



# Quandong

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

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**Bush Tomato** (*Solanum Centrale*) (See: About the Cover, p. 2)

Quandong • Fourth Quarter 1996 • Vol 22 No 4

**NEXT MEETING(AGM): Wednesday November 20: 7.30 pm**

At this meeting we have the rare opportunity to hear and talk with with Roger Meyer, one of our California members. Roger is an expert in various unusual fruits, he will give a presentation on:

**Jujubes and Rainbow Kiwis**

This will be Roger's second trip to WA, he has timed it specially to be able to talk to a WANATCA meeting — certainly an opportunity not to be missed.

**VENUE.** WANATCA meetings for 1996 will be at the Kings Park Theatre Room, Fraser Avenue, Kings Park. **Full details on the attached leaflet.**

*No charge to attend. Visitors Welcome. Queries to Tree Crops Centre on 385 3400.*

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**About the Cover**

The cover illustration shows the Bush Tomato, *Solanum centrale*, from *Flora of the Kimberley Region*, edited by J.R. Wheeler.

Bush Tomato is only one of some 104 species of *Solanum*

native to Australia (according to R.J. Hnatiuk's *Census of Australian Vascular Plants*). Obviously the breeding and selection opportunities are huge. See the article on Bush Food on page 25 of this issue of *Quandong*.

*Material appearing in Quandong is the views of the authors. It is offered in good faith, but neither WANATCA nor Quandong take any responsibility for any use of this material.*

## Growing Lychee in Perth Conditions

The following information on Lychee was derived from a talk given to WANATCA by Dr Sujit Dey, our local lychee expert, in November 1994.

### Varieties suitable for Perth

Choose varieties like Kwai May Pink (Bosworth 3), Kwai May Red (Bosworth 10), Bengal, Haak Yip, Tai So, Brewster, etc. Low vigour varieties like Wai Chee and Salathiel (No Mai Chee) may not be suitable for Perth and its surrounds. This is being investigated further.

### Planting

Best time to plant is in October/early November

1. Select the sunniest and warmest spot sheltered from wind. Or else provide wind shelter

2. Dig a hole about 500 mm x 500 mm and 500 mm deep

3. Mix this soil with 10 litres of compost or other organic matter, 10 litres of rotted (Definitely not fresh) chicken manure and 200 g super-phosphate. Refill hole. Best if this can be done three months in advance.

4. Treat the root system carefully. They are very brittle. If damaged can set the tree back or even die.

5. Place the plant in hole at the same soil level as it was in the pot. Any deeper may cause collar rot.

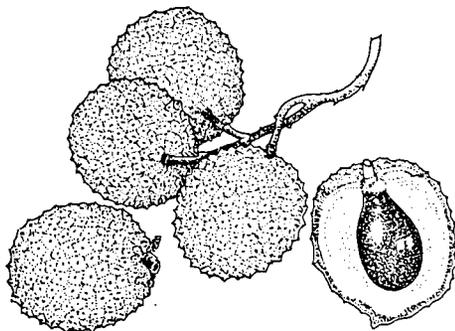
6. Securely tie to a stake. Make sure plant does not rub against the stake

7. Mulch the tree surround heavily. Keep mulch away from the stem

### Watering

Water from about September to May (or till the start of rain).

1. In year 1, apply about 10 litres a day



2. In year 2, apply about 10-15 litres a day

3. Increase progressively with years till at year five or so when the tree starts fruiting, apply about 30 to 40 litres a day. Best if this water can be delivered over a period of say half or one hour.

Avoid overhead watering, this causes salt burn — young plants remain stunted and sometimes die. If using sprinklers, install low trajectory nozzles

### Feeding

1. Year 1. When plant starts to flush (grow leaves) apply 30 g of urea every month and 30 g NPK Blue every three months during the growing season *only*.

## Hazelnut Varieties

Hazelnut Farm, Balingup WA

(Members of WANATCA)

PO Box 15, Subiaco WA 6008

Phone 09-388 1121 (after hours).

2. Year 2. From October to April apply 40 g urea every month plus 40 g NPK Blue

(with trace elements) every three months. Also apply 15 litres of rotted chicken manure.

3. Increase the above quantities by 10 g for every year of growth till the tree is of fruit bearing age at year 4 or year 5 (depending on the growth rate) In addition to the above apply 20 litres of rotted chicken manure, once each year to year four or five.

4. Bearing trees (Year 4 or 5 and onwards) require much more feeding; about 500 g for every year of growth to say 5 kg of NPK Blue for a 10 to 12 year old tree. The timing of fertilizer application for bearing trees is critical. Divide the total amount into thirds. Apply first third at flowering (around September for varieties like Tai So and Bengal), the second third at fruit set (around mid November) and the last lot about 2 weeks before fruit pick (around mid January for Bengal and Tai So)

NOTE: a) Always water in the fertilizer. b) Keep fertilizer away from the stem. c) Fertilize up to and just beyond the dripline. d) Too much fertilization can kill a lychee tree.

#### *Critical hints*

1. Newly planted lychee trees need protection from hot and cold wind, frost and excessive light in summer. In summer best protected by 50% shade cloth wrapped around 4 stakes erected in a square of one metre apart. Also cover the top. For winter, replace the shade cloth by transparent plastic material. Protection should be provided for at least two years.

2. Lychee trees need extra zinc, boron and copper. Foliar spray with 1 or 2% solution of zinc and copper sulphate every 2-3 months and 2% borax spray every 1-2 years.

3. Foliar spraying with 2% urea solution

once at flowering and once at harvest is beneficial for fruiting trees.

4. Do not allow the tree to produce fruits for the first 3 to 4 years. It suffers adversely if allowed to. Nip off the flower panicles when they appear.

5. Swiftly control scale insect infestation and leaf eating insects (especially on young trees) by the use of a standard pesticide.

6. Heavy mulching does wonders for lychee trees.

7. For fruiting trees in Perth, suggest not to use too much organics.

8. Apply ..handful of ammonium sulphate occasionally. This keeps soil pH down.

Good Luck and please do not forget to send some fruits my way!

— *Sujit Dey*

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or phone

John, Linda Price: 09-497 2302

Bill Napier: 399 6683

# China has lessons for Australian olive growers

*Book Review by David Noël*

**China: Development of Olive Production. Report of a study tour in the People's Republic of China, 1979.** Published by *Food and Agriculture Organization of the United Nations*, Rome, 1980. 163 pages, paperback. \*\$29.95.

Only a proportion of the books I buy in as potential titles for the Granny Smith Bookshop service actually make it onto our stocklists. To succeed, a new title must have something going for it, it must cover a topic well, or cover an area on which there is very little published. So I buy single copies of quite a few titles which never go beyond my private bookshelves.

So when we were placing an order with FAO for a range of interesting titles (for examples, see the Granny Smith ad on page 31), one copy of the above was included. An unpretentious production, based on typescript, it seemed fairly routine when I opened it. Before it arrived, I even thought it might deal with a fruit called 'Chinese Olive', available from some Asian food stores, which is from a Pili-nut relative *Canarium pimela*. But no.

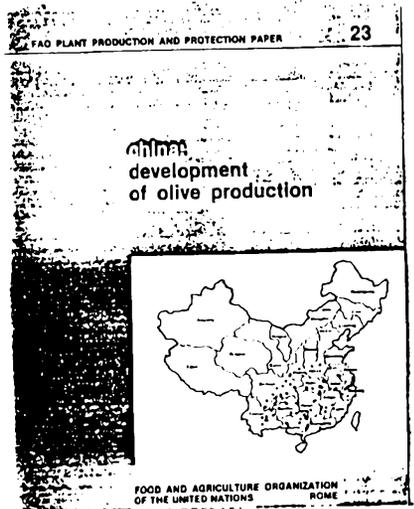
Dynamite! As I went through the text describing what the survey team had found on their visit to olive-growing sites, some of the implications of what had been found and said started to come out. This book could change the face of olive research and production in Australia.

The very ancient art of olive growing was developed almost entirely in the Mediterranean region, based on the local species of *Olea*, *O. europaea*. China formerly had no olive oil industry at all, only in the early 1960s was an effort begun to establish one, interestingly enough as a successor to a little-known local oil species, Tea-Oil Camellia. Research efforts on the latter had been unable to raise production

levels above 40 kg per hectare, and this was quite insufficient for China's needs. So an intensive effort was made to establish a number of oil-plant industries, including olive.

China's R & D efforts and successes were established against an agronomic background very different to that of the Olive's Mediterranean home. Some of these differences were:

1. China essentially has a summer-rainfall climate, the opposite of the winter-rainfall conditions of typical 'Mediterranean' countries. (Australia has major east-coast areas much more China-like than 'Mediterranean').
2. China has developed a number of dwarfed olive varieties. (Modern tree crop producers are always looking for dwarfing varieties, which typically bear earlier and can



produce bigger crops per hectare).

