

# Quandong

magazine of the

West Australian Nut & Tree Crop Association (Inc)

**Second Quarter 1990**

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**THE NATAL PLUM**(*Carissa grandiflora*)

[From: *Complete Guide to Edible Landscaping* - Rosalnd Creasy]

**Next Meeting:****ALL ABOUT SANDALWOOD AND QUANDONG**

At our next general meeting, we are fortunate to have Dr **Diana Barrett** of the Australian Sandalwood Company Ltd coming along to talk about **Sandalwood and Quandong**.

Sandalwood is a product with a long history in our State, and was a very major export item and source of revenue in the early days. Its distribution has been greatly reduced, and all cutting is now tightly controlled and licenced by the State Government.

The Government and the Australian Sandalwood Company are encouraging replanting of West Australian Sandalwood (*Santalum spicatum*) and research into this and other *Santalum* species such as *S. album* (Indian Sandalwood) and *S. acuminatum* (Quandong). Major sums are being spent by the Company, amounting to around \$1 million over 10 years, on various research projects.

Diana Barrett developed an interest in sandalwoods during a 5-year period working with the Mulga Research Centre of Curtin University. She has been involved with a joint project with CALM (Dept. of Conservation & Land Management) at Shark Bay, mostly working with Indian Sandalwood. She is currently Sandalwood Planting Consultant to Australian Sandalwood.

Both Sandalwood and Quandong nuts are edible (in Quandong the fruit is edible too), and many nuts are on a par with traditional commercial species. Diana will be discussing both the past and present industry and also planting and growing techniques. She has literature available on planting, and may be contacted at 9/6 Suffolk Street, Fremantle 6160 (Phone 09-3358424).

As usual the meeting is free and open to the public — visitors welcome.

**Time: Wednesday May 16, 7.30pm**

**Place: Naturalists Hall, 63 Meriwa Street, Nedlands**

**Field Day • Sunday May 20 • Karragullen Area (Perth Hills)**

*Conducted by Neville Shorter*

*Features:*

- *New Sweet Persimmons*
- *A 'Grandfather' Chestnut tree*
- *A New-Style Orchard*

A most interesting programme has been arranged. Three separate properties will be visited. All are in close proximity. **Details:** See Inside Back Cover . . . . .

# WANATCA R & D Partnerships

At the last WANATCA Executive Meeting, it was resolved to commence work on an innovative scheme to promote research and development projects involving nuts, fruits, and other tree crops.

In essence, each individual project would be a partnership between WANATCA and a member of the Association. The first stage in commencing a Project would be agreement on its broad scope between the Member and the WANATCA R & D Committee.

Some of these R & D Projects can be expected to have commercial implications. The Association's aim in the scheme is to promote the research and development, not to make profits. Once a Project was accepted under the scheme, its role would be to supply information, arrange to procure seeds or other materials, make contacts with overseas researchers and suppliers, and generally assist wherever feasible. It would cover the incidental costs involved.

The Member would be responsible for running the project and for covering major 'commercial' costs for materials etc. They would have full control over any decisions involved, and have the full benefit of any commercial gains achieved. Their only obligation under the scheme as far as the Association was concerned would be feedback of information on the progress and success or failure of the project — negative results can be as useful as positive ones.

The Association as a whole would benefit from having the newly gained information available for dissemination among its membership. The Members would benefit from the help and encouragement received, and from the interest and experience of running

the project. Some may win prestige, fame, and fortune from their results!

## Applying for a WANATCA R & D Partnership

The scheme has been purposely structured so there is no need for supervision of funds, auditing, or other official control. The Association may be able to obtain some block funding to assist in running the scheme, but this would not involve the individual Member — it would be an administrative cost for WANATCA.

Any proposed project of any size would be considered, right from raising a few rare fruit plants in pots or trying a new propagation technique, through to creation of a new major tree crop industry. There are no concerns over 'duplication of research' — from the Association's view it would be helpful if two or more Members were running similar R & D projects separately, as WANATCA's load in information and seed supply would be the same for however many. And some friendly competition between researchers can be very helpful.

Members are invited, now, to suggest projects which they would like to pursue under a WANATCA R & D Partnership. In addition, WANATCA will compile a list of 'Projects on Offer' for Members who would like to try a project but do not already have a topic in mind. There are thousands of

underexploited plant species crying out for attention, suited to whatever climate or scale of operation.

A pilot project is already under way. Under this, Member Otto Dik will be raising plants of interesting fruit and nut plants from Chile. Member Jan Correa, in Chile, will be supplying seed.

In the first instance, please contact David Noel at the Tree Crops Centre with

proposals. These will be considered both from individual Members and from representatives of institutional members. We will be feeling our way in this initiative as the early stages progress.

The Executive believes that this innovative scheme fits in very closely with the basic aim of the Association — to promote and encourage the use of tree crops as a principal component of rational land use. Let's get to it!

## **THE POTENTIAL OF THE CAROB: A CHALLENGE TO FARMERS**

John the Baptist fed on its fruits. Allenby's soldiers fed the pods to their horses. Health food shops the world over praise its nutritional values and its total freedom from the drug components of its nearest competitor.

*Ceratonia siliqua*, better known as the Carob Tree, comes from arid regions of the eastern Mediterranean. It thrives through hot dry summers, it sends its first radicle diving relentlessly downwards in search of soil moisture to sustain it through the first summer, and any hindrance to this natural development will impair the growth of the tree.

It will grow in a range of soils, from mildly acid to quite alkaline. In fact it is very much at home on limestone sands. About the only situation that will defeat it is waterlogged ground.

