



QUANDONG

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Newsletter of **WANS** the West Australian Nutgrowing Society

Approximately 30 members attended our meeting on May 27th despite pouring rain. Mr Noel gave a very interesting talk on "Lesser Known Nut Trees of Australia". Many of us were amazed at the number of trees existing in this category.

Many thanks once again to David.

*** NEXT MEETING TUESDAY AUGUST 26TH AT 7.30 P.M. ***

Meeting Room, Subiaco City Library, Corner Bagot and Rokeby Roads, Subiaco.

At our August meeting we will be seeing a 30 minute film on irrigation in Israel and the increases in yield gained.

Types of irrigation equipment available will also be shown and the ways that these work. Irrigation can be used not only in orchards, and nurseries but many people are looking to it in home gardens as a means of conserving water. While the film does not deal with nut trees, these are being irrigated in Israel and it is expected that yields will show marked increases.

Our Guest Speaker will be Mr Bevan Green from O.F.Gambles.

PLEASE REMEMBER VISITORS WELCOME TO ANY MEETING.

A.G.M. AND MEETING

NOVEMBER, 18, 1980



West Australian Nutmeg Society

WANS

Mail Address: P.O. Box 27, Subiaco, W.A. 6008, Australia.

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SOCIETY PUBLICATIONS

WANS publishes its newsletter QUANDONG four times a year. This is devoted to news of meetings and events, details of tree and seed sources, notes about books and pamphlets dealing with nuts, reprinted short articles, notes from members, and other items of interest. The major publication is the annual WANS YEARBOOK, which contains articles drawn from Australia and overseas, covering any aspect of nut horticulture and production, and is regarded as an important research journal in this area. Members receive one copy of each WANS publication as a subscription benefit.

YEARBOOK EDITOR, Dr D. Dell, School of Environmental and Life Sciences, Murdoch University, Murdoch, W A 6153.

QUANDONG EDITOR, Mr Tony Bryant, P O Box 98, Gosnells W A 6109, 459 2449.

BACK NUMBERS, WANS began publishing in 1975. Back numbers of publications are still available. Some issues of QUANDONG are available only in photocopy form. Cost of each YEARBOOK is \$6.00; cost of a one-year set of QUANDONG (3 or 4 issues) is \$2.00. Contact the Secretary for back numbers.

MEMBERSHIP

Any person or organisation interested in growing or production of nuts may subscribe for membership. Members are welcomed from outside Western Australia and overseas, as well as in W.A. Write to P O Box 27, Subiaco, W A 6008. The current membership subscription rate, which runs for a calendar year and covers all publications issued in that year is \$10.00.

WANS CO-OPERATIVE

Members of the Society own a limited company, West Australian Nut Supplies Co-operative Limited, a commercial organisation set up to buy and sell nut and nut products. Shares in WANS CO must be applied for on the printed form available from the office. Shares cost \$1.00 each; limits are from 50 to 250 shares per person.

MEMBERS ACTIVITIES CORNER

NUT TREES AND CONIFERS NURSERY

Alex Sas, 52 Croyden Road, Roleystone, 6111, Telephone 397 5628

I received my first instructions in Walnut growing in 1968 from Mr C.G. Watson of Bickley Valley, who at that time had on his property fifty Franquette and Wilson's Wonder trees*. He also gave me some walnut seeds, which eventually developed into beautiful trees. In 1974 I added to my collection ten grafted Pecan trees. By joining WANS a year later, I became an enthusiastic but still amateurish learner of nut tree growing and particularly of propagation, the latter being my chief interest.

Although my educational background is in agricultural science, specialising in nutrition, it took me, on a part-time basis, about ten years of experimenting and learning about the art and science of nut tree propagation, some times with failures and disappointments. However, my enthusiasm was growing and in December 1979 I gave up my permanent job of 25 years, in order to devote myself full time to nut growing and propagation of nut trees and conifers. This became my new way of life.

The nursery was established in 1978 and under the Business Names Act is registered as "*Nut Trees and Conifers Nursery*". During the formative years, scion mother trees were established for which the scion wood was provided by the generosity of WANS members Mr Hank Swan of Victoria, Mr Bob Woodward, of Sawyers Valley and the N.S.W. Department of Agriculture's Research Station in Gosford. Pistachio seeds were obtained from C S I R O's Research Station, Merbein, Victoria. Now from some trees I am able to use seeds for raising seedlings and scion wood for grafting. The other mother trees were purchased from reputable nurseries in the Eastern States.

With the help of my wife and son I raise seedling rootstock and graft or bud Pecans, Chestnuts, Walnuts and Pistachios. Grafted Macadamias are purchased in juvenile stage from Queensland and then are grown on to the saleable stage. Black Walnut (Nigra and Hindsii), Hazelnut, Jojoba, Bunya Pine and Norfolk Island Pine, ten species of Genus Pinus, including Stone Pine, and some decorative conifers are propagated as seedlings.

For 1981 season, the conventional grafting of Pecans, Chestnuts, and Walnuts under controlled environment will begin at the end of this month, July. The older rootstock will be green budded and "juvenile tissue grafted" in late Spring - early Summer. In 1981 season the nursery will be able to supply 16 varieties of Pecans, 4 varieties of Walnuts, 5 varieties of Macadamias, male and female Pistachio trees and Spanish Chestnuts, all grafted.

My objective is to produce container grown grafted trees and seedlings, which could be delivered to the planting site with uninjured root systems, at a reasonable price.

* The Wilson's Wonder Trees were pulled out some years ago. The remaining Franquettes are now managed by Mr Watson's son David. The walnut trees are over 50 years of age.

THE HICANS

....MYSTERIOUS DENIZENS OF THE FORESTS

(Source : SONG NEWS, Newsletter of the Society of Ontario Nut Growers)

Many people are familiar with the Hickories and equal numbers or more so with pecans...but HICANS are something else. In fact most people display a response of disbelief when first exposed to the subject...did I hear that man correctly...or did he REALLY say HICAN?

Yes, hicans do exist and they are the hybrids between the several northern species of hickory and the more southerly inclined pecan. Several combinations have been identified :

Shagbark Hickory (Carya ovata) x Pecan (Carya illinoensis)
Shellbark Hickory(Carya laciniosa) x Pecan
Bitternut Hickory(Carya cordiformis) x Pecan

All of these species have 32 chromosomes in their genetic makeup and it is likely that further hybrids can be achieved with the other 32 chromosome hickories and cross-combinations thereof.

