



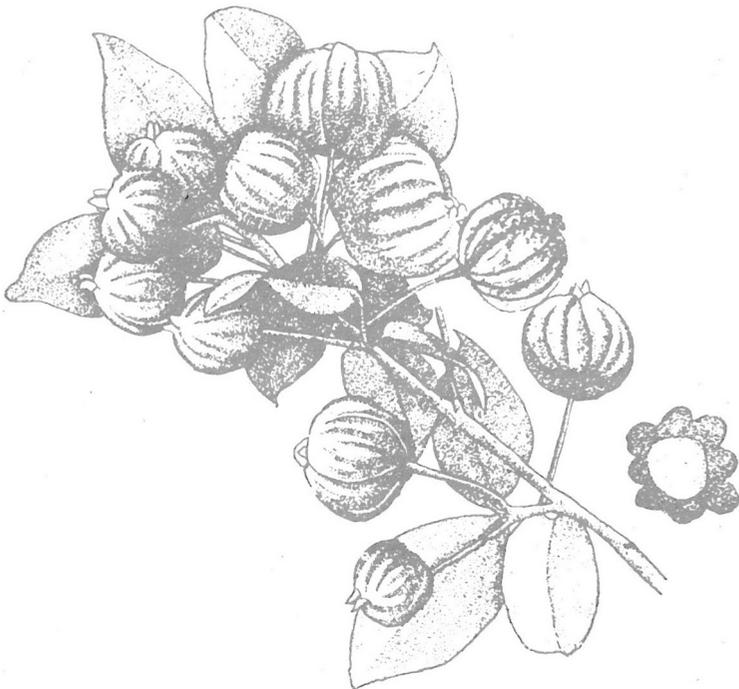
Quandong

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

First Quarter 1993

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The PITANGA (*Eugenia uniflora*) (See: About the Cover, p. 2)

***** Next Meeting ***** Note New Location!!

Wednesday February 17: 7.30 pm

Our main speaker will be **Bob Paulin**, who will give a talk on
Sustainable Horticulture : Tree Crops & the Environment

In addition, **Barrie Oldfield** will give an update on experience at the 'Men of The Trees' Dowerin property, Amery Acres:

Tree Crops in the Wheatbelt

This meeting will be at our new venue, the Greening Western Australia office at 1118 Hay Street, West Perth. **Full details on the attached leaflet.**

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

WANATCA FIELD DAY

Sunday March 28: 10 am

Perth Backyard Field Day - A chance to see two innovative backyard plantings in Belmont and East Cannington, with many exotic and unusual fruits, nuts, and other useful plants. **Details in the attached leaflet supplied with current issue.**

AT THE EXECUTIVE

At the November AGM, David Brown, Bill Napier, Pat & Bill Scott, and Neville Shorter were all re-elected to the WANATCA Executive, Neville Passmore's co-opted membership was ratified, and new Executive member Bob Nederpelt was welcomed.

At the January 12 meeting of the Executive, David Noël was re-elected as President for 1993, and new Life Member Bill Napier become Vice-President for 1993 — see a write-up on Bill's recent honour later in this issue of *Quandong*.

About the Cover

Our cover illustration shows the Pitanga, *Eugenia uniflora*, from southern Brazil. A relative of the lilly-pillies of Australia, the Pitanga produces a fairly crisp, cherry-like fruit which is notable for its prominent ribs.

Pitanga grows well in subtropical areas such as Perth, and produces while still only a 1-metre high shrub, though it can grow to be

a small tree. The plant has aromatic white flowers, and the foliage is said to repel flies.

The fruits vary from excellent to poor, some being very acid — this is a fruit which deserves local selection and breeding, with commercial possibilities.

Illustration from *Fruitas Indígenas*, by F.C.Hoene (São Paulo, 1979)

Big changes at ACOTANC — new industry council formed

Major changes are underway with ACOTANC, the body which has been responsible for the Australasian Conferences on Tree and Nut Crops.

Until now, ACOTANC has been an informal group made up of representatives of various organizations already involved with tree and nut crops in Australia and New Zealand. These include WANATCA, the New Zealand Tree Crops Association, the Australian Macadamia Society, and the Rare Fruits Council of Australia. They also include many other industry and research groups, in particular nut growers in southeast Australia who were mostly members of the former Victorian Nut Growers Association, but have since reformed into the various professional grower associations going to make up the Australian Nut Industry Council.

Staging of particular ACOTANC conferences has been by informal arrangement between these various organizations, and usually involved one of them acting as host for a local staging in conjunction with other interested parties such as state Departments of Agriculture. The only continuing general representation ACOTANC has had, has been the ACOTANC Permanent Secretariat, operated since 1988 on ACOTANC's behalf by the Tree Crops Centre in Perth.

The ACOTANC Permanent Secretariat has been funded by a grant from the ACOTANC-88 Committee, which ran the very successful 1988 ACOTANC in Lismore, northern New South Wales. Following discussions around the industry, on both sides of the Tasman, it was resolved to formally

incorporate the ACOTANC structure and expand its role and influence in the region.

Incorporation has now been completed, under the name ACOTANC Inc. As well as the original meaning of this acronym, it will also be used to mean Australasian *Council* on Tree and Nut Crops. All organizations which were informally involved in ACOTANC previously, plus new ones involved in the area, are being invited to formally participate in the new ACOTANC Council. Council participants

will all be organizations, individuals will only be involved in ACOTANC through membership of one of its participants.

It is the intention that ACOTANC Inc is a coordination and liaison body, open to any type of organization. Organizations may be incorporated or unincorporated, formal or informal, as for example: grower associations, research stations, university departments or laboratories, commercial firms, and agencies of government. ACOTANC's operation will be in the hands of individuals who are nominated by constituent organizations.



The ACOTANC Inc logo

The Foundation President of ACOTANC Inc's Executive Committee will be Bill Taylor, and the Foundation Secretary will be Merv Richens. Both Mr Taylor and Mr Richens were previously in the equivalent positions in the ACOTANC-88 Committee, which has now been formalized and recast in its new role as ACOTANC Inc.

The funds of the ACOTANC-88 Committee, generated from the Lismore conference, have also been transferred to ACOTANC Inc. In the past, these funds have been used for two main purposes:

- to support later ACOTANC conferences, as through the funding of the ACOTANC Permanent Secretariat; and
- to build up and support a permanent Tree Crops Gene Bank in Lismore, in the form of a botanic garden of fruit, nut, and tree crop species and varieties.

In its expanded role, ACOTANC Inc will continue these activities, and add the following aims as well:

- to underwrite the funding of future ACOTANC conferences, through loans to future host organizations;
- to assist in the staging of these and other tree crops conferences, through provision of financial projection, topic development, editorial, publishing, and travel arrangement services, as required by the hosts;
- to sponsor the publication of future editions of the Australasian Tree Crops Sourcebook (ATCROS), with the aim of improving it and developing it as a basic tool for participants and their members;
- to offer benefits and privileges to participants and their members in such areas as preferential rates at ACOTANC-supported

conferences, preferential discounts on ACOTANC-supported publications, and the right to apply for ACOTANC-supported scholarships and fellowships.

Previous ACOTANC conferences have been in Perth ('82), Melbourne ('84), Auckland ('86), Lismore ('88), and Bay of Plenty ('92). The 1990 ACOTANC planned for Renmark was unfortunately cancelled. Under the new arrangements, the inter-conference period will be 3 years instead of 2, with the next staging being again at Lismore in 1995, followed by a New Zealand site (Hawke Bay) in 1998. The 2001 ACOTANC may be in Western Australia.

Expressions of support or interest are being sought from all concerned. Contact details: ACOTANC Inc, PO Box 91, Lismore Heights, NSW 2480. Phone 066-24 3211, fax 066-24 1007. ¥

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Citrus and macadamias a popular topic

The November 22 Field Day arranged by the WA Nut & Tree Crop Association on two adjacent Chittering Valley properties was a popular event.