It demands full sun, and to show its pleasure it dresses its crown in dark green shiny leaves about the size of a soup spoon. At maturity its canopy will shade an area as big as a tennis court and its topmost branches reach up 15 metres or more.

But the jewel in the crown is its annual, late summer crop of gloriously nutritional beans, an ideal fodder supplement with perfect timing!

There are two components to the Carob bean, the sweet tasty pod and the hard-as-bullet seeds. Both have commercial potential for a future industry in Australia.

The pod component is entirely edible, no skin, no stalk, only a soft fibre. The distinctive sweet flavour tells of its high sugar content which can be in excess of 50% of the dry weight. Its colour is that of chocolate, which is probably why the flavour is likened the same way. But Carob eaters will tell you that its flavour is distinctively its own. A tannin component in the pod adds a touch of bitterness and unpalatability to some. But that is something to be worked on!

Laboratory tests of Carob pods gathered from random trees growing in Western

Australia have revealed sugar contents as high as 55 and 56%, somewhat in excess of average sugar content of pods grown in California, Spain and Cyprus, the main exporting countries.

The other component, the Carob seed, yields a product known as Locust Bean Gum, and this is an invaluable ingredient in our manufacturing industries. Products as wide ranging as cosmetics and pet food, tinned meats and ice cream, all require the addition of Locust Bean Gum to give them the health qualities we demand in our products. At the present time Australia's processing industry imports its Carob materials from overseas and pays well for them. Surely here is an opportunity for a little diversification on our farms?

#### MEN OF THE TREES

Having a penchant for purposeful planting through our sun-scorched land, The Men of the Trees in Western Australia have been conducting a multifaceted development program to promote interest in the Carob tree. In charge of the program is Henry Esbenshade, author of the book *Growing Carobs in Australia* and former Director of the International Tree Crops Institute in California.

The Carob Project began with a survey of trees already growing in Western Australia. To aid this search the Boy Scout Association lent their enthusiasm. Each troop scoured its area for existing Carob trees, measured them, sampled them, sent in beans for analysis, and in some cases stripped the tree bare to see what quantity of beans could be harvested. One tree at Mundijong yielded eight super-bagsful! The Carob survey not only benefitted Men of the Trees, but the Scouts also, who earned useful points towards their environment

badges!

Analysis of pods for sugar content, and also development of techniques for the preparation of Carob molasses and related food products, has been carried out by students of Curtin University and lately of WACAE. Third-year Home Economics students have seen this as a valuable contribution to a future all-Australia industry, and have been encouraged by Dr Frank Flanagan and Judy Gideon.

Meanwhile, through 1988, a further group of Vietnamese students from Curtin University, under the guidance of Peter Batt, have been carrying out nursery trials aimed at optimising the soil mix for raising seedlings, refining the fertiliser requirements, and determining water needs through irrigation trials.

Their work has also taken in another variable — seed gathered from a range of provenances — to determine whether certain trees yield a better seed for the production of vigorous root stock onto which budwood can be grafted later.

— Barrie Oldfield

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*[Weekend Australian, April 28-29 1990]*

## ***Tropical fruit farm for sale by tender***

One of Australia's largest developed sub-tropical fruit operations, which is to be sold by tender, has attracted strong inquiry in its first week of marketing.

On the Sunshine Coast in Queensland, the million-dollar Sippy Farm Lychee operation is a rare listing because of the size and quality of its fruit plantations.

The plantations on Sippy's two properties support about 4900 lychee trees, 415 longans, and 1800 trees of other assorted tropical fruit. Mr Rod Douglas, of selling agency Rod Douglas Property Sales, Brisbane, said the response to the initial marketing campaign had been "surprisingly good".

Near Nambour, north of Brisbane, the properties total 92ha of rainforest country, of which 38ha have been fully developed and 28ha are deemed suitable for further development. The 62ha main property, called Sippy Farm, has been an experimental farm and its lychee trees range in age from one to 12 years.

The lychees comprise mainly the proven commercial late-season varieties of no mai chee, kwai may pink, and wai chee. Other fruits include longans, plantain bananas, mangoes and other varieties under trial.

The trees are individually watered and fertilised by a micro-jet irrigation system.

The fully established nursery complex on Sippy Farm covers 0.5ha. It specialises

in the supply of lychee trees, sub-tropical fruit tree species, and flowering plants.

The other property, the 30ha Yandina, is 22km north of Sippy Farm and includes 11ha of lychee plantations.

"The results of experience gained at Sippy Farm are reflected at Yandina in the near-optimum tree density plantings of 240 trees to the hectare," Mr Douglas said.

There are 2494 three-year-old lychee trees on the property, all of the no mai chee, kwai may pink, and wai chee varieties.

Next season's Sippy Farm lychee crop has been estimated at 44 tonnes and this is expected to increase to 263 tonnes by 1999 when the most recent plantings reach maturity.

Produce is mainly sold to local markets, however trial consignments have been carried out to markets in the northern hemisphere.

Sippy Farm is now well established and, with the greater increase in annual production, will be well positioned to service the out-of-season northern markets," Douglas said. "The present management is prepared to continue under new ownership."

Tenders close on June 7.

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[West Australian, February 20 1990]

## Nuts to Halt Salt Project Rejected

A project which aimed to reclaim saline agriculture areas in WA with pistachio trees has been scrapped because the Federal Government's National Soil Conservation Program refused to fund it.

The NSCP allocated nearly \$1 million to fund 22 soil conservation projects Australia-wide for 1989-90. Nothing went to private organisations, according to WA Nut and Tree Crop Association president David Noel.

Mr Noel said only government departments and universities had received financial support from the NSCP.

