, from relatively rich river flats to much poorer country, Mr. Holme has effectively demonstrated how easy it is to grow by his practice of throwing a handful of seeds into the stump holes left after clearing other timber, for example ironbark) for fencing. Many trees have grown up in this way without much care; indicating that siris could be established by direct seeding; a relatively easy, labour saving and cost-effective method.

He first became interested in the potential of siris when he noticed that even in very harsh, dry regions, such as around Mt. Morgan in central Queensland, there was always a growth of green panic grass beneath the siris trees during winter. Since then, Mr Holme has been studying fodder trees, reading what is available, looking at likely species overseas and trying some experimental plantings on his own property.

As well as siris, he has planted several

exotic *Albizia* species with demonstrated fodder potential. Although his interest lies mainly in planting tree legumes which can provide feed through leaf, flower — and, in some cases, pod production—and promote pasture growth, he recognises the added long-term benefit of using timber species. To this end, he has pruned the lower branches of some of his plantings of *Dalbergia sissoo* — another promising dual purpose agroforestry species — to promote development of a clear stem for possible later timber use. Interestingly, one of his observations after planting fodder trees for several years now is that the siris he established from scattered seed during fence clearing are all developing tall, clear stems without any pruning.

Mr. Holme sums up his reasons for planting fodder trees in these words: 'It seems crazy to me that you might have a 10 to 30 foot depth of usable soil yet people only exploit the top part with grass when we could be exploiting it all with large trees'. He laments the lack of available information and says it would be very useful if CSIRO investigated a wide range of trees for fodder/agroforestry potential and compiled data which could be made available for on-farm use. 'Pastoralists also need to know how to establish the trees in the quickest possible way', Mr. Holme said.

holding capacity; and even a phenomenon known as 'hydraulic lift' where the tree roots bring up water from depth and release it in the surface soil.

He believes it will be possible to develop agroforestry regimes for northern Australia where the trees not only increase total pasture production but also prolong the period of higher pasture quality.

'It is also possible to indicate the conditions under which positive effects can be obtained; eg strongly seasonal climate, medium dense tree canopy (40-60 per cent transmission), medium to lowfertility soils

and preferably, but not necessarily, a nitrogen-fixing tree species', Dr Lowry said.

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Most of the tree species being considered in this project would be classed as 'rainforest timbers' and are used mainly in cabinet making, interior work and wood turning. Such timbers have a high value and are relatively scarce. Current prices are between \$1000 and \$1500 per cubic metre for properly dried sawn timber. However, Dr. Lowry thinks it is better to assess the possible returns from rare or high value rainforest species used in agroforestry by looking at the way in which rainforest hardwoods are sold. Flat billets of 1.5-2 m x 0.5 m x 0.1 m are sold for between \$200 and \$400 depending on the species. The age at which trees can be profitably harvested for timber varies between species; siris, which

is Dr. Lowry's pick as the best all round performer in a northern Australian agroforestry regime, can be harvested when it is 20-25 years old.

Management

The management of trees grown for their timber potential as well as fodder use differs from that used with browse trees, where a low canopy is maintained. Agroforestry requires tall, clear, straight tree stems free of damage and extraneous growth. This means regular pruning of the lower branches and unwanted shoots. While young, the trees must be protected from a range of pests. Trees can be planted as either seedlings or seed; with selection of elite trees once growing is underway. Rejected seedlings can be left as browse shrubs.

Although cattle would not be able to browse the growing tree, branches could be cut off and used as emergency feed during droughts.

Dr. Lowry's research has important implications for both the cattle industry and that sector of the nursery industry which can supply tree seeds and seedlings. 'The aim is to make a more productive sustainable system using biological resources that are already there', is how he summarises the project.

— Julie Lake

(For more information contact Dr Brian Lowry, CSIRO Division of Tropical Agriculture, Private Bag No. 3, Indooroopilly, Qld 4068. Phone 07-3214 2700; fax 07-3214 2880, email: brian.lowry@tag.csiro.au.)



Fallen leaf, flower and pod may provide valuable fodder; Dr Brian Lowry with fallen flowers collected from one large siris tree.

Potential dual purpose species

Siris (*Albizia lebbek*)

Native to Australia, parts of South East Asia and the Pacific, siris is capable of growing well over much of northern Australia. Its value for animal production is proven; green and fallen leaves are palatable to stock and profuse October flowering can produce 25 kg of dried flower from a large tree. This feed is easily digested and high in protein. Its timber is recognised overseas as of high value and is used in woodcraft in Australia. Trees often have a tendency to branch at two-metre height and require pruning. Also being considered are *A. canescens* and *A. retusa* which are little-known native species apparently very similar to siris.

Forest Siris (*Albizia procera*)

A native rainforest timber, this species also grows in open eucalypt woodland. Its potential range is smaller than siris but it has the advantage of naturally adopting an erect single-stemmed form and has valuable dual purpose potential.

Tipuana (*Tipuana tipu*)

This popular exotic ornamental Queensland street tree may be outstanding for dual purpose sub tropical agroforestry. It appears to be easy to establish, highly productive and should boost animal production through both grass promotion and litter fall, while also providing an easily worked, attractive timber, but feed quality is probably not as good as siris.

Yemane (*Gmelina arborea*)

Well known in tropical plantation forestry, few plantings have occurred in Australia. It is worth considering for a wood/grazing agroforestry system because in dry areas it drops all its leaves which are extraordinarily digestible for stock and it has a fine, rapid-growing timber.

Dead Finish (*Albizia basaltica*)

This small native tree is widespread over the inland where it is regarded as a good browse shrub. The log is small in size but prized by wood turners.

White Cedar (*Melia azederach*)

Clear wood from this tree, which is native to Australia and parts of the Asia-Pacific region, is of very high value. It is found over a wide range of Australian habitats including semi-arid areas. Its leaves have an exceptionally high digestibility and it is known as a fodder tree in India. It has reportedly been fed to dairy cows in drier areas of Queensland.

Rain Tree, Monkey Pod (*Samanea saman* syn. *Albizia saman*)

This exotic species is popular in woodcraft and has a range of other uses. While preferring a wetter climate to siris, it is not confined to the wet tropics. It is already documented as a fodder tree because of the nutritious pods which fall in November in north Queensland. It also drops quite large leaflets in August-September, when fed to sheep these have a very low digestibility but a surprisingly high intake.

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Rod Macdougall writes on 'neotropica'

The story of *Neotropica* in WA is an interesting one. About 15 years ago, WANATCA made the first introduction of this fast-growing, heat-resistant tropical black walnut with 1000 seeds brought in from Ecuador. These seeds were widely distributed to interested people around WA.

