

Quandong

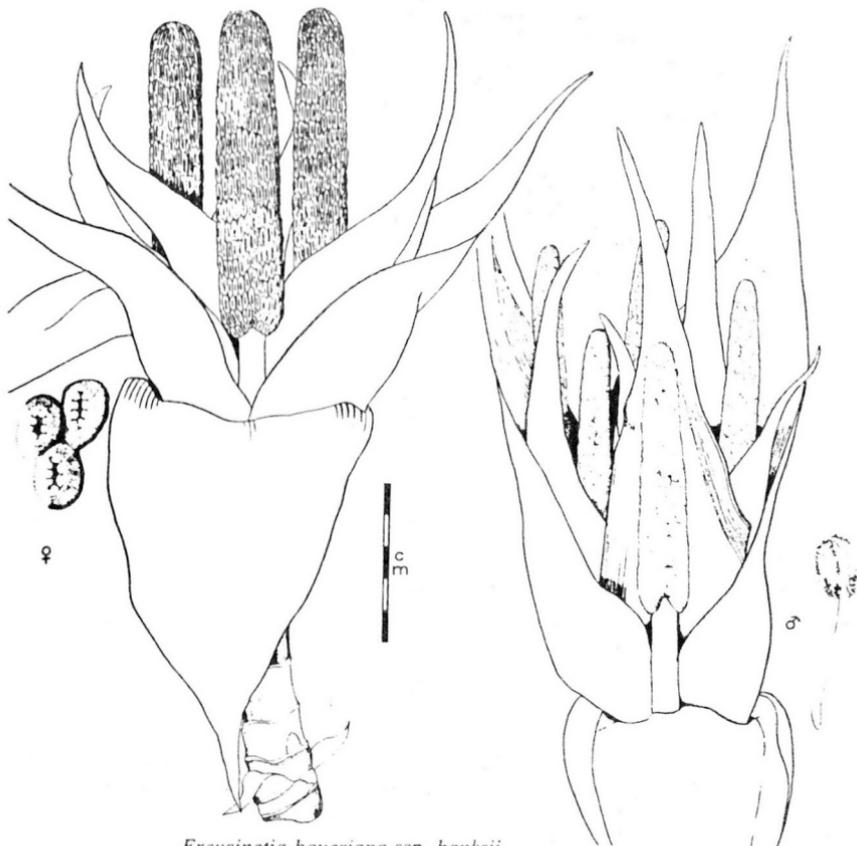
magazine of the

West Australian Nut & Tree Crop Association (Inc)

Third Quarter 1992

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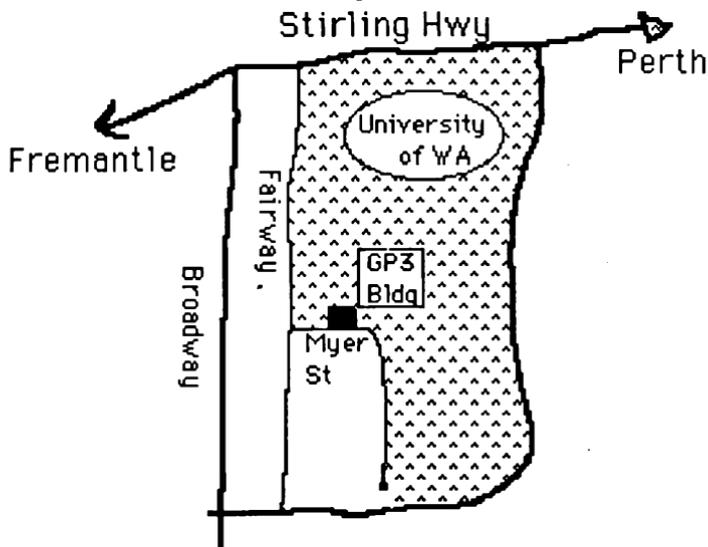
Freycinetia baueriana ssp. *banksii*

The KIEKIE (*Freycinetia baueriana*) (See: About the Cover, p. 2)

**Special General Meeting at
University of Western Australia
What UWA is Doing About Tree Crops
Wednesday August 19, 1992 at 7.30 pm**

This is a very rare opportunity to see the research and development work which is going on at the University of Western Australia on new horticultural crops.

The meeting will include an introductory talk arranged by Prof. John Considine, Professor of Horticultural Science at UWA, followed by an opportunity to see the research facilities of the Horticultural Science Group. There will also be a tour of the glasshouse facilities run by WANATCA member Ian Fox, including the chance to see work on some rare and traditional fruit crops.



Arrangements: Meet at 7.30 sharp in the Simmons Lecture Theatre, ground floor, GP3 Building. This building is on the north side of Myers Street, which can be entered from Fairway or Broadway, running south from Stirling Highway, Nedlands. Parking should be available in Myers St or in the Engineering Car Park entered off Fairway just north of Myers St.

This meeting is open to all interested. No charge. Direct enquiries to David Noël at the Tree Crops Centre on 385 3400.

About the Cover . . .

Our cover picture shows *Freycinetia baueriana*, the Kiekie of New Zealand.

The illustration is from *Trees and Shrubs of New Zealand*, by Lindsay Poole and Nancy

Adams (see Granny Smith ad, p.27). The Kiekie is a scrambling climber in the Pandan (Screwpine) family native to the north of New Zealand.

The fruit of this plant is edible, but the most sought-after part is the large white fleshy bracts, a much appreciated Maori food.

[WA Horticulture/ June 1992]

Patience the key to pecan success

Bernie Rochester clearly remembers his first harvest of pecan nuts—a full ice cream container.

But then this farmer never had early aspirations of being the state's biggest pecan producer, in fact he began growing the nuts reluctantly.

Mr Rochester's involvement with pecans began in 1980 when the block next door to his Mumballup property was placed on the market.

After appraising its worth, Mr Rochester believed the price of the land made it a worthwhile proposition.

"The fact the place had 850 pecan trees on it didn't really play a part — it was in the middle of the recession and the price of the land justified the purchase," he said.

"At first we didn't really want to buy it because we didn't know anything about pecan trees — we were sheep and cattle farmers."



*Bernie Rochester —
from sheep to pecans*

The property was on the market for a long time

IN A NUTSHELL ...

• *Climatic requirements: Dry conditions in spring and early summer are critical for effective pollination.*

• *Soil types: Although pecans are adaptable to a range of soil types, the trees prefer a deep, fertile, well-drained site with a good supply of summer moisture. Pecans require soil acidity similar to other perennial crops. A pH of 5.5 to 7.5 is preferred. Most South-West soils are suitable.*

• *Cultural requirements: Encourage healthy spring growth by irrigation and maintaining soil fertility.*

• *Site preparation: The site should be thoroughly prepared to remove stumps and roots.*

• *Varieties: More than 180 varieties are now available.*

• *Planting: Trees are normally planted in late July to mid-August, as soon as the main winter rains have ceased.*

• *Market outlook: Excellent, with demand far outstripping supply.*

and finally the Rochesters bought it.

Once the deal had been done, Mr Rochester took an interest in the trees and now, after much trial and error, Mr Rochester is one of the state's few pecan producers in an industry earmarked for a big future.