The aim of the WANATCA proposal was to develop a pistachio species which would flourish in saline conditions, giving farmers a cash crop which would reclaim saline lands.

The association planned to plant 40,000 trees in salt-affected land trials in WA over a five-year period. The NSCP was asked to cover about 24 per cent of the estimated \$253,000 costs. The remainder of costs were to be covered by project participants and the WANATCA.

The NSCP reviewers dumped the project because:

- the WA Agricultural Department had not been consulted;
- there was "a great deal of competition" among submissions; and
- the funding sought "for 40,000 trees appeared to go beyond exploratory trials to almost commercial-scale operations".

Mr Noel said he thought the pistachio project "could have changed the face of the state in terms of saline conditions. The project had tremendous support from people in the

field".

"It attempted to tackle the salinity problem with vegetation while still giving a useful product — perhaps not immediately, but at least it would give the basis from which to work."

Principal executive officer of the NSCP Lindsay Nothrop said a range of expert views were formulated by the review committee which put together what it thought was the best value for Australia.

He said private individuals and consultant companies could receive research funding.

— Nick Stagg

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## Sandalwood Views

Quandong is pleased to reprint here a recent newspaper item about sandalwood, plus two 16-year old items taken from the archives, from 1974, the year the Association was founded.

*[West Australian, October 6, 1989]*

### Sandalwood Holding its Own?

Sandalwood cutting, one of WA's oldest industries, is alive and well in Shark Bay — thanks in part to the efforts of Garth Pinnegar.

Sandalwood cutting dates to the 1860s and has experienced fluctuating fortunes over the years. It is now protected by quotas and licences and is also benefitting from local conservation measures, including the work of Mr Pinnegar.

The Shark Bay local says he has fought long and hard to sustain an "honourable" industry which kept many families together during the Depression.

At its peak in the late 1800s, more than 3000 tonnes of the sweet-smelling wood was exported for the making of joss sticks and wood carvings. Oil from the heartwood was used in medicines, perfumes and soaps.

Mr Pinnegar says he can fill his 20-tonne sandalwood quota in about two months. So when seasonal work in the local building industry is quiet and there are no sheep to be shorn, he heads out to Nanga station to plant sandalwood seedlings.

"I've planted thousands over the past two years," he said. "And I no longer remove the stump from the ground but cut it off at the base and allow the tree to coppice. Experts said it wouldn't work but



*Garth Pinnegar gathers sandalwood with friend, Abba*

they've had to eat their words."

"Sandalwood is growing much faster than we are cutting it at Nanga, which makes it a long-term, viable industry".

[West Australian, March 18 1974]

## A FOREST IN HIS BACKYARD

**Mr Jim Vause, of Belgravia Street, Cloverdale, has 800 sandalwood trees growing in his backyard and he is running out of space.**

What began as a retirement hobby 10 years ago has become a year-round interest with a success rate that many botanists once would have thought impossible.

Sandalwood — the basis of the old incense trade with Asia — is widely distributed throughout WA's inland but only a few specimens were known to grow in Perth.

Sandalwood is parasitic, and the first seedlings hosted on six oleander bushes which they eventually killed. One group of saplings has almost destroyed a once-flourishing lemon tree.

The shortage of space on his quarter-acre block and the constant work tending the trees is getting too much for him.

He said: "When I started, I didn't really think I'd be around long enough to see the end of my work. But now that I'm 74 and I've succeeded, I don't know what to do with the results."



*Mr Vause with a mature sandalwood which has hosted on and almost killed a lemon tree*

Mr Vause, however, has trees 15ft high and last year he harvested more than 3000 nuts. He began his nursery with 100 nuts collected in the Leonora district.

"I was interested at first to see how long it would take them to grow and mature," he said. "But sometimes I think they've got out of hand."

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[West Australian, February 23 1974]

## FORESTS DEPT STARTS SANDALWOOD PROJECT

The Forests Department will sow 4000 sandalwood seeds near Kalgoorlie this winter in an attempt to set up Australia's only fullscale sandalwood plantation.

The plantation is being established after nearly 15 years' feasibility work at Dryandra, where experimental seedlings are now three feet high.

Silvicultural officer Owen Loncragan, who is in charge of the project, said it was planned to establish four plots at Kalgoorlie. Because sandalwood was a root parasite, suitable hosts — mainly jam trees and mulga — would have to be provided.

The plots would be fenced and unfenced, cultivated and uncultivated, to determine how the tree grew under natural and artificial conditions.

Sandalwood — *Santalum spicatum* — was once widely distributed throughout WA's inland areas, but without the department's careful licensing and management policy it would have become extinct.

In 1930, WA exported more than 131,000 pounds of sandalwood oil. By 1970 the figure had fallen to about a fortieth of this amount. The trade this year had declined to 100 tons of raw wood a month.

### Difficulties

The Kalgoorlie experiment had been held up by difficulties in getting seeds. The heavy rain last winter had produced the first good crop for many years.

Laboratory experiments had shown that

if the hard coat of the seed was removed from the kernel the germination rate could be doubled. Even under the best conditions, however, the germination rate was only half the seeds planted.

Though the arboretum would be started this winter, no-one knew how long it would be before the seeds would grow. Mr Loncragan thinks field conditions will be more erratic than in the laboratory or the nursery.

"We may not see any results until there is enough rainfall to provide for germination and establishment of the plant," he said. "This could be some unforeseeable time in the future."

### GRAFTED FRUIT & NUT TREES\*

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\*Wholesale Prices (20+ trees).



*A piece of sandalwood is examined by Mr Vic Laycock, foreman of the Australian Sandalwood Co., at Spearwood.*

Why, then, bother when there is no immediate economic gain?