Undoubtedly the greatest success was gained by Nola Washer, whose trees grew strongly and fruited from seed after about 8-9 years. Most of the later plantings, as Rod's mentioned here, were second-generation trees grown from this seed (see ad page 9).

Mary Versteegen reports that her 3 *Neotropica* trees, at Walpole (also on the south coast), are "hugely successful" — about 2 metres high after 2 years, with luxuriant tops, and she "doesn't have to water them".

Neotropica can be used as rootstock for the ordinary Persian Walnut. By grafting a *neotropica* tree high up (2-3 m), it is possible to produce commercial walnuts from the top, and later sell a valuable butt of high-value black walnut timber.

Yes, we have *Juglans neotropica* — tropical walnut — about 100 trees. They appear to thrive here (at Denmark on the WA south coast), first ones were planted in August of 1992. The first planting were not pruned for timber and are only about four metres tall. Subsequent plantings have been pruned to a central leader for timber purposes; these will become tall trees on present indications. Heat and cold have had no significant effects.

Juglans neotropica is only one species we have tried out for timber. Our aim is to use multipurpose trees - especially those producing fruit or nuts as well as high value cabinet timber.

We are planting, with various success, the following:

1. NUTS/FRUIT

<i>Juglans neotropica</i>	(tropical black walnut)
<i>Prunus capuli</i>	(tropical cherry)
<i>Juglans regia</i>	(Persian walnut)
<i>Carya illinoensis</i>	(pecan)
<i>Pouteria lucuma</i>	(lucuma 'Lukemar')
<i>Casimiroa edulis</i>	(white sapote or "Cassy fruit")
<i>Olea europaea</i>	(olive)

<i>Corylus colurna</i>	(Turkish tree hazel)
<i>Castanea crenata</i>	(Oriental chestnut)
<i>Pinus pinea</i>	(edible pine nut)
<i>Pinus coulteri</i>	(Coulter pine)
<i>Araucaria bidwillii</i>	(Bunya pine)
<i>Diospyros virginiana</i>	(American Persimmon)

Various edible bamboos

2. NITROGEN FIXING/TIMBER PRODUCTION, EG:

<i>Robinia pseudo-acacia</i>	(Hungarian shipmast cedar)
<i>Acacia melanoxalin</i>	(Blackwood)
<i>Tipu tipuana</i>	(Rosewood)

Some of these are still in the infancy stage but others are showing some promise, and others, such as *Prunus capuli* are showing disinclination to respond to the discipline of rigorous pruning for saw log purposes!

We would appreciate your thoughts on other possible dual purpose timber type trees which we could attempt to grow here. The idea of variety rather than planting a single type is more appealing.

— Rod Macdougall, RMB 1328, Denmark WA 6333

Using Neem in Kenya

Here is what information I gained on Neem, following my recent visit to Kenya.

Dorien Rocco, who has been in Agricultural Chemicals for many years, is putting his knowledge into using products which are possibly not so detrimental to the environment, neem products being one of them. This has resulted in his factory in Nairobi, Kenya, which is extracting the oil from the neem seed, and using this a by-product.

The main ingredient needed is a product with a high concentration of AZDA, and it is the kernel which is being utilised, once the oil is extracted. This is then made into cake (resembling pellets). We were given some of this to try on the garden, it is mixed with water, left overnight and sprayed on if poured through a filter, or used with a watering can. This solution is to be used as a deterrent to insects, as opposed to an insecticide.

The rest of the seed that remains after oil is extracted can be used as a fertiliser, however due to its bulk this avenue hasn't been fully researched.

Though I know little about it, one of the first products being produced from this factory will be capsules to be trialled in Uganda for the use as against malaria, as a prophylactic. I am afraid I do not know just in what context, but the trial is due to begin within the next few months. Again it is the AZDA compound which is the active ingredient. I myself used a neem tea, an egg cup full each day whilst in malarial areas, made from fresh neem leaves. Highly unpalatable, the locals use it to cure all ills, its local name being "muarabini" - literally: for a thousand (uses).

The Neem leaf has always been used in Kenya to store in cupboards and trunks to prevent insects eating things stored within. It

is certainly 100% effective, the branches are dried or just hung up in the cupboard.

Lastly, as the seed is not harvested mechanically in Kenya, it must be collected locally, and transported to Nairobi once a month for processing during the season. To encourage collection and set up the demand for the seed, an education program linked to the collection has been implemented, and the company has two Africans, who travel the schools.

The importance of quality is taught, and points about collection storage quality, etc. given to the children, who are then paid per kilo of seed brought to the collection points—usually the school. Education regarding the need to look after the environment, the need to



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plant trees and the encouragement of self-help groups is further given during these visits. The tree grows as if indigenously along the humid coast, but every child is given 5 seedlings during the rainy season to plant at home. He is then encouraged to plant 5 trees each year, and a projection of earnings from the seed is given, to provide the family with incentive to plant a cash crop in the form of the neem tree.

The neem tree, when cut as a sapling, can be used to make furniture, not unlike rattan, and I saw this being done and marketed on the road side.

Dorien Rocco is in touch with many people working with research in Neem, and hope that I would be able to keep him in touch with developments here. The Bostid and another book I bought from you in February were both for him, and he was familiar with many of the contributors.

I myself, have all sorts of interests, particularly related to tropical and sub-saharan desert areas, in relation to trees, though I studied Oceanography! I found the most widely grown tree in Kenya on small holdings is the silky oak, *Grevillea*, which appears to be harvested for firewood and allowed to regrow from a rather bare tall trunk. I am interested in fuel trees for dry arid lands.

I belong to the Busselton Naturalist Club, and wonder if you have any members who would be interested in talking to the club which meets once a month, about areas of interest, connected with use and promotion of indigenous tree products, eg Quandong. We do a long range camp trip each year often into the more arid lands, and information is always eagerly accepted.

— *Odile Lemon*, PO Box 169 Augusta 6290, 08-97581586.

<augustc@griffin.bis.net.au>

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The Argentine Ombu (*Phytolacca dioica*) grows to 18m, deciduous, fast-growing, and very drought-resistant.

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(From the 1997 catalogue of the Digger's Club, 105 La Trobe Parade, Dromana Vic 3936. Phone 03-5987 1877. e-mail diggers@pac.com.au)



[The Australian / 1997 May 31]

Fruit-fly spraying ruins rich coffee crop

Crop spraying to eradicate fruit flies had destroyed Queensland's fledgling coffee industry as world coffee prices soared to a 2-year high, growers said yesterday.