Unlike some other horticultural lines, it will be a long time before supply outstrips demand for pecans in WA.

"Lots of people are eating pecans and more are being introduced to the taste every day."

He said returns were greatest for shelled pecans, the reason Mr Rochester decided last year to put some capital investment into the project he never imagined would become his main source of income.

For about \$80,000 he bought shelling



The dehushing machine at work on the Rochester pecan property

WA imports about 60 tonnes of pecan kernels annually — an amount, given the length of time it takes pecan trees to mature, the state cannot produce for some time.

"Basically, any we can produce we can sell," Mr Rochester said.

"And returns are not bad — about \$11,000 a tonne for shelled pecans, and that price was not very hard to get.

machines, crushers and a hopper so that he could not only shell his own pecans but also those of other growers.

He said he knew of nobody else here who shelled pecans for growers, and because shelled nuts commanded a higher price he believed this was a growth area.

An important component in producing a quality pecan kernel is drying the nut

sufficiently, so last year Mr Rochester built a hot house for this purpose. The nuts, he said, needed to be dried for about six to eight weeks to ensure top quality.

Time of drying was crucial because any delay taking the nuts from the tree to the hot house could result in a darkening of the kernel.

Mr Rochester said finding the ideal drying time had been a lot of trial and error, a common practice since he decided to put a solid effort into producing pecans. When he started out information on pecan growing from the WA Department of Agriculture was very limited, and there were only about two other growers in the state.

He said there was little other option but to travel to the eastern states and the US where pecans had been growing commercially for many years. But because climatic conditions are different here, trial and error was the only way to find the most suitable growing program.

Mr Rochester has 17 varieties of the tree growing on his property and some have been performing better than others. But he says it is far too early to dismiss any of them.

"They are a very long living tree and therefore you have to leave them all in because some may be better in the long run — until they have been in 50 years you really don't know their true performance," he said.

"Pecan trees are productive for 100 years which gives a lot of time for late producing types."

[*Quandong* apologises that in the last issue, Mr Rochester's name was misspelled Rogers. Bernie can be contacted at 90 Buckin St Collie WA 6225, phone 097-341309].

WANATCA at the Royal Show

WANATCA will again be active at this year's Royal Show in Claremont Showgrounds, operating from the Tree Crops Centre in the WA Gardener Building. The Show runs from September 26 to October 3, Saturday to Saturday.

Last year's WANATCA display was a notable success. The fuji fruit tastings were particularly popular. Members who volunteered to help staff the display enjoyed the experience, and some commented that they learnt a lot themselves!

If you may be able to help with this year's display, please contact Alex Hart on 490 1324 in the very near future. Volunteers get free entry into the show, the work is not arduous, and there is plenty of spare time to look round at the rest of the Show.

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Stoneville pecan research under threat

The WA Government's only significant nut research project, the Stoneville Research Station pecan trial, is under threat of removal.

The mooted removal of this unique planting has greatly concerned the WANATCA Executive for some months now. In April 1992 the Minister for Agriculture was approached on the Executive's behalf by Amos Machlin, our Pecan Action Group leader.

Amos's letter, and the Minister's reply, are reproduced below. As the Minister's reply indicated that the trees were most likely to be removed in the near future, a further letter has been sent from the full Executive asking, in the strongest possible terms, for this decision to be reversed. This letter is also reproduced below. The letters tell their own story.

In the light of these letters, readers concerned with this deplorable action may wish to contact their members of parliament or others who might bring pressure to bear.

6 April 1992

Mr E. Bridge, Hon. Minister for Agriculture

Dear Mr Bridge

Re: Pecan Nut Research, Stoneville Research Station

It has come to the attention of this Association that the grove of Pecan nut trees at the Agriculture Department's Research Station at Stoneville is planned to be removed in the very near future, and as a result, research into the future of pecan nuts in WA

as a viable horticultural activity will cease.

We are led to believe that the removal of these trees is necessary to provide land space for the Research Station to plant other tree crops for research purposes.

We find this proposed action very hard to understand and accept.

Farmers in this State, as you will know, are in a desperate position. With the decline in the viability of wheat and wool as their traditional products, farmers should be encouraged to examine other forms of agricultural activity which are suited to their local conditions of soil, climate, and water availability. Tree crops, and more particularly, nuts, could be an attractive long-term alternative.

The attached plan of WA shows, in broad terms, some varieties of tree crops which could be grown in this State. I refer you specifically to pecans, and the plan indicates that there is the potential to grow Pecans over huge areas of the State.

I would hasten to add that Pecans will only do well in the indicated regions on good well-drained soils and supported with adequate water supplies. There must be thousands of hectares which would meet these criteria.

I am sure that you will be aware that the Pecan is a native of the USA, that there are huge plantings in the southern states, and that

the nut is now a very large and lucrative crop in California, New Mexico, and west Texas. Also, the Pecan is grown on a large scale in Israel and South Africa. The soils and climatic conditions in all these regions are similar to what we enjoy in WA.

In this State there is already the embryo of a Pecan nut industry. There are successful plantings extending from Gingin south to Margaret River and Augusta. The development in Gingin also has a cracking and processing plant for Pecans. Macadamia nuts are also grown successfully in this orchard.

Technical information on pecans in this State, and for that matter, in Australia, is very limited. Any potential grower of Pecans first seeks information from the Agriculture Department and looks particularly at the economic viability of his venture. The technical information that is available is very limited and insufficient on which to make a judgement.

The research which has been undertaken in Stoneville is perhaps the most extensive in Australia, and we are the front-runners in this research area. The research work has not been completed, and I am of the opinion that to discontinue the research at this stage would be very irresponsible, and negate all the work and money invested to date.

If the Government and the Agriculture Department are sincere in their attempts to assist the rural sector and explore alternatives to the usual farm products of wheat and sheep, then the Government must give support to industries such as pecan nut production which have enormous potential, not only for use in Australia but also as a product for export.

I trust that you will give this matter your urgent consideration, and to provide further information to you, we would like to meet with you and discuss the future of (a) the Pecan Nut research programme at Stoneville, and (b) the Pecan Nut as a future industry for WA.

Amos Machlin, Pecan Action Group Leader

2 June 1992

Dear Mr Machlin.

PECAN NUT RESEARCH - STONEVILLE RESEARCH STATION

Thank you for your letter of April 6, 1992 seeking information on the future of the Pecan nut trees presently growing on the Stoneville Research Station.

All research carried out on Department of Agriculture research stations including Pecan nut research is regularly reviewed to ensure that the resources available are put to best use. This means that experimental plantings of all crops are only retained if major gains in new knowledge can be achieved and the work has priority over the competing projects. Projects

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generally supported, are those dealing with crops having significant export potential or provide an opportunity for the development of new markets.

As you are aware, the Pecan nut trees have been growing at Stoneville since 1981. Considerable information has been derived from the planting and this will be collated and published soon in a Farmnote.

I agree that the Department should look at crops that provide attractive long-term potential and in the case of the Stoneville program; apples, pears and stone fruit have become the major priorities.