A great deal of interest in hicans was in evidence in the period from 1880 to the 1920's. Several dozen hican selections were named in that interval and many of them were found in the wild in the northern range of the pecan such as Kentucky, Indiana, Illinois, Iowa and Missouri. The hicans are far from numerous in their native range. In fact you would have to search for many days or else know someone who owns one of these unique trees. Many of the naturally occurring hicans are worthless. However, several of the named selections (cultivars) may be of some interest for extending the northern range of trees which have thin shelled, pecan-like nuts with relatively high percentage kernel. Some of the better cultivars for consideration in Ontario are as follows :

- (1) Shagbark Hickory x Pecan Hybrids
 - Burton : Similar in size and character to a large shagbark hickory such as Neilson. Crackability of nuts is better than Neilson and the tree is healthy and sturdy.
 - Henke : Resembles a small pecan. The tree is dwarfish and of only medium vigor. Crackability of the nut is very good.
- (2) Shellbark Hickory x Pecan Hybrids
 - Burlington : A large nut resembling the pecan. A vigorous tree which is often self pollinating but only a small percentage of the nuts fill.

- Rockville : A large nut resembling Burlington in many ways but it seems to fill better than Burlington.
- Des Moines : The large nut is similar to Burlington but fills much better. It is slightly earlier in ripening than others in this class. Tree characteristics are very good.
- Nussbaumer : An exceptionally large nut which sometimes (Bixby) fills rather well. Some regard it as a shy bearer. The tree is a strong and straight grower.
- McCallister : These are exceptionally large nuts (remarkably so).
- Clarksville : Unfortunately they don't fill dependably at
Gerardi : all. They do make rather hardy and attractive ornamental shade trees and the size of the nuts will amaze friends and neighbours....but good kernel producers for the North, they are not!
- James : A promising new but relatively untried hican from north-central Missouri.

(3) Bitternut Hickory x Pecan Hybrids

- Pleas : Resembles a large, elongated bitternut. The kernel characteristics are much like pecan and the kernel is fair in quality if eaten within a month of harvest (otherwise it gets too bitter with time). The tree is a strong grower and impressive as an ornamental.

Your editor has accumulated some experience with the germination of hican nuts for the purpose of growing hican seedlings (Queenston, Ontario). Nuts of Burton, Burlington, McCallister, Clarksville, Gerardi...scarcely germinate at all, perhaps 1 in 200 seeds! Henke, Rockville, Des Moines, Nussbaumer and Pleas give fair germinations, as many as 1 in 5 sprouting from some seed lots. It's not the most impressive germination in the world but at least it's a foot in the door for experimenting with some of nature's most bizarre and exotic nut trees. Some entertaining observations have been noticed even in the young seedlings from various seed lots :

- (a) Henke gives seedlings of which 90% (more or less) tend to resemble the *pecan* parent...the leaflets are born in compounds of 11 or more.
- (b) Des Moines gives seedlings of which 90% (more or less) tend to resemble the shellbark *hickory* parent...the leaflets are born in compounds of 7. In fact it is very rare to find a Des Moines seedling with more than 9 leaflets per compound.

The following hican seedlings have been set out on more or less permanent locations to see what will happen when they come into bearing :

- 2 Pecan-appearing seedlings of Henke
- 1 Hickory-appearing seedling of Henke
- 3 Pecan-appearing seedlings of Des Moines
- 12 Intermediate-appearing seedlings of Des Moines
- 8 Hickory-appearing seedlings of Des Moines

It should be noted that there is a minor tendency for some of the hickory-appearing seedlings to shift into the pecan - appearing category as time progresses. Therefore the numerical rankings may change slightly. (I have no explanation for this ability to change character).

No doubt, there are some fascinating future observations to be made with these 26 hybrid trees. All are growing extremely well. Who knows? Perhaps there may be one or more extra hardy trees which produce early maturing nuts which look like pecans?

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WHAT AFFECTS QUALITY IN MACADAMIA NUTS?

(Source : News Bulletin, Australian Macadamia Society, March 1980)

Mr Richard Mason, of the Sandy Trout Food Preservation Research Laboratory, was the second speaker of a three-man panel at a recent general meeting discussing "What Affects Quality in Macadamia Nuts?"

The following is Mr Mason's address and the second in the series of three to be published :

I would like to start off by talking about the definition of quality. Mr Davenport mentioned quite a few points that he felt governed quality in macadamia nuts. Most of these are mainly related to the grower. When we think of the final user of macadamia nuts as the consumer he is not interested in kernel recovery, percentage first grade or shell thickness. The consumer is interested in what the nuts taste like, their flavour, texture and appearance. Depending on what these factors are it may influence the consumer to buy these nuts again.

As growers and processors it is your responsibility to try and give the consumer the best possible product of all times. At the same time you must also consider the factors that were mentioned previously, which are maximum yield off the tree as well as kernel recovery.

If the macadamia nut is to be promoted as a gourmet nut both here and overseas the production of high quality nuts is essential. Many buyers of macadamia may have bought them initially because they are a relatively new nut, and unless the quality of the nut is high to start with they may not be influenced into buying these nuts again. I therefore stress the point that the high quality of nuts on sale must be maintained to aid in the future development of this industry.

One of the things Mr Davenport mentioned, was the fact that the percentage of first grade kernels is used as one of the main measures of kernel quality. This relationship was based on work done in Hawaii in the 1930's. Work that we have been doing over the last few years has indicated that this may not be the case and that percentage first grade may not be the be all and end all in measuring kernel quality as judged by the consumer.

I would like to try to explain this by referring to a number of graphs.

The graph (a) shows quality in relation to three different factors.

1. Percentage first grade, which is measured by floatation in water;

2. Processed recovery, which is a measure of the quality of kernels after they have been roasted and graded due to colour.
3. Taste panel test, which is after people have actually tasted the nuts and rated them accordingly.

As you can see, percentage first grade increases rather sharply over a very short period of about 6 to 8 weeks, reaching about 90% in early March for the variety 256. Processed recovery is much slower reaching a peak and as this occurs about 4 weeks later than percentage first grade. The taste panel graph which I consider the most important, reaches its peak still later in the season towards the end of April.