The secretary of the Australian Coffee Growers Association, Mr Ben Colbran, said up to 70 per cent of the crop on North Queensland's Atherton Tableland — the nation's main coffee-growing region — had been destroyed, causing damage estimated at \$15 million. "It's quite devastating," Mr Colbran said. "In my own case I've lost nearly all my coffee. I'm not sure if it's going to be worth harvesting or not. I've probably lost a year's income."

Coffee was one of many crops sprayed by the Queensland Department of Primary Industries last year after an infestation of papaya fruit flies threatened to wreak havoc in some of Australia's most important fruit export industries.

The scourge of Australia's small but rapidly expanding coffee industry came as growers were hoping to capitalise on a world shortage of coffee. Frosts and floods in Brazil, wars in Africa and the machinations of international trading practices have depleted world coffee stocks to their lowest level in decades.

Growers were also hoping to benefit from the increasing popularity of trendy coffee houses across Australia. "This problem has come at the worst time for this industry that anyone could possibly imagine," Mr Colbran said. Coffee prices, he said, had risen 400 per cent in the past three months.

Mr Colbran said he noticed something was wrong with his crop about three weeks after the DPI began spraying in September last year.

"Towards the end of the spray I found the

flowers and buds were dying," he said, adding that his plantation had lost up to 90 per cent of its crop. "It's a disaster really for growers. We've spent years getting mechanised coffee growing going and we've lost this opportunity to recoup costs.

"We've worked hard to try to get a coffee industry going in Australia. It's a new thing for this country and we've done a lot of work to get this mechanised system up and running."

Mr Colbran blamed the crop loss on the Queensland Government, which over a 10-week period starting last September sprayed all commercial coffee plantations in the region with an insecticide to eradicate the papaya fruit fly. "The growers were against this because they had already heard (spraying) could damage (coffee) flowers," he said.

All coffee crops in the region had been affected, except those at the Department of Primary Industries' farm and the Lotus Glen prison farm, both of which had not been sprayed, he said.

Mr Colbran said the Government had been asked to carry out tests to see if the spraying was to blame, but the response so far from the DPI had been very disappointing. "Initially they wanted to not hear about it.

"When we forced them to discuss it they denied it," he told ABC Radio. "I think they are just trying to hide their heads in the sand."

A DPI spokesman for the fruit fly program could not be reached for comment.

— *Kevin Meade*

[West Australian / 1997 May 16]

CD-ROM gives a Highway to Horticulture

Did you know it is best to chill garlic before planting, just as you do with some ornamental bulbs? And did you know you should sterilise last season's tomato stakes before using them for a new crop?

Ever thought of exporting roses? Don't bother—the domestic market pays more than the export market.

These tips are from a ground-breaking initiative of Agriculture WA (formerly the Department of Agriculture) for growers of horticultural crops — a CD-ROM called Highway to Horticulture.

It was released on the WA market with little fanfare during last month's Garden Week. I'm always on the lookout for innovations at Garden Week, and this certainly fitted that category so I bought one. I suppose it's a sign of the times when the major purchase at a gardening show is not something you stick into your soil but something you stick into your computer.

What is on this CD-ROM? Well, remember a few years ago when you visited the then-Ag Department's stand at Garden Week and you attacked the rack with all those free Farmnotes

on topics ranging from diseases of crucifers to building a plastic tunnel house?

Those Farmnotes are the main feature of

this disk. Who would have thought 10 years ago (when they were freely available through the Home Garden Advisory Service, closed in 1987) that they would have ended up in this form? Like most gardenaholics, I used to scoop up armfuls of those Farmnotes, and I've got them filed away alphabetically in a cabinet. But now all I need to do is go to my computer, open the Highway to Horticulture file, and type in a topic. I'll get a menu of sub-topics and it's very easy and enjoyable to navigate without having to swot up on tiresome user-unfriendly manuals.

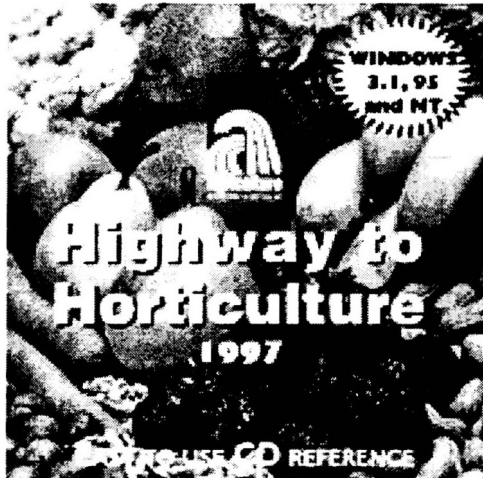
You don't have to insert the CD-ROM disk every time you want to reach the information. When you install the disk, it writes all the data on to your hard drive, and you're ready to start using the program without any further ado. Provided your computer is switched on, the information is just a few clicks away.

Requirements are a computer operating Windows 3.1, 95 or NT with 15MB of free

disk space. The screen must support thousands of colours. The CD-ROM is designed for professional growers as well as keen home gardeners, although the professionals will get more out of it.

There's a lot in it, too, for would-be or

actual hobby farmers. Let's say, for instance, you had a hankering to grow olives commercially. Highway to Horticulture will



tell you that the average consumption of olive oil has risen from 410g in 1985-86 to 980g in 1994. It will point you to subsections on, for instance, the table olive market, climatic requirements, soils, water and varieties.

Or how about chinese water chestnuts? This is a type of sedge which grows in water and has rush-like leaves, producing mahogany brown corms which resemble gladioli. The variety grown in WA is Hon Matai, the main commercial variety in the US.

Fresh water chestnuts are exported from Taiwan to Hong Kong from mid-December to February. It may be possible to export WA water chestnuts to Hong Kong and Japan during the off-season for those markets, from June to December.

Have you ever grumbled that you can buy any variety of potato in your local greengrocer, so long as it's Delaware? Well, HTH tells you that you can grow your own by obtaining seeds of several other locally available potatoes. These include Bremer and Geographe, Pontiac and Norland, Sebago, Spunta, Desiree, Sequoia, Coliban, Exton, Katahdin and Bison potatoes.

If you want to weigh the pros and cons of organic farming, HTH gives you both sides of the issue. For instance, in its favour it says that commercial growers get higher returns from organic farming, but against are problems with weeds and pest control.

A useful feature of HTH will be familiar in its format to Superhighway surfers — answers to frequently asked questions.