The apple breeding program is of national and international significance and already the State has had success in breeding Pink Lady and Sundowner apples. To maintain the necessary momentum in this program all plantings at Stoneville have been recently reviewed. This has resulted in plantings of several tree crops being removed where projects have been completed or where the work has a lower priority than pome or stone fruit research.

The Department has also received considerable financial support from industry to further its research in these areas; an indication that industry agrees with the priority given to the work.

It is therefore most likely that the Pecan nut trees will be removed in the near future to make way for expansion of these projects.

Thank you very much for the information you provided on the nut tree industry. I will ensure that your Association is provided with our published information on Pecan nuts as soon as it becomes available.

Yours sincerely,
Ernie Bridge, JP, MLA
Minister for Agriculture

1992 August 4

Hon. Ernie Bridge, Minister for
Agriculture

Dear Mr Bridge,

Stoneville Pecans

Thank you for your letter of June 2, addressed to Amos Machlin, Pecan Action Group Leader of the West Australian Nut & Tree Crop Association Inc., concerning the future of the pecan research planting at Stoneville Research Station.

Your letter was considered by the WANATCA Executive at their July 7 meeting, and the Committee expressed very great concern at the planned removal of this research project.

It is appreciated that financial stringencies are biting harder every day. Nevertheless, our Executive believe that it is vital for the future of the State's horticultural industries that whatever research funds are available should be concentrated on areas where there are real prospects for commercial growth.

The apple research being carried on presently is useful, but there are no real prospects of the apple industry undergoing a major expansion in the future, say doubling in size. You mention that the Department has received considerable support

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from the industry to further apple research, but of course apple growers already exist, and they can be expected to support research in their area and provide funds in their own interests.

In contrast, pecan nut production contains all the necessary elements to become a major export industry for the State, far dwarfing the current proceeds from apples. Pecan nuts are also a far more satisfactory product to be considered for an export industry, as they do not suffer from the same disadvantages of perishability and seasonal limitations as apples. A copy of a recent article suggesting the great potential for pecan production in WA is attached.

With a potential new crop like pecans, where there are no major established growers and no existing large industry cash flows which can be tapped for research, it is a basic expectation that the State Government should provide the necessary funds. After all, it is the State as a whole which will be the beneficiary from all longer-term research, not the current growers.

The WANATCA Executive are most concerned that short-term financial considerations are obscuring the fact that a major investment has already been made in the Stoneville pecan planting, and this investment will be wiped out without the chance of future returns in an expression of panic economics. We urge you to call for the information needed for a detailed financial analysis of this valuable public asset. In order to prepare a case for the retention of this unique pecan planting, the Committee has resolved that the following information be requested from you and your officers:

1. What investment has already been made in these trees by way of their purchase?
freight and import?
quarantining?
laying out?
planting?
irrigating?
fertilizing?
pruning?
and any other expenditure for acquisition, establishment and vitality?

We know the investment is substantial but we need to have it quantified to give weight to our case.

2. Whether there is any equivalent or near-equivalent range of genetic material anywhere else in WA (apart from Stoneville) of the proven varieties of pecans available internationally — which were developed for high commercial productivity?

If so, where?

We are not aware of any others and believe this to be the only one.

3. What is the monetary value of the trees in situ?

What is a fair market value that could be expected to be paid by a prospective pecan grower?

What is their prospective value as specimens for nut production, timber, charcoal wood, farm windbreaks and other landscaping?

How much would it cost to replace them at their present level of maturity?

We estimate the trees to be worth in the range of \$200 to \$500 each, giving a total value of \$20-50,000.

4. Apart from money, how can the time required for maturing be substituted, if, in a more enlightened future, it is decided that the original experiment should have continued?

For how long have the trees been growing?

From the commencement of planning an experiment of this kind, to its present stage, we

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believe would not leave much change out of two decades.

5. How much would it cost to take out the trees and to clear the ground of roots for another use?

The estimate we have been given is \$200 per tree, making a total of \$20,000.

6. How is it proposed that WA will diversify its productive and export economy unless new markets, products and opportunities are considered and evaluated?

How and by whom was the wise decision initially made to undertake the pecan experiment and research?

Has the government decided that the originally intended research from this plot was pointless, misguided or not worthwhile?

7. What is the total value of nuts (and component nut products) imported by WA annually?

How much of this total is made up of pecan nuts?

Is there any doubt that nut crops including pecans, have a significant contribution to make towards a sustainable and self-reliant future for WA?

What plans do you or your government have for diversifying the agricultural base of WA, in particular

(a) in the area of nut and tree crops?

(b) to cover the wide range of climatic conditions in WA and any possible future variability?

8. As a last resort, has the practical possibility and the desirability of leaving the trees to grow without any further significant attention, been considered?

How much would this option cost?

In view of the fact that this option would

(a) keep open the possibility of proceeding with the originally planned research at some later stage, and

(b) retain a substantial and appreciating investment, and

(c) save a lot of money at present,

is there any sound reason why it cannot and should not be adopted (as a minimal requirement of

common sense)?

We regard this as a second best outcome.

9. If what we will see as a very foolish and short-sighted decision is to be carried into effect by the removal of the trees, will you give your cast iron guarantee that this will not be done without the genetic material being available for grafting/budding onto other trees in WA (such as those of some of our members).

We are not accustomed to using strong words to present our point of view but we are sure you will appreciate that the destruction of this valuable public asset will be enough for us to bear without the vandalism of the available genetic material that we might be able to use and retain in WA. **Although we see this as a third rate compromise, at the very least we expect our government not to be a dog in the manger, especially with public property.**

We would be glad to have the answers to our questions as soon as possible. In the meantime we ask you to make sure all the trees are left untouched so that your ultimate and considered decision is not pre-empted by hasty action."

Yours sincerely

David Noël, President, WANATCA

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New Logo for WANATCA

The West Australian Nut & Tree Crop Association has a new logo.

As in previous years, the logo is based upon WA's best-known native fruit and nut, the Quandong.

The Association's first publication, back in 1975, was Volume 1 No. 1 of this magazine, which has always been called 'Quandong'. That first issue featured a quandong as a logo — this was obtained by photocopying an actual quandong and sticking the photocopy on the magazine banner.

In the next issue, the number of quandongs had increased to three, and this group of three quandongs was featured on the magazine banner, the Yearbook, and the Association's letterhead for many years afterwards. When Bill Napier took over the editorship of 'Quandong', he had a new banner designed and threw out the quandong image in an aesthetic pique.

Now we will be getting it back. The new logo shows a quandong fruit, a nut, and a kernel, surrounded by a wreath of quandong leaves. It will gradually be introduced into the magazine banner, the Association's letterhead, and all official publications.

The fruit is a country favourite for jams and pies. The nut, almost completely



The old WANS/ WANATCA logo



spherical and with the characteristic pitting, was used for chinese checkers and for making necklaces. The kernel is edible, most varieties have a good flavour, and was widely used as an aboriginal food. Even the long strap-like leaves have value, as animal fodder.

Our new logo was designed by WANATCA member Irene Young, to whom the Committee give their congratulations and thanks on a splendid result.