As Mr Loncragan sees it, the answer is what conservation is all about. "We have to look after our natural resources and see that they don't become extinct," he said.

"It could be that in the future there will be a greater need for sandalwood. And if there is, we must know how it can be grown and how quickly, so that industry can decide whether it is an economic proposition."

— Alex Harris

*[West Australian, March 22 1990]*

## LAND DEGRADATION AWARENESS NEEDED

All West Australians should be more aware of land degradation problems and educated on the importance of sustainable land use, the Minister for Agriculture, Mr Bridge, said yesterday.

"This process is essential if government support for land conservation activities is to be maintained in the long term," Mr Bridge said.

"Governments, land users and the community must ensure that land care has a high profile in planning, not only for the future, but in daily activities, if the mistakes are to be reversed."

Mr Bridge was attending a workshop at the National Soil Conservation Conference.

The \$1.4 million national soil conservation program in WA would make a significant impact on land degradation and land management practices during 1990 and the Decade of Land Care, he said.

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[ACIAR Forestry Newsletter, March 1990]

## FORESTRY PROGRAM UPDATE

The ACIAR Forestry Program has two major thrusts. The first is the utilisation of Australian forest genetic resources, the second is the determination of low-cost methods to improve the productivity of trees through research into their nutrition.

The program has built on the excellent foundation provided over the past 25 years by the exploration and tree seed distribution activities of the Australian Tree Seed Centre of the CSIRO in Canberra. It has also built on the experience of soil biologists and other soil scientists who have worked on a continent where the majority of soils critically lack essential plant nutrients.

In 1983, prior to starting its forestry research program, ACIAR brought together Australian foresters familiar with forestry problems in other countries, and botanists conversant with the woody flora of Australia. They selected about 100 lesser-known tropical and subtropical tree and shrub species with potential for planting for fuelwood or other community forestry uses in a range of environmental conditions.

Using these selections of multi-purpose trees and shrubs as a guide, special seed collections were made throughout northern Australia for study in Australia and in partner countries. Now many species of *Acacia*, *Casuarina*, *Eucalyptus*, *Grevillea*, *Melaleuca*, and other genera have been successfully established in field trials in Australia, China, Indonesia, Kenya, Thailand and Zimbabwe to allow evaluation of their productivity and adaptability in a range of tropical soils and

climates. Complementary research has examined their propagation, silviculture, and use.

Many of the techniques developed for species used in industrial forestry are inappropriate for the multi-purpose species now being used in agroforestry and social forestry, and must be modified. Techniques for coppicing are particularly important where trees are cut regularly to provide fuelwood or animal fodder.

In addition to this silvicultural research, many species have been surveyed to determine their potential for producing essential oils that can form the basis for cash-producing cottage industries. Burning properties of the wood and fodder values of the foliage area are also being assessed (Boland, 1989). The latter studies complement research on the forage value of exotic shrub legumes, such as *Leucaena*, *Calliandra*, and *Gliricidia*, being carried out in many countries. All of this research will enable those responsible for selecting species in tree planting projects to make appropriate choices.

Genetic improvement of currently-grown trees and shrubs is also receiving attention. Two tropical acacias, *A. mangium* and *A. auriculiformis*, stand out in industrial plantations and social forestry programs in Asia. In Indonesia, Malaysia and the Philippines, *A. mangium* is widely planted,

and in Thailand, India, and China, *A. auriculiformis* is important. There is great scope for genetic improvement to raise the productivity of these plantations.

Vigorous natural hybrids of *A. mangium* and *A. auriculiformis* in Malaysia have triggered interest in obtaining desirable properties of both species through controlled manipulation. Mass propagation techniques being developed to raise large numbers of selected hybrids by vegetative means will allow immediate capture of all the gains in selected clones. Many countries should benefit from the new techniques as both species are being used increasingly in Asia and Africa.

In Pakistan, about 5.7 million ha of land on the Indus Plain suffer from water-logging, salinity and alkalinity. Agricultural production losses are estimated at US\$140 million per year.

Similarly, in northwest India about 20 million ha are affected seriously by salinity and alkalinity. Australia also faces increasing agricultural losses from salting. Growing salt-tolerant plants has often been

recommended to rehabilitate saline areas and to provide crops from what otherwise are, or will become, wastelands.

ACIAR-funded researchers aim to broaden the range of Australian tree and shrub species that are suitable for planting on such saline and sodic (alkaline) soils. They screen candidate species under controlled conditions in a glasshouse or phytotron and evaluate the most promising in field trials. Nutritional and other constraints that limit establishment and early growth on saline, sodic, and waterlogged sites are also being identified.

Another ACIAR project will help Indonesia to obtain silvicultural information needed to revitalise its sandalwood industry. Indonesia's priorities for developing the drier regions of its eastern islands include the expansion of this declining industry. Sandalwood oil and its byproducts have an assured market.

However, over-exploitation and severe regeneration problems have driven this native species, and the industry it supports, into serious decline. Other seasonally-dry

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countries in the region with an interest in sandalwood cultivation include Fiji, Samoa, Vanuatu, New Caledonia and Australia. Western Australia's sandalwood industry already exports annually about 1600 tonnes of wood of the local sandalwood, *Santalum spicatum*. The research will benefit sandalwood cultivation in northern Australia.

For successful establishment and growth, most trees depend on symbiotic association between their roots and soil microorganisms such as mycorrhizal fungi and nitrogen-fixing bacteria. The degree of dependency on these symbioses varies considerably, and introducing a tree species without its appropriate microorganisms may result in poor performance, or even failure. A joint Australian-Chinese project on increasing the productivity of *Casuarina* and *Eucalyptus* plantations in southern China, using selected microorganisms, has confirmed the potential to increase productivity by inoculating seedlings in the nursery with selected symbionts.