Over 50 people gathered to hear the two property owners explain the new methods and crops they have introduced over the last 15 years.

On the property of Clint O'Neil, who is Secretary of the WA Citrus Improvement Group, the emphasis has been on high-density planting schemes, new varieties and planting material, and use of specially-constructed wind shelters to bring tiny planting stock through its first season successfully.

Mr O'Neil said that the choice of rootstock species was very important for citrus. Soils on his property were highly variable, and all the newer trees were on replant areas, as the property had been in use for citrus for around 70 years. Different rootstocks had different effects on the fruit produced, and reacted differently to shortages of water. This meant that there was no one ideal rootstock which could be used over the whole property.

"With the fruit varieties worked on the rootstocks, knowledge about the presence of viruses may be vital," he said. "Some of the older varieties have been cleared of viruses through the citrus virus certification scheme in New South Wales, and new varieties brought in from overseas are checked through the same scheme. But if

viruses are already present in the rootstock, or are transferred over from older plants by aphids, we just can't predict their effect on fruiting."

Mr O'Neil has been a leader in the introduction of new varieties, but he cautioned that the economics of these introductions were hard to judge. "It costs about \$3000 to introduce a new variety from overseas, just to get it through the quarantine period," he said. "I have some of the new Summer Navel oranges just starting into production, a very high-quality sweet fruit, but they will need to fetch around \$3 a kilo to be economic. And once you are into full production, you never know when your variety will be superseded by the next one coming into favour".

The new high-density plantings on the orchard are laid out in beds of three parallel rows, with an access way for machinery



Clint O'Neil, centre, with David Noel of the WA Nut & Tree Crop Association, left, and nut grower Tim Lynn-Robinson

between each bed. As many as 1500 trees per hectare have been planted, although Mr O'Neil has reduced this to 1200 per hectare in the most recent plots. A high-density planting is capable of giving 60 tonnes of fruit per hectare, but can place high demands on watering systems and labour available.

To contain replanting costs, Mr O'Neil has developed special cylindrical wind shelters which have been successful in allowing the raising of much smaller and cheaper planting stock, plants only about 15 cm high. These shelters have been made from 8-line 'Cyclone' pig netting, which gives the necessary rigidity, wrapped in a 1 square metre piece of 'Ulstrawind' knitted windbreak material.

"The material reduces the light by only about 20%, and is open enough to avoid the cooking effect which you get with a solid clear plastic sleeve," Mr O'Neil said. "It is stapled onto the wire cylinder, which is held down by tying to a single stake. Most plants have reached the 1-metre top of the cylinder in their first season, after which it is removed for re-use on another planting".

"Although I reckon that the cylinders cost about \$10 each to make, I anticipate that they will last around ten years, so they more than save their cost in enabling direct use of small plants at less than 50 cents each".

WANATCA Executive member Neville Shorter, who arranged the field day, commented that Mr O'Neil's work was most impressive, and that he was working at the cutting edge on such matters as water supply and salinity handling, as well as the new-variety, close-planting, and micro-protection aspects.

Also impressive was the pioneer



Ultra-close planted macadamias, left, and pecans in the former nursery

macadamia orchard of Tim Lynn-Robinson, over the road from the O'Neil property.

Started in the 1970s, mostly using seedling trees grown from nuts of the smooth-shell macadamia species *Macadamia integrifolia*, many of the original trees are now 4-5 metres tall and producing well, with up to 40 kg of nuts harvested from some trees.

Mr Lynn-Robinson said that among the important things he had had to find out, in growing the trees under local conditions, was the need to tip back the macadamia branches to produce a very dense, compact canopy, and the importance of applying a good ground mulch between the trees.

In macadamias, most of the flowers and nuts are produced within the canopy. Keeping the canopy dense produced a good microclimate within it and reduced the trees' water needs. Water demand was also

minimized by the mulch — he used a tractor to cut the grass and weeds which had a mulching attachment which laid down an even carpet of the mulch as it travelled.

“Although I do have a number of named-variety grafted trees, such as H2, which have produced quite well, some of the best yields have been obtained from seedling trees,” Mr Lynn-Robinson said. “Moreover, one of my seedlings produces a higher proportion of the large No.1 grade nuts than the grafted trees.”

He has installed a macadamia processing plant which de-husks the nuts, sizes them into six grades, and cracks the nuts to yield the tasty kernels. After de-husking, the nuts are air-dried on open racks for some weeks before they are ready for cracking. Much of his produce is sold in-shell to service a local tourist centre, but he and his wife Judy also dry-roast some of the kernels to give a promotional snack product.

In a creative moment, Mr Lynn-Robinson designed and had produced a totally different nut cracker for domestic use, one which works for the very hard macadamias as well as other nuts. This cracker consists of two heavy cast metal discs, in one of which are four holes of different shapes and sizes. The nut to be cracked is placed in the appropriate hole, and the two discs are clapped together in the hands, giving a quick and efficient crack and a whole kernel. The technique actually dates back to the Stone Age — anthropologists have found specially-cut rocks used for the same purpose many thousands of years ago.

The orchard is on a sloping site running down into flat river-bottom land, and on this lower area the Lynn-Robinsons have some magnificent, productive pecan trees, some already 15 metres tall. Most of these were

grafted trees, but on some the grafts were lost and the trees re-sprouted from the rootstock. These rootstock trees have produced as good nuts as the grafted ones.

The orchard also has a number of fruiting pistachio nut trees, chestnuts, mulberries, and even some hazelnuts — generally regarded as a cool-climate tree. Trees are watered from a dam, but Mr Lynn-Robinson has considerably reduced use of irrigation water without any particularly negative results. There is a potential salinity problem with the water — a salt spring higher up the hill has been piped down to run directly into the river — but he has been impressed with the ability of both the macadamias and the pecans to cope with a water salinity level much above the desirable level. This ability may be tied up with the mulching practices.

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Tree Crops Centre director David Noël commented that one of the most surprising aspects of the property was the former tree nursery. In this, seed nuts had been laid out in close nursery trenches about a metre apart. Around 11 years ago Mr Lynn-Robinson experienced a fall in demand for nut seedlings, and he left the nursery, with its rows of close-growing trees, to its own devices.

Instead of dying down, most of these trees survived and thrived, giving an amazing dense growth of 10-metre high impenetrable rows of pecans and macadamias, like a huge hedge. Some of the trees have a stem diameter of 20 centimetres, and yet are only 50 cm from the next tree in the row — and these trees do produce quite a lot of nuts.

“There is a lesson for us here in the potential density at which trees can be grown,” Mr Noël said. “This represents a stocking rate of 40,000 trees per hectare, as opposed to conventional rates of 50 to 500 trees in conventional nut orchards. Many nut trees, such as pecan, which is one of the hickories, produce excellent timber — it may be possible to grow them densely for this, with any nuts produced treated just as a bonus.”

The Lynn-Robinson hand nut cracker costs \$25, and is available from Tim (phone 401 1852) or to personal callers at the Tree Crops Centre (the cracker is too heavy to supply by mail).

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Bill Napier elected honorary Life Member

In recognition of his many years of detailed and continuing service to WANATCA, 1993 Vice-President Bill Napier has been elevated to the position of honorary Life Member.

Bill has been involved with the Association ever since what some of the old hands refer to as “The Squirrel Nutkin days” — when WANSCO, the cooperative company owned by some members of WANATCA, ran a nut shop of that name in Shenton Park. This would be back around 1978.

A member of the WANATCA Executive continuously since 1981, Bill took on the additional task of *Quandong* Editor in the early 1980s and ran the magazine very well, if frantically at times, for some years. Bill was then working for the ABC, and there were some ferocious deadlines he had to meet for the magazine, in addition to coping with the heavy demands of his own job.

Bill experiments with and grows many nut and fruit trees at his rural Roleystone property, with pecans a particular favourite, and is also concerned with a York property planted mainly to pistachios.