3. China imported improved varieties from a number of countries, but the biggest number came from, firstly, Albania, and secondly, Russia. This not only gave them a big range of genetic material, it included some varieties able to cope with extremely hard conditions (maybe genes for a major Tasmanian or New Zealand olive industry?).

4. The Chinese successfully produced oil olives from selected varieties grafted onto a local wild species of *Olea*, *O. cuspidata*.

This last point (4) may seem interesting but not very important, in actual fact the implications are huge. Most olive trees propagated in Australia are from cuttings. The Chinese carried out yield trials with a particular variety ('Frantoio') propagated in 3 ways:

A) Cuttings, on own roots;

B) Grafted on to seedlings of European olive, *O. europaea*;

C) Grafted onto the local species, *O. cuspidata*.

Average annual production was measured at: (A), 2.2 kg; (B), 4.0 kg; (C), 6.4 kg — that is, doubled production through grafting onto European olive, and tripled yield by grafting onto Chinese wild olive! These figures have enormous implications for the economics of an olive oil industry.

Even more interesting for us, Australia also has a wild olive species, *Olea paniculata*, widely distributed right from humid northern coastal Queensland down to inland central New South Wales ('western central slopes'), also on Lord Howe Island — a big environmental range of genetic material waiting to be exploited!

Another difference with Chinese growing methods is the huge amount of organic material they use for fertilizer/mulch — up to 40 tonnes per hectare for olives, and as much as 135 t/ha for some crops. An extract from the book on this topic is reproduced elsewhere in this issue of *Quandong*.

All in all, the concepts in this book could lay the foundation for a major 'Great Leap Forward' in olive research in Australia — use of dwarfing varieties, use of local-species rootstock, use of massive-mulch fertilization, and use of humid-summer or frozen-winter varieties to extend commercial range.

Moreover, Chinese research organizations are generally most helpful and cooperative in the provision of genetic material, especially if they can be offered something in return. There could be many whole research careers in this area.

*\*Price from Granny Smith's Bookshop (see ad p. 31).*

## Developing fat-free nuts

I finally managed to lose 18 kilos after months of eating low-fat foods, but still had a way to go. Browsing in the snack aisle at the supermarket with my wife, I came upon salted peanuts and cashews.

"Why can't someone develop a fat-free nut?" I lamented. My wife replied, "I'm working on it, dear."

— Ronald Austin

[David Noël: This snippet from *Readers Digest* was sent to me by Lorna Budd — I'm sure she didn't mean it personally.]

[Weekend Australian / 1996 Oct 26-27]

## Non-fuzzy kiwifruit on the way

**Commercial cultivars of non-fuzzy kiwifruit are expected to hit the market within the next two years after successful trials by New Zealand plant breeders.**

Small and sweet-tasting, the fruit can be eaten without peeling, solving one of the main marketing drawbacks with conventional kiwifruit.

It is one of several new varieties that have been kept under wraps, apart from testing within the industry.

With the first vines in the ground, the New Zealand Horticulture Research Institute (Hortresearch) has decided to introduce it to the public.

About the size of a large cherry and completely hairless, the actinidia arguta species comes in red or green, and cultivars bred from it initially will be aimed at a small niche market in New Zealand and overseas.

And, according to scientist Dr Greg Pringle, it will be marketed under the brand-name Zespri, along with all future commercial cultivars of the kiwifruit family, but marketers will probably have to find a suitable generic name, such as "kiwigrape".

In the South Island of New Zealand, Kotinga Kiwifruit Partnership, of Golden Bay, has been marketing red, pink and green arguta fruit from the species — rather than the scientifically bred commercial selections — for six years at more than double the price of larger, traditional varieties. Initially they were labelled as "cocktail kiwifruit".

Dr Pringle said the arguta plants were introduced into New Zealand in 1955, but

commercial interest was aroused only in the 1980s through Hortresearch's plant-breeding efforts on behalf of the Kiwifruit Marketing Board.

Its taste? Dr Pringle said grape and feijoa flavours were common — "and some of it even tastes like kiwifruit".

The new variety would not replace the conventional Hayward kiwifruit. "It will just be another string to our bow," Dr Pringle said.

— NZPA

*[Not very much is available in print on these kiwifruit relatives. The best source is probably Kiwifruit Enthusiasts Journal 6 (available at \$27.45 from Granny Smith), which has a good photo of many different types of these fruits. In addition, Kiwifruit Handbook from California, by Daniel Johnson and others (Granny Smith, \$19.95) has 9 pages by Paul Thomson on Other Edible Species of Actinidia].*

### Assistant Editor for 'Quandong'

*WANATCA would like to hear from anyone interested in helping with the editing of Quandong magazine. Initially this would be as Assistant Editor, working with David Noël, but with the aim of eventually taking over as Editor.*

*WANATCA may be able to make available equipment (Macintosh computer, laser printer) so that the Assistant Editor could do much of this work in their own home. They would also have use of this equipment for their own purposes.*

*Please contact David Noël on 388 1965 if you would like to discuss the position and work involved.*

[The Cracker / 1996 Sep]

## Pecan Varieties in Israel

**The first pecan trees were introduced in Israel in the early 1930s. During the 1930s and the 1940s, several dozen U.S. variety grafted trees were imported, some by private initiative and others by the British government.**

The first were *Delmas* and *Moneymaker* and later *Burkett*, *Western Schley*, *Mahan*, *Onliwon*, *Govette*, *Halbert*, *Success*, *Stuart*, *Desirable*, *Big Z*, and *Garner*. Some of these varieties were imported from an Australian nursery, but most of them, and all the later pecan varieties, were brought from the U.S.

Small commercial pecan orchards were originally planted in the early fifties, but increased considerably in the mid-fifties because of: a vast planting of tree crops in general at that time; high prices in the local market; no pests; low costs of orchard maintenance; good adaptability of trees (mainly the *Delmas*) at available planting sites on mostly heavy soils.

Pecans reached 300 hectares in 1960 and 1300 hectares in 1970. First, *Delmas* and *Moneymaker* were the prevalent varieties. Later, *Burkett*, *Western Schley* and *Mahan* were added to commercial plantings. The selection of varieties was based mainly on their higher yields among the older trees of the first introductions; the other varieties were inferior in production in those older trees of the first plantings, and only *Desirable* was later selected for planting (as a pollinizer only).

In 1966, new introduction of pecan varieties was started, and continued for three to four years. 1970s plantings already included the varieties which appeared more promising: *Wichita*, *Apache*, *Choctaw* and *Mohawk*.

In the early 1970s, additional experimental plots for varieties performance were established. A central modern processing and

packing house was built by a cooperative, and mechanical harvesting machinery was introduced. Yearly planting increased considerably, reaching 2500 hectares in 1975, with a national pecan crop of 1500 tons (produced on 1000-1300 hectares of bearing age).

During the late 1970s, Israeli pecan orchards suffered serious setbacks due to a new pest, the Yellow Aphid, which caused severe damage.

Other problems included aging of the orchards, consisting mostly of small plots of one or two hectares; constraints in full mechanical harvesting and damages caused by overcrowding of the trees, which increased shading and decreased nut quality and quantity; and reduction in growers' prices.

So, planting pecans came to a complete stop in the early 1980s, and orchard removal increased annually. In 1992, the estimated area was reduced to only 700-1000 hectares.

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It should be noted that the variety experimental plots of the fifties, the sixties and the seventies do not exist any more. They were also removed, after a reasonable period of data recording. No survey has been made to completely verify which and where the less promising varieties in the above plots still exist in Israel.

Despite the decreasing area of pecans, introduction of new varieties continued in the eighties, which included *Cape-fear*, *Tejas*, *Sumner*, *Kiowa*, *Pawnee*, *Maramec*, *Sullivan*, *Grabohls*, *Graking*, *Shoshoni*, *Gloria grande* and others. They were all planted in one plot, including "reference" trees of commercial varieties, as well as some of the 1966-68

introductions: *Cherokee*, *Kernoodle*, *Pensacola cluster*, *Harris Super*, *Comanche*, and *Mahan x Odom*. Some of the new varieties already look promising. They have not yet been tested on a commercial scale and the present local trend is, unfortunately, not in favour of new planting.

Presently, the following varieties can be found on a commercial scale in the remaining pecan orchards: *Delmas* (50-60 percent), *Mahan*, *Moneymaker*, *Western Schley*, *Apache*, *Choctaw*, *Mohawk*, *Desirable* (pollinator), *Wichita*, and *Burkett*.