— David Noël

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Alex Hart on 09-490 1324

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[CSFRI Information Bulletin (South Africa) April 1992]

Highlights of subtropical horticulture research in South Africa

Bananas. Evaluation of banana cultivars has resulted in the release of the cultivars Chinese Cavendish, Grand Nain and Valery to the local industry. Compared to the standard cultivar, Williams, Chinese Cavendish has a shorter pseudostem and a shorter crop cycle. Grand Nain has larger bunches and a shorter crop cycle.

In seasonal growth studies with Dwarf Cavendish banana plants, the lower mean temperature for growth cessation was established as 14.5°C. The relative growth rate of young plants was increased by 266% between monthly mean temperatures of 16.6°C (winter) and 23.2°C (summer).

At Levubu the optimum planting density for bananas was determined to be between 1,333 and 1,666 plants/ha. Results have clearly shown that in the subtropics one cannot compensate for low plantation vigour by simply increasing the density.

In commercial evaluations, tissue-cultured bananas out-yielded those from conventional suckers by 20% in the first crop cycle. There was also a carry-over effect into the second cycle where R1 plants originating from tissue-culture planting material had taller and thicker plants with larger bunches. Tissue-cultured plants can be established successfully every month of the year, although yields vary according to seasonal factors.

Mangos. The highlight of research on mangos was the release of four locally

selected cultivars to the industry. These are Neldica, Neldawn, Heidi, and Ceriese. In studies on the influence of boron on fruit set of mangos it has been established that boron is essential for pollen tube growth. For optimum pollen tube growth, and hence better fruit set, a boron concentration of 80 mg/kg in the flowers is recommended.

Guavas. Twenty years of selection work on improving guava cultivars culminated in the release of three cultivars to the local guava industry. The new cultivars, Frederika, Fredene and Dimple have



*Mangos growing at the Doubikin property, Roleystone, Perth.
(WANATCA Field Day, 22 March 1992)*

improved fruit quality and better fresh marketing characteristics than the standard cultivar, Fan Retief.

Phenological studies on guavas have enabled the compilation of crop models for different pruning times. These show the effect of pruning time on shoot growth, flowering, fruit growth, harvesting time, fruit quality and yield. These aspects are coupled to correct management practices at optimal times.

Litchis. In the selection programme on litchis the priority was to select early and/or late bearing cultivars so as to extend the harvesting period of litchis. Approximately 20 cultivars and local selections have been identified which ripen earlier or later than the standard cultivar, HLH Mauritius, or which had a better fruit quality. These cultivars and selections are now being evaluated in different production areas.

Post-harvest treatments to preserve the quality of litchis during and after shipment indicated that good quality HLH Mauritius litchis could be landed overseas in excellent condition if fumigated with SO_2 , then dipped in prochloraz and packed in Everfresh bags. Optimal temperature during storage is 2°C.

Coffee. Vegetative propagation studies of Robusta and Arabica coffee have shown that there are numerous differences between the two species. Rooting of Arabica cuttings is dependent on the season, autumn being the best time for propagation. Shorter cuttings had a higher rooting percentage than longer cuttings. Robusta cuttings rooted well in both spring and autumn.

Ginger. Evaporative cooling was found to be essential for ginger cultivation in the Burgershall area and yields were increased by 20% as a result of cooling. Cooling also

improved the size and quality of the rhizomes with only 10 to 20% more water being used.

Macadamias. In planting density trials on macadamias, higher densities of 127 to 331 trees/ha gave yields of 3,500 kg/ha/yr compared with 1,000 kg/ha/yr from densities of 41 to 105 trees/ha. The yields per hectare of these higher densities did not decline significantly over a 6-year period.

Pecans. Cultivar studies on pecans have narrowed the range of cultivars suitable for subtropical production areas with high rainfall and humidity to only four, viz. Ukulinga, Shoshoni, Moore and Barton. These cultivars are recommended as a result of consistently high yields, an acceptable nut quality and resistance to scab.

CSFRI Nursery achievements. Present trials consist of guava and macadamia rooting experiments. Pecan and mango rooting projects have been registered and other subtropical crops will follow.

A total of 41 cultivars went through shoot tip grafting for the Citrus Improvement Program. Cultivars that went through shoot tip grafting for evaluation trials and the citrus gene-bank total 205.

— Rosemary J. du Preez

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[*Horticulture Today*/ March-April 1992]

Casimiroa success for Denmark grower

Denmark farmer Rod MacDougall continues to live up to his reputation as the “man who can grow anything”.

He also maintains that the south coastal region has enormous potential for horticulture.

Horticulture Today was recently invited to check out some more of the fruits of his labour - this time with attention focused particularly on casimiroas - or white sapotes as they are more commonly known.

Casimiroas originate from mountain country in Mexico and are ideally suited to high rainfall climatic conditions.

Rod MacDougall initially imported seed from California eight years ago and has since acquired three named varieties from Queensland. The original tree is massive, and its boughs are weighed down by prodigious quantities of green fruit.

Mr MacDougall pointed out that each tree can produce up to three tonnes of fruit a year - over a long period of time - and suggested that moves into commercial production would not require a large number of trees.

Casimiroas are green in colour and about the same size as a granny smith apple. They have a distinctive flavour which “people either love or hate”, say the MacDougalls.

The flesh of the fruit is fairly soft, has two

seeds, and appeals to those with a sweet palate. It is definitely an acquired taste and one that would go down well with a dollop of ice cream or a swirl of whipped cream.

Rod MacDougall said most people who had sampled a casimiroa loved the sweet,



Casimiroa fruits and foliage

juicy taste, especially as an alternative fruit to the more traditional lines.

He also said it was important to grow the right variety which did not leave an after-taste so often associated with tropical fruit.

The MacDougalls sell their casimiroas locally but view them as a potential commercial venture for anyone wishing to diversify into something a little different.

He has seedlings available for sale for just \$5, and said the plants are very hardy, can withstand frost and grow to about 10 metres.

Amongst the plethora of fruit and vegetables thriving on his Denmark property, are 10 varieties of persimmons, which he is

also researching. Mr MacDougall sees persimmons as another lucrative horticultural boutique line. He said a tray of 12 luscious orange fruit is worth \$35, but stressed that there is an art to establishing these rather exotic fruit.

Mr McDougall's chestnut crop has been very successful this year, and he has harvested two tonnes of fruit.

He has been unable to meet market demands, however, and believes Denmark to be ideally situated for major diversification into the multi-purpose nut.

Bob Nederpelt letter on Cider Gum

Since reading the article "Wattle it be?" in Quandong Vol. 17 No 2, I have made some efforts to obtain seeds of Eucalyptus gunnii, the Tasmanian Cider Gum.

I now have the seed and intend to raise a number of seedlings. Provided that all runs to plan, the seedlings will be available for planting out in the 1993 season.

The reason for this letter is to let Western Australian members of WANATCA know I am prepared to give say 5 seedlings, to any members prepared to trial these trees in WA.

The object of this apparent generosity is to hopefully have samples of the trees established in a number of different areas, thus determining reasonably rapidly those regions and soil types, if any, suitable for the cultivation of the species.

People taking up the offer would need to keep reasonably detailed records, which at some later date, would be pooled.

— Robert P Nederpelt, PO Box 56, Morley WA 6062.