Bill is one of WANATCA's two Honorary Life members (the other is David Noël). We congratulate him on his well-deserved honour and wish him many happy years of enjoyment and involvement with the Association's efforts.

ROGER MEYER TO VISIT WA

Roger Meyer, one of the leading lights of the California Rare Fruit Growers, is expected to visit WA for about 17 days, from March 25 on.

Roger is a noted expert on Jujube (Chinese Date), and has been working closely with WANATCA's Jujube Action Group leader, Ian Fox, on the introduction of improved jujube varieties to WA.

A pharmaceutical chemist by profession, Roger operates a jujube nursery business and an avocado orchard in California as well as his employment position.

Exchange Offer

Roger, together with his wife Shirley and 14-year old son Alan, hope to visit a number of interesting tree crop properties during their stay in WA. They offer future accommodation at their home near Los Angeles (and Disneyland!) as an exchange to any WANATCA member interested in putting them up here for a few days during their stay.

We hope that their travel arrangements, still to be confirmed, will enable them to attend the WANATCA Perth Backyard Field Day on March 28, so that all local members will have the chance to benefit from Roger's experience with a range of rare crops.

The Meyers are also keen on fishing, and will want to see the sights of WA. Their visit is being coordinated by David Noël — contact him at the Tree Crops Centre on 385 3400 with any suggestions or offers.

Y

From California ...

I have just received your last issue of Quandong, featuring the mowha on the cover. It certainly brought back memories of India when we children used to go out and gather the blossoms in around February.

We usually had to really hunt for them since by the time we got out in the morning the birds and monkeys had been there before us and there was very little left.

I have often thought it would be nice to have a tree here but it is much too cold for them since we get down to 25 degrees F [-4°C] nearly every winter and some winters to 18 degrees [-8°C]. I certainly enjoyed the issue very much.

— Paul Thomson, 4339 Holly Lane, Bonsall CA 92003

Men of The Trees Annual Field Day Landcare, Trees for All Reasons

Saturday May 1, 1993: 10.30-4.00

Free Admission

Participation of all relevant local groups very welcome: contact Chris Ferreira (524 1176) or Terry Howlett (294 2153)

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[Kansas Nut Grower/ June 1992]

Mid-Summer Shaking Reduces Pecan Alternate Bearing

For the past several years, Mike Smith (Oklahoma State) and I have been working towards developing a method to reduce alternate bearing in several of our improved pecan cultivars. As many of you know, some of our best cultivars have a strong tendency towards alternate bearing.

In Kansas, 'Giles' becomes more prone to alternate bearing as the tree ages. In Oklahoma, 'Mohawk' trees become strongly alternate bearing, producing an abundance of poorly filled nuts one year followed by a no-crop year. If we could only control the number of nuts set on the tree, maybe we could reduce alternate bearing.

The alternate bearing problem starts when trees set more nuts than they can carry. Limbs break under the weight of the crop and nuts are small and poorly filled. A heavy crop load drains all the energy out of a tree and the tree cannot flower the following spring.

Our approach to control alternate bearing was to remove a portion of the nuts from trees stressed by over-production. During the course of our research we had to answer three questions: When, How, and How Much fruit should be removed from the tree to reduce alternate bearing?

We conducted a series of experiments over a 4 year period to discover answers to our questions. Our first step was to determine the optimum time for fruit thinning. Experiments with 'Mohawk', 'Giles', and 'Gormely' pecan cultivars all lead to the same conclusion: Nut removal prior to the dough stage stimulated flowering the next spring.

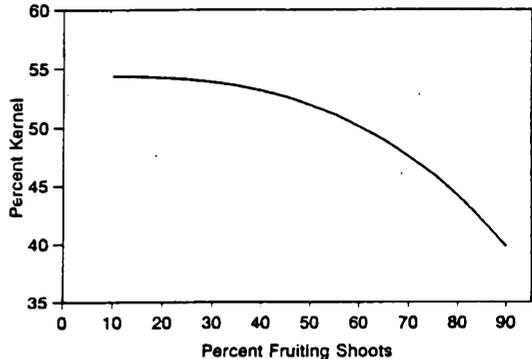


Figure 1. The influence of nut thinning on percent kernel of Mohawk nuts. Nuts were thinned in late July with a trunk shaker to achieve a wide range of tree crop loads

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Now that we knew when to thin, we took the suggestion of an Oklahoma grower and tried using a trunk shaker to remove a portion of the crop. We used a Nuthustler model 2138 trunk shaker with donut pads to shake trees in late July. At this time, nuts were only half grown. The shaker worked great — removing nuts one at a time and not entire clusters. The longer we shook, the more nuts we removed. We now had an economical method to thin pecans.

By 1991, we knew how and when to shake pecans trees to thin down the crop. Only the question, "How much to thin?" remained to be answered. In early 1991, we noticed that Mohawk trees in Oklahoma and Giles trees in Kansas had set heavy crops. In late July, we shook off various amounts of nuts from trees to help us identify an optimum crop load for each cultivar. After shaking, the Mohawk trees had between 10% and 90% of their terminals bearing nuts. Giles trees were left with between 65% and 95% of their terminals bearing nuts after shaking.

Nut thinning had a dramatic influence on the quality of Mohawk nuts harvest (Figure 1). As the percentage of terminals bearing nuts increased, kernel percent decreased. Many growers have had a similar experience with Mohawk — when Mohawk overbears, the nuts are poorly filled, but when the crop is short, nuts are big and beautiful. After thinning trees to various cropping levels, we found that Mohawk should be thinned to about 50% fruiting shoots to achieve the best balance between percent kernel and crop load (yield).

The nut quality of Giles nuts was not affected by thinning over the range of crop loads we observed (65% to 95% fruiting shoots). It is very possible that we were

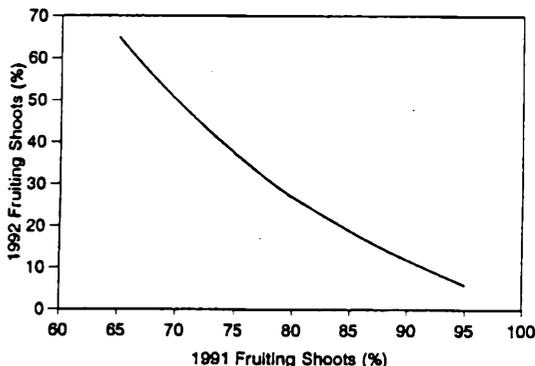


Figure 2. The influence of fruit thinning on return cropping. Giles nuts were thinned with a trunk shaker at various intensities in 1991. Return cropping was measured in 1992.

unable to see differences in Giles nut quality because the effect was masked by the influence of the 1991 drought.

Return cropping in Giles was dramatically influenced by nut thinning (Figure 2). Trees that were shook in 1991 produced more nut clusters in 1992 than trees that did not receive a nut thinning treatment. If you walk down our rows of Giles trees today, the differences between trees thinned

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in 1991 and those not thinned is quite obvious. Trees that were not thinned in 1991 do not have a crop this year. Results from this single trial indicate that annual cropping in Giles can be achieved by nut thinning. Under conditions at the Pecan Experiment Field, we estimate that Giles should be thinned to about 65% fruiting shoots to achieve annual producon.

Mike Smith and I will continue working on nut thinning in the coming years. Our next project will look at the long term effects of nut thinning on annual cropping. We believe that trunk shaking to

regulate crop load looks like an important new cultural tool for all pecan growers across the US.

— *Bill Reid*, KNGA, PO Box 247, Chetopa, KS 67336-0247

[Editor's note: This technique has application to all sorts of fruits and nuts, on every scale. It is safe, using no chemical fruit-shedding compounds, and the results can be seen immediately, so that thinning to any desired level can be done. On a small scale, the technique of hitting individual branches with a rubber mallet may work.]