—*Shaul Homsky*, Ministry of Agriculture, Israel

## New hot-water approach to orchard weeding

An interesting item seen at the **Karragullen Field Day** was 'WILT-A-WEED', a system for killing weeds (in orchards and elsewhere) through applying hot water to them.

Being demonstrated was a large diesel-powered, trailer-mounted unit which produces hot water feeding into a hand-held wand. This has an application head like a small vacuum cleaner in appearance.

This approach is chemical-free and environmentally friendly, and importantly, seems very effective. The application head can be brought in close to a tree trunk to kill the weeds; with a fruit tree of any size the bark and deep roots seem to shield it from even direct hot water flow. It works with tough, deep-rooted grasses, though.

applying steam to weeds myself, so I asked Jim Trandos, the demonstrator, whether borrowing a steam iron and running it over the weeds in my driveway would work. Jim said that the heat content of steam was too low to give good results; their unit could easily be notched up to give steam instead of hot water, but this was not as effective as hot water.

When I got home I tried the weeds in my driveway with a kettle of hot water over a small area, and this also worked, with tough, resistant weeds dying and not recovering.

The commercial-size weed unit, designed and built in WA, costs around \$7,500. Wilt-A-Weed can be contacted at 121 Burns Beach Road, Joondalup WA 6027, or phone Criss on 09-306 4443.

— *David Noel*

I have wondered about the value of

## WANATCA, CALM explore cooperation agreement

*At the suggestion of the WANATCA Executive, David Noël wrote on their behalf to Dr Syd Shea, CEO of the WA Government's Conservation and Land Management Department (CALM), to find out how the two organizations can best work together.*

*The text of the original letter, and Dr Shea's reply, are reproduced below.*

Dear Dr Shea,

### **Tree crops for lower-rainfall areas**

I wrote to you last year concerning development of a tree-crop gene bank repository proposed for a site on CALM land at Hamel, and you passed the matter on to Dr James Armstrong, who gave us a helpful reply.

There has been some progress with this project, and last week I spoke with Dr Armstrong on this and other projects concerning tree crops for lower-rainfall areas. Dr Armstrong indicated that there is currently quite a high degree of interest in these matters within your Department.

The Tree Crops Centre acts as the Headquarters of WANATCA, the West Australian Nut & Tree Crops Association Inc, which includes members who have already done a great deal of research on feasibilities and potentials for semi-arid land tree crops in this State. This research has identified a number of candidate species with outstanding potential. These include:

1. **Argan** (*Argania spinosa*), a hardy tree from Morocco which is the source of an edible oil considered superior to the best olive oil, but one which has never been developed as an agronomic crop.

2. **Mongongo** (*Ricinodendron rautenii*), a high-protein nut from the Kalahari Desert of southern Africa, and a principal component of

the diet of Kalahari Bushmen. This food source has attracted researchers for many years, but its development has been stifled by difficulties with its propagation. However, we have recently obtained information from a colleague in Israel (Yosef Mizrahi, Professor of Desert Agriculture at the University of the Negev) which appears to have broken down this propagation barrier.

3. **Tamarugo** (*Prosopis tamarugo*), a hardy leguminous tree from northern Chile capable of growing and producing stock feed and wood in hot dry areas when planted in a hole cut in a 20 cm thick salt crust.

4. **Neem** (*Azadirachta indica*), a drought-tolerant tree from India which has attained great prominence both as a source of a wide-spectrum insecticidal oil which is harmless to mammals and as a land-reclamation and revegetation species in such difficult areas as the Sahel Region immediately south of the Sahara Desert. Plantings have already performed well in more northern parts of WA.

5. **Olive** (*Olea europea*), an established low-rainfall tree crop in Europe and California, now showing great potential for WA. However, all traditional olive growing is based on Mediterranean selections, while the genetic resources inherent in close relatives from eastern and southern Africa and India and their potential to greatly expand olive's potential growing areas have had no

development.

6. **Jojoba** (*Simmondsia chinensis*), a shrub from the Sonoran Desert of Mexico and California, capable of growing and reproducing in 100 mm rainfall areas, which produces a unique liquid wax used in cosmetics, pharmaceuticals, and specialist industrial uses. This is a plant which was given a bad name by over-promotion and speculators in the 1980s. However, a 1991 report prepared by the WA Department of State Development concluded that with proper treatment, jojoba could still be a crop of economic value in this State.

No doubt in common with government organizations everywhere, your Department is being urged to produce more and more with less and less resources. I am writing to you at this time to enquire whether you would be interested in exploring the possibility of CALM formally cooperating with WANATCA in areas of mutual interest.

As well as the Hamel gene-bank project, we have under development our Plantation Biodiversity Project which is intended to provide experience on a large number of timber and other tree-crop species grown in a new mixed-species approach developed for cabinet timbers in New South Wales. In contrast to the NSW work, our project would have emphasis on species not native to Australia, including species such as those listed above which would be suited to more arid conditions.

WANATCA's principal representative in this work is Alex Hart, who retired from CALM a few years ago.

The current suggestion therefore is that CALM—WANATCA cooperation be raised a step in formal terms. I believe we have a resource in our knowledge of tree crop species

worldwide and in our very extensive network of contacts and sources, used in combination to progress work like the Plantation Biodiversity Project. CALM have sites, personnel, and information on past introductions in their databases which we lack. We believe that your own work on tree crops and our projects such as the Hamel gene-bank could function better and more efficiently with mutual cooperation between us.

David Noël

Dr Shea's reply:

*CALM is keen to explore formal cooperation with your organisation in areas of mutual interest. To provide you with some indication of our areas of interest I present the following brief review.*

*The State Government will release its Salinity Action Plan shortly. This Plan is the culmination of many years of investigation and building up of community resolve to tackle the salinity problem.*

*The plan prescribes a major role for various forms of revegetation with perennial plants to remedy salinity. The scale of the problem is such that public expenditure can*

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only meet a small proportion of the total cost. The plan therefore indicates a substantial role for commercial tree and other woody plant crops.

As you are aware there are too few tree crops presently available, and the State recognises a role for public investment in the early stages of development of potential tree crop species, products and industries. The obvious question is what species and what products might have the best potential for success and might therefore attract the scarce public investment dollar?

I enclose a paper which discusses the rationale of selection of potential revegetation species with particular reference to eucalyptus oil. However there are a few major criteria by which we would allocate priority to new tree crop prospects that I would like to refer to specifically.

The first concerns scale. Since the state's interest in developing tree crops is strongly influenced by the landcare benefit, and since we require some 3 million ha of revegetation to bring land degradation under control, any tree crop would need to have the potential for large scale adoption and large scale markets to justify development. Many of the prospects you mention are not likely to achieve large scale.

Another selection criterion is the intensity of management required. Our current agricultural system has a very low intensity of management, is highly mechanised and has very low labour input.

We know revegetation must be well dispersed to achieve the landcare benefits and it would be most easily adopted if it could also perform within the current management

structure. Many of the prospects you mention are likely to need a horticultural style of production and might therefore not be readily adopted.

We have conducted our species selection with a native plant bias because of the risk of introduction of weeds.

Any introduced plant we may select would have to first satisfy a screening to assess risk of escape from cultivation. You may know that the olive has become naturalised in the Adelaide Hills and that the genus *Prosopis* includes some notorious weeds.

Finally our interest would exclude horticultural species because these are the responsibility of Agriculture WA.

Although our interest in tree crop development will be focussed along the lines I indicate, within this range we are very open minded and innovative in the pursuit of new prospects and keen to collaborate.

— Syd Shea, Executive Director, CALM

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## Verheyen grafting works for tropicals

In November last year I called in at the Barbados Valley property of John and Mary Verheyen. The Verheyens have a unique exotic-fruit growing property at West Gingin, about 80 km north of Perth, where they grow lychees, casimiroas, avocados, and many unusual and traditional fruits.

John Verheyen was kind enough to show me his grafting method, which he has used with success on all sorts of tropical fruits and evergreens. He says it can be used at any time of the year.

Normal grafting methods are used. The two major differences in John's method are:

1. The whole of the scion and the grafting union are completely wrapped in Florist's Tape, a stretchy tape material also sold as 'Parafilm'.

2. John usually cuts off the trunk or major branches of trees to have their variety changed, and grafts onto the shoots which appear after this surgery.

John selects scion wood which has developed buds and cuts off leaf petioles just above the bud. He uses whip and tongue, cleft graft, even a budding method where a tiny sliver of budwood is placed flat on one side of the stock and held with a rubber band.