There are answers to queries on subjects such as fruit growing, wine grape growing, vegetables and fertilisers. Where information on a particular topic is not given comprehensively, HTH will point you in the right direction by listing the titles of documents

and videos on that subject available separately from Agriculture WA and how to obtain them.

I found this CD-ROM a powerful aid, and it has become my first source of reference for matters horticultural. According to a spokesman from Agriculture WA, it is ahead of any thing produced by other State agricultural departments and will be periodically updated.

When it is updated, I would like to see more information for the home gardener on matters such as a seasonal planting guide for vegetables and annuals, lawn care, domestic irrigation, garden-grown (as opposed to greenhouse-grown) roses, home garden trees and using native plants.

— Philip Powell

David Noel comment: This is an excellent start to what may become an increasingly valuable resource for local growers. However, as yet its coverage of fruits and nuts is somewhat patchy.

WANATCA at the Shows

Your Association expects to be present at a number of shows coming up in the next two months. If you can spare an hour or two to help with these, this would be much appreciated.

On Aug 26-28, we will be at the Dowerin Field Day (contact Bob Cook, 08-9574 7103/h).

On Sep 19, we will be at the Karragullen Horticultural Field Day (contact David Noel, 08-9388 1965/w).

And of course on Sep 14 we have our own Tree Crops Fair/Bring & Buy. Offers of help are much needed for this (contact David Noel, 08-9388 1965/w).

[Australian Olive Grower / 1997 Apr]

OLIOMIO! —“My Oil!”

A new era in olive oil extraction has begun. The machine which engineers have been trying to produce for decades is now a reality. You can now produce extra virgin olive oil at home in an efficient, hygienic, economical machine. This means that you can value add your olive product by picking, processing and bottling it, on your own equipment.

For reasons of hygiene, and for its major labour saving benefits, the continuous flow centrifugal oil extraction process has long been recognised as the ultimate method for the production of high quality extra virgin olive oil.

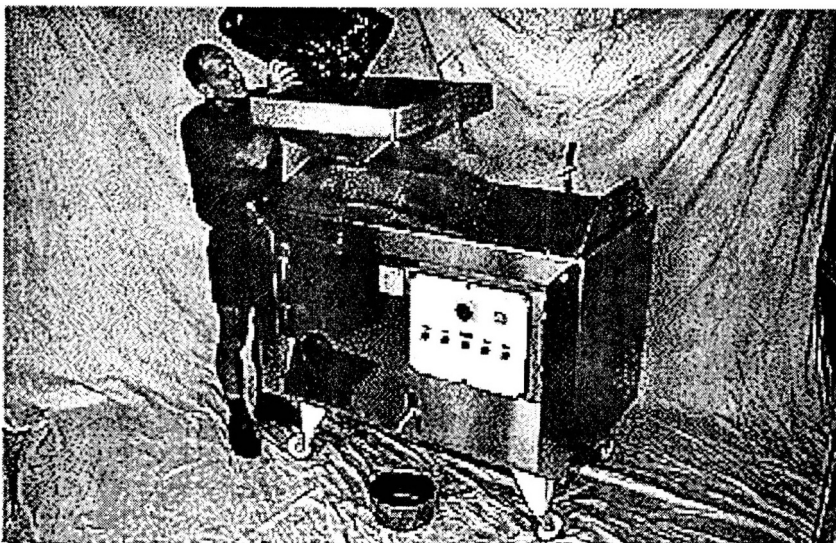
Unfortunately, because of traditional thinking, the romance of the old oil presses, and the high cost of the newer continuous flow systems, the changeover has been slow.

The growers in the Mediterranean countries have been accustomed to hauling their warm, often fermenting, sacks of olives to the local factory. They've been used to helping through the day with the crushing of fruit and the spreading of the paste onto the

circular mats. They're acquainted with the excitement of seeing the vegetable water and oil squeezed out through the mats by the huge hydraulic press ... but today it is different.

Today, the grower is asked to harvest the fruit and deliver it to the oil factory quickly to reduce overheating and fermentation problems. Today, after arrival at the factory in hygienic crates, the healthy fruit disappears into a hospital-clean stainless steel machine and then reappears out the other end as golden olive oil in excellent condition ... no romance, no helping in the process and no seeing the oil and water being squeezed out.

Even the owners of the traditional oil processing factories have been up in arms



"At last — a fully automatic oil extractor to suit your size, time, and wallet"

because although the new system is far more cost effective on labour and far superior hygienically, the cost of changing systems has been prohibitive.

A continuous flow plant capable of processing 1,000 kg of olive fruit per hour costs around \$300,000. Smaller growers who wanted to produce their own oil at home have been excluded from using this latest technology because of the absence of a small continuous flow plant at a reasonable price. They too have been forced to use a smaller version of the traditional press for a cost of about \$20,000 or more.

The good news is that things have changed. There is now a small scale, reasonably priced, hygienic, continuous flow oil plant on the market.

The beautifully designed, all stainless steel "OLIOMIO" (which means "My Oil" in Italian), automatically processes forty to fifty kilograms of olive fruit per hour into golden olive oil. Being a continuous flow plant, it is "olives in at one end and golden oil out the other." The total machine is only 150cm high, 130cm wide and 80cm deep, which means it can fit nicely into any spare room or garage. And the cost is AUST\$15,970 delivered to your door. (within Australia)

Today, small olive growers can say this is "Oliomio" (My Oil!) ... clean, hygienic, and of excellent character ... and the only labour required is to tip the olives in, make a couple of adjustments, then go away to do other things while the golden oil trickles out automatically.

At the request of many Australian growers, Olives Australia has now established a new firm called Olive Agencies. Olive Agencies will follow the Olives Australia Statement of Mission as it supplies high quality, affordable

equipment for pruning, harvesting and processing to the long neglected small to medium sized olive grower. The first major product to be distributed by Olive Agencies is the Italian OLIOMIO oil plant.

We are very thankful to you, the Australian grower, for encouraging us to move into this area of the industry and we look forward to serving you in any way we are able.

OLIOMIO TECHNICAL INFORMATION

Production: From 40 to 50 kg of olives/hour

Power: 3kw single or three phase

Dimensions: 130cm wide x 80cm deep x 150cm high

Weight: Approximately 300kg

Warranty: 12 months on parts

For more information on this equipment please contact Andrew Burgess at Olive Agencies Ph: +61 (07) 5466 1333 or Fax: +61 (07) 5466 1592.

(Prices and technical Information subject to change without notice.)

Olive Cultural & Scientific Symposium

presented jointly by
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22-24 August 1997

New Norcia, WA

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[WA Horticulture / 1997 Jul]

Producing olives not all good oil

Some investors in one of man's earliest crops, olives, have planted trees and are optimistically sitting back waiting for their fortunes to grow.