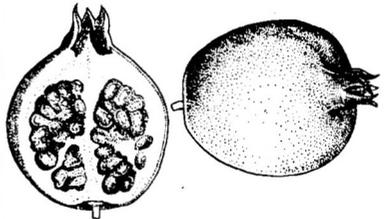
From the Pomegranate Action Group

I have established an orchard of pomegranate with encouragement from David Noel, President of our association.

During the last four years over 200 trees were planted on my property in Yarloop, 120 kilometers south of Perth on the slopes of the Darling Ranges.

Last year I had the first small crop of pomegranate fruit and the quality of the fruit was excellent. The quality was much superior if we waited long enough, to the stage when the shell of the fruit split by itself. The seeds inside were darker than from the specimen I bought in the shop (imported from California) and they were close to a burgundy colour. A drawback was that once the fruit opened, attacks by birds were much more frequent.

My general impression was that they are fairly bird-resistant and it was possible to have a crop without any special precautionary measures. It is possible that the birds are unfamiliar with the particular crop. It worries me that they may acquire a taste for them in the future. Parrots learn very quickly and I found they have an



excellent memory especially what concerns quality. High degree of natural protection is derived from bitterness of the shell and the dividing membranes in which clusters of the pomegranate seeds are lodged.

Pomegranate is a very hardy tree, growing in different positions on my farm. Being of Mediterranean and Middle East origin it is very drought resistant but grows much better with good supply of water. I was surprised to find out that they do not mind "wet feet". Completely forgotten in some places, without any supply of water in summer and eaten many times over by the sheep, they survived and regenerated with multiple small branches. Because of these

properties they are excellent for dense impenetrable hedges.

Flowering starts in late spring and continues into summer, at the beginning of February I still have new flowers coming on and therefore on the same bush we can see well developed fruit with new flowers. Only heavily pruned trees bear fruit. In North Africa I had a large pomegranate hedge which was never pruned, and I never had one single fruit from it.

Culinary uses

I was first introduced to pomegranate when it was offered to me sprinkled with red wine. The seeds can be used in both sweet and savoury dishes, they make a most attractive garnish and look highly appetizing when sprinkled on any meat dish. An attractive looking salad dish can be made with mixing chopped walnuts, a little finely chopped shallot and cream cheese together, moulding them into balls or rolls which are then pressed into the red seeds so that they are pleasantly coated.

Juice from pomegranate is very tasty and refreshing. One can add seeds to fruit salad to give a colourful appearance.

Propagation

Pomegranates propagate very easily from cuttings whether they are big or small, thin or thick, short or long. Sufficient supply of water at a critical time secures success. Cuttings can be transplanted to bigger pots in the middle of the summer or planted directly into the ground in winter. That makes them very inexpensive to start with.

Medicinal Properties

Pomegranate is used by herbalists for many disorders. Pomegranate seeds have been used as a remedy for tapeworm since

the time of the ancient Greeks. Its high tannin content makes the rind of fruit an excellent astringent for internal and external use.

Pomegranate seeds eaten in moderation will help digestion, increase peristalsis and prevent constipation. Eaten in large quantities, similarly to prickly pear, they could cause severe blockage requiring medical intervention.

Pomegranate is very much worth growing, not only for its taste and nutritional value but also for its exceptional beauty. By the end of the season, being a deciduous tree, it will display European type autumn colours sprinkled with a golden red, very attractive fruit which stored in a cool place will give you enjoyment for many months.

— *Marius Loeffler*

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grass, tagasaste, bana grass, poplar,
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THE WHITE SAPOTE

OR, SHOULD IT BE CALLED CASIMIROA?

The white sapote (*Casimiroa edulis*) is in the same family (Rutaceae) as citrus. It has no connection with other trees named sapote, such as the black sapote (*Diospyros ebenaster*, Ebenaceae).

It is derived from Mexico and 'sapote' was the word for fruit in the Aztec language. It has therefore been suggested by various authors that a better name for this fruit should be Casimiroa [Ed: or recently, 'Aztec Fruit'].

Casimiroa is a sweet-tasting fruit which crops well in Carnarvon, Guilderton, Perth and Albany. The fruit is rich in carbohydrates and protein and consists of cream flesh which surrounds three to five large, hard seeds.

The Casimiroa is a vigorous, fast-growing tree with palmate leaflets and grows to a height of 10-15 m. Trees are heat-resistant, cold-hardy and have some drought tolerance. They require slight winter chilling (4-12°C) for best results. Trees are not true to type from seed and grafted trees are essential. Space at 6-8 m apart.

Casimiroas are not markedly prone to pests or diseases except fruit fly. They require only limited pruning, mainly tip-pruning in the first three years. Two varieties must be planted to achieve satisfactory pollination.

Trees commence production three years after planting. Fruit matures in February in Carnarvon and in April/May in Perth. Some varieties are difficult to pick as they do not have a marked colour change at maturity.

Fruit is picked hard and softens after a few days. Storage life is low and the fruit is prone to bruising. Some people consider that the flavour is too sweet and it is also 'messy' to eat.

The varieties at various research stations in WA are as follows:

Stoneville (planted 1984)

Fernie. Best variety, ex New Zealand. Regular bearer, good shape, annual bearer in late May, fruit up to 300-400g in size,

excellent, delicate flavour. There is no colour change at maturity and the fruit stays green.

Mcdill and Mac's Golden. More biennial bearing, fruits late April to early May, yellow/gold at maturity, up to 600g in size.

Medina (planted 1986)

Varieties include Luke, Julian, Lemon, Chapman and Sue Belle. The trees are irrigated and fertilised on a set program and are protected by artificial (Paraweb) and natural wind breaks (*Casuarina cunninghamiana*). They have grown and flowered well for the last three years and have set their first (light) crop of fruit this spring.

Carnarvon (planted 1985)

Temperatures are too high for optimum growth of Casimiroas, but trees have still fruited well.

Pike. Fruit averages 250g and 7-5cm diameter. Good flavour, regular bearer, but fruit is subject to bruising.

Ortego. Fruit averages 120g.

Lemon Globe and Golden Globe were planted in 1988 and have still not fruited.

Summary

The Casimiroa is a suitable tree in a home garden. There are some prospects for commercial development of this fruit in Australia and fruit is already being marketed on a small scale. For commercial use there would be greater marketing potential if cultivars could be developed with the following characteristics:

Yellow skin, good flavour, thicker skins and firmer flesh to minimise bruising, thicker flesh, improved keeping qualities and smaller and lesser number of seeds.

— **John Burt**, Department of Agriculture, Western Australia

[West Australian/ November 2 1992]

DATE CROP A HOPE IN OUTBACK

A Carnarvon builder hopes to establish WA's first commercial date farm at Gascoyne Junction.

Nat Duca, 63, has imported more than 400 date palms from a plantation in California's Death Valley and plans to build numbers to 1500 in about three years. The palms arrived by ship in refrigerated containers and were transferred from Fremantle to Gascoyne Junction, about 160km east of Carnarvon, in refrigerated trucks. They were then quarantined for 15 months. The palms were planted in August, with 340 survivors now flourishing. They are irrigated from a bore in the Gascoyne River three kilometres away.

Mr Duca, who migrated from Italy in 1957, said he hoped his 100-hectare project on the edge of the Gascoyne Junction townsite would provide dates for sale in Australia and Europe. He expects the first dates to be picked in two to three years. He is uncertain how much the project will cost, but an associate estimated \$1.5 million.

Mr Duca said he and farm manager Dan Smith were learning as they went, gathering information from reference books and telephoning the Death Valley plantation. They will use a vacuum cleaner to pollinate the plants, sucking in pollen from the male plants and blowing it over the females.

Mr Duca said he believed Gascoyne Junction's climate and soils would be ideal for date production and that the plantation would become an important local employer. Dates are



Nat Duca with one of the imported date palms at Gascoyne Junction. Photo: Guy Magowan.

now imported to WA from California and the Middle East. They sell for about \$20 to \$24 a kilogram.