This information suggests that while nuts gain a high oil content (as indicated by % 1st grade) relatively early in the season, they do not reach maximum quality as judged by taste panel until about 4-6 weeks later.

This is an important factor to consider when looking at factors which affect quality in macadamia nuts.

The next graph I would like you to look at is for the same variety (246) grown at Maleny.

In the graph (Graph b) % 1st grade, processed recovery and the taste panel score, reach their maximums at about the same time. This may be due to the milder growing conditions at Maleny compared to Bundaberg which allows the nuts to mature at a slower rate and thus flavour development parallels and oil content development.

These graphs suggest that using % 1st grade or oil content in determining the quality of macadamia nuts does not give the true picture in all cases. Unfortunately oil content or measurement of oil content by specific gravity is one of the easiest to perform. I feel that percentage first grade should only be used as an indication of quality, it is not the absolute answer. High oil content nuts will in general be of higher quality than low oil content nuts, but it does not necessarily follow that high oil content nuts have to be of high quality. Work relating to quality should not be based solely on measuring percentage first grade but should be taken to the final step which is a measure of acceptance.

I would now like to talk a little about maturity in macadamia nuts and its relation to quality.

The graph (c) illustrates the development of oil content measured by percentage first grade for five varieties: 344, 333, 508, 246 and 660 from Bundaberg, harvested during the period beginning early January through to the end of June. Oil content is only being used here as an indication of maturation not quality and the quality graphs (taste panel) would be somewhat broader than these reaching their peaks at a later date.

This graph shows the difference in rate of maturation for the five varieties. 344 and 333 were giving high oil content or percentage first grades very early in January. Nearly 75% first grade for both these varieties. They reached their peak which was 90-100% first grade by half-way through February. 660 is just a little behind 344 and 333 mainly in the earlier stages. It has a much sharper increase, and reaches about the same percentage of first grade kernels at roughly the same time. There is a drop in 660 towards the end, but I feel that this is due to the fact that 660 drops most of its nuts early in the season and the samples we were testing may not have been a representative sample from the trees. 246 and 508, which were mentioned by Mr Davenport as being not as good as the newer varieties, are shown here as being lower in oil content and reaching maturity at a later date than the other three varieties.

The graph (d) represents the maturation curves for the varieties 246 and 508 from Maleny. There is an obvious difference in maturity from site to site. At Maleny the oil content or percentage first grade is not even starting to form until half-way through February, whereas the same varieties from Bundaberg were up to 75% 1st grade early in January. At Maleny 246 and 508 do not reach a maximum level until towards the end of May early June and the maximum percentage of first grade for these two varieties is lower than at Bundaberg.

I would now like to talk about shelf life in relation to quality. This is one factor that has not been looked at nearly enough in relation to quality assessed in relation to consumers. Up until now we have been mainly looking at quality of nuts directly after processing and not worrying about what those same nuts are like after storage or shelf life. Shelf life is dependent on the packaging material and the medium that the nuts are sealed under. Shelf life may be affected by field factors, such as, variety, maturity, length of time that nuts are left on the ground and storage of nut in shell. We have no information as yet on how any of these factors affect quality after shelf life. I feel it is one thing that should be looked at and intend to include shelf life studies in our quality work in the future.

Another thing that may affect quality is the storage of nut in shell. As more nuts are produced, the quantity of nuts being held by growers may increase. Storage of nut in shell by growers for long periods without proper conditions is not recommended and may have an adverse affect on quality. It is best to harvest the nuts, air dry them until they are down to 10% and send them to the processor as soon as possible. The processors are better equipped to store nut in shell, or crack the nuts and store the kernels.

Finally, we did some work last year to try to establish how long nuts could be left on the ground before harvesting without affecting quality.

The current D P I recommendation is four weeks in dry conditions and one to two weeks in rainy weather.

The trial involved leaving nuts from the varieties 246 and 508 from Maleny and the varieties 508, 333 and 660 from Bundaberg on the ground for periods from 0 to 5 months. Nuts were placed in direct sunlight and also in the shade of the trees under the trickle irrigation system. These two conditions were considered to be the worst possible encountered by nuts left on the ground for extended periods.

The quality of the nuts was monitored by measuring kernel recovery, percentage 1st grade, percentage processed recovery. The quality of the coastal kernels was also measured by a taste panel assessment of flavour, texture and general acceptability. The results from the work are listed in the table (e).

At Bundaberg percentage kernel recover for the sun and shade treatments decreased slightly over the 5 month period, but it was only about 2% for both treatments. Percentage first grade did not vary much at all, considering the severity of the treatments. Percentage processed recovery, which is a measure of quality as determined by selecting nuts on a colour basis after they have been processed, dropped about 15% after 1 month in the sun. There was very little change in processed recovery from the shade treatment. Taste panel assessments of all treatments have been completed but have not been tabulated here as there was insufficient time. The results do indicate however that there is very little effect on quality of the nuts after processing even after being left on the ground for up to 5 months.

The major effect here would therefore appear to be a 15% loss in processed recovery after the critical one month period in the sun. When it is considered that in a field situation very few nuts would actually lie in the sun for anywhere near the time that nuts left in the open world, the overall effect of this treatment could be quite small.