The research is concentrating on the nitrogen-fixing symbiosis between *Casuarina* and its associated *Frankia* species, but a small component also targets the ectomycorrhizal requirements of *Casuarina* and *Eucalyptus*. The researchers are investigating strains of the micro-organisms effective on different soil

types and under a range of environmental conditions, and are developing appropriate inoculation technologies.

They will transfer the relevant technology and selected microorganisms to collaborating scientists in other developing countries. The results will apply throughout the tropics where *Eucalyptus* and *Casuarina* trees are grown as exotics, and should be most conspicuous at low-fertility sites, where nitrogen is in short supply and the mycorrhizas can make phosphorus and other essential nutrients more available to the trees.

As to the future, ACIAR will continue to focus where Australian experience can most benefit reforestation programs in developing countries — that is, on the use of Australian trees and shrubs. The Centre is currently considering projects to intensify research on species for planting in tropical semi-arid areas and on highly acidic soils. The need to find ways of growing high quality hardwoods to substitute for timber now being harvested in Asia's diminishing tropical rainforests is another area being appraised.

[See Boland, D.J. (1989). *Trees for the Tropics: growing Australian multi-purpose trees and shrubs in developing countries*. ACIAR Monograph No. 10. 247pp.]

— **John Turnbull & Heather Crompton**

(Australian Centre for International Agricultural Research, GPO Box 1571, Canberra, ACT 2601)

### USEFUL TREE SEEDS FROM CHILE

Good range of seeds of fruits, nuts, and other useful trees from Chile.  
Many should be suited to Western Australia.

Contact **Jan Correa** for list at:

Casilla 53027, Correo Central, Santiago 1, Chile

[Weekend Australian, April 14-15 1990]

## Grow-your-own cluster farms

**An unusual horticultural project, based loosely on the cluster farm concept, is poised to set a new standard for city-based farming.**

Called Teal Park, the West Australian enterprise will allow investors to develop their own horticultural venture using the expertise and resources of a shared management group.

Investors will own their own land—rather than just a share in a farm—and will have control over production.

Earmarked for Gingin, an hour's drive north of Perth, Teal Park is for city investors who want to be in control but cannot afford to set up their own operation with their own farm manager.

will be farmed by Lomont's trading and management entity, Teal Park Management.

The 18ha to 20ha lots will be developed and managed under individually negotiated 10-year management agreements.

The mix of produce to be grown on each lot will be the choice of its owner. Lots will



*The Teal Park homestead at Gingin, north of Perth*

The venture is being developed by Perth company Lomont Pty Ltd., which will release 18 lots on to the market later this month.

Totalling 422ha, Teal Park comprises rural lots bounding a 68ha central core, which

cost from \$140,000 to \$200,000.

The Manager will provide a consultancy and advisory service to help investors make the right decisions, as well as a labour and machinery pool for the establishment,

management, harvesting, and marketing of all horticultural crops and primary production enterprises.

Teal Park Management will be remunerated for the services it provides on a "cost-plus" basis for all work performed, together with a management fee calculated as a percentage of gross sales of produce.

Lomont says the management fee structure will provide incentive for it to maximise production and sales of produce — an element that has been lacking in many farm agreements.

Lomont's directors are West Australian horticulturists and business people.

The initiator of the project is Mr Don Cameron, who is practising horticulture in the Gingin area after holding senior executive positions during a 30-year career with Co-operative Bulk Handling Ltd.

He describe Teal Park as "taking the risk out of rural investment".

Other directors include Mr Sandy Pate, the creator of Jennings Industries Ltd's former experimental farm near Enneabba, north of Gingin, and Mr Barrie Vaughn, who runs a successful wildflower seed business out of Gingin.

Mr Pate will be the on-farm manager.

Mr Cameron said that a great deal of research had gone into structuring Teal Park to ensure it rewards both the investor and the operator in the long term.

"I looked at all the cash-box type of rural investments which had failed — the type that needed equity investment on a shared basis," he said. One factor he found lacking in these schemes was shared risk.

At Teal Park, the manager shares some of the risk with the investor, as the

management's fee is calculated according to crop profits.

"If crops don't perform, the management company doesn't get a feed," Mr Cameron said.

Unlike investors in most cluster farm projects, Teal Park investors will maintain a sense of control over their investments.

As well as being able to choose their crops, under Teal Park's management agreement "the owner doesn't pay for anything he doesn't approve of". Mr Cameron said. "We're locked into a budget that he's approved".

Investors are also protected if the management group disintegrates.

As they each own a title to land, there is no complicated untangling of shares in a property. All they lose is the management agreement.

— Louise Schofield

## WELCOME TO JOHN VERHEYEN

WANATCA is always pleased to welcome new members, but we have special pleasure in noting that membership was taken up at the beginning of this year by John Verheyen.

John has recently taken possession of Barbados Valley Tropical Fruit Farm, situated on the Moore River about 60km north of Perth. Barbados Valley is probably the most advanced plantation of exotic fruits in Western Australia.

The plantation has some hundreds of lychee, longan, and casimiroa (white sapote) trees, which have now commenced producing. It also has plantings of avocados and low-chill stonefruits.

The samples of casimiroas which were handed out to those who came to the last WANATCA meeting in February, by member Otto Dik, were donated by Barbados Valley. They were delicious! Wilf Prendergast already has 3 seedlings growing from the pips.

This year's crop of white sapotes was the first which John Verheyen has marketed commercially, and he is anxious to raise public awareness of this very promising crop. Please contact him if you have suggestions or experience in this area.