Dr Brian Stynes, general manager of Agwest Development, the new Department of Agriculture marketing arm, said the venture broke new ground in WA and could show the way for more developments. "A technical assessment has shown it could be a crop with enormous potential for the WA outback" he said.

— *Michael Zekulich*

BOOK REVIEW

Cultural Industries for Queensland, by Lewis Adolphus Bernays. Originally published by the Government Printer, Queensland, in 1883. Reprint 1992 by R*O*D Books, PO Box 27, Subiaco WA 6008. Price \$26.20. Ca. 230pages, soft cover.

Readers of this magazine will be prominent among those enthusiastic about the introduction of useful exotic perennial plants and the development of knowledge about how these may be successfully grown in different parts of Australia.

Gaining this knowledge can be time-consuming and costly, so it is only commonsense to make use of whatever has been found out earlier. But it is a real surprise to come across a book published over a hundred years ago, containing such a wealth of knowledge and experience which is still useful today.

The subtitle of the book, *Papers on the cultivation of useful plants suited to the climate of Queensland; their value as food, in the arts, and in medicine; and methods of obtaining their products*, summarizes the contents. What is not clear from this summary is the depth and range of the plants dealt with.

As to the range, here is just a selection of the interesting plants dealt with, plants for which information is hard to find: Amla, Natal Plum, Argan, Arnatto, Bael, Baobab, Breadnut, Cajeput, Camphor, Cinnamon, Coca, Cocoa, Cork, Dawa, Ginger, Gum Arabic, Indigo, Java Almond, Liquorice, Nutmeg, Otaheite Gooseberry, Maté, Flacourtias, Quinine, Tamarind, Vanilla . . .

To give some idea of the depth of the topics, I looked up the section on cashew, which I know something about. There was all

the information I already knew on its origin, growth, and uses — the edible 'apple', varying greatly in flavour, with uses for candying, wine and spirits extraction; the cashew nut itself, and its extraction from the shell which contains a caustic liquid; uses of the nut, and the oil which can be extracted from it.

Then there were things I didn't know — the gum which exudes from the bark, this makes a useful insect-proof varnish; use of the sap to make an indelible marking ink; use of the shell liquid in medicine, and for protection of timber etc against termites; use of nut oils to extend chocolate; and finally, use of the shell liquid to burn off tanned skin — the ultimate freckle treatment?

Useful features of this book are the author's information on previous trials with the plants in Australia, and whereabouts they have succeeded or failed; the information on commercial values of many of the crops; useful comments on which deserve attention and exploitation here; and a good index.

In the usual economical R*O*D format of a long book, with two original pages photocopied to each page of the reprint, this work contains a huge amount of data for a very reasonable price, and can be warmly recommended to everybody interested in warmer-climate perennial crop plants.

— David Noël

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WANATCA at the Balingup Field Day

The Association will be participating in this year's Small Farm Field Day, to be held in Balingup on Saturday, April 24.

This Field Day has gone on from success to success each year lately, and is particularly valuable for owners of smaller farm blocks who are concerned with growing tree crops for their nuts, fruits, and ecological benefits.

WANATCA Executive members have offered to give talks, Neville Shorter on *Nuts for the Southwest* and David Noël on *Unusual Nuts & Fruits for Cooler Climates*.

Granny Smith's Bookshop will be represented with a range of books.

Here is an opportunity for WANATCA members from the Southwest to meet up with some of us who tend to lurk around the capital city most of the time, and exchange views.

The WANATCA presence is being kindly coordinated by Pat & Bill Scott —phone 397 5892 with any suggestions or offers to help.

Tree Guards from old PVC piping

It is probably no exaggeration to say that 'whipper snippers' are a mixed blessing in terms of garden manicuring and tree care.

All too frequently well-intentioned manicuring goes awry, when the near invisible cord of the whipper snipper does a near perfect job of ring barking small trees at the base near the ground, if not completely severing the stem at or near ground level.

The following handy hint may overcome the problem and get rid of unwanted PVC pipe.

Method: Take a short section of PVC pipe 160-180mm in length and approximately 40mm diameter. The thinner sectioned pipe, that is, thinner walled pipe, is best since it is easier to stretch over the stem of trees to be protected.

Make two longitudinal cuts along the

length of the tube (see diagram) and remove a strip of pipe about 20mm wide. This is to allow your fingers to hold the tube open whilst it is being put around the base of the tree.

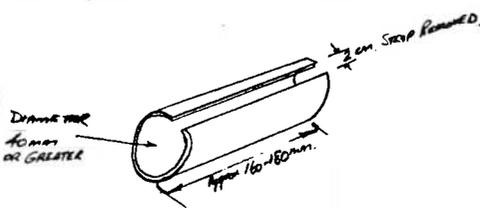
Stretching the pipe open with the fingers, slip this sleeve of pipe over the basal portion of the stem of the plant and push lightly into the soil around the base of the plant. The whirling cord of the whipper snipper can no

longer slash at the bark but rather gives an excellent clean-up of weeds etc right up to the sleeve.

White colour of PVC also gives a pleasing look to the

areas being cared for.

— Alex Hart



- DIAGRAM of TREE GUARD -

STEVEN PROWSE SEED LIST

Steven has asked us to make it clear that the plants listed in the last *Quandong* (4th quarter 1992) represent SEEDS which he can usually offer. Plants are not yet generally available.

Steven Prowse, Phone/fax 070-56 1818

[*Macadamia Mini-Symposium, Levubu, South Africa, September 1991*]

Macadamia Processing in South Africa

The macadamia nut, native to the coastal rain forest areas of southern Queensland and northern New South Wales in Australia, discovered in 1857 and named after the philosopher John Macadam, is considered to be the world's finest nut. It belongs to the Proteaceae family and is unique in that it is the only native Australian plant to attain the status of a commercial food crop.

Macadamia seeds, which were first imported into Hawaii in 1882 by William Purvis, have since become the most important tree crop in that state, where 70% of the world's macadamias are produced.

In South Africa the first macadamias were planted around 1930 and the early '40's. Apart from Hawaii, other countries that also produce macadamias are Australia, South Africa, California, Malawi, Kenya, Zimbabwe, Guatemala, Costa Rica and Brazil. In South Africa macadamias grow in the Lowveld. Other possible production areas are Zululand and the North Coast.

Hawaii produces 70% of the world production, with Australia 22%, and the rest of the world 8%.

In 1984 Hawaii produced 15,000 tonnes of nuts in shell. Levubu will yield the same tonnage in 1996/97, with 500,000 trees in full production. Presently, of the 500,000 macadamia trees in the Levubu area, 90% are non-bearing. Of the 10% that are bearing, only 60% are in full production. We have between 1,100 and 1,300 tonnes of nuts in shell for the 1991 season.

Most macadamia plantings in these countries have been made with Hawaiian cultivars, but these cultivars were primarily selected for Hawaiian growing conditions and may not perform well elsewhere.

Only a few marketing organisations are involved, of which Mac Farms International (operating out of the US mainland and Hawaii, Australia and South America),

Hawaiian Host and Mauha Loa, are the most important. Malawi have also infiltrated the world market with small quantities. The Rottcher Group in White River and the SA Dried Fruit organization currently handles South Africa's exporting.

Kenya is however, at present a major supplier to Japan, at about half the Hawaiian and Australian price.

Quality: Growers, breeders

The macadamia belongs to the family Proteaceae, there are two species with edible kernels, these are *Macadamia integrifolia* "smooth-shell" and *Macadamia tetraphylla* "rough-shell". *Integrifolia* kernels contains up to 80% oil and about 4% sugar when dry. *Tetraphylla*s are much more variable. The kernels contains between 67 and 75% oil and 6 to 8% sugar. This high sugar content makes the kernels palatable and pleasant for eating raw, but their high sugar content and lower oil content make them characteristically variable in colour, texture and flavour when roasted.

Yield and quality (% kernels and % no. 1 kernels), are considered to be the most important criteria in selecting cultivars. However good tree structure is also important. '% no.1 kernels' means kernels with a oil content of 72%+.