After all, Australia imports about \$100 million worth of olive oil from Italy, Spain and Greece, so a handsome profit is assured, they say. Particularly when annual increases of 20 per cent in demand are expected, and as a leading professor in edible oils pointed out, it was becoming a valuable world trading commodity.

Australian production of olive oil supplies only about 2 per cent of the domestic market. But the experts are the first to say that demand does not equate with assured high profitability, although there is little doubt there is a market for the oil.

It is Dick Taylor, of Agriculture WA's Rural Innovation Centre, who passes on the

hard-to-swallow facts to would-be investors when they contact him about where they should plant their money-making trees.

After dispelling the myth that olive trees will grow successfully and produce great olives for oil with no effort at all (and usually without water), Mr Taylor advises that there is a likely future for the industry, provided caution is exercised.

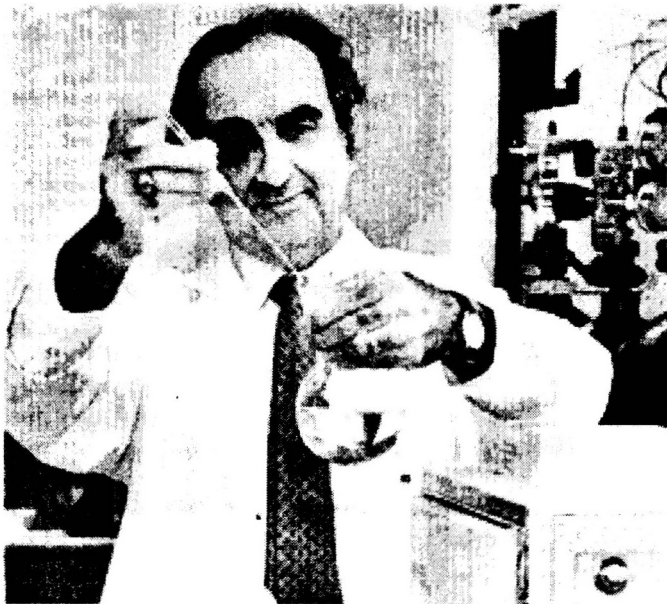
Others who have rushed into the olive oil 'bonanza' have quickly encountered one of the main problems facing the Australian industry — a shortage of trees. Olives Australia, in Queensland, the nation's biggest supplier of olive trees, said it was struggling to fill orders.

A leading WA nursery said it had no supplies this season but could fulfil orders for next season.

"We supply 80 per cent of the olive trees grown in Australia and despite producing a million trees a year, we cannot keep up with demand," said Olives Australia director Ray Archer.

"Virtually all our trees are sold beforehand and most people have to wait 12 months for particular varieties. For Kalamata trees — which produce the international eating olive — the typical wait is 18 months."

He said there was demand



Dr Stan Kailis checks the quality of a WA-produced olive oil

for trees which produced eating olives but the long-term future lay with the oil.

"Within eight to 10 years Australia should be able to fulfil its own fruit needs for the table," he said. "But with oil, there is no light at the end of the tunnel, and there will be world-wide demand for the product for a long time."

The short supply of trees was expected to continue for many years. Mr Archer doubts if he will ever be able to supply trees on demand.

Being able to find trees to plant has been difficult for the research program at the University of WA, which, as part of funding from the Sir Eric Smart Bequest, six months ago started looking into the olive bug which has bitten agribusiness investors, hobby farmers and serious rural landholders.

Senior honorary (research) fellow in the faculty of agriculture at UWA, Dr Stan Kailis, said planting of 10 to 12 plots of trees (35 in each) would start in about a month after finding stocks of the required olive trees.

Dr Kailis said each plot would contain six cultivars and he would spend at least the next two years assessing the regional effects on them. The plots will be planted in a strip along the WA coast — from about Geraldton to Esperance—where Dr Kailis believed would be the main olive growing region.

"I've designed a particular trial plot which should give us some information that I can compare across the different sites, and that is important because right now nobody quite knows what to plant," he said. "There are trees which are recognised internationally as



Sandra Vilardi, left, with Ioppolo family members Carlo, Rosie and Carmelo, at their home processing plant

important olive producing trees. My selection is really based on how these cultivars are performing elsewhere."

Cultivars being trialled are Kalamata, and oil cultivar Manzanillo (Spanish), Frantoio (Italian), Pendolino (Italian), Olea Mission (developed by WA nurseryman Luigi Bazzani) and Leccino (Italian).

Dr Kailis said one of the issues which would shape the development of the olive industry was mechanisation.

"You have to produce olives which can be picked by machines," he said. "For example, there are better olives for oil, such as the Greek cultivar Koroneiki, but they are smaller and would have to be picked in some other way other than by hand or tree shaker. Some

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other machine would need to be developed so they could be picked like grapes."

In many locations throughout WA there were old olive groves, like those at the Catholic Agricultural College, Bindoon, and New Norcia, but trees would need to be pruned heavily to get them to grow a particular way to allow at least part mechanisation.

It was the inability to incorporate mechanisation in the grove which caused Ian Rowe a few headaches when he started working on the 60-year-old grove at the Catholic Agricultural College, Bindoon.

A former Telecom communications engineer, Mr Rowe was looking for a different direction in life when he left his former employment in 1994.

"I had read about olives and that the industry was having a resurgence — I wanted

to be part of it," he said. "I wanted to understand the business and to me that means from start to finish — with the customer and retailer at one end and the growing, harvesting and production at the other. But if I started growing the trees myself, like many people have, it would have been years before I got a finished product.

"I went looking for an established grove where the owners were not keen to spend a lot of time on it and where I could get my hands dirty and at the same time learn the business quickly."

His research led him to the grove at the Bindoon college which was not being utilised and he approached the administrators about him working it. Mr Rowe is now negotiating a 10-year lease on the grove.

But rejuvenating the grove has not been an easy task, although light pruning on alternate years has helped bring new vigour to the trees. Mr Rowe said about half the trees at the college were not bearing fruit and were a perfect example to show that olives needed love and care. "Olive trees are very much like kids—they need nurturing," he said.

His words were echoed by arguably WA's most knowledgeable olive nurseryman, Luigi Bazzani, who, as his name suggests, grew up on a Mediterranean diet with copious amounts of olive oil.

Mr Bazzani, who operates a very reputable nursery in Manjimup which specialises in olive trees, said they were definitely not trees which could be just planted and left until the olives were ready to be processed into oil for a handsome profit.