John has promised to consider a WANATCA Field Day on his property 'when he has got it straighter'. We look forward to this chance in the future.

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## Letter from China

[To Ian Fox]

January 20, 1990

*I apologise for the delay in replying to you, but my work (studies on early bearing*

*and high yield in jujube) keeps me quite busy. This work will be finished by the end of this year.*

*I have prepared a packet of jujube seeds and mailed it to you yesterday. The packet contains *Z. jujuba* and *Z. spinosus* Hu.*

*Seedlings of *Z. spinosus* are suitable as stock to graft fruiting jujube next year, propagation can be made rapid in this way.*

*The seeds have passed China's quarantine, the phytosanitary certificate is in the postal packet.*

*This spring, after treatment in damp sand (temperature, 2-7°C; humidity, 50-80%; time, 60-100 days), the seed can be sown. This is a test.*

*If you need information on jujube or other help, do not hesitate to contact me. I shall try my best.*

— **Chen Peng**, Dept. of Pomology,  
Chinese Academy of Forestry, Wan  
Shou Shan, Beijing, China

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[The Countryman, April 5 1990]

## CARNARVON COUPLE SET TO MAKE WA HISTORY WITH JOJOBA CROP

**Chris and Paquita Boston are set to make history this month when they finish their harvest of jojoba beans.**

The Carnarvon couple believe they will be the first people in WA — and the second in Australia — to commercially sell the product, which is widely used as a substitute for sperm whale oil.

The oil from the jojoba bean is used to make cosmetics and is growing in popularity as a beauty product.

The Bostons are pioneering research into jojoba (pronounced ho-ho-ba) in WA, as few independent people are growing the trees.

Their 4ha plot on the north bank of the Gascoyne river has been portrayed by some as “the embryo of an industry”. Although few world experts have visited the plantation, some have described its results as outstanding.

Mr Boston attributed the success of the crop to the Carnarvon climate, and said jojoba was an agricultural success in the region.

“Potential for jojoba oil reaches far into the semi-arid Gascoyne station country where pastoralists could use cropping as a complementary enterprise to wool,” Mr Boston said.

“Carnarvon has a hot summer and cool winter. Further north of the Gascoyne the climate is not cool enough in winter to



*Chris and Paquita Boston with a 2m jojoba plant. The Bostons have more than 8000 jojoba plants on their 4ha Carnarvon plantation*

trigger flowering, and further south it is too cool for plants to grow all year.”

The Bostons’ Emerald Plantation boasts 10.5km of jojoba hedge in 60m rows, many of which are interspersed with asparagus — a fast

growing, high income crop which complements jojoba bean production.

At present, a harvest of seed from the 8000 jojoba females would be worth about \$100,000.

Seed weight collected from each tree increases for the first 10 annual harvests, and inferior plants are being culled.

Mr Boston said management costs associated with growing jojoba were low once the plant was fully grown.

He converted a vacuum roadsweeper bought from the Wanneroo Shire Council into a harvester which picked up seed from under the tree with a 'long elephant trunk'. The drum and blower of a grain harvester were used as a huller to separate seed from other materials picked up through the vacuum.

The Bostons describe their small acreage of jojoba as their strength.

They said it enabled them to nurture the plants through their youth, and they would reap the monetary benefits of that care.

Culling inferior plants had been their main aim because they grew the trees from seeds, but they said cuttings from superior plants

could be available to other growers in the future.

The Bostons' success has not come without hard work and experience.

Mr Boston hails from England, where he gained a National Diploma in Agriculture. Mrs Boston has a Bachelor of Science, majoring in Botany, from Adelaide.

They lived in Papua New Guinea for 12 years, growing cattle and coffee in the highlands, and peanuts, sorghum and cattle in the lowlands near Lae.

Emerald Plantation yields a wide variety of other crops, including paw paw, sweet corn, passionfruit and mangoes.

The jojoba plant is native to the Sonoran desert of Arizona, California, and Mexico, and is also grown on a broadacre scale in South America, South Africa and the Middle East.

In the United States the plant has been fondly named the 'Whale of the Desert'. But in Australia its reputation has been tainted.

"The history of jojoba oil production on this continent has been plagued with disasters and disappointments," Mr Boston

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said.

Anxious to make money out of what was then thought to be a 'quick cash' crop, entrepreneurs secured shareholders who invested millions into big projects. Almost all of them failed.

"They had stepped into a field traditionally ruled by farmers, and many lacked the necessary know-how to grow the crop," Mr Boston said.

"A lot of people have also tried to grow jojoba where they want to live, instead of where the plant is most likely to flourish."

Throughout Australia, abandoned plots of Jojoba — some unwatered yet bearing small amounts of seed — testify to the failure of speculators who have unsuccessfully tried to grow the trees.

"Developing Jojoba is a race against time." Mrs Boston said.

"If jojoba is grown in marginal environments or in ignorance, the patience of bankers and investors wears out long before the first harvest.

There are more problems associated with growing Jojoba in Australia.

"The lack of secure land tenure is a disincentive for pastoralists who want to produce the beans on their country," Mr Boston said.

"The 99-year pastoral leases in WA will expire in 2015, and this discourages investment in permanent tree crops."

"Carnarvon used to be a producer of sperm whale oil and an industry which could produce it again without killing whales would be most apt," Mrs Boston said.

The two leading researchers into jojoba

in Australia are NSW Agriculture and Fisheries Department senior agronomist Peter Milthorpe, and private grower Dr Bob Dunstone, who was formerly a CSIRO researcher.

They have been developing and selecting suitable varieties of the plant for the Australian climate during the past 10 years.