Hawaiian researchers consider a yield of 45 kg (23% mc) of nuts in shell/tree to be good, 35 to 45% kernel recovery with 90 to 95% no. 1 kernels. In contrast the average kernel recovery from seedlings is only about 23% with very variable % no. 1 kernels and

yields.

In South Africa the highest yield/tree was 65 kg/tree, although the average yield is 30 kg/tree. SA must strive for a kernel recovery of 33 to 40% and 90 to 95% no. 1 kernels. If we want South Africa macadamias to be standard, we need to know the % kernels and % no. 1 kernels for the different cultivars in the different regions so that the factories have standards they can put into practice. THIS CAN ONLY BE DONE THROUGH RESEARCH. Australians average yields of 36.4 kg/tree.

Quality: Growers, processors, consumers

The quality criteria for macadamias differ along the line. Growers are interested in kernel recovery as they are paid on % crackout of sound attractive kernels and, in all the other countries, also % no. 1 kernels. And this is one of the reasons why a country like Hawaii has so few problems with roasting, because the nuts are separated at the receiving depot. It is important to know that a high % crackout not always means a low % defects. What is going to help the farmer is to know what kind of defects the nut have. The most important defects include: insect damage (early/late in the season), underdeveloped nuts, or nuts that were not harvested normally. Processors are also interested in recovery of sound, usable kernels and they, as well as the consumers, are interested in eating quality.

As the macadamias arrive at the factory, one must be very careful in choosing the right temperature for storing. Especially early in the season, drying temperatures must be kept lower as the moisture content is higher. This is less vital later in the season. High temperatures can cause problems, for example brown centering. Drying of macadamia nuts requires attention to moisture-temperature relationships. A temperature of 38°C may be used at any

moisture level but $45^{\circ}\text{C} \pm 5^{\circ}\text{C}$ should be used only after the moisture content is reduced to approximately 2-3%. KERNEL STABILITY INCREASES WITH DECREASING MOISTURE CONTENT.

As far as storage conditions are concerned, it is important to mention aflatoxin, a poisonous substance produced by the fungus *Aspergillus flavus*. Aflatoxin was discovered in 1960, when 100,000 turkey pullets died in England from a new disease called at that time, the Turkey X-disease.

Many fungi produce poisonous substances, called mycotoxins, the most important of which is aflatoxin. Aflatoxin is highly toxic (as well as carcinogenic) to animals and humans. In livestock it can cause serious damage when their feed has become contaminated with *Aspergillus flavus*. In humans, it can cause cirrhosis and cancer of the liver. Indeed, it is difficult to find a substance containing some organic matter and a little moisture on which the *Aspergillus* cannot grow. The fungus produces masses of spores, which can germinate anywhere. Enzymatic degradation is stopped at a low kernel moisture content of 1 to 1.5%. NUTS STORED AT 4% MOISTURE CAN DEVELOP AFLATOXINS. Harvesting, dehiscing and storing, using the right procedures and conditions, can prevent *Aspergillus flavus* from becoming a problem for macadamias in South Africa.

— *Reni Marais*

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[ITSC Information Bulletin/ June 1992]

ORIGIN OF THE PAPAYA

The papaya is indigenous to tropical America. The exact origin in America is uncertain, but it is closely related to the 'monkey's papay', *Carica peltata* Hook. and Arn. of Mexico and Costa Rica, which is probably the female of *C. bourgeoi* Solms-Laub. It is possible that it appeared first in those parts of Central America where that species is found, but on the other hand it may have resulted from several hybridizations, some perhaps having occurred in Mexico.

Carica papaya was first brought to the notice of Europeans by Oviendo, who was Director of Mines in Hispaniola from 1513 to 1525. He wrote that Alphonse de Valverde had brought its seeds from the coasts beyond Panama to Darien, from where it was carried to San Domingo and to other islands in the West Indies. It seems that, on the discovery of America, it had not reached its possible limits of distribution in the New World although, at that time, it had become fairly well distributed on the mainland of tropical America. It was only much later, in 1626, that seeds of papaya were introduced to Europe from India.

The Spaniards carried the plant from the West Indies to Manila along with its Hispaniola name, papaya, which is still used in the Philippine Islands. From there it was brought by either the Portuguese or Spaniards to Eastern Malaya. It must have reached Malacca before 1583 and Goa after 1589, according to the Dutch traveller Linschoten. The celebrated Dutch botanist, Rheed, made an illustration of the papaya on the Malabar coast not long after 1667 when he became Governor of Ceylon. From there its seed was spread amongst the numerous

islands, and according to Sturtevant (1919) it was known throughout the islands of the Pacific by 1800.

In a letter dated 13 May 1652, shortly after his arrival in the Cape, Jan van Riebeeck ordered papaya seed from India for his adaptability studies. In the middle of the eighteenth century Laureiro saw the papaya in Zanzibar, and it is believed to have been brought to East Africa by the Portuguese in the sixteenth or seventeenth century. The possibility of its introduction into East Africa from Malaya by way of Madagascar should also not be overlooked. Capt G.J. Elphick was the first papaya grower in the Lowveld early in the twentieth century, and also the first to send five boxes to the market in Johannesburg.

The papaya is now widespread in most tropical areas of the world up to 32°N and S of the equator. Besides Central America, papaya is important as a commercial plant in Hawaii, South Africa, Australia, India, Ceylon, the Philippines and South-East Asia. In South Africa the papaya is mainly cultivated in the Eastern and North-Eastern Transvaal Lowveld, Natal, and to a lesser extent in the Eastern Cape.

The names papaw, pawpaw, paw-paw, melon pawpaw, papaya and papita are applied to *Carica papaya* L., those most commonly used being papaya and papaw. Other inflections in use are papaia, papeya, papia and papino. The word papaw is favoured by the Shorter English Oxford Dictionary, and was first used in 1598 after being adopted from papaya or papay which was thought to be a derivation of the Caribbean word ababai.

The word papaw or pawpaw is also applied to a small North American tree, *Asimina triloba* of the Annonaceae, which has a small edible fruit, with a yellow flesh, creamy and

rather watery texture, and numerous brownish seeds, arranged lengthwise in a double row. Confusion may easily result from the use of the name papaw when referring to two such very different fruits, unless the context is taken fully into account.

The Portuguese name currently used in Brazil, is 'mamao'; in French the fruit is

called 'papaye'; in German and Afrikaans 'papaja' and in Italian 'papaia'.

Several other names are used in tropical America, namely fruta de bomba in Cuba, lechosa in Puerto Rico, melon zapote in parts of Mexico, and tree-melon in English-speaking countries.

— *W. Conradie*

Rural Innovation Centre relocates

The WA Government-funded new rural business development centre, the Rural Innovation Centre, has relocated to the main Department of Agriculture complex in Baron-Hay Court, South Perth. It was previously at the office of the Minister of Agriculture in central Perth.

The RIC, a member of WANATCA, aims to help "rural people to transform their ideas into commercial reality", according to Dick Taylor, Acting Manager of the Centre.

"We act as a networking agent to link rural people with consultants, researchers, and other key people in both the public and private sectors", he said.

However, the RIC did not give direct advice on technical or financial matters, nor



Acting Manager of the RIC, Dick Taylor

did it get involved in the day-to-day affairs of businesses.

The experience of some WANATCA members who have asked the RIC for help with new fruit or plant products, has been that their sourcing and provision of information from published sources has been very good. In their new location the RIC will have direct access to the extensive Department library, and are readily accessible to the public near the front counter.

Any WANATCA member in the State can make use of the RIC's services, which are usually free. They can be contacted on 008-198800, or on 368 3940 in Perth.

— *David Noël*

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Australian Horticulture: Two new reports

Stemming from the current great self-analysis of Australian horticulture, two new official reports have appeared which will be useful to those interested in general horticultural prospects in Australia.