Inspired by his demonstration, I went home with some casimiroa (white sapote) 'Lemon Gold' and avocado 'Matilda' budsticks he gave me, got some florists' tape, and attacked some of my trees, using cleft grafts. Two months later, many of them had started shooting (see photo). This, of course, was mid-winter in Perth.

There were some mishaps. Many of the avocado grafts just disappeared

— I don't know whether parrots pulled them off, or a freak wind came by. However, one year later I still have strongly-growing avocado and casimiroa grafts. I did notice that where I put two budsticks in a big cleft, as in the photo, only one seemed to shoot.

— David Noël



*Verheyen graft on casimiroa seedling*

[Post / 1996 Sep 21-22]

## OLIVE OIL TASTINGS TAKE OFF

*The following article from a suburban Perth newspaper is evidence of a new phenomenon in Australia — acceptance of the concept that Olive Oils come in a wide spectrum of flavours, qualities, ‘vintages’ and provenances, and can be tasted, judged, and debated over, like fine wines.*

### A DROP OF THIS'LL REALLY LUBRICATE THE LARYNX

When olives joined the list of flavours of the month, along with anything Tuscan, bruschetta, skinny decaf macchiato, sun-dried late picked rot-affected stickies and stolis dear, it had to happen.

An olive oil tasting.

Sounds terrible doesn't it? The idea of sticking your nose into a glass of oil and then slurping it down as you aerate it through your teeth. Yuk.

Well, while the effect might not be quite as euphoric, olive oil tasting can be as interesting and challenging as lining up a dozen or so masked red wines.

And really, when you stand around on the Tuscan flagstones this summer sipping the best chianti reserve from the golden slopes of Greve, it's a must that you flaunt your knowledge of that noble substance, olive oil.

To assist with the acquisition of this knowledge, Annamaria Ogilvie threw open the doors of her Rokeby Road shop after hours last week for a select band from the media, the odd gynaecologist, a famous butcher and others.

Under the guidance of John Maiorana, whose Beaufort Street shop, *Simply Delicious* draws the lazy gourmets like bees to a hive, and who also is a partner in Mondo Catering, we set about tasting six masked oils.

The oils were presented in white flat dishes in which their colour, which is all important,

was well displayed.

### Balance

The colour is, according to Mr Maiorana, an indication of the quality of the oil, with the most favoured having a distinctive greenish tinge.

Behind each dish stood a wine tasting glass containing oil from which the viscosity and nose can be assessed.

There are a variety of ways to taste olive oil, ranging from using small spoons through to dipping bread, and we chose the latter even though some thought the flavours of the bread interfered with their judgment.

We were all armed with tasting notes and a three-part sheet on which to score and comment, using sight, smell and taste.

As a rank novice, and one who has in the past selected supermarket oils by the attractive labels, it was difficult forming a benchmark from which to judge such things as viscosity, grassiness, piquancy and bitterness.

But, after two tastings and a deal of discussion with other guests, the subtleties began to emerge and the evening took on a similar flavour to a wine tasting.

The oils were all masked and when uncovered, three were from Italy, one was West Australian and two South Australian.

On a show of hands it was interesting to note that most people favoured the same oils, with my top mark going to Joseph Extra Virgin from South Australia.

I gave it 75 points (of a total 100), which was one point ahead of Mr Maiorana, who says the Joseph is the benchmark for Australian oils.

### WA product

When judging the taste of the oils we were asked to consider and score fruitiness, grassiness, sweetness, piquancy, almond and apple flavours, bitterness and balance.

To me the Joseph was as grassy as a Margaret River sauvignon blanc and had overpowering apple and almond flavours.

Two of the Italian oils finished next in my judgment, the Cipolloni Rocca Di Fabbri, from Foligno in Umbria, and the Delverde Extra Virgin from Calabria, though there was quite a lot of support for the other Italian, a Cipolloni Extra Virgin, also from Foligno.

### Greenish

But the rave of the night was kept for the WA oil that comes from the Chestnut Grove vineyard at Manjimup.

While it was not up there in my judging, Mr Maiorana said it was a very exciting oil because it was the first pressing from Chestnut Grove. He believed it had great potential and was an indication of where the WA industry was headed.

Representing Chestnut Grove on the night was Gail Kordic, of Florence Road, Nedlands, who with her husband, Paul, has an interest in the Manjimup property with her father-in-law, Vic Kordic.

The property was bought in 1988 to develop a vineyard and, by chance, 40 years before somebody had planted 78 Mission olive trees as a windbreak.

The trees flourished in the rich Manjimup soil, but each year the fruit was either consumed by parrots or fell to the ground,

except for a small amount that locals gathered.

"Last year I badgered everybody and eventually Vic agreed to pick some of the olive crop," said Mrs Kordic.

"He said he would pick just enough to fill a special tank he had had made in Israel for grapes that fitted on the back of his ute.

"We got 720 kg into the tank and drove them to Wanneroo where they were pressed."

Mrs Kordic spoke of the joy of watching the first golden oil dripping from the press.

They got only 300 375 ml bottles from the first pressing and they are in short supply though they can be bought, along with the other oils tasted, from Ogilvie & Co.

The Chestnut Grove oil can also be bought from the Myer foodhall and Santorinis.

Mr Maiorana had this to say about the Manjimup oil: "The cloudy yellow colour with its heavy body gave evidence of a thick unfiltered oil from late-picked olives.

"The aroma promises freshness and good fruit quality. There is some hint of good back palate piquancy. The flavour is very attractive and well balanced with a slight lack of the sweeter characteristics of the best oils. Altogether, a very impressive oil."

— *Kim Murray*

*For Sale*

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**2 grafted walnuts** (Esterhazy, Glenheim)

Contact **Brian Money**, 09-454 6309

23 Banelong Way, High Wycombe 6057

## 'Disposable' bee tubes look promising for WA

On display at the recent Karagullen Field Day were 'disposable' bee tubes, a new type of lightweight bee hive intended especially for crop pollination.

The bee tubes are cylindrical and made from cardboard. In use, they behave just like a conventional pollination hive as supplied by bee pollination contractors, and contain a queen and about 1.5 kg of bees.

The big advantage of these tubes is their light weight (about 4 kg with bees) and compact size. This makes them ideal for transport over long distances, very important in a huge State like WA.

As long as the bees are kept reasonably cool, they will travel well and arrive unharmed after quite a long journey, perhaps a week. The sealed tubes could, for example, be placed on a haulage contractor's cooler truck and sent 3-4000 km to Kununurra or Darwin without problems.

Bee pollination contractor John Silcock said "These tubes are a good way to cope with unexpected demand for pollination bees. There are only around 2,500 conventional hives available for pollination in the whole state. Bee Tubes can be bought in and set up much more quickly than conventional hives".

The bee tubes are not user-disposable, as regulations require that bees out of frames must be destroyed or disposed of by the end of

the season, and this should be done by a qualified bee-keeper. Also, the pollination bees do not make honey.

"Basically, the bees just work themselves to death in the pollination work", John Silcock said. "The supplier, or another bee-keeper, needs to collect the tubes at the end of the season — they can often be used again".

Mr Silcock said that the concept of housing bees in disposable containers was actually developed in the US, though for a different purpose, and that the bee tubes the WA Pollination Association was using were made in South Australia. Rob Manning of Agriculture WA was doing most of the development work on this pollination method here.

[Contacts: John Silcock on 276 7847, or as the ad on this page: Rob Manning on 09-368 3567].

## Not the Exec Chain Gang

*In accordance with our Constitution, elected members of the WANATCA Executive Committee serve for two calendar years, with half retiring each year.*

*This year those retiring are Bill Napier, Trevor Best, David Brown, Ian Fox, Bob Haywood, and Pat & Bill Scott. The Committee meets only 4 times a year. This is not a great time commitment, nor is special knowledge of tree crops expected, and we would welcome offers to help out on the Committee.*

*Some retiring members will be standing for re-election, and the formal election will be held at the AGM, on November 15, as usual. Put your name forward then or contact David Noël beforehand if you would like to discuss the possibility.*

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**JOHN SILCOCK**

37 Fitzgerald Rd, Morley 6062

Phone 09-276 7847

[Weekend Australian / 1996 Oct 12-13]

## Coffee-growing boom hits Australia

**Move over Italy — Australian coffee is taking over.**

Fetching up to three times the average price, and the world's third most expensive, demand for Australian coffee has exploded.

Growers are rushing to plant more than 150,000 trees a year from far north Queensland to Grafton, northern NSW, but cannot keep up with demand, either here or overseas.

With no local diseases or insect pests, Australian coffee is grown without pesticides and is characterised by its high quality and low caffeine content.