Letter from George Chignell

I have only recently purchased an almond orchard at Northampton and now I think is a good time to join your organization and become a little involved with others in the same line of business.

The Northampton area seems particularly suited to tree crops because of its soils and the quality of its underground water, and I will be looking to diversify as time progresses.

I will be endeavouring to get to General Meetings and so forth, and if I can be of any help in respect to the almonds, and if anyone passing through wishes to call in, then I would welcome the interest.

— **George Chignell**, PO Box 213, Northampton WA 6535. Phone 099-341341.

David Noël comments:

Northampton is just north of Geraldton, about 400 km north of Perth, so this almond plantation is probably the the farthest north in Australia. I agree with George as to the potential of tree crops in his area.

A frost-free coastal area, Northampton is the most northern part of southern WA with good water and soils, and is perhaps the most prospective area in the State for development of large-scale subtropical fruit and nut production.

Our future Macadamia Coast?

[Countryman/ June 11, 1992]

Patience rewards fuji fruit producer

An unexpected introduction to fuji fruit when visiting a Perth nursery is starting to pay off for a Brookhampton grower.

But despite the high returns coming the way of John Campbell, he is the first to claim the crop as one of the most difficult he has attempted to grow.

John says the returns from fuji fruit are only comparable to the amount of work involved producing them. The exotic Japanese fruit commands as much as \$15 a peach tray to the grower and its potential to provide expanded market is unlimited, according to John.

The fruit is a type of persimmon. But unlike its relative, which is astringent when firm, fuji fruit is tasty when either crisp or soft. It has an orange to red glossy skin, a slightly flat topped round shape, a barely discernible aroma and smooth, sweet, orange-coloured flesh with apple like texture.

John said as a general rule the public was confused about when to eat persimmons and usually ended up eating them at the wrong time and consequently hated the taste. But with the non-astringent variety (fuji fruit) this is not the case.

John has been growing the fruit for eight years and says being one of the pioneers in the development of fuji fruit has meant a lot of trial and error.

He said the most important thing to remember when contemplating a fuji fruit orchard was the amount of work needed around it.

"They are very hard to manage — anything that comes in contact with them seems to cause some harm," John said. "Even a simple rub against the wire of the trellis will cause marking or a bruise."



Max Farley harvests fuji fruit at Zikim

Simply cutting fruit from the tree could also cause damage to the fruit and extra care needed to be taken to ensure the secateurs did not rub against it when picking.

The same care needed to be taken when thinning the tree and it was factors like this which John says confirm his belief that the fruit should only be grown on a limited scale to ensure the meticulous attention they need.

John has the trees on a palmette trellis system three metres apart, usually reserved for peaches and other fragile fruit, to try and stabilise the trees as much as possible, particularly against wind movement.

To further minimise possible damage caused as a result of wind, John makes extensive use of anchors and trellis ties to hold limbs firm against the wire.

So fragile is the fuji fruit that when picking John needs to put a few sheets of newspaper between each layer as the stalk from one fruit can damage the skin of another. John says he still has a lot to learn about the fruit as it is so new and research into it has been very limited.

— Valma Ozich



John Campbell, of Zikim orchard, Brookhampton near Donnybrook with a tray of fuji fruit ready for market

IN THE WANATCA EXECUTIVE

The Executive were very sorry to receive Amos Macklin's resignation from the Committee at the last meeting, due to ill-health in his family causing a reduction in his available time. Amos's helpful and wise support in the past has been greatly valued by the Committee.

Fortunately, Amos will be able to continue in his position as Leader of the Pecan Action Group, one of the Association's most active specialist groups. Pecans look set to become one of the State's major horticultural production items in the future.

In a further bonus, the Committee have been able to co-opt long-time WANATCA member Neville Passmore to serve out the remainder of Amos's term. Neville, who runs Blossoms, WA's foremost gardening centre specializing in new fruit and nut crops, is well known as a radio broadcaster, and as a writer whose work is familiar from WANATCA publications and elsewhere.

Horticultural Spectacular to be held in November

A Horticultural Spectacular has been organized by the WA Horticultural Council for Friday to Sunday, November 6-8, at the Claremont Showgrounds.

WANATCA is a member of the Horticultural Council, who own the building in the Showgrounds where the Tree Crops Centre and the WANATCA Headquarters are housed. We expect to have a display at the Spectacular.

More than 20 of the other specialist societies within the Horticultural Council will have displays and plants for sale, and commercial horticultural organizations will also be active. Most of the other societies specialize in particular flowers, such as gerberas, roses, day lillies, gladiolus, and ferns.

It is expected that this Spectacular will become a regular event on the WA scene. Profits from this event will help support the Horticultural Council initiative to set up a major world-class Horticultural Complex within WA.

Any reader interested in booking space to sell or display horticultural products, or in participating in a shared display, should contact the organizer, Council President Gerald Gillett, without delay on 349 5396.

[Countryman/ February 27, 1992]

Figs follow cherries

Although Peter McGinty has only 100 fig trees he is one of the biggest fig growers in WA.

With cheap imports from Turkey completely locking out prospects of a dried market, the only avenue open to growers is in fresh produce.

Figs are a secondary crop for Mr McGinty, who puts most of his energy into being one of the state's biggest cherry growers.

However, with harvesting of figs in January (only a light crop) and April-May, they fit into a nice work program at his Manjimup property.

He is the only substantial grower of figs in the area and while that brings with it obvious advantages of market niches, he has problems with the weather because of his location in the deep South-West.

"When we first looked for a crop to supplement the cherries we wanted something we could plant on a small property," he said. "We also wanted something different — everyone in the area



seemed to be growing apples or potatoes and we didn't want to follow that plan."

Mr McGinty admits that planting the figs in Manjimup was really a bit of a gamble. "Traditionally figs are a hot climate crop," he said. "They probably do grow better in Perth than they do down here."

Like Persimmons — another small crop he has — it is important with figs that their ripening period does not go into winter.

— Valma Ozich

Persimmon and Fujifruit varieties in WA

Persimmon and Fujifruit, both botanically *Diospyros kaki*, are originally from China and Japan where they have been widely grown for a very long time.

Persimmons belong to the ebony family, the timber has commercial value, and is used in many parts of the world for carving. Besides being grown for its fruit, this tree is also of great ornamental interest, with wide glossy leaves, turning to beautiful autumn colours and bearing brilliant deep orange coloured fruit.

Persimmons can be grown over wide climatic conditions. They can stand frost when dormant and they have a low chilling requirement. They do well in dry, hot inland situations, hills and coastal areas and cool south districts. Persimmons are sensitive to winds and tend to be difficult to establish and become profitable under this condition. They

prefer deep soils, with good drainage and a good supply of organic matter.

Varieties commercially available can be classified in three categories.

PCA (Pollination Constant Astringent)

The fruit of these cultivars are not edible at harvest, they can only be eaten when very soft (over-ripe).

HACHIYA (Nightingale seedless). An original Japanese variety, large fruit, cone shaped, attractive yellow-orange skin. Stands cool storage well and is suitable for drying.

DAI DAI MARU. Square-sided fruit, beautiful tree, glossy green leaves turning to bronze red in autumn. Heavy bearing tree, needs thinning.