"When clients want to establish an olive grove, we provide a chart for the analysis of the soil, and this should be attended to," Mr Bazzani said. "To give a rough idea, in areas with a winter rainfall of 700 mm, and no rain

For Sale

Capuli Cherry Plants

(*Prunus salicifolia*)

Seedlings \$6-10 (30-60 cm)

Grafted trees (varieties: Fowler, Avon)

available soon at \$15, order now

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Pistachio Rootstock

(*Pistacia atlantica* seedlings)

grown to order, from \$3 each.

(Small plants in milk cartons — recommended for transplanting)

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John, Linda Price: 09-497 2302

Bill Napier: 399 6683

expected in summer with moderate evapotranspiration (for example, the South-West of WA), trees still require 1000-2000 cubic metres of water per hectare."

He said a big advantage WA olive growers had was the State's distinct lack of plant disease. When it comes time to process their olives into oil Mr Bazzani advises clients not to have them pressed elsewhere.

"By doing so, quality control can be lost," he said. "My recommendation is to press your own oil or if this can't be done, to go in association with others within a range of 40 to 60 hectares."

The Ioppolo family, of Wanneroo, does just that — processes their olives, as they have done for as long as son Carlo can remember. Today Carlo, helped by fiance Sandra Vilardi and his father and mother, regularly processes the olives from the 350 trees on their property.

"We use a traditional method which is called cold-press," he said. "In Italy now there is a new machine which actually heats the paste. Some say it is a better method, some say worse." But as with a lot of things associated with olive growing, it all gets down to personal taste."

Mr Ioppolo, an auto electrician by trade, said he hoped to one day be able to fulfil his dream and produce oil full time. But until then the experts seem to agree that much

effort will need to go into producing a quality product which can compete with that from Greece, Italy and Spain.

While big processing plants are not part of the WA industry yet, they are almost certain to be when production here expands sufficiently.

Dr Stan Kailis warned that olive oil would face competition from other oils on price, like canola and sunflower. Growers also had to keep in mind that as trees were being planted in Australia to try to satisfy the world demand for the olive oil, plantings were also being done in the US and China, he said.

— Valma Ozich

Get set for the Bring & Buy

*WANATCA will be holding a
Bring & Buy meeting in September
at the Shenton Park Hotel carpark,
opposite the Tree Crops Centre.*

The date is Sunday, September
14, from 9 - 12 am. There are
more details in this issue of

Quandong, but: You Still Have Time

to get going on potting up or producing
your extra nut, fruit, or other tree crop
plants which you can make available.

This is the opportunity to make some
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number of crop trees planted locally.
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[The Australian / 1997 Jun 14]

Chestnuts unharvested as prices dive

Poor prices have forced more than 120 chestnut growers in Victoria to leave their crop on the ground this year.

With wholesale prices slipping to as low as \$1.20 a kg, many chestnut growers decided it did not make economic sense to sell their crop.

Chairman of the Chestnut Growers of Australia, Mr David McLaren said: "I left about half my crop on the ground this year because of poor prices. It cost at least \$1 a kilogram to pick the chestnuts before they are packaged and transported to the market to be sold.

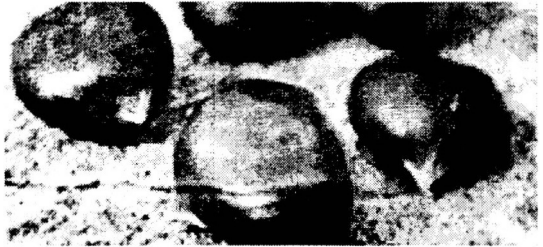
"Many chestnut growers in Victoria looked critically at their crop this year and decided it made more economic sense to leave them on the ground." Mr McLaren lost about two tonnes of chestnuts this season when prices plummeted to as low as \$1.20 a kg, a drop of more than \$1 compared to last year.

The association has about 180 members among a total of about 350 chestnut growers. More than 75 per cent of the country's annual production of 800 tonnes of chestnuts comes from north-east Victoria, stretching from the districts of Beechworth, Ovens Valley and Stanley to Mount Beauty.

NSW's Southern Tablelands around Orange and Batlow produce 15 per cent while another 5 per cent each is grown in SA's Adelaide Hills and WA's Manjimup area.

"This year's poor prices may spark a number of Victorian growers to rethink whether they should continue growing chestnuts or chopping off their trees," Mr McLaren said.

The commercial growth of the chestnut industry had been hampered by a number of



small growers who sold chestnuts from the backs of trucks, regardless of whether the chestnuts were of good quality.

Another chestnut grower, Joe Rinaudo, who has 4000 chestnut trees on his farm in Stanley, Victoria, agreed that growers had difficulties this year because of falling prices. He said that the industry was also facing an oversupply of chestnuts which had been aggravated by a shortfall in demand.

"There is a limited demand for chestnuts. They are popular among the ethnic communities such as the Greeks, Italians and Asians, but the Australian palate is not accustomed to eating chestnuts. Consumer confidence in chestnuts can easily be shaken if a customer buys chestnuts and has difficulties peeling them".

"Unfortunately, supermarkets also have little understanding of the different varieties of chestnuts and fail to label them. Instead of stocking only the best varieties which are full of flavour and peel easily, supermarket supplies are often dictated by price alone."

Mr Rinaudo also complained that chestnuts were insufficiently promoted in the marketplace. "Some of the best varieties include Purton's Pride, Buffalo Queen and Lucente. Chestnuts are also highly perishable

and must be stored in the refrigerator."

The industry was also too small to consider the commercial processing of chestnuts into puree, flour or desserts. The equipment for peeling and processing chestnuts for a viable industry was too expensive.

— *Teresa Ooi*

[WA Comment: although chestnut prices in WA may have dropped somewhat, they

have stayed well above the Victorian levels — retailing at \$6-20 per kilo. Nevertheless, prices for raw chestnuts are likely to fall. The commercial future for chestnuts probably lies in the 'convenience-food' direction — selling packets of frozen, pre-shelled and cooked nuts in supermarkets. The equipment needed for this is not all that expensive, and it is would be a good 'value-adding' route.]

[Rural Research (CSIRO) / 1997 Winter]

Manipulating mango flowering

Mango growers around the world face the problem of fluctuating yields caused by irregular flowering, especially in the tropics where most mangoes are grown.

Stress, caused by either soil water deficit or low temperature, is the dominant factor leading to flowering in mango trees. However, in the tropical regions of Australia, these factors are insufficient to induce reliable flowering in the major cultivar Kensington Pride. Predictable flowering would allow growers in the Northern Territory and Kimberley region of Western Australia to maximise their returns from the high prices paid for early season fruit.