But coffee is an industry in its infancy, with no national growers body and a national marketing body only in the early stages of formation.

The industry is split into two — machine harvesting and mass production characterising Queensland's Atherton Tablelands, and boutique small orchards characterising the north coast of NSW.

Total production of between two and three hundred tonnes is only a fraction of total coffee imports, of about 41000 tonnes worth \$350 million.

Labour costs which destroyed the once thriving industry after World War I still bedevil the industry and have forced growers to become world leaders in mechanisation. A local company, Austoft, is exporting harvesting technology to Hawaii and Brazil.

There is a rush on in the Northern Rivers region of NSW to find space to grow coffee, which is competing for high quality land with the booming macadamia nut industry.

A \$5 million project to get the industry on its feet by the Queensland and NSW Departments of Primary Industry, now in the final stages of being wound-up, culminated in the recent publication of the book *Coffee Growing in Australia*.

A co-author of the book, private horticulture consultant Mr David Peasley said the past two months has seen intense interest by big money in acquiring land for growing coffee.

"Everyone is interested in buying it, but the first question is how many tonnes can we provide", he said. "Through the lack of a production base, markets are going begging".

The head of the NSW Coffee Growers Association, Mr James Everard, said some 70 small orchards had been established in NSW during the 1990s.

"A lot of trees are just now starting to reach maturity", he said. "This means that Australian coffee is becoming increasingly available and many consumers will be able to try it for the first time".

Australia's largest coffee grower, Mr Ian MacLaughlin, who grows about half of the entire national crop has just signed a long-term agreement with Japan's largest roast coffee processors, the Ueshima Coffee Co, which will launch an Australian coffee gift pack in Japanese supermarkets in time for Christmas.

Australia's largest buyer of locally grown coffee, Vittoria, will ship its Australian breakfast blend to Singapore for the first time this week.

— *John Stapleton*

[The 136-page book *Coffee Growing in Australia* referred to above is available from *Granny Smith* for \$42.95]

[Extract from 'China: Development of Olive Production' (see review p.5)]

## Olives: Soil fertility and fertilization in China

A complete picture of soil structure and composition in the olive-growing area is still lacking, and only a limited amount of data were obtained by the mission relative to the areas visited,

Soils show variable structure, pH and composition. Heavy clayey soils are prevalent in the areas visited, and create problems of water-logging during the summer rainy season. Damage from water stagnation has been recorded in limited areas in Shaanxi Province (Orange Breeding Farm), but was extensive, in the experience of the mission, in Sichuan and Yunnan Provinces.

Soil acidity ranged from pH 5 to 7.8. Acid soils prevailed in Yunnan and Hubei Provinces, while neutral or alkaline soils were found in Shaanxi and Sichuan. Damage was observed in some of these areas, and leaf drop, in particular, could be a side-effect of the poor or deficient Ca condition of these soils. Ca is added in some instances (Yunnan Province Forestry Research Station), but in amounts which may be insufficient to increase low or very low soil pH to satisfactory levels. This matter should be closely analysed in the many areas where stunted growth and leaf drop characterize spring-summer development.

The few available analyses on soil fertility show low N content, even though organic matter was seldom found to be totally lacking. Organic soil fertilization can generally be considered as good or abundant, while inorganic fertilization varies greatly, from poor to abundant.

Organic matter is generally supplied two to three times a year, as green manure, fermented (semi-liquid) manure, compost, seed cakes, etc., for totals of 100-300 kg/tree. Distribution takes place in spring (and occasionally summer) and winter, one third to

one half of the total supply generally being given in winter.

Such use of organic matter for soil conditioning and fertilizing would be considered rather great by other countries' standards, but is consistent with the high standard of fertilization which characterizes agriculture in China, where 30-130 t/ha of organic matter are often supplied to each of the two to three yearly crops (see Table 6).

The availability of organic matter for such intensive use in agriculture can be understood only in the light of the extreme care that the Chinese give to organic-matter recycling.

**Table 6 — Average rates of organic matter application**

<i>Species</i>	<i>t/ha</i>
Rice (first crop)	60 - 70
(second crop)	60 - 70
Wheat	75 - 105
Maize	75 - 90
Sorghum	60 - 70
Millet	70 - 75
Soybeans	35 - 40
Cotton	70 - 75
Sugarcane (first crop)	75 - 135
(second crop)	75 - 135
Olive	20 - 40*

\*As much as 60 t/ha per year was reported in Sichuan Province.

Sources: Field crops: Learning from China, FAO Bangkok, 1977; reprinted FAO, Rome, 1979.

Olives: Present mission

Nothing is wasted or dumped that can be utilized for fertilization. Night-soil, animal excrement, crop waste, oilseed cakes, garbage, mud recovered from river bottoms, canals or fishponds, weeds and aquatic plants, are all sources of organic matter, mostly fermented (1-3 weeks) before distribution. Special tanks with small openings are often used for collecting and fermenting night-soil. Small (1.20 m<sup>2</sup>) plastered basins for fermenting organic matter can frequently be observed in the countryside. Solid and liquid wastes are collected in them and water or urine is added, allowing a period of 1-3 weeks for decomposition before distribution in the field.

Urban garbage is also collected and composted with solid organic matter in the countryside, using appropriate ventilated cairns or, more often, simple heaps. The value of nightsoil and garbage is considered so high that a continuous flow of urban material to the countryside can be observed.

Inorganic fertilizers, where availability is increasing steadily, are supplied in amounts that vary but can often be considered good or abundant. Urea is the primary nitrogen source used. Distribution is made according to calendars which vary with the different areas in relation to the time and duration of the rainy season and biological cycles (time of differentiation, flowering, fruit growth). Urea is supplied in two periods, generally coinciding with the late winter and early spring (Longfeng) or, more often, spring and summer. Amounts supplied are generally in the range of 1-2 kg/tree per year. Additional urea is often supplied by sprays.

Cumulated nitrogen from organic and inorganic sources seems at times rather high. Unlike herbaceous crops, olive trees have medium to low nitrogen requirements. It is possible that such rich N fertilization may be

viewed as a luxury, if not an overabundant supply. In Longfeng and Jiao Jia Gou, nitrogen fertilization definitely seems to exceed olive requirements, particularly in view of the low amount of sunlight available, and may be an important factor in the locally observed lack of bud differentiation.

Phosphorus and potassium are sometimes included in the yearly fertilization programmes. Additions of N, P, K at times follow fixed standards without much differentiation between the needs of young and mature plants or productive and unproductive years. A more flexible fertilization plan might provide better restitutions to the plant as well as important savings.

¥



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## Growing loquats for \$2.40 per tonne

Loquats are a familiar sight in old Perth gardens, but till now have been shrugged off as a commercial crop in WA — “They just attract fruit fly” is the usual cry.

It may be that this is the time to re-think the future of the loquat here. An excellent article by Art Schroeder in the 1996 WANATCA Yearbook gives a good background on this neglected fruit, and the extract on loquat propagation from given below adds a little more information. But first a little local background.

Loquats (in WA usually pronounced “Lo-kuts”, elsewhere often “Low-kwots”) are a versatile and unusual tree. I use them extensively as ‘filler’ trees and for biomass — they grow quickly, fruit early from seed, fill gaps in my mixed planting and act as windbreaks and nurse trees, when they have served their purpose I don’t worry about cutting them out.

I suspect loquats must be very efficient fruit producers because they are evergreen, unlike their relatives such as plums and apples, and their big leaves make use of light all the year. Some of my trees are seedlings from a tree at Dwellingup, which is almost the coldest spot in the State, so they can be considered for anywhere. I find they all produce good, sweet fruit, even though seedlings.

My best 6 trees produce well over a quarter of a tonne of fruit a year. In my article *The Bird’s Message* in the 1966 WANATCA Yearbook, I describe how all of my trees are fed on less than 10 cents worth of trace elements a year, so the six trees cost me under 60 cents a year to feed, which works out at \$2.40 per tonne.

One area which could have a good commercial future is as a dried fruit. These are delicious, better than a dried apricot to my taste. And as Schroeder points out, loquats do not drop from the tree when ripe, it may be



*Loquats growing in Perth*

possible to dry the crop on the tree, as is sometimes done with grapes.

The only negative aspect is fruit fly — I spray with Lebaycid, my only use of chemical sprays, as I just cannot find a non-chemical method which works. If only the WA Government would bite the bullet and clear Perth of fruit fly, as is the case in California and New Zealand!

— *David Noël*

[From *The Propagation of Tropical Fruit Trees and Other Plants*, by George W Oliver. USDA Bureau of Plant Industry Bulletin No. 46, 1903]

### The loquat

#### Regions where the loquat may be grown.

The loquat (*Eriobotrya japonica*) is a native of Japan and China. Its possibilities as a fruit tree have long been known in the South,

where it is capable of being grown to perfection in several States.