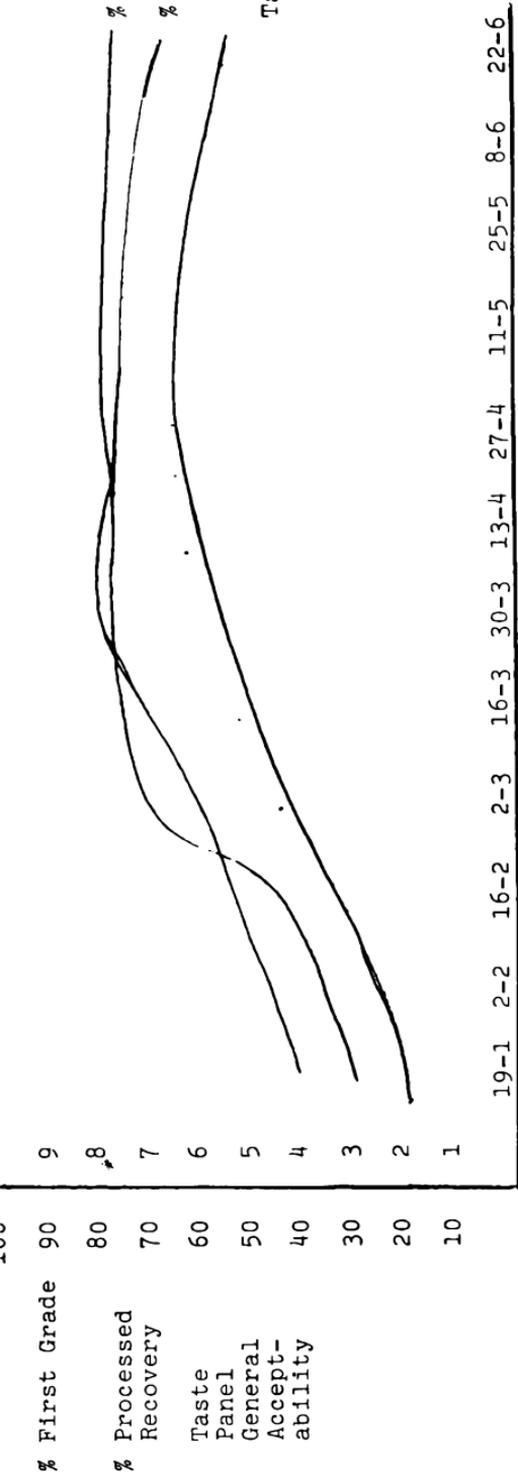
With regard to mould there was no incidence of mould in any of the nuts from the shade (wet) treatment. The husks were completely broken down after 5 months and the nuts were mouldy on the outside but because the shell remained intact no mould developed inside the shell.

The variety 660 showed some signs of germination after 3 months in the shade.

At Maleny there was very little change in any of the parameters measured. This is probably due to the much milder conditions encountered there.

Although the data suggests that nuts may be left on the ground for periods longer than is currently recommended I feel that the recommendation (2-4 weekly harvests) should be adhered to until this work can be confirmed over a number of season.

In summing up I would just like to repeat that it is essential to the continued growth of this industry that high quality macadamias are made available to consumers both here and overseas.



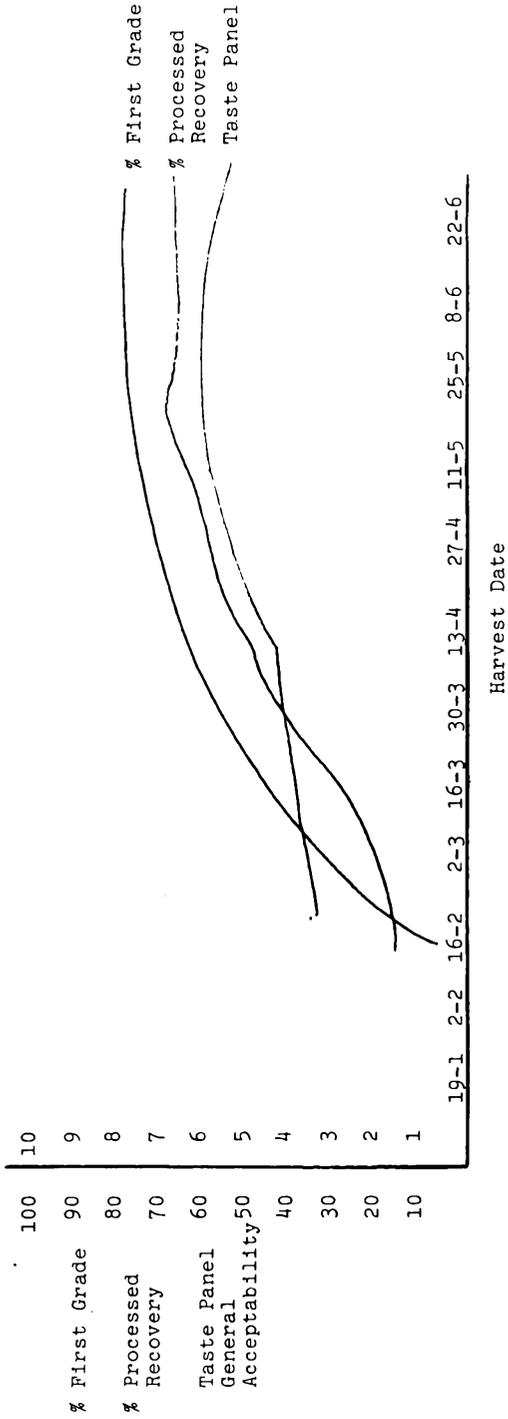
Harvest Date

Taste Panel Score (1-9) in which 1 = Dislike Extremely
9 = Like Extremely

GRAPH NO (b)