Both agreed the Bostons were leading the way in jojoba production in WA.

"There have been plantations from Cairns around the south coast to Carnarvon, and very few have succeeded," Mr Milthorpe said.

"This could be attributed to the lack of research completed on the plant, but there is now increasing amounts of data being compiled."

Mr Milthorpe urged prospective growers to hold back on production until further experimentation with jojoba had been completed.

But Dr Dunstone said the time was ripe for investment in the tree crop.

"There is now sufficient information and data and world-wide demand and supply of the oil shows it is a worthwhile investment," he said.

"There were 40,000 acres planted in Arizona, California, and Mexico, but lack of research and low yields have forced many growers out of production."

"There is now only 9000 acres of jojoba, and there is insufficient supply to meet the market."

The Bostons agreed that the demand for Jojoba was enormous. They have had enquiries from Japan for container loads of the oil.

— *Anne-Marie D'Arcy*

**LETTER ABOUT NATIVE FRUITS**

[To David Noel]

December 11, 1989

I enclose a copy of my manuscript on edible fruits of Australian *Syzygium* species.

From my enquiries, it seems that *S. luehmannii* has enormous potential as an economic crop; the demand appears to outstrip the supply even at this stage.

I have spoken to the person growing this species in plantation, and he is able to supply nursery stock to potential producers, given a 12-month advance order.

— *Dr Peter G Wilson*

(Royal Botanic Gardens, Mrs Macquaries Road, Sydney, NSW 2000)

## Tree Crops Centre introduces R\*O\*D Books

How many really useful older books on tree crops are there which are no longer available, but you would love to have for the information they contain? Because of the economics of publishing, there are many highly useful books for which there is no commercial prospect of a reprint.

The Tree CArops Centre is addressing this problem with a new approach called R\*O\*D

Books (for Reprint On Demand). Each book made available is produced from a photocopy of the original, which is adjusted in size to fit on a standard A4 sheet, usually with 2 original pages per sheet. The sheets are glue-bound on the left-hand side, with a soft cardboard cover.

Each sheet is printed only on one side. The format is unusual, but has been found to be the most readable form of reproduction, combined with realistic costing.

All R\*O\*D books are produced under Copyright Control, that is, they are either items which are not subject to copyright, or a copyright agreement has been concluded with the owners of the copyright.

The first two R\*O\*D titles are now available, and are available through Granny Smith's Bookshop at the stated prices:

1. *The Asiminal American Pawpaw Collection*. Based on the classic California Rare Fruit Growers Yearbook compilation. Approx 216 pages. \$23.60 (Ref. R01A).

2. *Sturtevant's Edible Plants of the World*. The most comprehensive work on the subject. Approx 710 pages. \$77.00 (Ref R02S).

Readers who would like to obtain copies of other out-of-print books in the tree crop area are invited to send their requests to the Tree Crops Centre.

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[Extract from a QDPI Farmnote]

## MACADAMIA NUTS — COSTS AND RETURNS

Production of macadamia nuts in Australia increased from 262t in 1975-76 to about 6000t in 1987-88, of which approximately 60% was produced in Queensland. The total value of production increased at a faster rate, from \$0.2M to \$21M, because of higher prices received per kilogram of nuts. The industry in NSW has expanded at a similar rate to that in Queensland. This is shown in Table 1.

The macadamia nut industry is still expanding. In 1975-76, the total number of young trees planted in Queensland exceeded the total number of bearing trees (over 6 years old). The situation was similar in 1987-88, despite an almost fourfold increase in the number of bearing trees. Macadamia nut production is expected to double during the next 6 years as bearing trees reach maturity and young trees start to bear.

Over the past 10 years the price of macadamia nuts has fluctuated from \$1.50/kg to \$4.00/kg, nut in shell. Since the price of nuts has a significant effect on profitability, prospective investors should use the expected long-term price, and not

the current price, for budgeting.

The high nut prices of the past two years are the result of a combination of factors, including a shortfall in supply, high overseas demand, subsequent competition between processors for nuts, and the low Australian/US exchange rate.

With a floating exchange rate, the Australian currency can move up and down according to market forces. These movements may be fast, slow, regular, or irregular. As the movements occur there will be a corresponding, though not necessarily proportional, effect on nut prices.

The effect on prices will depend on the extent of the movement, the buffering effect of action taken by the manufacturers, and the time of year.

Australian macadamia nut production constitutes a very small part of total world nut production. Most of the Australian crop is exported.

It is anticipated that, because of strong demand for these nuts, prices will remain firm.

The current level of profitability of Australian macadamia nut production largely depends on the value of the Australian dollar remaining below US\$0.80.