Young plants have proved hardy during mild winters at Washington, DC., but when the temperature falls to zero and remains so for any length of time the plants are injured permanently. As the flowers of the loquat are produced during the autumn months, both flowers and fruit are likely to be injured by cold; for this reason there is little probability of the loquat being grown for fruiting purposes in region where severe frosts are frequent.

However, there is a large tract of territory where the fruit may be successfully produced in this country. From Charleston south along the coast belt, in the Gulf States, and in California south of the thirty-eighth parallel it is quite hardy, and in some parts of New Mexico and Arizona it will probably be found to thrive. In several States it ripens very large crops of fruit. Its period of blooming extends from September till frost, according to variety and location; the fruit ripens in spring.

In the more temperate regions many trees have been planted; most of them, however, are of seed origin, and it may confidently be said that were they of the finer varieties such as are cultivated in some parts of the Old World, the fruit would be more appreciated throughout the country. The trees at present in cultivation may be put to a very good use; they can be very easily worked with new varieties, as the loquat is one of the easiest subjects with which the propagator has to deal.

The agents of this Department have of late been assiduous in collecting new or little-known varieties, principally from the Mediterranean region, but also from China and Japan, and there are now in the Department greenhouses several kinds of great promise, from which a considerable quantity of bud

wood may be distributed. Some of these varieties are said to be nearly seedless, a characteristic much to be desired, as the seeds are ordinarily quite large and occupy a considerable portion of the fruit.

### **Raising seedling stocks**

In a favourable climate the loquat bears heavy crops of fruit annually, and so gives an abundant supply of seed from which to raise plants to use as stocks for the reception of buds and grafts of the improved varieties. It will be found that when a tree sets a large quantity of fruit, a certain proportion will, within a short period, attain medium size and change colour suddenly. These fruits, however, are almost tasteless, there being very little pulp in them; but the seeds are invariably good, and from the fact of ripening early they will, if sown as soon as gathered, produce larger plants by the end of the growing season than the seedlings raised from seeds which ripen later.

As young loquat plants, budded or otherwise propagated, are not so difficult to transplant as are the great majority of evergreen trees, there is little necessity for pot cultivation, as the work of propagation can be performed in the open air without encountering any serious difficulty. The seeds should be sown an inch deep, about 6 inches apart, in rows

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for future delivery***

(in 5 litre bags, approx 50-100 cm high)

\$12-14 each

**Philip Bloomfield**

member WANATCA

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Phone 09-572 1653 (a/h)**

Bul. 46, Bureau of Plant Industry, U. S. Dept. of Agriculture.

PLATE IV.

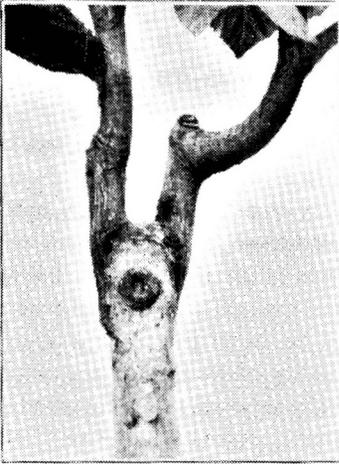


FIG. 1.—CROWN GRAFTING THE LOQUAT—  
SHOWING A BAD UNION.



FIG. 2.—A 3-YEAR-OLD LOQUAT STOCK,  
BUDED TWO YEARS.

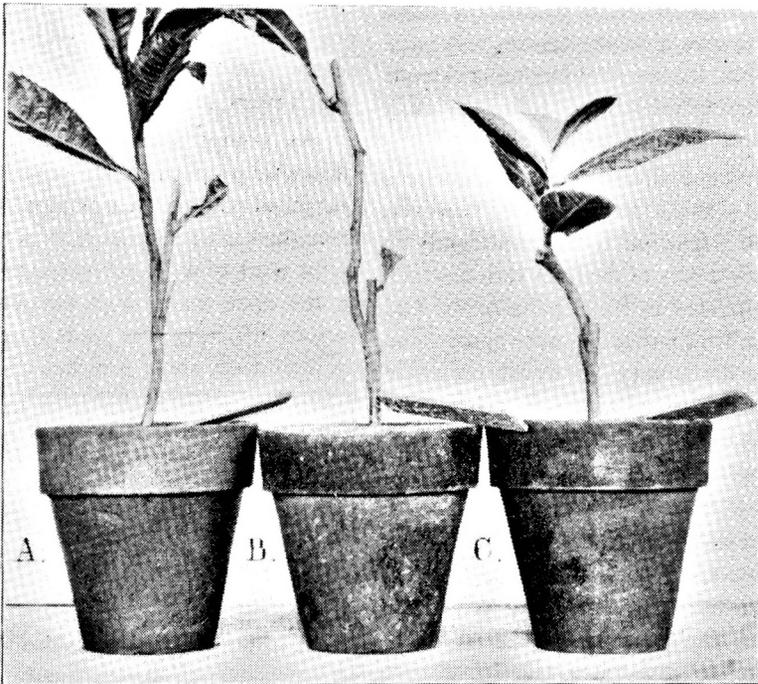


FIG. 3.—SIDE GRAFTING THE LOQUAT ON 6-MONTHS-OLD SEEDLINGS.

A. Scion inserted; B. scion inserted, tied, and waxed; C. scion united and growing and stock cut back.

distant from each other from 2 to 3 feet, to allow horse cultivation and to give an abundance of space for the operator to work when budding.

After sowing, the ground should be covered with an inch or two of long stable litter, or any other material which will shelter the ground from the sun and at the same time be easily removed when the sprouts appear through the soil. At this period very careful cultivation is necessary, as it is imperative that the surface soil in the immediate vicinity of the young plants should be kept loose.

The seedlings will not make sufficient progress to permit budding operations during the first season, but by midsummer of the season following they will have attained sufficient size of stem for the buds attached with ease. They have been found after many trials to unite best by the common shield method. Plate IV, fig. 2, shows a 3-year-old stock budded two years.

Buds should be selected from well-ripened branches of small diameter, as these are easier to insert than buds taken from young succulent growths. The bark on 1 or 2-year-old seedlings is quite thick and easily bruised, and does not lift well; therefore, when buds from thick succulent wood are used there is always difficulty in placing them under the bark of the stock.

It will be found, moreover, that the buds in the axils of the fully developed leaves are exceedingly small and the bases of the petioles very large; consequently, buds of this nature are far from being the best with which to work.

The loquat, as already been hinted, is an exceedingly easy subject to propagate budding or grafting. The buds, if properly inserted at a time when the bark lifts freely, will unite

within two weeks, and a week or later, if that part of the stock above the inserted bud is partly cut, the buds will begin to grow very rapidly. The first indication of growth consists in one or two tiny leaves covered with light hairs. Shortly after these appear the top of the stock may be pruned to within an inch or two of the inserted bud, leaving only one or two mature leaves for a time.

Propagation by grafting is not commonly practised. When comparatively large branches are headed back and scions inserted, the resulting unions are often unsatisfactory, being likely to be broken off by windstorms. A method of side grafting 6-months-old seedlings is shown in Plate IV, fig. 3. This method is very satisfactory and can be used best on seedlings grown in pots for shipping purposes.

¥

## OLIVE VARIETY TO COME IN FROM ISRAEL

**WANATCA member Bryan Wilson is in the process of importing 1200 trees of the variety 'Barnea' from Israel. They are expected to arrive into quarantine shortly.**

This variety is not well known in Australia. Julian Archer, in *Commercial Viability of Existing Olive Varieties for various Australian Climates*, lists it among 'Cultivars currently undergoing quarantine', and comments that there is much debate over the claims made about it.

[Bryan Wilson can be contacted on 09-571 8084]

## WANATCA 1997 subscription rate held at 1991 level

**At the last Executive Committee Meeting, it was once again resolved to keep the 1997 WANATCA Subscription Rate unchanged at \$40.00 per year.**

Our subscription rate has now been kept steady at this rate since 1991, in spite of continually rising costs, and is now perhaps lower than those of all other comparable organizations, which charge up to \$150 per year.

The key to this ability is membership numbers. Costs for our publications, easily the major part of our budget, are similar whether we have few or many subscribers — see our Balance Sheet in this issue of *Quandong*. Having more members means

we share out the fixed costs over more subscriptions, and we have been able to contain subscription rates simply because we have been able to attract increasing membership.