VARIETY - 246

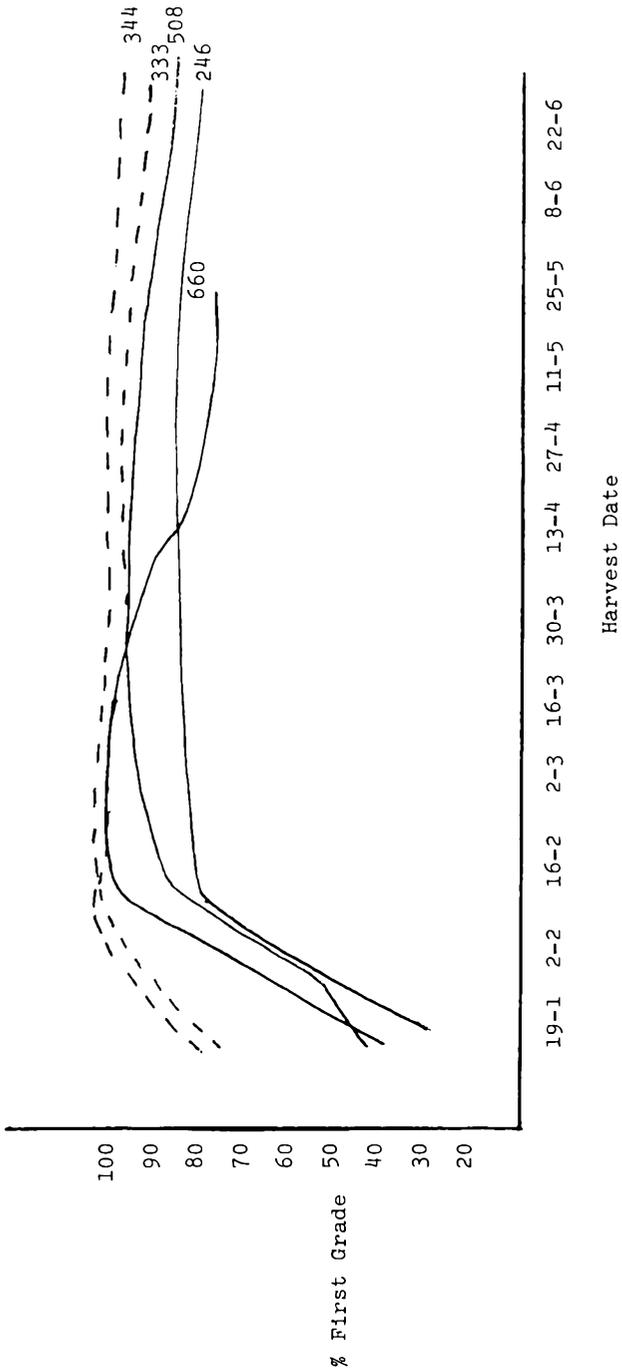
SITE - MALENY



Taste Panel Score (1-9) in which 1 = Dislike Extremely
9 = Like Extremely

GRAPH NO (c)

MATURATION CURVES BUNDABERG



GRAPH NO (d)
MATURATION CURVES MLENY

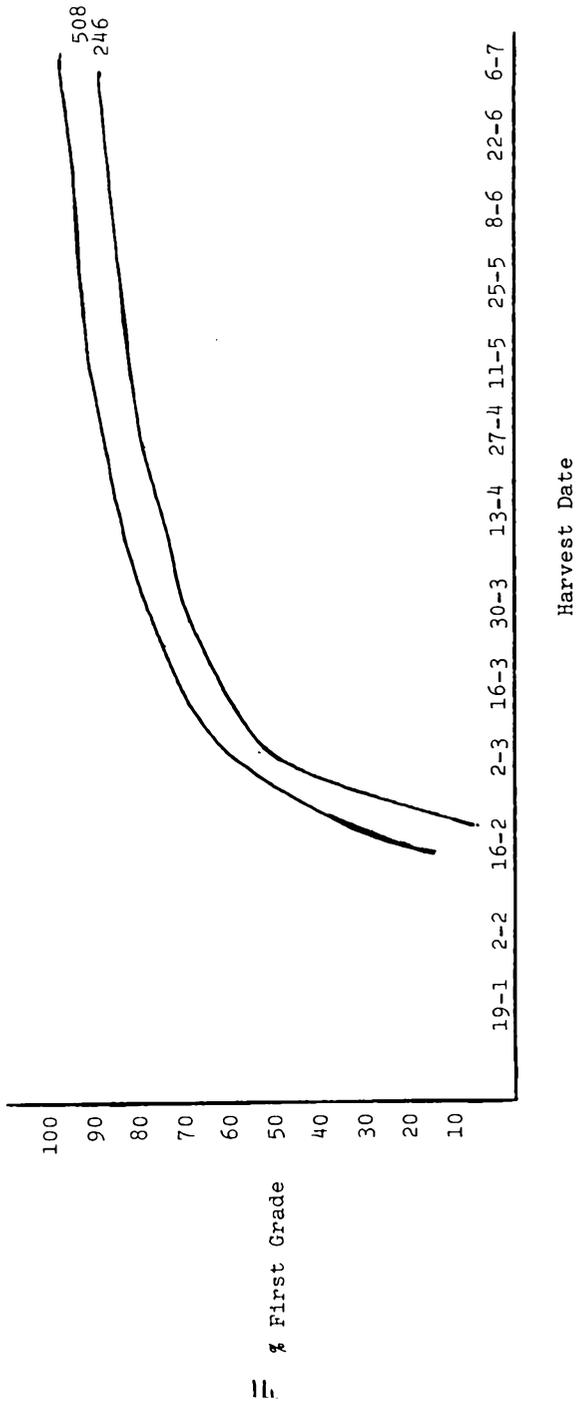


TABLE NO. (e)

MACADAMIA NUT TIME ON THE GROUND BEFORE HARVEST

Time on Ground	% Kernel Recovery		% First Grade Bundaberg		% Processed Recovery		% Kernel Recovery		% First Grade Maleny		% Processed Recovery	
	Sun	Shade	Sun	Shade	Sun	Shade	Sun	Shade	Sun	Shade	Sun	Shade
0 months	35.0	35.0	95.2	95.2	81.4	81.4	39.0	39.0	88.7	88.7	82.9	82.9
1 month	34.5	35.3	95.3	94.5	66.5	80.9	35.8	37.1	86.3	85.8	78.6	78.6
3 months	34.2	33.3	95.4	91.4	64.2	81.1	36.8	36.8	86.7	86.8	76.3	82.4
5 months	32.6	32.7	97.7	92.9	63.4	78.8	35.5	36.1	90.8	90.0	69.1	79.8

(Average of Three Varieties)

(Average of Two Varieties)

Below is an interesting article on Black Walnut in Australia. Our Secretary is writing to obtain follow up information on this article if it is available.

GROWING NORTHEAST IOWA BLACK WALNUT IN AUSTRALIA

R.W. DAUBENDIEK, 'JOHNNY WALNUTSEED', DECORAH, IOWA

Source : 60th Annual Report of the Northern Nut Growers Association Incorporated, East Lansing, Michigan)

Three years before Man's first walk on the moon and according to forestry officials there were only two black walnut (*Juglans nigra*) trees growing on the whole of the continent of Australia. These were at the Governor's Mansion grounds at Canberra.

It seems strange that some person had not gotten into extensive reforestation with black walnut. Australia is the size of the continental United States, is inhabited by as many persons as the state of Illinois, and imports 400 million dollars of lumber a year. There is much excellent land with a tree growing climate. Presently they grow numerous kinds of eucalyptus, some almost as large as the redwoods of the west coast, and they are 8,000 miles closer to the tremendous Japanese market for the fine woods.