PCNA (Pollination Costant Non-Astringent)

Cultivars with ever-edible fruit at harvest time (hard fruit). In this group are to be found the most important commercial varieties, sold under the name Fujifruit.

FUYU (Fuyugaki). The best of the non astringent cultivars. Medium to large size fruit, round-flat. Skin orange-yellow at harvest time, red-orange with a bloom at maturity, very thin and easy to peel. Flesh yellow to orange, good flavour. Good cold storage variety. Tree vigour is reasonably strong, branches tend to droop, a support frame may be essential. Grown extensively in Japan since 1902, out of this cultivar many strains have evolved and new varieties produced from cross-breeding.

JIRO. The second most important variety in Japan after Fuyu. Large size fruit, flat, yellow-orange colour. Flesh is soft (liquescent), sometimes floury, but of excellent quality. The fruit sometimes cracks on the apex. Jiro matures one to two weeks before Fuyu. Good variety for drying.

MAEKAWA JIRO. Large fruit with glossy skin, orange-yellow covered with bloom. This cultivar matures two weeks earlier than Jiro and also colours much earlier than Jiro, for this reason it is often harvested immature, in which case the texture deteriorates and the flesh near the calyx remains astringent. It is thought to be a mutation of Jiro.

MATSUMOTO WASE FUYU. An early maturing bud mutation of Fuyu. Large fruit, identical to Fuyu, slightly smaller and flatter. Matures two weeks earlier than Fuyu. Needs to be protected from strong winds, the branches are more brittle than those of other varieties. It will set a lot of fruit and tends to become biennial in cropping if not thinned.

SURUGA. A relatively new variety from Japan. The fruit is large (average 200g) roundish-oblate with a bright orange-red skin. The flesh is very firm and sweet and the quality is superior to that of Fuyu; the fruit has good storage quality. A late maturing cultivar, it is only suited to warm climate areas. Suruga is susceptible to calyx-separation more than other varieties. This is a term used for the splitting that may occur around the junction of the calyx and the fruit. Hand thinning of fruit with a small calyx should reduce this problem.

HANA-FUYU. Very promising variety from China. Very large fruit (average 225g) round-oblate, yellow-orange skin. Intense yellow-orange flesh of good quality. Hana-Fuyu matures 15 days before Fuyu. The tree is moderately vigorous with a spreading habit. Inconsistent in yields if over-cropping is allowed.

Other PCNA cultivars growing in our orchard: GOSHO, IZU, FUYU CSR, FUYU 12737, MURDOKI FUYU, FUYU-B, FUYU-G, 20th CENTURY.

PVNA (Pollinalion Variant Non Astringent)

The fruits of these cultivars can vary in the nature of the flesh, which will be clear and completely astringent at harvest time if seedless (parthenocarpically set, without pollination), or more or less dark in colour and non-astringent at harvest time if the fruit is pollinated and has seeds (4-8).

NISHIMURA WASE. Probably a seedling of a Fuyu+Akagaki cross from Japan. Valued for its early maturity (mid April). The fruit is medium to large (average 180g) oblate orange-red skin, easy to peel. The flesh is of good quality. Not a vigorous tree, with a spreading habit.

KAKI TIPO (Loto di Romagna). The most popular variety grown in Italy. A medium to strong growing tree, upright, with a prolific and constant production record. Fruit is large (250g), round glossy orange skin, thin and easy to peel. Suitable for drying and for cold storage.

As we can see, pollination plays a very important part in certain persimmon cultivars. In Fuyu, for example, fruit produced parthenocarpically (without seeds) tend to drop easily and does not develop uniform skin colouration. Male cultivars at a ratio of one for every eight females is recommended.

GAILEY is a PCNA variety highly suitable for pollinating Fuyu. Other cultivars belonging to the PVNA group with many male flowers producing abundant pollen to be taken in consideration are: JENJIMAPU AKAGAKI, OMIYA WASE. Bees appear to visit persimmon blossoms freely for nectar and pollen, a number of beehives kept in a given area will only improve fruit set.

[Source: 1991 Catalogue of Olea Nurseries, RMB 44, West Manjimup WA 6258]

[Countryman June 18, 1992]



Margaret Bridgart picks the first of this year's tamarillo crop

Producers fear a glut of tamarillos

Pioneers of commercial tamarillo production in WA, Keith and Margaret Bridgart, of Denmark, last week began picking the first of this year's crop amid concerns about market oversupply.

Like many producers who supply niche markets, the Bridgarts fear competition from hobby farmers and others looking for something to grow.

"Tamarillos are a fruit you either like or you don't," Mrs Bridgart said.

"The market teeters from week to week depending on supply. We will be picking through to October, but like a lot of these type of markets it doesn't take much to push it over the edge."

The Bridgarts started their tamarillo orchard 10 years ago, but now face competition, including a commercial venture at Pemberton.

[West Australian/ July 28 1992]

WA wins battle against Queensland fruit fly

Queensland fruit fly has been eradicated from WA, marking the end of a three-year, \$8 million campaign by the Department of Agriculture and the Agriculture Protection Board.

The eradication program started in August 1989 after the discovery earlier that year of Queensland fruit fly in tomatoes in a Dalkeith backyard.

Success was achieved with a three-pronged attack involving lure traps, baits and the release of millions of sterile fruit flies.

The logistics of the campaign were staggering. The Department of Agriculture built a special breeding centre to produce the 30 million sterile Queensland fruit flies required each week for the campaign. Officers baited fruit trees in more than 100,000 households over a 300 square kilometre area in the Perth region.

There was concern that Queensland fruit fly, which attacks fruit, could devastate horticulture crops if it became established in WA.

Agriculture Minister Ernie Bridge said yesterday the eradication of a pest on the scale of the Queensland fruit fly project was a unique achievement in Australian agriculture.

Mr Bridge claimed it was one of the biggest eradication campaigns in the world to be completed successfully.

"If Queensland fruit fly had become established, not only would there have been a significant increase in the amount of pesticides used on horticulture crops but the future of many innovative horticulture projects in WA would have been threatened," he said.

It was possible that a Mediterranean fruit fly eradication campaign would be carried out in the future.

"Such a program would require new and improved eradication technology, as well as the same level of public support and co-operation shown in the Queensland fruit fly program," Mr Bridge said.

— Liz Tickner

[Editor's note: The eradication of Mediterranean fruit fly would be a tremendous assist to WA horticulture, a move we have been pressing for for more than 10 years. Mr Bridge deserves every possible encouragement to press ahead with this project, which by its very nature must be done by Government.]

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[Weekend Australian/ July 11-12 1992]

Bush tucker can save starving, say researchers

Bush tucker has emerged as Australia's secret weapon in the worldwide war on famine and starvation—with the vision of a “great green wall” of wattle trees extending around the globe to arrest the march of deserts and provide a new source of nutrition.

Australian acacias have the potential to be used to provide food and fuel, halt soil erosion, protect other crops and restore fertility to damaged semi-arid regions of Africa and Asia, a national scientific study has found.

Wattle seeds are highly nutritious, have been a staple food for Aboriginal people for thousands of years and are finding ready acceptance as a food crop on the western fringes of the Sahara, according to Dr Chris Harwood and Dr Alan House of CSIRO's Division of Forestry.