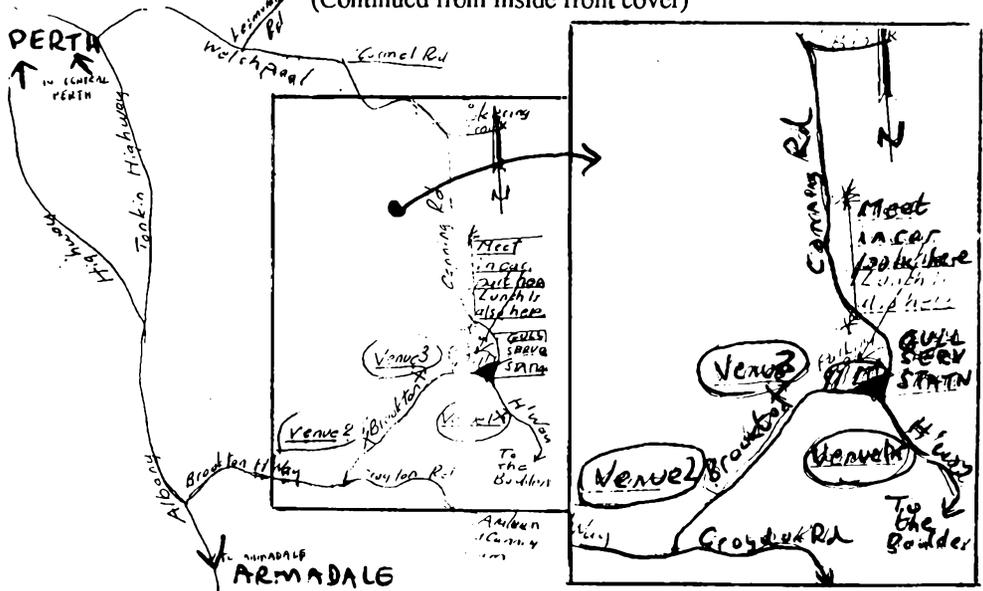
— Richard K.Thew & Noel T.Vock

Table 1. Macadamia production statistics for Australia (industry estimates)

	Total no. of trees	Trees <6 yr	Trees >6 yr	Prod- uction tonnes	Price \$/kg	Estim. gross value \$m
<i>1975-76</i>						
Qld	140,940	77,870	63,070	262	0.72	0.19
NSW	84,670	60,500	24,170	57	0.85	0.05
Aust	225,610	138,370	87,140	319	0.74	0.24
<i>1987-88</i>						
Qld	528,397	291,696	236,721	3,600	3.50	12.60
NSW	409,070	152,932	256,138	2,500	3.50	8.75
Aust	937,467	152,932	256,138	2,500	3.50	21.35

## Field Day • Sunday May 20 • Karragullen Area (Perth Hills)

(Continued from inside front cover)



**10.00.** Assemble in the parking area of the Gull Service Station at the junction of Brookton Highway and Canning Road, Karagullen (see sketch map).

**10.15.** To Venue (1), an easy walk 200 metres southeast. We are now the guests of Mr Nando Civo, a prominent fruit grower.

The special feature is a young planting of persimmons of non-astringent (sweet) types. The 4-year old trees have been a picture. They have grown strongly and are cropping well.

The main variety is 'Fuyu', the leader in the new types of persimmon. Fruit is picked as it develops a full orange colour. The texture is then sweet and crisp, but the fruit improves if left a few days before eating.

**11.30.** On to Venue (2), some 7-800 metres back down the Brookton Highway towards Perth. Here our host is Bill de Bont.

An outstanding Chestnut tree with a prodigious cropping history is the highlight here.

**12.15** Return to Gull Service Station for lunch in their Picnic Area.

**1.00** Move to Venue (3), within easy walking distance of Gull. This is a fine young apple orchard owned by Mr Eric Ghillarducci. You will see how new planting and tree-training methods are being used to reduce costs and improve quality.

**Suggestions to Bring:** Picnic lunch, folding chair, raincoat or umbrella in case of rain.

**Afternoon Tea?** For those interested, an excellent afternoon-tea picnic spot is at 'The Boulders', some 10 km southeast along Brookton Highway.

# West Australian Nut & Tree Crop Association (Inc)

PO Box 565 Subiaco WA 6008 Australia

## EXECUTIVE COMMITTEE 1989

David Noel (President)	385 3400(W) 381 7341(H)	Amos Machlin	444 4609
Milan Mirkovic (Vice-President)	420 2341	Bill Napier	399 6683(H)
Lorna Budd (Secretary-Treasurer)	458 5918	Alex Sheppard	451 3144(W);
David Turner (Yearbook Editor)	380 2415(W) 387 6057(H)		446 2316(H)
Don Findlay	362 5744(W) 458 2468(H)	Neville Shorter	450 5606
Alex Hart	490 1324		

## ACTION GROUP LEADERS

**CHERRY:** Neville Shorter, 450 5606 (2/9 Clydesdale St, Como 6152)

**FIG:** Alex Hart, 490 1324 (71 Terence St, Gosnells 6110)

**JUJUBE:** Ian Fox, 354 3131/H, 380 2571/W (15 Stringybark Ramble, Willetton 6155)

**MACADAMIA:** Wilf Prendergast, 384 3047 (PO Box 291, Claremont 6010)

**PECAN:** Amos Machlin, 444 4609 (38 Hartwell St, Mt Lawley 6050)

**PISTACHIO:** Tom Bateman, 401 8138 (4 Lygnern Cres. Kallaroo 6025)

**POMEGRANATE:** Marius Loeffler, 097-33 5220 (P.O. Box 22, Yarroop 6218)

## CALENDAR OF FORTHCOMING EVENTS

1990

- May 8,15,22,29      §Post Harvest Management of Horticultural Produce in the Market — Seminars at Market City
- May 16      Wed      \*General Meeting (Sandalwood and Quandong — Diana Barrett)
- May 20      Sun      Field Day, Karagullen etc.
- Jun 1-3      §International Plant Propagators Society Conference, Perth
- Jul 10      Tue      Executive Committee Meeting
- Aug 15      Wed      \*General Meeting (Winning the War against Fruitfly — Jim Scott)
- Sep 9-14      §ACOTANC-90: 5th Australasian Conference on Tree and Nut Crops, Berri, South Australia
- Oct 9      Tue      Executive Committee Meeting
- Nov 21      Wed      \*General Meeting

\*General Meetings are held at the Naturalists Hall, 63 Meriwa Street, Nedlands, starting at 7.30pm. These meetings usually include a current magazine display.

§ For contact details refer to the Tree Crops Centre

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