The first of these is *The Way Forward: Future Directions for Horticulture*, produced by the Horticultural Policy Council as part of their 'Future Directions' survey.

This 45-page gives an optimistic picture of the future for our horticulturists, with a total output value increasing from the present \$3 billion per year by a factor of 2-3 times, to \$6-9 billion, by 2010. In this scenario horticulture, including fruits, flowers, and vegetables, but excluding wine, will at the very least maintain its position as the country's third largest agricultural sector.

The report suggests that "Australian horticulture will be strongly internationally competitive. It will have displaced imports of fresh and processed horticultural products where it has comparative advantage. More importantly, it will also have increased exports."

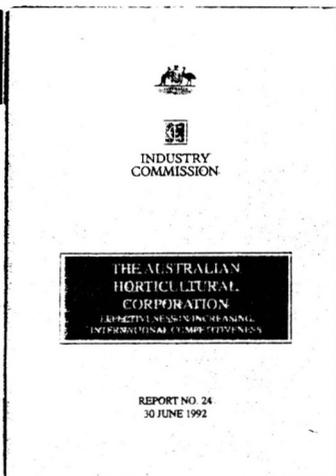
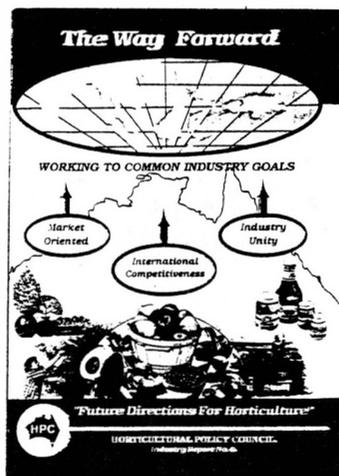
This report contains a number of tables and graphs of production data and decision parameters, useful in deciding the constraints to expansion of particular horticultural items.

The second report is the Industry Commission's report: *The Australian Horticultural Corporation — Effectiveness in increasing international competitiveness*. The IC is the Federal Government's main analysis and watchdog group, set at different times upon different sectors of the economy

with the purpose of answering the questions "How are We Doing?" and, more importantly, "How can We Do Better?"

While not exactly at the Rambo-in-Pinstripes level, the IC is certainly a tough, analytical group which will look at depth into a matter and not pull back from penetrating, even brutal comment if needed. Their 132-page report is the first part of their brief to analyse the country's horticultural industries, and was specifically required first by the Government as a comment on the workings of the AHC, before the general report was issued.

This report covers the AHC analysis



thoroughly, working from basics, and the AHC have not welcomed all the IC comments. However, to do the AHC analysis, the IC had to assemble a great body of general horticultural data, and the great value of this report lies in the data and comments presented — a real window into the actual workings of government in horticulture.

A very limited number of these reports (which are not easily obtainable) are available from the Tree Crops Centre. 'The Way Forward' costs \$8.00, and 'AHC Effectiveness' \$12.95.

PITAG: New Pitaya Action Group

A new WANATCA Action Group, devoted to the Pitaya and other cactus fruits, has been set up under the leadership of Executive Member Bob Nederpelt.

The Pitaya, which was brought into prominence by our Queensland member Frank Jordan, looks to have really taken off in the West. Growing on a climbing, somewhat rambling cactus which is suitable for wetter conditions as well as dryer ones, the spectacular spineless fruits of some species look to have real commercial possibilities for our State.

This is one of the plants featured in WANATCA's recent Royal Show display.

Bob and other members have already made advances in Pitaya culture. One of Bob's discoveries has been that the plants grow very well in a 1:1 mixture of worm castings and sand, quite unlike normal cactus culture.

Keeping careful records, some growers have been able to measure Pitaya growth rates of several millimetres per day.

One day, perhaps, we can set up The Great Pitaya Race — but for the moment we need to concentrate on all the growth and flowering mechanisms needed to turn this fruit into a commercial goer.

— David Noël

[MNGA News (Michigan Nut Growers Association)/September 1992]

Germinating Hazel seed

For several years, I struggled to achieve a decent rate of germination with hazelnut seed. Then, I came across an article by Roland Bing in an old *Pomona* that described a new method. I think Mr Bing's method is worth a reprise here in 1992, since it has given me tremendous results and helped salvage my Hazelnut Seedling project.

Stratify the seed nuts as you normally would, packed in damp peatmoss and stored cold. In the spring, carefully remove the shells from the nuts. This is not as tedious as it might seem, and can be done with the use of an ordinary cracker.

Then, soak the shelled nuts for 24 hours in a 1 part per million solution of Gibberellic acid. Plant out in the nursery row immediately. Keep the nursery seed-bed well watered until the hazels germinate, since, lacking a shell, they are quite vulnerable to drying out. The hazels will germinate within 7-10 days.

— Tom Plocher, 9040 152 St. N., Hugo, MN 55038

Record US Tree Nut production

The value of US tree nut production in 1991 hit a record US\$1.28 billion, up 1% from a year earlier, according to the US Department of Agriculture's Economic Research Service.

A significantly larger pecan crop boosted the value of pecan production by 25%. A good quality walnut crop helped increase the value of walnut production by 18%. There were smaller crops of almonds (down 10%), macadamias (down 15%) and pistachio (down 21%).

Kevin Whiteley outlines lessons from the past

The 18 November 1992 General Meeting featured a light-hearted, personal retrospective of horticulture in WA since the mid 1950s, from the vantage point of Kevin Whiteley, recently retired from the Agriculture Department.

In his outline of history he took us to related areas — the severance of Mother Britain's agricultural apron strings when she eloped with the man next door (EEC); the rivalry and competition from our sibling, South Africa, seeking Mother's approbation in some of our traditional markets; and the growing desire of the adolescent WA to stake out new territory, leading to horticulture in the Ord River area, to name a few.

The WA Department's breeding program in the area of low chill apples and stone fruit; its encouragement of soil improvement and erosion control, initially through contour ploughing and more recently in clovers, cover crops, and the use of windbreaks; its work unravelling virus conditions and in keeping fruit in storage and transport, merit

a special mention. Few of us realised that the codling moth was eradicated in the mid 1950s in WA (at Bridgetown) for the 18th time.

As well as the successes over the years, he presented some foibles and failures. For example, we saw slides of workers drenching fruit trees, the ground, themselves, the target weevils and probably their downwind neighbour as well, with health-giving sprays such as DDT, dieldrin, heptachlor and similar nice things, all on enthusiastic Government recommendation.

Modern bi-partisan economic rationalism has stripped the Department of any

significant role in a wide range of horticultural services and research. However, Kevin's talk made me realise how limited its concerns have always been — how British its outlook, in line with dominant community views of the past.

Horticulture is about flowers, fruit and vegetables. Flowers are for looking at, and fruit and vegetables are for eating. But the protein part of diet comes from cereals, legumes, and animal products. It has not been the thing, to grow flowers to eat, nor to harvest trees and other perennial plants for the major sources of dietary protein, energy, or leafy, green matter.

This explains why macadamias had to be sanctioned and blessed by coming to us from Hawaii. But there is little official

support even for macadamias because they are a tree crop which is neither a fruit nor part of the ordinary English diet.

Tasmania has taken to growing other plants for medicinal and perfume products — poppies, lavender and WA boronia. But unbelievably, Australia still imports eucalyptus oil, extracted from expatriot gum trees grown on foreign soil. According to Prof John Considine at our previous meeting, Australia has a potential for development of its wide range of indigenous plants, particularly the tubers and edible root plants.

Is it too much to hope that some time in the



Kevin Whiteley

near future, we will regard the whole vast range of tree and perennial plant species as the essential foundation of all viable primary production, around which activities like bee-keeping, vegetable and cereal growing, aquaculture, animal husbandry, might be interwoven as subsidiary and supporting aspects?

And is it possible there will be a day when our European conception of trees is rescued from the narrow confines of timber production, where 'agroforestry' means little more than the integrated grazing of animals under a canopy of growing timber?