“We believe there is great potential to use wattle seeds to help alleviate hunger in semi-arid countries, many of which already grow wattles for firewood and as windbreaks,” the two researchers argue in a new book, *Australian Dry-Zone Acacias for Human Food*.

Study of the seeds of 44 acacia species most commonly eaten by Aboriginal people — out of 900-plus which grow here — have led researchers to conclude that they are in many ways an ideal and highly nutritious food. Typically, acacia seeds contain 23 per cent protein, 26 per cent carbohydrates, 32 per cent fibre and 9 per cent fats.

“That's a good profile, but of course it varies a lot from species to species. Still it suggests we could pick out the species to meet particular nutritional needs,” Dr Harwood

says. The best kinds of wattle compare favourably with other high protein grains such as peas, lentils, chickpeas and soybeans.

While there is some concern over toxicity, the wattle species used for food tend to be fairly innocuous. One of their main drawbacks, protease inhibitors which interfere with digestion of protein, can be eliminated by cooking, he says.

Seed yields are also heavy — typically 2-4 kilos a tree — offering a potential harvest of a tonne or more of grain a hectare from a close-planted stand of wattles.

An ample supply of high-protein food available at a time of drought when other annual crops fail could spell the difference between life and death, Dr Harwood suggests.

Wattles are already extensively planted in West and East Africa, parts of the Middle East, India, China and arid parts of South-East



From: *Native Trees of South Australia*, by C.D.Boomsma (see Granny Smith ad p. 27)

Asia, he says.

"They also taste pretty good. They have a rather nice, nutty flavour — not unpleasant at all. But we'd mostly see them being ground to make flour to blend with other kinds of flour," Dr Harwood says.

"To date, Australian plants haven't contributed much to the world's dinner plate. Despite our rich heritage of native flora, only one — the macadamia nut — is grown widely as a food crop," he says. "There are lots of species with potential."

But across the world, in other dry countries, Dr Harwood sees Australian species increasingly coming to the rescue of regions facing devastation.

— *Julian Cribb*

[Horticulture Today/ March-April 1992]

Passionfruit processor looks to wheatbelt

It has been another disappointing season for the passionfruit processing industry, with high prices at the markets resulting in minimal surplus fruit. Denmark processor Des Moore told *Horticulture Today* recently that he had managed to provide only \$3,000 worth of pulp out of orders worth \$300,000.

Last year was also disastrous, with several blisteringly hot days causing severe damage to crops. He said that, predictably, growers were taking advantage of good prices due to a shortage of passionfruit in the State.

"No one is going to send me fruit for pulping when they can get up to 20c per passionfruit at the markets," Mr Moore said.

Wheatbelt

Mr Moore is looking towards the wheatbelt for new growers, and believes there is excellent potential for farmers to diversify into passionfruit, particularly as cropping

does not clash with normal harvesting operations.

He has scotched any suggestions that there is a risk of a glut of passionfruit in the State, and claimed that even if all present growers supplied him with fruit, he could not supply 10 percent of the pulp market.

About 25,000 vines have been planted over the past two years, although many were knocked back in early 1991 by unseasonal heat.

Des Moore hopes to sell up to 25,000 more vines this year to augment the industry's future production.

— *Anne Simpson*

Pecan survey to be made

To improve our knowledge of pecan varieties being grown in WA, we are including with this issue of Quandong a Pecan Survey Form asking for details of pecan varieties known to readers as growing in their area.

The survey is being collated by WANATCA Executive member Bob Haywood, himself a pecan grower in the Margaret River area. Pecans are known to perform well over a big area of the State, right from the south coast up as far north as Carnarvon, almost in the tropics. But our knowledge of what varieties are doing well in different districts is very limited—and almost nothing is known of local seedling selections.

Please help us by completing the survey form and mailing it off to Bob at the address shown. If the form is missing and you know of pecan plantings which should be included in the survey, please contact the Tree Crops Centre on 09-385 3400 for more forms.

Where Are We Going? (Again)

In the last issue of *Quandong*, under the heading *What's the future for horticulture?*, details were printed of a submission which I prepared for the Federal Government's Horticultural Policy Council. Mention was also made of a second submission supplied to the Industry Commission enquiry on horticulture.

The first submission aroused quite a lot of interest, both within and outside Australia, and I have been asked about the second submission, which was mostly on quarantine and other difficulties encountered when working in the area of introducing new crops. A slightly edited version of the second submission is reproduced below.

— David Noël

This is an addition to my previously-submitted submission, headed 'Future Directions for Australian Horticulture' project. The theme of the initial submission was that there are two levels of research in horticulture, a 'front-line' level mostly involved with specific crops or problems, of more immediate commercial application, and a 'background' level involved with a wide range of potential horticultural crops with potential, but not presently of any great commercial concern.

I suggested that under current industry and governmental conditions, there is no support, or even a mechanism, for investment in 'background' research, and yet it is the 'background' research of today which will lead to the commercial crops of tomorrow. I suggested ways in which this situation could be remedied at low cost.

A recent article from *California Agriculture* had an important comment: "Public investment in agricultural research has yielded large benefits to American agriculture and consumers, domestic and foreign, during the past century." The relevance of this to my initial submission will be apparent. In the current submission I want to bring out some of the difficulties encountered by those undertaking 'background' research with a recent current example concerning quarantine.

I recently ordered some seeds from an American supplier, and these passed through quarantine as normal, with the exception of a packet of 6 Manchurian walnuts, *Juglans mandshurica*. These were retained by Quarantine Inspection in Fremantle and I received a notice declaring them to be Prohibited Imports.

I enquired as to the reason for this notice. It appears that all walnuts are listed as prohibited imports into Western Australia, and, on further enquiry, it appears that this is because of a danger

of codling moth, a pest which is not normally present in WA. I enquired of the Quarantine Officer at Fremantle whether it would be possible to have the nuts after devitalization for a show collection, and he said that it was possible in theory, but a special de-vitalization procedure would be necessary at an estimated cost of \$40.

In fact, this particular quarantine action was fairly ludicrous. Tonnes of ordinary walnuts in shell are, in fact, imported from America into Western Australia each year, perhaps via the Eastern States, without any such treatment. Codling moth is not a common pest of walnut, it is not listed as a walnut pest in the most comprehensive current listing in Australia (*Chemicals for the Protection of Fruit & Nut Crops*, 2nd edition, Queensland Government, 1991). The shipment of Manchurian walnuts was accompanied by a Phytosanitary Certificate from the supplier, endorsed by the Commonwealth of Massachusetts, declaring it free of all injurious insects. And it would be a simple matter to inspect 6 nuts visually to determine that no insect entry holes were present.

I am not giving these details because of complaint on a particular quarantine item, but to illustrate difficulties encountered in a simple introduction. In actual fact I was able to contact officer's superior in Canberra, and eventually to obtain release of the nuts. All this involved considerable work and expense, an effort that no ordinary importer would struggle through with.