Plantation Management Proprietary Ltd, 405 Lonsdale Street, Melbourne, and headed by Harold G. Hansen, General Manager and John Hall, Plantation Manager, has successfully established several thousand acres of planted pine trees there. They heard of the extensive work being done throughout the United States by R.W. Daubendiek, "Johnny Walnutseed", with black walnut reforestation for production of lumber.

Mr Hall visited the United States in the spring of 1967, went over much of Daubendiek's work and placed an order with Decorah Nursery for 20,000 stratified black walnut seed, hardy to 45 degrees below zero. These were shipped air express from Dubuque, Iowa, Ozark Airlines May 31, 1967. Eight days later they went through plant quarantine, fumigation and were planted in nursery beds near Rafferty about 80 miles north east of Melbourne in the Cathedral Mountains.

When I visited the area in December 1967, I found 19,200 of this first 20,000 growing extremely well. These were about 14" tall at that time with about two-thirds of the current years growing season ahead of them.

A subsequent air shipment of 30,000 stratified seed nuts was made March 26, 1968 and in March 1969 150,000 dry seed nuts were also shipped, bringing the total of Decorah Nursery nuts to the Australian firm to 200,000.

I also assisted the firm by personally inspecting black walnut growing sites there. The principal reforestation site selected is a 200 acre island area in one of the now flood controlled stream valleys. The stream is about the size of, and much like the

Yellowstone River in our National Park area. This island area had grown eucalyptus to 6' dbh, but had been cleared some years back and used for irrigated garden truck crops. In some years carrots three and one half feet long are produced. It is in an area of rainfall and climate much like some places in Western Oregon where walnut can produce 3/4" annual rings and logs in 30 years that take at least 60 years to produce in the Mid-west. This island area was purchased for \$500 per acre, a total of \$100,000 for the land alone to grow black walnut lumber.

An additional shipment of 150,000 dry seed nuts is on order and will be shipped in November 1969 for use on this project and to expand this species to other sites in Australia under the direction of the Plantation Management Proprietary Ltd.

I have probably had more experience planting black walnut for lumber than any person in the world. My nursery has shipped small orders for this stock to England, Italy, Germany, and Japan. We plant about 5,000 bushels of seed nuts a year in our nurseries at Harpers Ferry, Iowa. Most of the seedlings are replanted with our reforestation crews working in 9 mid-western states. With my own crews we have planted more than 5 million trees, including three million walnut in Iowa. Still I feel this is a very, very small amount of the number needed to supply the world-wide markets of this most sought after valuable species.



Darling Range Study Group

D.R.S.C.
Newsletter

FORMATION
STUDY AREA
CURRENT WORK
TERMS OF REFERENCE
MAP OF STUDY AREA
COMMITTEE STRUCTURE

NEWSLETTER NO. 1.
MARCH 1980.

FORMATION:

On the 14th August, 1979 the Premier's Department released a statement announcing the formation of the Darling Range Study Group (D.R.S.G.), whose purpose is to carry out a comprehensive study of land use in the Darling Range and to advise Government on land use policies and the co-ordination of land use planning by Departments.

The D.R.S.G. comprises four professional officers seconded full time from their Departments for an initial period of two years and selected to provide a balance of relevant skills within the Group. The study team commenced work in mid January 1980 and is located on the 4th floor of the Oakleigh Building, 22 St. George's Terrace, Perth - telephones 325 3460, 325 3480 and 325 3503.

The terms of reference are attached as Appendix 1.

STUDY AREA:

The study area has been defined as the land between and including the Helena catchment in the north and the Collie catchment in the south bounded to the west by the Darling Scarp and to the east by a straight line joining the eastern extremities of the two catchments (see map). The total area is approximately 1,000,000 ha. Issues in adjacent areas will be considered if they have an impact on the study area.

CURRENT WORK:

The work in progress at present consists of

- .establishing liaison with Government departments and other interested parties.
- .collating existing land use data and information on future development plans.
- .increasing our personal familiarity with the study area, its land use issues and relevant analysis techniques.

To these ends the Group has held discussions with senior officers from various Departments, and a letter has been circulated to Departments informing them of the formation of the Group and requesting relevant data. A programme of field trips has been planned, and to date, research in the Helena catchment and the rehabilitation of Alcoa's Jarrahdale mine site have been inspected in the company of those responsible for the work. As well, members of the D.R.S.G. are familiarising themselves with existing reports and publications such as the Environmental Review and Management Programmes for bauxite mining, together with the E.P.A. and public responses, and the Forests Department's General Working Plan.

Land Use Capability Plans

As part of the comprehensive land use study the D.R.S.G. intends to prepare capability plans. This involves taking expert opinion as to the uses to which land with certain characteristics can be put, and the preparation of plans showing the location of such land. Much of the relevant data is already available as maps prepared for the System 6 study. The D.R.S.G. proposes to digitise these maps so that the preparation of land use capability plans can be readily performed by computer.

Land Management Information

Digitised maps are very useful in planning exercises based on overlaying maps so as to identify and measure areas of land which satisfy various conditions. Such an exercise is being undertaken by a Working Group of the Mining and Management Planning Group so as to investigate the effects of alternative strategies and constraints on land use practices in the Del Park/Huntly mine areas near Dwellingup. The D.R.S.G. is involved in convening the Working Group. Other members include Alcoa, Public Works Department, Metropolitan Water Board, Forests Department and Department of Conservation and Environment.

Public Involvement

The D.R.S.G. wishes to interact with other organisations which have a direct or indirect interest in the study area. Valuable inputs of public opinion and concern are available from the System 6 study and the Wagerup and Worsley E.R.M.P.'s. Close liaison is being maintained with officers involved with System 6. When required further public input will be sought by discussions and/or submission from industry, business groups, local authorities, regional groups, professional societies and other organisations with a particular interest in the study area.

Newsletters of this type will be issued from time to time to indicate progress and direction of D.R.S.G. work and comment on these matters would be welcome. We are also interested in comment on the terms of reference which are attached.

Liaison

The D.R.S.G. liaises closely with other Government bodies working in this field, particularly

- .Sub-committee of the Planning and Co-ordinating Authority
- .Research Co-ordinating Committee
- .Mining and Management Planning Group.

The structure and the membership of these groups is shown in Appendix 2.

APPENDIX 1.