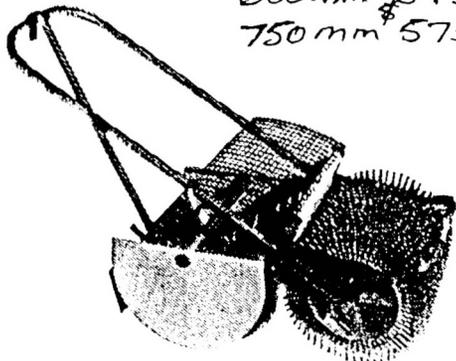
There are two implications for readers. First, if you can continue to suggest or locate more potential members (details willingly sent from the Tree Crops Centre), we can continue to keep subscription costs down. Second, when you receive your Renewal Notice with the First Quarter 1997 *Quandong*, you can ensure taking advantage of the \$40 rate for another 3 years by subscribing for that term in advance.

## 'Bag-A-Nut' harvesters available in WA

The US-developed 'Bag-A-Nut' harvesters are now available from WA nut nursery and equipment supplier Shelterbelter of Gidgegannup.

### "BAG-A-NUT"

500mm \$395  
750mm \$575



These harvesters range from small 500 mm hand models, pushed along like a lawn mover, to large tractor-mounted types up to 2.5 m wide. All are based on the same principle, with protruding plastic fingers which pick up the nuts and drop them into a bin behind or alongside the finger-wheels.

Models are available for macadamias, pecans, walnuts, hazelnuts, chestnuts, and even golf balls!

Shelterbelter are at 2069 Toodyay Road, Gidgegannup WA 6083 — phone 09-574 6163.

[Rural Research / 1996 Spring]

## Growing food from the bush

**Farming Australian native plants for food and oil is becoming increasingly popular as farmers look for alternatives to traditional enterprises and as the market grows for native products for food flavourings and medicinal and therapeutic purposes.**

The tea tree industry is well established, with a breeding program to improve oil yield by 60% over the next few years. The quandong industry has its own grower group and many years of research behind it.

Although the bushfood industry so far has relied largely on harvesting products from the wild, as demand grows there will be a need to establish production from farming land to ensure consistent supplies of assured quality. Farming will also reduce pressure on wild plant communities.

Research is needed to determine whether profitable native crops can also address land degradation. While some species such as the native lime are regarded as woody weeds by graziers in the rangelands, other deep-rooted perennials could have significant environmental benefits as well as commercial gain

### Industry value

In a review of the bushfood industry commissioned by the Australian Native Bushfood Industry Committee (ANBIC) in 1996, the industry was estimated to be worth \$14 million. ANBIC has the goal of increasing the industry's value to \$100 million in 3 years.

The review identified some of the main issues facing the industry as: quality assurance—difficult to control while most product is harvested from the wild; accredited labelling requirements—so far there is no Australian Standard for bush foods; cultural rights of Aborigines — indigenous people

need to be involved in the development of the industry; secure raw material supply—to build up markets; food safety—no testing has been done on most of these products; registration of products for pest control, and a lack of finance.

### Core species

More than 300 plant species are already being used in the bush food industry. From these ANBIC has identified 11 'core' species with the best potential for future development (see the table).

Director of Australian Native Produce Industries Mr Andrew Beal, who is also a member of ANBIC, says the list is not exhaustive but is an attempt to identify the likely 'best bets' for anyone thinking of entering the industry. To provide an example of the profitability that can be expected from native food crops, Mr Beal says the annual gross return from one hectare of the elegant wattle (*Acacia victoriae*) in full production under dryland conditions, is conservatively estimated to be of the order of \$10,000, and for Muntries under irrigated conditions, \$25,000.

For most of these crops, little research or genetic selection has taken place. As commercial production expands, more research will be needed on genetic improvement; production systems — how long crops take to maturity, yields and optimum growing conditions; and technologies — for harvesting, processing etc.

### Core Species

Name	Years to first bearing	Years to maturity
Bush tomato ( <i>Solanum centrale</i> )	1	2
Illawarra plum ( <i>Podocarpus elatus</i> )	3	8
Kakadu plum ( <i>Terminalia ferdinandiana</i> )	3	8
Lemon aspen ( <i>Acronychia acidula</i> )	3	8
Lemon myrtle ( <i>Backhousia citrodora</i> )	2	3
Mountain pepper ( <i>Tasmannia lanceolata</i> )	2	3
Muntries ( <i>Kunzea pomifera</i> )	2	3
Quandong ( <i>Santalum acuminatum</i> )	3	8
Ribery ( <i>Syzygium luehmanii</i> )	3	8
Wattle seed ( <i>Acacia</i> spp.)	2	4
Wild limes ( <i>Eremocitrus glauca</i> , <i>Microcitrus</i> spp.)	3	8

### Markets

The domestic market for bushfood is relatively small and includes retail and restaurant sectors. Except for a small amount of fresh product to supply restaurants, most product is dried or frozen or has been further processed, usually with a range of non-bush ingredients into pasta, sauces, dressings, jams, chutneys and preserves, dried condiments and cooking ingredients or oils. The restaurant market is growing as an increasing number of restaurants start to include bush food specialties on their menus. On the export side, the industry reports significant interest from Europe and North America.

Deputy chief of CSIRO's Division of Soils, Dr John Williams, believes strongly that cultivating native fauna and flora for food production is a way of making our agriculture more sustainable. 'Research confirms that a concentration of native crops and animals reduces the damage to our soil and water

resources', he said.

'By choosing the best mix of native and other crops for a particular environment, farmers are ensuring that plants make the best use of nutrient and water availability, and are in sympathy with seasonal patterns that are

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distinct for Australia.'

And while some of these crops may only ever be niche products, one only has to think of the success of Australia's macadamia industry (with a farmgate value of \$60 million and expanding rapidly), or the native cut flower industry, to realise the potential value of these unique crops.

And perhaps, as Dr Williams foresees, by 2020, income from crops such as wildflowers, honey and oil could exceed that from grain and special purpose crops.

#### **For more information about the bushfood industry**

Australian Native Bushfood Industry Committee, Denise Hart - Secretary, PO Box 309, Civic Square ACT 2608; ph. (0411) 852644.

Southern Bushfood Network, Gil Freeman, 21 Smith Street, Thornbury, Vic, ph. (03) 9416 7150.

The Australian Quandong Industry Association, Danny Matthews 31 Mildred St, Port Augusta 5700; ph. (086) 422 525

## **Olive Growers Association forming in WA**

**The formation of a group expected to be known as the WA Olive Growers Association is underway in York.**

Existing groups, including Agriculture WA and the Southern Avon Business Centre, are cooperating in this work.

Enquiries can be directed to Jana Penn, PO Box 5, York WA 6302, or to phone/fax 09-295 2833.

### **Alternative rangeland crops**

*In Queensland, the Department of Primary Industries and Natural Resources is looking at bushfoods as an alternative crop for graziers in the western rangelands. In particular they are looking at wattle seed, desert lime, quandongs, bush tomatoes, kurrajong and bottle trees (for seed), wild oranges and native basil, all of which grow naturally in the area.*

*Of a survey of 400 graziers, more than half expressed interest in wild harvesting, establishing commercial plantations, or both. For more information contact David Phelps, phone (076) 584400.*

The Australian Rainforest Bushfood Industry Association, PO Box 6407 South Lismore 2480; ph. (066) 897433; fax (066) 897568

The Arid Lands Growers Association, Graham Herde, Nectar Brooks Station, via Port Augusta 5700; ph/fax (086) 347077.

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[New Scientist / 1996 Sep 21]

## Compost is a natural-born killer

**Garden compost can suppress economically significant plant diseases by between 60 and 80 per cent and can sometimes eliminate them altogether, according to Dennis Pitt at Exeter University's biological sciences department.**

Pitt's team has been studying diseases of important crops in the southwest of England, such as white rot in onions, take all in cereals, red core in strawberries, and various root diseases of commercially grown flowers. In laboratory tests, Pitt's team mixed cultures of the disease organisms into soil, added different types of compost and then grew the various crop plants.

The research was carried out in collaboration with an Exeter-based company called Ecological Science, whose main business is making compost from green waste. The project was prompted by reports from farmers that the compost was not only helping crops to grow better but also seemed to suppress disease.

According to the company's managing director, Tom Young, the results were "far better than we'd ever expected". For instance, they showed an 80 per cent reduction in take all in wheat, while red core in strawberries was reduced by 90 per cent. Most impressively, club root in cabbages was eliminated completely.

Ecological Science is now planning field trials in Egypt on a disease called brown rot, which affects potatoes and tomatoes. Laboratory experiments on the effectiveness of compost in controlling the disease, carried out by the Central Science Laboratory in Harpendon produced promising results. In one case the disease was suppressed completely. The work could not be done at Exeter because brown rot is a notifiable disease in Britain. If the field trials in Egypt are

successful, Ecological Science hopes to work with the local developers to produce a similar, locally made compost for brown rot control.