There is also the question of costs to a seed importer. The Federal Government is increasingly committed to 'full cost-recovery' or 'User Pays'. The relevant comment here is, *Who is the User?*. I suggest that in quarantine matters, it is *the Community at Large* which is the user, and the actual seed importer should not be expected to pay all the costs — that is like a householder who has suffered a robbery having to pay a charge for the police to call round to the scene.

The basic complaint is not about the existence of quarantine, but about the existence of unnecessary controls and the lack of mechanisms for the ordinary person to do anything about the situation without enormous expense and bother. There is no Court of Appeal in quarantine matters, no mechanism to have quarantine procedures or classified items reviewed.

A similar ludicrous position exists with the *Prosofis* family, a most valuable genus of land-

(... continued page 26)

STATEMENT OF RECEIPTS AND EXPENDITURE

WEST AUSTRALIAN NUT AND TREE CROP ASSOCIATION

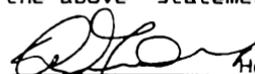
for year 1st July 1991 to 30th June 1992

BALANCES BROUGHT FORWARD:		EXPENDITURE:
C'wealth trading bank	1810.13	To
R & I Golden account	1021.24	Printing
CSB Petty cash a/c	116.67	Quandong \$3050.25
Beneficial Finance Dep	<u>1000.00</u>	Year book 2280.00
		leaflets 122.14 \$5452.39
TOTAL B/Fwd.	\$3948.04	Stationary 261.22
RECEIPTS:		Honourarium 1040.00
Members fees		postage:
1991 \$1234		Aust Post 826.92
1992 8357		World mail 253.63 1080.55
1993/4 <u>360</u>	9951.00	Horticultural Council 45.00
Interest received		Hall Rent 150.00
R & I \$161.25		Debenture R.A.C. 1000.00
CSB 33.16		Telecom 305.84
Beneficial <u>43.92</u>	238.33	Rent - Tree Crops 520.00
Sale Quandong 3.00		Expenses - Royal Show 42.60
Postage recoup 10.80		Photocopying 151.13
Redemption		Rent post Box 37.00
Beneficial Finance Dep 1000.00		R & D project 10.45
		Nashi display 10.50
		Refreshments 19.70
		FID & BAD tax 20.77
		Balance Brought fwd 5004.02
	\$15151.17	\$15151.17
Balance Carried down	\$5004.02	

This is represented by :

Balance General A/c Cwlth Trading Bank	\$2693.89
" Golden A.c R & I Savings Bank	1215.88
" Petty cash A/c CSB	94.25
Secured Debenture stock R.A.C.	<u>1000.00</u>
	<u>\$5004.02</u>

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


Hon Auditor.
21/7/92.

reclamation and fodder trees, highly recommended in publications by the US National Academy of Sciences and authorities in India and Chile. But, there are already some trees in the north of Western Australia, and they are very spiny, as spiny as some of our wattles. Ergo, a complete ban on all species of *Prosopis*, including ones without spines. What can the ordinary researcher do about this? He is helpless.

The Peanut Tree — *Sterculia quadrifida*

(Plant Family: Sterculiaceae).

Like many small rainforest trees, the peanut tree has no trunk or bark features which can be used to identify it. It joins the seemingly innumerable trees with featureless, grey bark, round trunk and the beginnings of three or four half exposed roots radiating from the butt.

This can make identification difficult when it is remembered that, in the rainforest the first three or four metres of trunk is all that one usually has for identification, because, even with a small tree like this which only attains 10 or 15 m in height, the leaves are almost indistinguishable against the glare of the sky or among the leaves of the surrounding trees.

The leaves, if one can get hold of them, are about 15 cm long, half as wide, oblong to elliptical with truncate bases.

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Peanut trees grow in the dryer areas of rainforest where the canopy is rather low or open. They are deciduous and grow in the company of other deciduous species — *Albizia*, *Terminalia*, *Melia*. They drop their leaves during August and September and immediately begin to produce flowers in large quantities.

The flowers are a yellowish-green to begin with, turning a dull reddish after a few days — not at all showy, but quite sufficient to identify the tree, especially as there will most likely be a few ripening fruit among the flowers.

The fruit are pods about 10 cm long and half that in width, coloured brick red and carried in twos, threes or fours radiating from the ends of stems. As they ripen they will split open to reveal the bright red lining of the pod and eight or ten black seeds hanging from the lips.

The pods, mere lumps 3 or 4 mm across at the ends of twigs, begin to develop in June. They will have matured and fallen by the time flowering is over, by which time the tree will again be covered with leaves and bearing the embryo fruit of next season.

The seeds are about the size of a peanut and have a very similar flavour. The covering or shell of the seed is rather close fitting and can be difficult to remove. It will be found more convenient to heat them in a dry saucepan or similar container. They do not pop in the manner of pop-corn, but they expand so that they burst the shell making it easy to remove.

This tree is very easily grown from seed and does not mind full sun, dry conditions and rather poor soil. In fact, it will do quite well in most cleared and impoverished rainforest soils. In the garden it grows steadily — though not fast — blooms regularly, usually

sets at least a few of its spectacular fruit, gives no trouble and makes no demands.

— *Harry Dick*

Study Group Report:

In cultivation this semi-deciduous tree grows to 9 m with smooth grey bark and soft, heart-shaped leaves 5-15 cm in length, on long slender stalks. Leaves on juvenile plants may be palmate. Inconspicuous, creamy-green, bell-shaped flowers are produced in short sprays amongst the upper leaves during spring and summer. The male and female flowers are carried on separate trees.

Female trees produce large, reddish, woody, boat-shaped follicles, 5-8 cm long, that split open along one side to reveal up to eight satiny black seeds nestled against the beautiful bright red interior.

Care must be taken to remove both seed coats; the rather slimy coating between them is rather unpleasant both in taste and texture. These seeds are about the size of peanuts and taste like a cross between peanuts and macadamia nuts. I have only eaten them raw, but would imagine they could be used like peanuts in cooking. Fruits ripen in summer. Propagation is from fresh seed.

[Source: *Edible plants ... of Northern Australia*. Special issue of *Australian Plants*, March 1992].

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580E • EUCALYPTUS Leaf Oils: Use, Chemistry, Distillation & Marketing. Boland (CSIRO, 1991). 252p. Hb. The complete manual, highly recommended. \$68.25

555L • LESSER Known Crop Plants of the SOUTH PACIFIC. Palmer (NZ, 1989). 134p. Pb. Good source of information. \$19.95

566M • MUSHROOM Growing for Everyone. Genders (UK, 1990). 216p. Pb. 'Covers whole subject in detail'. Recommended. \$16.95

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West Australian Nut & Tree Crop Association (Inc)

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

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CALENDAR OF FORTHCOMING EVENTS

1992

- Aug 19 Wed Special General Meeting, Horticulture at the University of WA
— Meeting held At The University
- Sep 11 Fri §Karragullen Horticultural Field Day
- Sep 26- Oct 3 Perth Royal Show, Claremont
- Oct 13 Tue Executive Committee Meeting
- Nov 6-8 §Horticultural Spectacular, Claremont
- Nov 18 Wed *Annual General Meeting (Kevin Whiteley — 40 Years in Horticulture: What Happened)

1994

§ACOTANC-94: North Queensland

*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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