A chemical treatment (MFT) developed by CSIRO Horticulture, Darwin, has been shown to reliably induce flowering in

Kensington Pride and is being further developed for commercialisation. The new treatment involves painting the bark of trees during January/February of each year with a formulation based on a synthetic plant growth regulator.

The result is consistent and profuse flowering and fruiting in grafted and seedling trees older than three years. However, care must be taken to ensure that the quantity of the formulation applied is appropriate for the size/age of the tree. CSIRO has now applied for an Australian patent for the commercial development of the treatment. Contact Dr Elias Chacko, (08) 8944-8484

Welcome to Lance Banister-Jones

The WANATCA Executive warmly welcomes Lance Banister-Jones to the Committee.

Lance has been co-opted to fill a vacancy. Members who attended the Balingup Small Farm Field Day in April may already have met him when he helped out at the WANATCA stand.

Lance, an accountant in his day job, has a property at Margaret River which he is beginning to cover with useful trees.

TELEPHONE AREA CODE CHANGE

Readers outside WA might like to note that the area code for WA has been changed to 08, and the old area codes added to the number, to give everybody 8 digits. For example, our old number 09-388 1965 becomes 08-9388 1965.

[Pacific Islands Forests & Trees / April 1997]

SPRIG helps tree crop R & D, conservation in Vanuatu

News of tree crops in the South Pacific is not easy to find. The following extract from Pacific Islands Forests & Trees describes work by SPRIG (South Pacific Regional Initiative on Forest Genetic Resources) on Vanuatu, one of the four SPRIG focus countries (Vanuatu, Fiji, Tonga and Western Samoa). This is part of an international effort funded by FAO, UNDP, and AusAID. A great deal of other useful information is included in the publication.

Vanuatu

Vanuatu Forestry Department has a team of young professionals who can work effectively on different components of SPRIG, including Godfrey Daruhi (tree improvement/field trials), Joseph Tungon (seed collection), Runti Navian/Helen Corrigan (conservation) and Chanel Sam (botany/database and seed collection for indigenous nut trees), as well as field staff such as Watson Lui (Tanna) and Dick Tomkara (South Santo) whose support will be essential for efficient conduct of the field work.

Field visits were arranged to Espirtu Santo, Tanna as well as Efate. Native stands and plantings of the top priority Vanuatu indigenous species, viz, Whitewood (*Endospermum medullosum*) and Sandalwood (*Santalum austrocaledonicum*) were visited on Santo and Tanna, respectively. Major impressions were that Whitewood has outstanding potential as a new plantation species in Vanuatu, although plantings require frequent tending in early years to prevent damage from *Merremia* vine and early crown break is a problem in widespaced/ open grown plantings. Accessible whitewood stands have been substantially depleted by logging operations in recent years, and there is an urgent need to develop and implement a strategy for

conserving the remaining whitewood genetic resources, especially in sustainably managed forests and new plantations, as well as conducting range-wide provenance trials. The provenance trials of whitewood and mahogany to be established under SPRIG in 1997/98 will be located at the IFP project area on Santo.

A further research need is to identify very fast-growing, heavy shading tree species, such as *Octomeles*, which could be grown in alternating rows with whitewood, both to provide early capture/control of site and provide side-shade to help force upward growth/good form in whitewood. Such trees would be considered expendable and removed through a non-commercial thinning after they had served their purpose.

The Forestry Department is in the process of conducting a comprehensive survey of the sandalwood resources in Vanuatu. *Santalum austrocaledonicum* is quite rare on Tanna, but in some areas, such as Lowkatai, villagers have started planting the species, mainly transplanting and tending of wildings in garden areas. Excellent growth was observed in trees planted as boundary plantings around garden plots, and the species has high potential for growth in appropriately designed agroforestry systems. At one site a villager was receiving payment of about \$US2,000 for ten sandalwood trees which had been planted

about 15 years ago. Sandalwood grows relatively fast on Tanna, but the heartwood is reported to be less fragrant than from Sandalwood trees on other islands such as Erromango (C.Sam pers. comm.). Long-term provenance trials are needed to determine whether these differences are due principally to genetic or environmental factors.

It is envisaged that SPRIG can assist the Department with development of multipurpose tree species, such as *Canarium* and *Terminalia* which can provide both nuts and timber, and to make seed of better selections more widely available. For example, *Terminalia catappa* has a very tasty nut, but extraction of the nut from the hard shell precludes its wider use. An earlier Orstom project identified and marked three individuals of this species which have soft shells and

whose nuts might be more readily processed (C. Sam, pers. comm). Seed from these trees and other interesting selections need to be collected, grown in accessible seed orchards and seed/seedlings made more widely available to villagers wanting to grow them.

Vanuatu has undertaken preliminary research which can help to realize the plantation potential of promising indigenous tree species. This includes the collation of information on seeding characteristics and propagation techniques.

— *Lex Thomson*, Team Leader, South Pacific Regional Initiative on Forest Genetic Resources (SPRIG).

CSIRO Forestry and Forest Products,
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Lex.Thomson@ffp.csiro.au

Hoos that?

Apologies to Bill Heiman, author of the article on Asimoyer/ American Pawpaw in the last issue of *Quandong*.

Nut and tree crop people are very good at sharing information (that is, write something for your magazine, and some reader or other will be sure to snitch it for *their* magazine), and this is what happened to Bill's article, when Les Wilmoth swiped it for the Kentucky Nut Growers magazine and wrongly ascribed it to the Ohio Nut Growers.

In fact, Bill would like it to be known that he is a true son of Indiana, the inhabitants of which are known as **Hoosiers** (just as people in WA are sometimes called Sandgropers). The article was originally written for the Indiana Nut Growers magazine, which is called 'The Hoosier Kernel'.

Anyway, Bill Heiman says he enjoys *Quandong* magazine, and has used some of

our material in his magazine, but I don't suppose that will include his own article, back for the fourth rebound.

Bill's address (A. W. Heiman, Jr.) is 717 Ernie-Lu Ave, Anderson, IN 46013, USA, phone +1-765-643 4582.

Sorry, Bill! Hope I got that right!

— *David Noel*

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The Black Cockatoo Gang strikes again

Bird damage to nut and fruit crops can be a very major problem in WA.

Here is member Pam Hollings' experience with birds and her macadamia crop — usually regarded as bird proof, because of their thick, strong shells.

"This is the second year that we have suffered badly from Black Cockatoos", she says. "A flock of 200 or more of these giant, heavy, intelligent birds first noticed our macadamia planting in September 1995, and caused considerable damage".