As a central part of their work, Greening Australia and other such groups could encourage the planting in towns and on farms of pecan, carob, oak, olive, avocado, pistachio, quandong, etc as well as many other species presently unknown in Australia.

When people have digested the gastronomic idea of trees as the basic building blocks to produce human food (from leaves, flowers, bark, gums, fruit, seeds, nectar, pollen, roots, sap, pods), we can introduce them to non-food potentials apart from timber, fuelwood and pulp (such as glues, dyes, washing agents, protective coatings, tannins, medicines, perfumes, art and floral materials, industrial chemicals, lubricants, oils, fuels, hormones, pesticides and repellents).

It is precisely because of his non-arrogant outlook and eagerness to learn from past experience and mistakes that Kevin is needed to do his most important work — influencing the next generation of horticulturists and tree croppers. He has his feet on the ground and with good humour, knows that many orthodox dogmas of earlier years are later seen to be dubious.

Let us hope his freedom to speak his mind widens the currently narrow horizons of horticulture in Australia.

— *David Brown*

[The Nut Kernel (Pennsylvania Nut Growers Association)/ October 1992]

A DELICIOUS CHESTNUT CONFECTION

Marrons glaces, which are so expensive when purchased at the shops, may be successfully made at home, and the process, though tedious in comparison to fudge-making, is quite simple.

Use freshly gathered chestnuts, and score each nut on one side with a sharp knife. Cover with boiling water, cook five minutes; drain and dry them. Add a teaspoonful of butter to each pint of nuts and shake over the fire in a tin pan for five minutes. This loosens both shell and inner skin which are now removed together while the nuts are hot. Cover the nuts with cold water, adding to each pint of nuts a tablespoonful of lemon juice. Let stand over night, when the nuts will be firm and will not break in cooking.

In the morning drain and let dry, then cover with a syrup made of a pint of sugar and a cup of water for each pint of nuts. Cook without boiling for two hours or until the nuts look clear. Drain off the syrup, taking care not to break the nuts, and reduce the syrup by rapid boiling. If the nuts are to be put away in syrup, five to eight minutes' boiling will be enough. In this case, when the syrup is cooked down, put back the nuts and add the desired flavoring. An inch length of vanilla bean to each

USEFUL TREE SEEDS FROM CHILE

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quart of nuts; the juice and thin yellow rind of a lemon; or half a pint of maraschino; all are good.

After the flavoring is gently stirred in, pour nuts and syrup into small glasses and seal when cold. This makes an ideal flavor for ices, or the nuts and a little of the syrup may be served in frappe glasses with whipped cream.

If the nuts are glazed, boil the syrup fifteen minutes or until it is very brittle when dropped in cold water. Have the nuts dry and quickly dip each one into the syrup, turn until entirely coated, then remove with a fork to oiled paper*. To keep the

syrup hot during the dipping let it [the pot or container of syrup] stand in hot water.

— **Sophie Kerr Underwood**

"When I was young, oiled paper meant greasing an opened paper grocery bag or some such heavy, usually brown, paper and coating it with lard (i.e. rendered hog fat). I assume the oiled paper in this article was the same — 'Nut Kernel' Editor.

(Reprinted from the now defunct Garden Magazine. This article was found on pages 194-5 of the November 1907 issue.)

[Australian Plants! March 1992]

Wine-Making with Davidson's Plum

The fruit of various North Queensland rainforest trees may be used to make wine. These include *Aceratium*, *Syzygium* (Lily-Pily) and *Diploglottis*. However, of all those tried, the best flavoured wine is produced by the Davidson's Plum (*Davidsonia pruriens*). It is a full-flavoured, dry, red wine.

General Recipe

2 kg fruit; 1/4 teaspoon nutrient salts; pectonase; citric acid; 6 cups sugar; 1/4 cup yeast; 4 litres boiling water.

Fruit Preparation — Clean and chop the fruit. Discard the seeds. Deep freeze (Davidson's Plums are very hard and by freezing more flavour is obtained from the fruit).

Yeast — Different yeasts give different tastes. Suitable yeasts are CW 67 all purpose, Sauterne, Port, Danish all purpose, and Burgundy. The CW 67 is easy to make up, and if time is short can be used without a starter bottle. Make up what is called a starter bottle using the directions on the packet. Keep it in the fridge and bring it out when a batch of wine is to be made.

When removing yeast from the fridge, add a teaspoon of sugar and let it stand in a warm

place until it begins to work. Before returning it to the fridge add the juice of an orange and a teaspoon of sugar, boiled together and cooled.

Utensils — To start with, you need a bucket, towel, and stocking top. All utensils must be clean. Use meta-bisulphide, 1 teaspoon to 4 litres.

Procedure — Place fruit and sugar in bucket. Pour over boiling water, stir with wooden spoon until sugar dissolves, cover and cool.

When cool, add yeast and nutrients. Cover. Stir twice daily for seven to nine days. Keep well covered in a non-draughty place. Strain into a 5 litre bottle. Airlock.

Store in a cool dark place for six weeks. Strain, taste and airlock for three months. After three months, strain, taste, and make decision whether to drink or airlock another three months. Some wine can be used in six weeks if so desired. This depends entirely on your own taste.

Additives such as banana juice, raisin juice, and cold tea (for white wines) add body or give better flavours.

Sweetening — Should the wine be too dry, add sugar syrup made with water in the ratio 2:1. Only small amounts added to the wine can improve the flavour. When topping up bottles from one racking to the next, most people use water, but you may also top up with poorer flavoured wines to retain the flavour of the fruit used.

[Growing Today (NZ)/June 1992]

Cork Oak Search

Our local group is embarking on a project to locate and study all Cork Oak trees within NZ in order to obtain information on their growth rates, seeding habits and site preferences.

If possible, we intend to collect seed, grow on selected samples for further study and comparison with imported clones with a long term objective of perhaps establishing a cork industry to meet local needs.

Could we use your columns to invite interested persons and agencies to write with information on any Cork Oak trees, of any age, they may know about?

The likely species will be: *Quercus suber* (the most common); *Quercus variabilis* (Chinese Cork Oak); *Quercus occidentalis* (West Europe); a hybrid named *Quercus hispanica* and *Q. lucombeana*.

We would like as much information as possible on each tree including age, height, diameter, specific location and owner, soil type, aspect, exposure and general health.

All data will be made available to the public in due course.

— **Ross Macarthur**, Hardwoods Action Committee, Cork Oak Project, The Grove, R.D.1, Picton, NZ. Phone 64-3-574 2265.

[GT: Readers will be interested to know that, following our article on cork oak (April 1992) Sue Duff of Kamo contacted us to tell us that she lives on a part of the land used for the original cork oak plantation.

Still thriving are around 20 mature cork oaks, species unknown. Acorn drop this year has been particularly heavy and Sue is willing to supply seed to serious researchers. She can be contacted at: PO Box 4282, Kamo, Northland, NZ.]

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CALENDAR OF FORTHCOMING EVENTS

1993

- Feb 17 Wed *General Meeting (Bob Paulin — Sustainable Horticulture: Tree Cropping & the Environment)
- Mar 28 Sun WANATCA Field Day, Perth Backyards
- Apr 6 Tue Executive Committee Meeting
- Apr 24 Sat §Balingup Small Farm Field Day
- May 1 Sat §Men of the Trees Field Day, Hazelmere Nursery
- May 19 Wed *General Meeting
- May 30 Sun WANATCA Field Day, Toodyay
- Jul 6 Tue Executive Committee Meeting
- Aug 18 Wed *General Meeting
- Oct 2-9 Perth Royal Show
- Oct 19 Tue Executive Committee Meeting
- Nov 17 Wed *Annual General Meeting

*General Meetings are held starting at 7.30pm. Venue: Greening WA, 1118 Hay Street, West Perth. These meetings usually include a current magazine display.

§ For contact details refer to the Tree Crops Centre.

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