DARLING RANGE STUDY GROUP

TERMS OF REFERENCE

- (i) Purpose
- (a) To carry out a comprehensive study of land use in the Darling Range
 - (b) to advise Government on land use policy and the co-ordination of land use planning by departments over an area coinciding broadly with the SRI study area.
- (ii) Study Area
- The core area for study will be the State Forests and Timber Reserves between the Helena and Wellington water supply catchments (inclusive). In addition, certain developments outside this core area may influence planning proposals (e.g. the S.E. and Eastern corridors for Perth). Where appropriate, the impact of these developments will also be considered.
- (iii) Objectives
- (a) Propose the processes and criteria from which land use policies will emerge. Identify policy alternative for land use in the Darling Range.
 - (b) Review existing land use plans, programmes and policies prepared and implemented by departments and industry. Identify major conflicts, inconsistencies or inadequacies in such plans, programmes and policies.
 - (c) Review procedures for interdepartmental consideration of multi-purpose land use policies and programmes and propose means by which such procedures might be improved.
 - (d) Provide a series of possible options for future land use and illustrate the likely consequence of each.
 - (e) In collaboration with the Research Co-ordinating Committee identify priorities for research related to problems arising from land use policies.
 - (f) Improve public awareness of land use issues and encourage responsible input in the formulation of land use policies.
 - (g) Examine other specific issues as might be requested from time to time.
- (iv) Approach
- The Study Group will need to demonstrate an objective and analytical approach to such matters as:-
- (a) a consideration of decision alternatives;
 - (b) an assessment of quantitative or qualitative measures of output or performance upon which alternatives can be evaluated;

- (c) the likely relationships between decisions and consequences;
- (d) an assessment of critical assumptions and major uncertainties which might influence consequences and thereby the basis for specific decisions.

To do this, the Study Group proposes to

- (e) obtain an inventory of basic, relevant data
- (f) assess the capability of the Study Area for various alternative uses
- (g) consider regional social, environmental and economic requirements.

(v) Reports

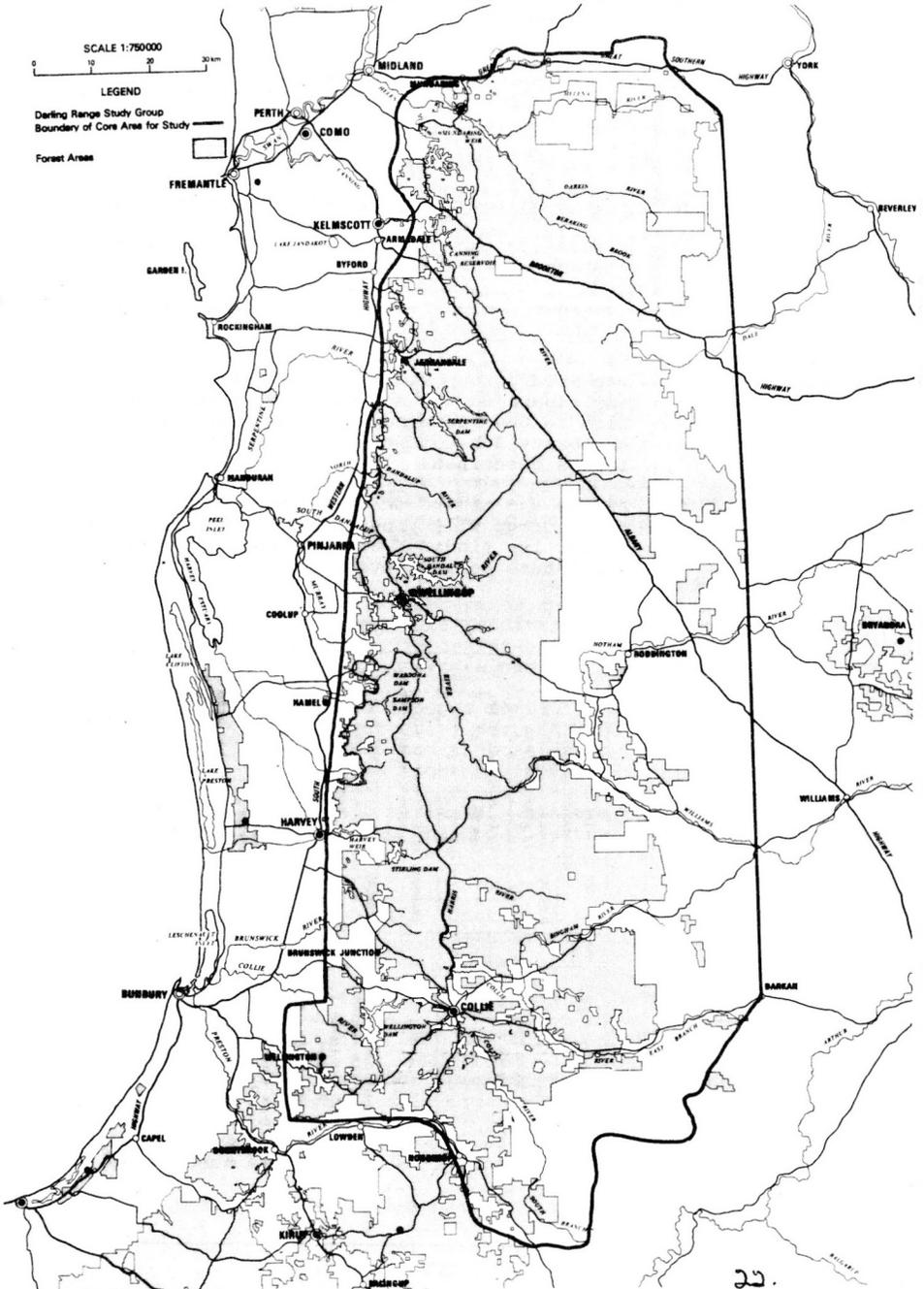
- (a) The Study Group will provide a series of working papers to Cabinet via the Premier (and also to the Planning and Co-ordinating Authority Sub-Committee) which address the issues described.
- (b) At the end of the initial two year period the Study Group will provide a report which summarises its findings and provides a framework for future policy review.