According to Pitt, organisms in compost act in several different ways to help suppress the growth of disease-causing bacteria and fungi. Some organisms actually prey on the pathogens, while others compete with them for nutrients or make antibiotics.

John Elphinstone, a senior pathologist at the Central Science Laboratory, says he is impressed by the Exeter studies, and hopes full-scale field trials will yield similar results.

— *Stephen Hedges*

### ***New Tree Poster available***

*An interesting new poster on 'The Tree' is available from New Scientist in Australia.*

*The poster depicts the different parts of a tree and describes their functions.*

*One panel has an item which bears on my Bird's Message article in the 1966 WANATCA Yearbook: "Tree leaves also trap airborne dust particles which are then washed to the ground by rain. It has been estimated that a Beech wood extracts nearly five tonnes of dust per hectare per year".*

*Copies are available for \$11.50 each including postage (can charge to Mastercard/Visa) from New Scientist, PO Box 5487, West Chatswood, NSW 2057.*

— *David Noël*

STATEMENT OF RECEIPTS AND EXPENDITURE  
WEST AUSTRALIAN NUT AND TREE CROP ASSOCIATION  
for the year 1 July 1995 to 30 June 1996

<b>BALANCE BROUGHT FORWARD</b>			
Cwith Trad Bank	3,282.28		
Petty Cash a/c	287.55		
Debenture RAC	2,000.00		
Unicredit a/c	551.62		
Unicredit Fixed	7,059.12		
		13,180.57	
<b>SUBSCRIPTIONS</b>			
1995	2,895.00		
1996	10,645.00		
1997	760.00		
1998	400.00	14,700.00	
<b>INTEREST</b>			
CBA	61.28		
RAC	142.06		
Unicredit	270.78		
CBA Passbook	4.39	478.51	
<b>RESEARCH</b>		20.00	
<b>SALES &amp; RECOUPS</b>		40.00	
<b>DONATIONS</b>			
		28,419.08	28,419.08
 <b>Balance brought forward is represented by :</b>			
Balance CTB		6,095.10	
Petty Cash		190.10	
Secured Debenture RAC		3,000.00	
Unicredit		561.36	
Unicredit Fixed		3,154.59	
		13,001.15	

I certify that I have examined the books of account of the WA Nut and Tree Crop Association and believe them to be correct and that the above statement reflects the position of the Association.

  
Hon Auditor

19 September 1996

## New information on Quandong

WANATCA members Graham and Iris Herde from South Australia called in at the Tree Crops Centre in October.

The Herdes have about 40-50,000 quandongs at various planting stages. They, and other members of the Australian Quandong Industry Association have done a lot of research with quandong and its close relative sandalwood (both *Santalum* species, partial root parasites).

It has been found that a low Australian shrub plant, Creeping Boobiolla (*Myoporum parviflorum*) makes an excellent host plant for seedlings. Another excellent host plant is the Olive — possibilities here for mixed-species cropping? Graham thought that as a general rule, good host plants were ones which had a wide natural range, were surface-rooting, water-storing, and fertilizer-hungry.

A most interesting natural technique for dealing with grubs of the Quandong Moth, a real pest of wild quondongs, was interplanting with White Cedar/ Cape Lilac (*Melia azedarach*). This relative of the famous Neem tree can be grown from cuttings, and somehow its presence wards off the moth.

Graham suggested some essential and desirable qualities for a commercial quandong variety. 'Powell's No. 1' and 'Paringa Gem' were considered good varieties. Cross-pollination was important for good yields.

### Essential Points:

1. *Good flavour, with the special 'quandong' taste and good acid/tannin balance;*

2. *Crop quantity (5-9 kg dried fruit per season with horticultural care).*

### Desirable Points:

1. *OK for mechanized handling — stone loose within flesh;*

2. *Fruit doesn't bruise easily;*

3. *Cooked product has a clear dark red to purple-red skin. (Flesh is white);*

4. *Skin does not crack when rained on (much of the flavour is in the skin);*

5. *A projecting calyx is useful, for easy removal.*

Mechanical cutters able to handle 4000-5000 fruits per hour were available for processing.

Quandongs can be seed-grafted into the cotyledons of germinating seed, but conditions must be ultra-hygienic, with much aftercare.

## More exotic fruit sold in Perth

Availability of unusual fruit in Perth continues to improve. In Coles Supermarket in October their display included Sapodillas (small but very good) at \$4.99 / kg, Star Apples (about 250 gm) at \$2.99 each, and large Abius (300 gm) at \$3.99 each.

The sapodilla (*Manilkara zapota*) is one of my favourite fruits. They have brown skins and look like potatoes. I had bought some 2 weeks earlier at another Perth supermarket, and when I got home noticed that I had been charged for 'gourmet potatoes'. These had darker brown skins and never ripened properly, in fact they were awful.

According to James Darley's *Know and Enjoy Tropical Fruit*, sapodilla skins lighten in colour when they are mature, and the good sapodillas I bought did in fact have light skins.

The Abiu (*Pouteria cainito*) and the Star Apple or Cainito (*Chrysophyllum cainito*), so-called because it shows a star pattern in transverse cross-section, are both related to sapodilla; all three are in the Sapotaceae family and originate from Central or South America.

I found the taste of the Star Apple and Abiu OK, but not too impressive. Darley says

"The best abius are superlative fruit. Abiu must be harvested mature, or latex is a problem when the fruit is consumed". The one I bought was probably picked immature.

— David Noël

## Macadamia processor starts up in WA

WA's first commercial macadamia processor has commenced business at Baldvis, south of Perth.

The company, called MacNuts WA, is the brainchild of macadamia grower Nick Dobrec, who himself has several thousand macadamia trees growing on the Baldvis property. Nick can handle 200 tonnes of nut-in-shell with his new plant without difficulty. Initially he expects to buy in nuts direct from producers and sell the kernel, however he will consider cracking and returning nuts to clients.

Previously WA growers were dependent on sending their nuts east for processing, or making use of private facilities owned by pioneer WA growers such as Tim Lynn-Robinson.

MacNuts WA are at 251 Doghill Road, Baldvis WA 6171, phone 09-524 1016.

## New catalogue from Hamel Nursery

Hamel Nursery have just issued their 1996-1997 Seedling Catalogue. The number of species available has been increased to 245, with a range of wheatbelt and arid land plants as well as many more shrub and understorey species.

Items listed include Quandong and Sandalwood.

Contact Richard Hordacre at PO Box 329, Waroona WA 6215, or on 097-33 1241, for a copy of the catalogue.

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# West Australian Nut & Tree Crop Association (Inc)

PO Box 565 Subiaco WA 6008 Australia

## EXECUTIVE COMMITTEE 1996

David Noël (President)	388 1965/w	381 7341/h	Ian Fox	354 5664/h
Bill Napier (Vice-President)		399 6683/h		015-384820/mob
Lorna Budd (Secretary-Treasurer)		458 5918	Alex Hart	490 1324
Trevor Best	384 5680/h	367 4227/w	Bob Haywood	097-577597
David Brown	381 8208		Pat & Bill Scott	397 5892
Bob Cook	574 7103/h		Marcus Vigilante	386 3487

## 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, 310 8972/h, 015-38 4820/mob (50 Canterbury Drive, Willetton 6155)

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

PECAN: Bernie Rochester, 097-341309 (90 Bucktin St, Collie 6225)

PISTACHIO: Tom Bateman, 246 2113 (PO Box 315, North Beach 6020)

PITAYA: Bob Nederpelt, 377 1024 (PO Box 56, Morley 6943)

POMEGRANATE: Julie Firth, 099-381628 (Lot 12 David Rd Waggrakine 6530)

DICE Group: PO Box 27, Subiaco WA 6008

## CALENDAR OF FORTHCOMING EVENTS

1996

Deadline for next issue: Jan 20

Nov 20 Wed Annual General Meeting (Roger Meyer - Rainbow Kiwis & Jujubes)

1997

Jan 14 Tue Executive Committee Meeting

Feb 19 Wed General Meeting (Stan Kailis - Olives in WA)

Apr 19 Sat \*Balingup Small Farm Field Day

May 21 Wed General Meeting

Aug 20 Wed General Meeting

Nov 19 Wed Annual General Meeting

1998

Sep? \*ACOTANC-98, ?Nelson, New Zealand

\*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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**Current Subscription Rate: \$40.00 per year**  
**(includes all publications for the year). Student Rate: \$20.00**

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