"Now each year they come back earlier — this year they came in in May. They rip off immature nuts, take the husks off mature nuts and drop them on the ground, nip off sprinklers on the irrigation system, and have even chewed through the cable to our generator".

Because Black Cockatoos are protected native fauna, they cannot be shot or harmed, and what's more they seem to know it — I am reminded of a scene in a Mel Gibson film where a certain character produces a passport and sneers "Diplomatic Immunity"! Their arrogance and nonchalance has to be seen to be believed — they just ignore random missiles to hand if they don't look like coming close, and if a hit seems likely, they will just lift a wing a few centimetres or hop in the air for a second before resuming their Whelan the Wrecker act. If you don't think a bird can grin or sneer, just watch these!

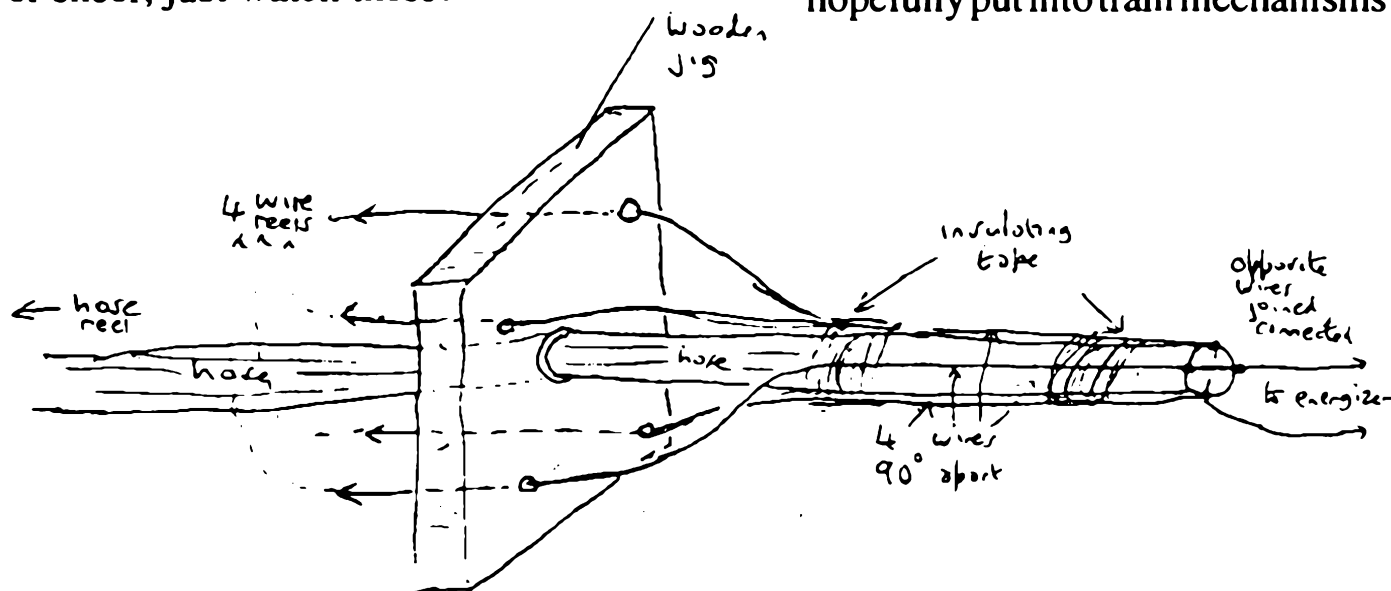
"Last year we picked up about half a tonne of macadamias the birds had pulled off," Pam said. "This year we picked up 50 kg of bird-dehusked nuts on one occasion".

While it might seem nice of the birds to de-husk your macadamias for you, unfortunately nuts picked early and not allowed to fall often have immature kernels which are soft and insufficiently developed.

The usual bird-deterrent devices, like shimmering tapes, artificial hawks, noises of guns discharging and so on are either laughed at by the cockatoos or they get used to them after a short while. Pam Hollings even said that they were refused a licence to operate a noisy bird-scaring device, let alone have any birds shot! Someone once told me that the only long-term effective deterrents must hurt the birds in some way.

WANATCA strikes back?

At the last meeting of the WANATCA Executive, this problem was discussed, and it was resolved to DO SOMETHING. We are not sure what, but for a start we want to get everybody's comments and suggestions, and hopefully put into train mechanisms to develop



an effective defence.

Here is my personal suggestion. The paired electric-fence wires round a paddock developed by Tinsley Beck have been shown to be effective for some bird species, but not for birds which do not perch on wires, or for the small species which prey on grapes or other fruits.

My suggestion is to tape four wires, two active and two return, onto long lengths of 10 mm black plastic irrigation pipe, and suspend this in the attacked trees with loops of insulating tape. Cross-connect the active and return pairs at the ends, and put a voltage between them with a conventional electric-fence energizer, perhaps solar-driven. Zipppppp!!

These tree shockers could be easily made up with a jig consisting of a board with a large central hole to take the irrigation pipe, and four smaller peripheral holes to take wire fed from 4 reels. Pull through a length of each, secure the wires on the pipe with insulating tape, pull through a bit more and repeat, and so on.

Anyone like to try it? Of course, its effectiveness would depend on the gap and the voltage jolt between the wires being appropriate to warn off the birds rather than fry them, and this might need some experimentation.

— David Noël

Today's Quote

"Starting a chain saw lowers the IQ of the operator 30 points or 30 percent, whichever is the greater"

Quoted by Bob Chenoweth, in his book "Black Walnut".

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CALENDAR OF FORTHCOMING EVENTS

Deadline for next issue: Jul 20

1997

- Aug 19 Tue General Meeting (Andrew Thamo, Sujit Dey -Specialist and High-Value Timbers)
- Aug 24 Sun Hillside Farm Planting & Field Day
- Aug 26-28 • Dowerin Field Day
- Sep 14 Sun Bring & Buy Event, Subiaco/Shenton Park
- Sep 19 Fri • Karragullen Horticultural Field Day
- Nov 18 Tue Annual General Meeting (Jan Oldham and John Milligan - Bush Food in WA)

1998

- Apr 25-26 §ACOTANC-98, Nelson, New Zealand

!!WANATCA General Meetings are now on TUESDAYS!!

*General Meetings are held starting at 7.30pm. Venue: Theatre Room, Kings Park HQ, West Perth. These meetings usually include a current magazine display.

- Event with WANATCA participation; § For contact details refer to the Tree Crops Centre. Material originating in Quandong may be reprinted; acknowledgement of author and source requested.

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