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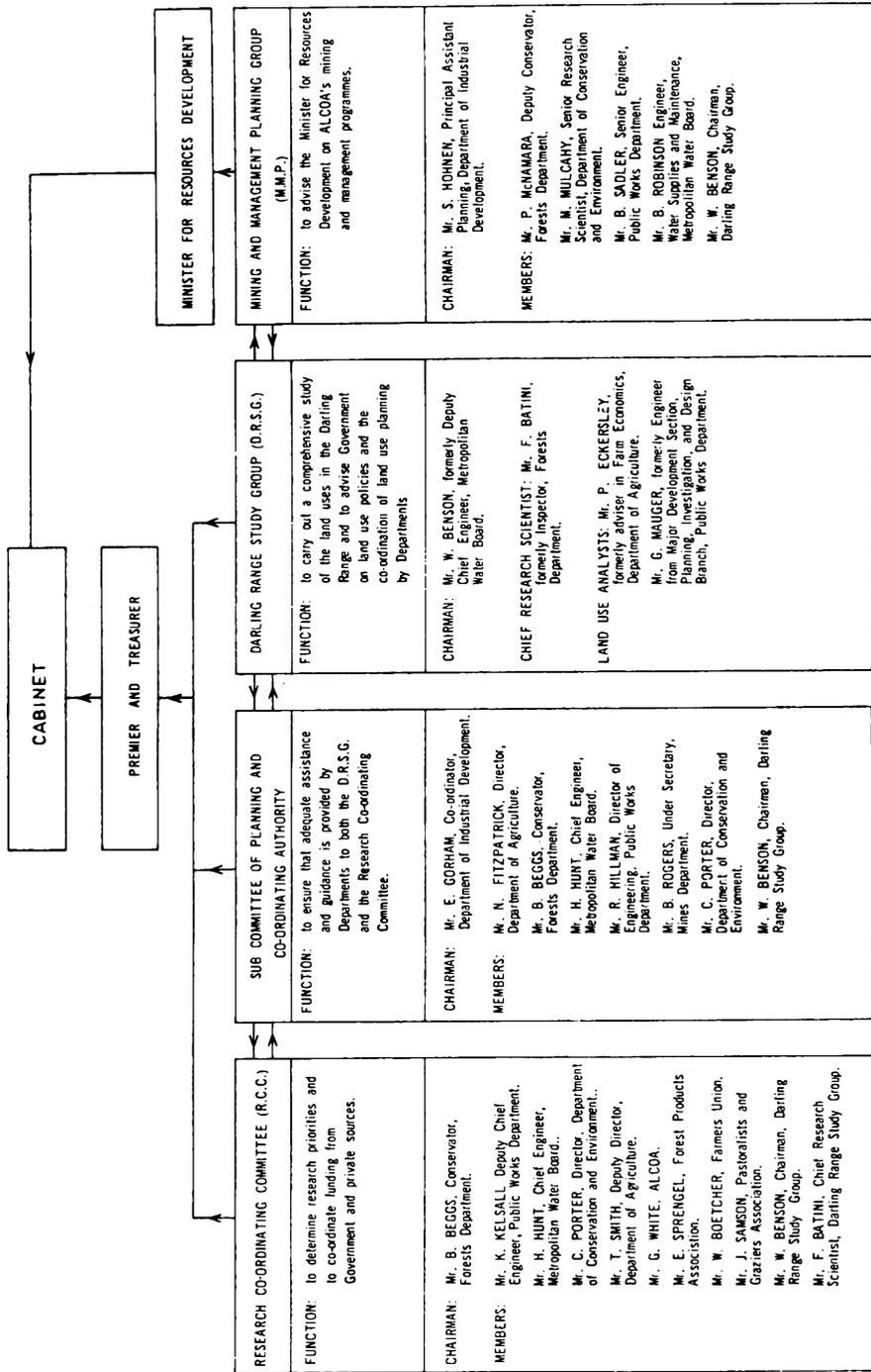
LEGEND

Darling Range Study Group
Boundary of Core Area for Study

Forest Areas



STRUCTURE AND MEMBERSHIP OF GROUPS INVOLVED WITH LAND USE IN THE DARLING RANGE



RECIPES

Source : Unknown

BACCHANALIAN CAKE

8 oz whole brazil nuts
8 oz dates cut up
6 oz coloured cherries
4 oz mixed peel chopped
6 oz walnuts
3 oz raisins
3 eggs
1 tsp. vanilla
3/4 cup plain flour
3/4 cup sugar
Pinch of salt
1/2 tsp. baking powder

Grease and line orange cake tin. Sift baking powder, flour and salt. Add nuts and fruits and mix well. Add sugar. Make into a stiff mixture with beaten eggs and vanilla. Put in tin and flatten with wooden spoon. Slow oven for 2 hours. Leave in ten minutes before turning out. Keep in fridge for months.

Source : The Macadamia Nut in Cooking - A publication of the California Macadamia Society Revised May 1976.

MARIA'S STUFFED TOMATOES

Brown chopped mild onion in 'just enough' bacon grease. Add bread crumbs and bacon bits, chopped macadamia nuts. Season with salt and pepper to taste. Scoop out tomatoes and drain. Fill with stuffing and broil until just brown on top. If stuffing seems too dry, add small amount of tomato pulp.

BAKLAVA - MACADAMIA NUT A LA ELLIOT

- | | | |
|-------------------------------|---|--------------------------|
| 1 lb fillo dough |) | |
| 4 cups chopped macadamia nuts |) | Mix these together well |
| 2 cups sugar |) | |
| 3/4 tsp. cardamon |) | |
| 2 cups sugar |) | |
| 1 cup water |) | Boil together gently for |
| 2 tsp. lemon juice |) | 25 minutes |
| 1 drop oil of cinnamon |) | |

Place a layer of fillo dough in a 9 x 13 inch pan.
Erush each layer with melted butter and sprinkle with nut mixture.
Repeat with each layer of dough, ending with 2 layers of dough for the top. Cut in diamond shapes and pour balance of butter over pastry.
Bake at 350 degrees for 35 to 40 minutes or until brown. Remove from oven and pour warm sugar mixture over pastry. Cool. Then refrigerate.

NOTES FOR PUBLICATION

You may like to use this sheet to send some notes in to the Publications Editors for use in Quandong or the WANS Yearbook. Notes and articles of any length are welcome. Typing is nice, but if you haven't got a typewriter, please write clearly.

To: The Publications Editors, WANS, PO Box 27, Subiaco, WA 6008.

The following may be of interest to members:
(use extra sheets if necessary)

Submitted by: