



The Australian Newswire
Ninth Edition
May/June 1992

Talking Avocados

A Different Talking Avocados

This issue of Talking Avocados is being published by the NSW Avocado Association for the Australian Avocado Growers' Federation (AAGF) as an interim replacement for the regular Talking Avocados magazine and NSW Avocado Newsletter.

Why has this happened? Well, the arrangement with Marie Piccone who was the first editor of Talking Avocados has come to an end and a new arrangement was in order. Our thanks go to Marie for giving the industry an excellent national publication. Marie did a lot of hard work to get Talking Avocados to the standard it was—she has given us a hard act to follow.

Unfortunately not everything goes according to plan. Some things which should have been in place by now have not as yet

eventuated, consequently, it has been impossible to launch the new Talking Avocados.

As NSW has a fairly widely distributed Newsletter with an editorial, printing, packing and postage system in place, it seemed logical to use that vehicle with a new name and avoid the costly exercise of creating a brand new but possibly very temporary publication.

The intention with this publication, as with future copies of Talking Avocados, is to give all avocado growers throughout Australia a free copy of this their national magazine. Distribution to members of State Avocado Associations is simple as members' names and addresses are known, but those growers, or people associated with the avocado industry, who are not members will have to register with their nearest State Association or local Branch if they wish to be on the mailing list. The AAGF would like this publication and its successor to get as wide an audience as possible within the whole of the Australian avocado industry, so please pass this information on to anyone who is not already a recipient.

If you have something to say and would like to air it publicly in print, write to the AAGF Secretary, Ross Boyle (P.O. Box 19 Brisbane Markets 4106, phone 07 3790228), because future editions will be running a Growers' Forum. On the other hand, if you want something attended to within our industry, please do that through your local Branch or Association.

Certainly your ideas on a publication for the avocado industry will be most welcome and are encouraged. The aim of the magazine is to keep you informed of events occurring in the industry, to disseminate information on the production and marketing of avocados and to inspire interest in agriculture as a whole, and avocados in particular—so its over to you!

Warren Meredith
President NSW Avocado Association

STOP PRESS

The Australian Avocado Growers' Federation has been accepted as a member of the Australian Horticultural Corporation (AHC). As from 1 June, a 15¢ AHC levy plus the 3¢ HRDC levy per tray, or equivalent thereof, will be collected nationally on the sale of all avocados. Existing NSW levies will cease from that date, other States will be making similar arrangements.

Good Publicity?

The following excerpt from an article by Rosemary Stanton appeared in the May issue of "Family Circle":

The olive and avocado distinguish themselves from other fruits by containing some fat. In both foods, the predominant fat is monounsaturated and can reduce blood cholesterol. However, all fats are equally high in kilojoules, so if you want to reduce your body fat level, you should limit the quantity of avocado you eat. A few slices on a sandwich, in a salad or used as a spread would be fine.

'No cholesterol' stickers seen on some avocados are absurd. Avocados have never contained cholesterol. And, as we have seen, it is the type of fat contained in a food that largely determines the amount of cholesterol produced by the body.

It is unfortunate that Ms Stanton considered the 'No Cholesterol' sticker campaign absurd. Apparently she is unaware that in an Australia-wide marketing survey conducted by the QDPI in 1990, many people thought avocados contained cholesterol.

The same survey also showed that quite a few people perceived avocados to be fattening and many gave this as their reason for not buying the fruit. In view of the results of a trial conducted by Matthew Steele at La Mancha Health Centre, Wollongbar in 1988, perhaps the industry should consider carrying out research to prove or disprove once and for all that avocados increase body fat?

NSW BRANCH MEETINGS

Tweed Branch

The Tweed Branch will not be holding a meeting in May unless requested to do so by members.

Brunswick Branch

Mullumbimby Ex Servicemen's Club commencing 8.00 p.m. on Tuesday 26 May.

Coffs Harbour Branch

Coffs Harbour Catholic Club commencing 7.30 p.m. on Thursday 28 May.

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Cuttings From The Tree Of Knowledge

Jane Reynolds has just published the 1992 edition of "C Software for Agriculture". The 1991 version was so popular the fifth edition released in that year sold out.

The latest edition lists over 350 programs ranging from recording and analysis, production recording and landforming, information services, data logging equipment software suppliers.

A new section on environment recording includes program weather, meteorological and soil analysis and land management.

The guide costs \$20, including handling and postage, available from NSW Agriculture, P.O. Box 9, East Maitland 2323.

If you are a fruit grower and employ people on your property you must pay 3% superannuation. Employers failing to pay superannuation at the prescribed level will be required to pay Superannuation Guarantee Levy.

This levy will be equivalent to the shortfall in superannuation contributions plus an additional amount for foregone superannuation earnings. In addition, the levy and interest charges will not be deductible.

The Australian Government has issued a national standard for organic and biodynamic produce. The standard outlines production and inspection systems for growers, packaging and labelling of produce, materials allowed for fertilising and soil conditioning and materials for plant pest and disease control.

Copies of the standard are available from Organic and Biodynamic Advisory Committee, AQIS, GPO Box 858, Canberra 2600.

Some time ago, the Horticultural Policy Council instituted an investigation into the impact of fruit flies on Australian horticulture. The Council has just released the report of its findings. It identified problems with both current pre- and post-harvest chemical treatments.

The Council recommended that there be full co-operation between the Commonwealth and State Governments on fruit fly control activities. It also recommended that the Sterile Insect Technique be developed to replace chemical control in outbreak zones. Also there were some forty three specific recommendations which together prescribe a comprehensive national strategy. Some of the recommendations are: pre-harvest - research into developing area suppression of fruit flies; post-harvest - research to develop non-chemical treatment; future strategies - research into eradication of Medfly from WA; and research - establish a national centre for fruit fly research.

The March edition of NSW Farmers News asked the question "Is Ned Kelly really dead?"

At a time when the horticultural industry is on its knees, produce agents want a 50 to 80 per cent wage rise. The proposal currently before the ministerial review team deluged with the responses received from industry representatives. They have requested commission rates of 15% for transactions over \$1000 and over and 18% for transactions below \$1000. Apparently there was no supportive evidence to justify these figures.

NSW Farmers have now started to look at alternative marketing systems such as electronic marketing—perhaps it is time to give serious thought to a more cost effective system!

NSW Annual General Meeting

The following reports were presented to the Annual General Meeting of the NSW Avocado Association on 18 March 1992.

President's Report

The NSW President, Rob Mosse, stated that the conflict that had been going on for the last three years between Queensland and other States concerning joining the AHC is now resolved and the Australian Avocado Growers' Federation (AAGF) has moved to join that organisation.

Prior to making application to join, a feasibility study was held in the form of a workshop where the current status of the industry was determined, where the industry would like to be in 1994, and how best to achieve that aim. Subsequently, the industry set up a Steering Committee to draw up a Memorandum of Understanding. Initially the Minister would not accept the industry's application because it was not supported by avocado growers in all States, namely the Queensland Associations objected. When support was finally forthcoming it was vetoed by COD. Eventually, Queensland growers convinced COD that they should support the AAGF joining the AHC, thus removing the impediment to the Minister accepting the avocado industry as a member of the AHC.

By being a member of the AHC, growers will get proper exposure to marketing and fair contribution by all growers to advertising. In the past, Queensland has borne the brunt of promoting avocados with NSW only spending \$50,000 some two years ago on marketing in Newcastle.

Voluntary levies have not worked in the past. Many growers have not paid their levies and without a system of compulsion, the burden of payment falls on a small nucleus of growers who support the industry. This will now change with compulsory levies for all growers throughout Australia.

There is no doubt that marketing works, therefore the industry requires maximum exposure. This has been proved because the avocado is no longer considered a yuppie fruit. Up until recently, the National Heart Foundation has worked against the avocado. Now, after getting some converts in the medical profession, the Foundation accepts that avocados lower the blood cholesterol level and not only have they given their "tick of approval", they have produced a colour calendar giving recipes for each month of the year with avocados featuring in three of those recipes and in one, an exclusive ingredient. People who previously considered avocados as a health risk have been exposed to the truth, all through advertising—thanks to the efforts of the AAGF and the various Associations.

The AHC has had difficulty in achieving its aims due to opposition from COD. That has now all changed and far greater things can be expected. The AAGF is joining the AHC on a two-year trial basis and after this period, if the AAGF does not like the progress being made, it can withdraw and recoup any unused levies. The AHC wanted three years to get avocado marketing up and running but the AAGF insisted that a decision will be made after two years based on progress to date. The AAGF does not know how much money will be collected as levies but the forecast is in the range \$200,000 to \$400,000. The AHC expects to collect levies on about 90% of the crop harvested.

The industry will determine how that money is spent, not the AHC. A committee has been formed under the chairmanship of Ross Richards, an avocado grower from South Australia, consisting of the AAGF Board and two members of the AHC—they will determine the direction marketing takes. For example, with the help of the AHC and the HRDC, some form of quality assurance can be put in place to prevent substandard avocados reaching the consumer. The States are moving away from regulatory services and self regulation may be necessary.

The AHC is also involved in export markets and research programs under the HRDC. A cold disinfestation project will assist avocado exports, especially in the Asian region.

The President went on to say that after the industry joins the AHC, it is hoped that all avocado growers will join State Associations so that they can have their say as to how their levies are spent.

Marketing Report

Keith Johnson reported that there had been a modest improvement in prices received during 1991 and that group marketing under one label had been quite successful. The market is asking for a long line of uniform quality fruit so that the wholesaler can establish with retailers a continuity of supply of predictable quality. Growers should look at these sorts of options for marketing their crop.

The market is moving towards a commodity market where the discriminating factors are price and quality. Grower's marketing power comes from the ability to command volume.

Research Report

Warren Meredith stated that the North Coast Avocado Research and Development Committee, a combination of avocado growers and NSW Agriculture personnel, has been gearing itself for joining the

HRDC. The AAGF has been trying to organise research but lack of funds curtailed most activities, with little happening in any of the States.

Entry into the HRDC will change that situation with between \$200,000 and \$300,000 being available after the Commonwealth matches levies collected on a dollar for dollar basis.

The HRDC has called for submissions from the research industry and several replies have already been received. The AAGF's Technical Committee together with two representatives from the HRDC will be meeting on the 25 March 1992 to decide where the money is to be spent in the next year. Most projects will cover more than one year and indications so far show that the average can be expected to be 3 years with an annual cost of about \$15,000 per project. Costs cover some wages (although base salaries are already paid by the various Departments of Agriculture), travel, fruit, chemicals and equipment etc. The AAGF expects to have 10-15 submissions which will mean that more research will be undertaken in one year than has been carried out in the last 12 years.

Government Pamphlets

The Department of Primary Industries and Energy (DPIE) has released three pamphlets which may be of interest to growers. The pamphlets are:

Landcare Taxation Arrangements. The government has expanded the scope of tax concessions to those who indulge in recognised land degradation control. The pamphlet informs those who earn an income from rural land of the changes to the Income Tax Assessment Act. Pamphlets are available from rural accountants, local councils, State and Territory departments responsible for agriculture and soil conservation or from Countrylink by telephoning during eastern state's business hours on toll-free 008 026 222.

The Rural Adjustment Scheme. This pamphlet explains farmers' entitlements under the Federal Government's Rural Adjustment Scheme. Phone 008 026 222.

Commonwealth Benefits and Farm Families. The aim of this pamphlet is to help farm families become better informed about their entitlements, particularly on unemployment and education assistance schemes. Phone 008 026 222.

Conflict Between Housing And Rural Endeavours

By Brian Adams, President NSW North Coast Horticultural Council Inc.

The title of this article is indicative not so much of the position now as that which could occur in the future. There have been some specific allegations already, e.g. whether the use of horticultural chemicals in Coffs Harbour was a cause of infant deaths and the effects of aerial spraying in Moree, but there is an undercurrent of concern throughout the north coast region, and indeed other parts of Australia, which has the potential for a major escalation in the level of dispute.

There is also a conflict imposed by the various constraints that are now operating on farming lands to control and regulate the uses a farmer can perform on the land he owns. To illustrate this consider the following:

1. **Local Environment Plan (LEP).** Shire LEP's zone land into a number of types, each of which is subject to varying restrictions on land use, development and subdivision, even the number of houses on the land.

2. **Soil Conservation Service (State).** Land designated as Zone 7(c) Environment Protection (Water Catchment) under a Shire LEP now faces the restraints of the Soil Conservation Act which severely limits the right of an owner to manage his land, e.g. a farmer may not lop, fell or otherwise remove a tree without permission, except under minor circumstances. Similarly there are restrictions on the use of water courses on properties.

3. **Department of Planning (State).** Declaration of an area of land on a property as 'coastal wetlands' under the State Environmental Planning Policy (No. 14 - Coastal Wetlands) virtually locks up that land from use by the owner by, for example, preventing further development of that land and by preventing its use for grazing, and all of this without any form of compensation for the diminished use that the owner can put the land.

4. **Department of Agriculture (State).** It was our friends, the Department of Agriculture who imposed limits on subdivision on agricultural lands to maintain larger areas of land for primary production—e.g. in Ballina Shire the minimum subdivision of prime agricultural land is 20 hectares (i.e. 50 acres in old terms). In the draft Conservation Strategy now being circulated by the Department there appears the general statement "Farmers should be directed to cease all exploitative land-use practices such as excessive tree clearing, overgrazing and inappropriate irrigation".

Who decides the criteria for the emotive terms of "excessive", "overgrazing" and "inappropriate"?

5. **Total Catchment Management Committees.** Relatively new but with powers to enforce restraints on land usage on owners.

6. **Tourism Commissions and Shire Councils.** These bodies like to see restraints on land use and development because, particularly in coastal areas, the rural hinterland provides a visual attraction and alternative to the harshness of beach and town.

7. **Conservationists.** It often seems to us that conservationists would like rural land owners to maintain their land in a state of tidy naturalness at their own expense for the benefit of everyone else.

This list of people who wish to influence and restrain the activities of land owners reflects one side of the rural development picture. The other is the perception of the land owner, his agricultural association and of those individuals who would prefer not to live on a town block with the minimum amount of land but instead to have some "living room".

The severe restraints on land development have come as a blow to many longer-term landholders who have considered the land that they have owned and developed as a type of superannuation for their older age.

Indeed this view is represented by the formal Statement of Policy of NSW Farmers, the premier agricultural association in NSW, which states "6.1 There should be no arbitrary Government restrictions on: (a) land use, (b) land transfers; and (c) minimum subdivision areas; and market forces should be the primary determinant of land use patterns....".

The highest prices in Ballina Shire can be obtained for land of 0.4 ha (1 acre) to 2 ha (5 acres) because these areas are usable by those who want more space to live in and can see that these areas are manageable and can with intensive use be profitable as an additional source of income. They are also scarce because of the zoning restrictions.

Lest it be misconstrued, it must be stated that farmers do recognise and understand that unbridled land use and development is not in the interests of themselves nor of the community. The problem, as with so many other problems, is a question of balance.

Macro and Micro Terms

The causes of conflict can be broadly divided into macro and micro causes and generally fall into the areas of use of agricultural chemicals, use of artificial fertilisers and noise, smell or visual pollution.

In macro terms, most concerns lie in the potential for pollution of waterways and water sources (e.g. the blue-green algae problem) which could affect many households and the possibility of degrading land through over-use of acid fertilisers.

In micro terms, concerns lie in spray drift on to the roof catchments or ground catchments of neighbours or noise, smell or visual pollution deriving from such areas as the operation of noisy farm equipment at unreasonable hours, spreading pig manure or operating a piggery or the erection of farm buildings or netting structures which block the view or are an unsightly feature on the close boundary of a neighbour. In most cases, such micro conflicts can be resolved by the co-operative discussion between neighbours and by the understanding and education of both parties. But human nature being as it is, this will not always work.

Legislation

There has been much debate in recent years on legislative means as a way to avoid conflict. In the USA for instance a number of States have "Right to Farm" legislation by which normal farming practices are enshrined in legislation so that complaint against these practices cannot be successful at law. Another consideration for legislation has been "Prior Right" by which is meant that the right to farming practice of an existing farm cannot be altered by the presence of new neighbours. Both of these forms of legislation have proven difficulties and it seems unlikely that either would be seriously attempted in Australia.

"Just Terms" though is a principle now enshrined in NSW legislation and establishes a procedure for compensation in cases where the whole of a property is acquired by the State for public purposes, e.g. for transformation or inclusion in a National Park. Farmer associations are pressing the NSW Government for similar "Just Terms" legislation in cases where a blight is placed on farming lands for the public good and thus restricts their use for normal agriculture.

The AHC - Where are we now?

As you are probably aware, the AAGF has been negotiating with the Australian Horticultural Corporation (AHC) ever since the Board of Directors voted to join that organisation.

Our negotiators have been striving to get the best possible terms and conditions so that growers' levies can best be utilised, costs for administration minimised and advertising opportunities maximised.

These negotiations have now been completed and the Minister for Primary Industries and Energy, Mr Simon Crean, has now approved AAGF membership to the AHC.

In order to give you some insight into the AHC, the following extract from the 1990/91 report to the Minister by the Chairman of the AHC, Mr Malcom Irving, is presented for your edification:

In what have been some of the worst years for the rural sector, the AHC attracted interest and participation from leading horticultural industries soon after its commencement in 1988.

Growing from a strong base provided by the apple and pear industry, the citrus, nashi, nursery and, more recently, the dried fruits industries joined its member list. Expressions of interest have been received from the peak bodies for table grapes, avocados, berries, cherries, other stone fruit, kiwifruit and macadamias. The chestnut and cut flowers industries have also resolved to join the AHC. The honey industry has entered into discussions regarding the possibility of that industry coming within the ambit of the AHC's activities.

We believe our initial successes, and those of our members, have resulted from activities which we will continue to strengthen with experience. These include:

- communications with the industries we represent. Obviously, we must be vigilant in this regard, and while I am pleased to report progress in the past year, particularly as a result of our combined roadshows with the Australian Apple & Pear Growers' Association, we cannot afford to be complacent because

there are often examples of the communication process not working as effectively as we would like.

- the articulation of industry priorities and the development of planning workshops for industry participants.
- the development and implementation of Australia's largest fruit advertising campaign.
- joint and solo participation in pilot research studies which added valuable knowledge to existing data on fruit and vegetables in domestic markets. For example, the South-East Asian study on export markets and a jointly funded domestic consumer survey on fruit and vegetables will help both participating and non participating industries to formulate marketing plans in the years ahead.
- joint participation in the first national research study of the nursery industry, which will be the basis for developing future strategies and marketing programs.
- co-ordination of shipping negotiations for apples and pears which led to considerable savings in rate structures as well as allowing Australian producers to capitalise on emerging opportunities through such options as special vessel charters. In achieving this success, it is appropriate to acknowledge the invaluable support and contribution made by the exporter community to the negotiating team.
- The Market Access Committee continues to do its fine work in facilitating more focused entry of such products as citrus and nashi to the United States, and in negotiating improved access to Taiwan and Indonesia. Together with industry members, we intend to expand our efforts to communicate at the grass roots level, and to improve the existing process of communication with the peak industry bodies and their State officers.

It would be misleading to present a flawless picture of the Corporation's efforts in its three years. Certainly there have been disappointments.

to produce a living income—and the philosophical question of whether the community can rightly impose restraints on those who hold land as free citizens.

Farmers have a large part to play in minimising the causes of conflict. For instance, the recently introduced chemical application courses can make a valuable contribution. It may be that courses and formal accreditation of farmers in chemical use will be compulsory in the future.

In conclusion, consider what happens on the first occasion when a neighbour takes

The Corporation's early days were hampered by a lack of understanding of its functions. In effect, a fear that it was part of a plot to nationalise the horticultural industry. As a result, we had to mend fences with certain organisations before starting any discussions on potential benefits.

In retrospect we have not made enough headway developing effective dialogue with key exporter bodies. We view this as a most important component of the marketing chain and one where we must renew our efforts to establish closer and more effective links. We feel this effective dialogue should be expanded to include not only growers, but processors and wholesalers in the domestic markets.

Australian producers are confronted by a plethora of market opportunities.

Firstly, they can sell their product on a domestic market unique among Southern Hemisphere countries in having 17 million consumers with above average income and per capita levels of consumption. Secondly, most products can be sold to a juice or canning sector large enough to take their crops, historically at reasonable prices from one year to the next.

Thirdly, producers can export. With more than 80 licensed exporters, there is vigorous participation in that sector of the industry. Yet this range of possibilities does not help the export sector as a whole. Export is an Australian necessity. The domestic market is not strong enough to absorb everything produced, let alone cater for the expected increases in production and for any imported product.

The impediments to export, principally the exchange rate, high internal and transport costs are well recognised and put Australian producers and exporters at a disadvantage to their significant Southern Hemisphere competitors. However, if the industries are to survive, then we must find way to overcome these impediments. Solutions will only be achieved by a co-operative effort with each participant in the discussions respecting the views and contributions of the others.

an orchardist before the Land and Environment Court and obtains an injunction against him spraying his avocados against fruit spotting bug using the only chemical registered at the moment. When this occurs it is likely that the orchard is no longer economically viable and the orchardist will be unable to use his land for its best purpose. Yet under existing conditions he cannot do the obvious thing and divide his land up for profit.

This is the dilemma that we will soon have to face.

The Conflict

The pressure increases as the number of houses that are allowed in predominantly rural areas increases. It is this factor which is the most difficult to balance. On the one hand there is the desire to retain good agricultural land for primary production and allow the continuation of the practices of those farmers who want to continue operating their land; on the other hand is the desire of land owners to sell off some of their land for their own profit—especially in cases where the land is no longer able

Avocado Research Projects For The Coming Year

By Warren Meredith

Last year at an HRDC workshop, the following were selected as the research priorities for the avocado industry:

1. Pests and disease control.
2. Quality assurance.
3. Rootstock.
4. Fertiliser and plant nutrition.
5. Retail and wholesale handling.
6. Market research.
7. Yield productivity/cultural practices.
8. Varietal improvements.
9. Technology transfer.
10. Total management.
11. New and value added products.
12. Irrigation and water management.
13. Disinfestation.
14. Product handling.
15. Crop forecasting.
16. Orchard floor management.
17. Storage.
18. Harvesting.
19. Transport.
20. Soil quality.

The AAGF had a Board meeting in Sydney in March at which it considered the twelve projects placed before it.

From the three cents levy per tray, up to March, HRDC estimated that, exclusive of collection costs, about \$120,000 (including the Commonwealth research subsidy) would be available for research in 1992/93.

Considering the relatively small amount of money expected to be available, the Board recommended to the HRDC that the following projects should be funded in 1992/93 on the basis that those projects in being should continue:

AV 044 - Population dynamics and biological control of the avocado leafroller in North Queensland (a continuing project).

This project aims to introduce through quarantine and to subsequently release and successfully establish into the North Queensland avocado industry an exotic wasp parasite. The parasite is required to control the avocado leafroller which is a serious threat to over 50% of the industry and is spreading. The pest is now controlled almost exclusively by repeated applications of costly and biologically disruptive broad spectrum insecticides.

Research Organisation: Queensland Department of Primary Industries (QDPI).

AV 033 - The relationship between carbohydrate levels and productivity in the avocado and impact of management practices, particularly at time of harvest (a continuing project).

The avocado, an oil bearing fruit, has a high 'energy cost' to produce a similar unit weight in comparison to sugar producing fruit (e.g. apples, citrus) and consequently lower yields per hectare must be expected. However, average avocado production in Australia is only about 33% of estimated potential yield of 32 tonnes per hectare.

Successful marketing depends on stability of production, therefore the establishment of reliable criteria relating to length of 'on-tree-storage' after fruit maturity and yield loss in the following year would assist in stabilising production.

A direct relationship has been established between the starch concentration in woody tissues prior to flowering and subsequent yield. This project aims to investigate the impact of harvesting fruit at different stages of maturity on subsequent fruiting and seasonal concentration flux of trunk starch in these trees.

Research Organisation: QDPI.

AV 207 - Biological control of anthracnose of avocados.

The aim of this project is to develop biological control of anthracnose of avocado, thereby reducing the industries reliance on fungicides and increasing export opportunities.

Apart from limitations on export, consumers concerns and regulatory changes place the availability of fungicides to control disease under threat. Biological control offers the most potential as an alternative to fungicides for anthracnose control in avocados.

Research Organisations: QDPI and University of Queensland.

AV 203 - Optimising disinfestation and storage qualities of avocados.

The project aims to develop a disinfestation system for Mediterranean fruit fly in avocados using a combination of conventional disinfestation techniques and available post-harvest treatments that will meet Japanese requirements whilst optimising post-harvest quality and reducing reliance on chemicals.

Research Organisation: Western Australia Department of Agriculture.

AV 204 and 205 - Avocado quality improvement and development of integrated management packages to improve avocado productivity.

The avocado industry has grown rapidly in the last 10 years but market development has not matched the increased production, consequently prices have declined in real

terms. Recent consumer research indicates dissatisfaction with the internal quality of avocados and market expansion will be limited if consumer confidence is low. These two projects aim to identify and quantify the internal quality problems at retail level, create awareness and recognition of the quality problems by growers, and investigate the cause of quality problems. Having identified the problems, a "Total Management System for Avocado Production" will be developed in conjunction with regional groups to create hardcopy, software and video tapes which will be relevant to variable environmental conditions under which avocados are grown in Australia. By this method, a more effective way of transferring existing information to growers will be possible.

Research Organisations: QDPI, WA Dept of Agriculture, NSW Agriculture and Piccone Horticultural Consultancy.

AV 010 - Cold disinfestation (a continuing project).

This project will be conducted in parallel with AV 203 and is to develop a cold disinfestation system for Queensland fruit fly.

Research organisation: NSW Agriculture.

The above will exhaust the expected funds from levies, however, should more money become available, then the AAGF Board may recommend further projects.

Comments made at the Board meeting indicated that in the future submissions will be required for an integrated pest management project, more work on rootstock evaluation and the need to find the cause of ringneck and eliminate it. The HRDC hopes to get all researchers into phytophthora together to review progress.

Because the HRDC has so few staff, it would seem there is a need for a specific project using current databases to review and catalogue, against AAGF priorities, world avocado research (similar to that by Mary Lu Arpaia of U.C. Riverside).

This was the first experience of the AAGF Board being directly involved in the process of awarding avocado research projects, and though it was disappointing that all those who applied were not successful, the exercise was quite rewarding.

The AAGF Board thanks all researchers who prepared submissions, those who were unsuccessful should re-submit next year.

The need to keep growers informed of progress being made by researchers is recognised and the intention is to publish progress reports in future issues of Talking Avocados as details become available.

Farm Produce Legislation Review

By Brian Adams

The following information was prepared by Brian Adams for consideration by the Committee reviewing the NSW Farm Produce Act.

General

Any thought of complete deregulation of the marketing system as has been suggested in the "Issues Paper" must be considered against the present monopoly that the Sydney Market has by legislation in the County of Cumberland. That monopoly bears with it a responsibility for legislative protection of the four elements in the fresh produce chain, i.e. grower, wholesaler, retailer and consumer. Such legislation need not necessarily be encapsulated in one Act but it must exist.

Market Power

As market intelligence is vital to growers' decisions as to when to send, to whom and what is a fair price, it is our opinion that a form of market reporting service is essential and this needs to be combined with arrival and carry over figures.

There has been an improvement in the accuracy of market reporting in the last year but price/volume/trends are only available at some expense to individual growers. It is considered that the bulk of growers get their information from the free source of newspapers or radio.

An industry provided service, funded by a small levy on sales, may be advantageous to growers but there would need to be some legislation to empower the collection body to access the records of farm produce sellers to obtain accurate figures; verbal information would not be acceptable.

Farm Produce Sellers

While the monopoly at the Flemington Market exists, it is reasonable to require that those wholesalers who enjoy its benefits should be subject to controls such as licensing, credit control and procedures for sales and payment.

Agents / Merchants

Under the present conditions wholesalers can dictate whether they are going to act as agents or merchants or that unfortunate combination called "3RD BOX". It would be in the interests of growers if farm produce sellers were licensed as agent or merchant and the 3rd box eliminated. At the time of licence, wholesalers should be required to say

whether they will be operating as an agent or as a merchant.

All agents should be required to operate a trust account into which payments received from retailers must be paid. The status of an agent as a trustee for the sales of produce from growers should be made clear in legislation.

Wholesalers trading on credit should be members of the of the Flemington Markets Commercial Services.

Despite current legislation the most common complaint of growers is of late payments by sellers. Legislation should provide for examination of wholesalers' books by an authority on a random but frequent basis and this should be carried out by an appropriately manned staff.

Legislation should authorise payment to growers by Electronic Funds Transfer where such a form of payment is the wish of the grower.

Merchant sales must be carried out on a formal pre-sale written basis; price can be formalised by a grower entering the price on a consignment note or by the receipt by the grower of a facsimile message which clearly identifies the merchant and the agreed price.

Commission Rates and Allowable Deductions

Credit control should be compulsory for all sales which are not spot cash. If this were so it is likely that a seller acting as an agent would be in a much more viable position than in the past where unlimited credit must have caused cash flow problems when payments to growers fell due. As the current commission rate of 10% is much higher than commission rates in for example the livestock industry, it is likely that compulsory credit and a 10% commission rate would allow agent transactions to be viable.

Clearly there will be some balancing in the amount of effort required to sell 2 cartons off the floor against the sale of a semi-trailer load which may never touch the ground until it arrives at the retailer. Under the latter circumstance the grower and agent should be able to negotiate a rate for commission provided it does not exceed the statutory rate.

Allowable deductions should be reduced to a single charge for all except freight and statutory levies. The present long list is not understood by growers, is applied selectively by sellers and is abused by some, e.g. splitting one consignment into 3 invoices and charging stationery and telephone calls to the maximum on each.

It is hard to see why some of the charges are not considered to be normal business practice and absorbed in the usual running costs of the business. Certainly if any increase in commission rates were to be proposed there would be a desirable offset by the elimination of all of these deductions except freight and statutory levies.

Generic Promotion of Fresh Fruit and Vegetables

There is a need for generic promotion of fresh fruit and vegetables as competition for the promotion carried out by other food advertisers. Legislation should allow a levy to be raised from the fresh fruit and vegetable industry for this or similar purposes and establish a mechanism for setting a rate and using a levy for a prescribed purpose.

Licensing of Sellers of Other Horticultural Produce

Flower sellers enjoy the benefits of being a part of the Flemington Market yet have no responsibility under the existing Act. This appears to be an anomaly and should be corrected in new legislation.

Orchard Ground Cover

AMARILLO forage peanut has been released as a ground cover suitable for use in orchards. It will grow successfully on a variety of soil types from sand to clay texture, low to high fertility, low to neutral pH and suited to districts from Grafton in New South Wales to South Johnstone in North Queensland.

It has shown adaptation for use as an orchard ground cover and pasture legume being persistent under heavy grazing and shaded situations. AMARILLO is resistant to the major peanut diseases.

Once established, a thick mat is formed, requiring minimum management. Mowing to maintain sward at approx. 30 cm will ensure best weed suppression and erosion control. AMARILLO is recommended as ground cover under banana, papaw, custard apple, avocado, stone fruit, nut trees and oil palms and other tree crops.

Although able to withstand some periods of moisture stress, AMARILLO grows best in areas of above 1000 mm annual rainfall.

Sex and the Single Variety

By Norman Ellstrand, Department of Botany & Plant Sciences, University of California (U.C.), California Grower
January 1992

For almost a decade, avocado production per acre has been declining steadily and mysteriously in Southern California. While a number of factors may have contributed to the decline—freezes, unusually hot spring days, drought, micronutrient deficiencies, and overcrowding—it is not clear that any of them alone could explain the steady year-by-year drop in yield.

One consistent change over that time that could affect yields has been the topworking of varieties like Bacon, Fuerte and Zutano to Hass.

Why should the shift to Hass make any difference? For decades, researchers have shown how the avocado's sexual system is adapted to discourage self-pollination and to promote cross-pollination among different varieties. Therefore, some farm advisors and grove managers have argued that top-working to a single variety deprives Hass of its pollen sources, and you can't expect optimal yields without adequate pollination.

Recent research has demonstrated that the relationship between cross-pollination and avocado yields is more complex than previously supposed. Israeli scientists have shown avocado yields aren't only a matter of pollination, but a matter of pollen parent as well. Even with good pollination, yields are determined by selective fruit drop based on the identity of the paternal parent of the fruit. How does selective fruit drop occur, and what does it mean for the grower?

The situation is best explained by a lesson in avocado sex education and a history of avocado sex research. Like most plants, the avocado flower has male and female parts. But unlike most species, when the flower first opens, only the female stage is functional. After several hours, the flower closes and re-opens with only the male stage expressed. Most flowers on a given tree and in a given variety are sexually synchronised. For example, at 9 am, every Hass tree in California is in the female stage. Varieties can be assigned to one of two sexual types. Type A (such as Hass) is female in the morning and male in the afternoon and Type B (such as Bacon, Fuerte, Zutano) is male in the morning and female in the afternoon.

Dr B.O. Bergh of U.C. Riverside and others have pointed out that sexual synchrony presents a pollination problem in groves composed of a single variety. Pollination within a variety can only occur by self-pollination in those exceptional flowers that have overlapping sexual phases or by the rare insect still carrying hours-old pollen from the last male period. Bergh demonstrated that trees growing

close to those of an alternate sexual type had higher yields than those distant from the alternate type. In one study, over a five year period, Fuerte (Type B) trees adjacent to Topa Topa (Type A) averaged a 37 per cent yield boost compared to those surrounded by other Fuertes. My student, Michelle Vrecenar-Gadus, corroborated those conclusions. Using genetic markers to identify the pollen parents of Hass fruits, she found a correlation between a tree's outcrossing rate and its yield.

Still, trees in single-variety groves set some fruit. So, in the 1980s, when the market price for Type B greenskins plunged, and the price for Type A Hass soared, many growers were willing to top-work and see what happened. In many cases, the initial drop in yield was insignificant. In 1985 a grower told me, "We used to think we had to interplant varieties to get good yields, but we were wrong." At the same time the issue of avocado self-pollination became controversial among scientists. Dr M. Sedgley in Australia and Dr T. Davenport in Florida found, that certain environmental conditions allow some overlap of the sexual stages, resulting in some self-pollination.

How do we reconcile these seemingly contradictory facts? The answer is that it's a long way from pollination to a mature fruit. Avocado trees have a very low fruit-per-flower bearing rate. Pollen must germinate, grow, and fertilise the egg. The fruit must grow to maturity. Only a tiny fraction of fertilised flowers develop into fruits. Over 99 per cent of avocado fruitlets drop before maturity.

Israeli researchers C. Degani, S. Gazit, and their colleagues, did a series of experiments to see if self-pollinated fruits and intervarietal hybrids were equally likely to be held on a tree during fruit drop. Although results varied with pollen parents, hybrid fruits were much more likely to remain on the tree. In one study, about 78 per cent of the fruitlets on Hass in May were selfs, but that value dropped to 17 per cent in October.

Consider the consequences of selective fruit drop for avocado yields: Assume a self-pollinated fruit has a 0.1 per cent chance of reaching maturity, and a hybrid fruit has a 0.5 per cent chance. If 1,000 flowers are self-pollinated, the final yield will be 10 fruits, but if all are crossed to another variety, the yield will be 50 fruits. We don't know enough about the relative effects of each pollen parent on each fruit parent, but the take-home message is clear: the mate can make a big difference. If we add the fact that self-pollination rates should be lower than cross-pollination

rates, we should expect drastic drops in yield with a shift to a single variety. Then why has yield dropped slowly? One clue comes from the study of Vrecenar-Gadus mentioned above. She found a surprisingly high hybridisation rate (42 per cent) for a pure Hass grove isolated from the nearest complementary variety by over 260 feet. Therefore, almost half of the fruits being set in the pure grove were fathered by trees in another grove.

Avocado's insect pollinators were doing a good job of moving the pollen between varieties. Other studies in my lab and in Israel have confirmed the conclusion that avocado cross-pollination can occur over hundreds of feet.

What does this mean for California's avocado industry? It means top-working a single grove to Hass doesn't make a big difference in yield if alternate pollen sources are nearby. A little pollen goes a long way. Only one pollen grain is necessary for fertilisation of the one seeded avocado. The separation of sexual stages magnifies pollen contributions from a distant. The contributions are magnified again by selective fruit drop. Both mechanisms functionally reduce the distance of a complementary cultivar.

Therefore, a grower could top-work an entire ranch to Hass with only a moderate drop in yield if adjacent ranches still have Zutanos, Bacons, or Fuertes. That probably represented the situation as growers slowly began to top-work their trees. Yield declined slowly because growers "borrowed" pollen from distant trees that had not yet been top-worked.

But as the shift to Hass continues, should a decline in yield until cross-pollination drops to zero. The yield should bottom out under the conditions of inadequate pollination and high fruit drop expected from within-variety pollination. That appears to be happening now. Mar Matava, President of Agriservice, recently told me, "The areas with the lowest yield are those where you can go miles without seeing anything but Hass."

The relationship between avocado yield, cross-pollination, and pollen source is a complex one. Different pollen sources have different effects on fruit set. Because we know that pollen can travel hundreds of feet from a complementary variety, a few well-spaced trees per grove might make a tremendous difference in Hass yields. At present, we don't know which variety will serve as the best pollen parent for Hass. What we do know is that there are good reasons why Hass yields should be depressed when it is grown as a single variety.

Recycled Packaging - a Cost Saving Option

From Queensland Fruit and Vegetable News, 26 March 1992

A Coorparoo recycling business doesn't believe in throwing cardboard fruit and vegetable boxes away after one use. Carton Warehouse specialises in selling recycled produce boxes and styro containers. According to manager and owner of Carton Warehouse, Leo Sines, there is a big market out there for his product.

"We sell our recycled boxes mainly to growers," said Mr Sines.

"Most of our clients appreciate the savings on recycled boxes and many are aware of the environmental benefits of recycling. On average, a grower will save \$1.00 per box, a 50 to 60 per cent saving and one tonne of recycled cardboard saves 18 trees. The long term future of agriculture benefits from recycling activities such as these."

Mr Sines said there are several disadvantages with recycled packaging, one of them being the inability to transport produce interstate.

"Reused boxes cannot be carried interstate because of quarantine regulations," said Mr Sines.

"Another problem was removing the previous growers' name from the boxes, which could be time consuming. However, we believe the benefits of using recycled boxes within the state outweigh any problems."

Mr Sines said that Carton Warehouse inflicted stringent quality control methods to ensure the quality of their recycled packaging. "Wax boxes that are in good condition can be cycled about three times and remain strong and reliable," said Mr Sines.

"Our major line of boxes is lettuce. Carrot, celery, cabbage and cauliflower boxes also recycle well."

Mr Sines said that he would like to see regulations on weights per box of produce changed to allow grape styros to be reused.

"There are currently thousands of grape styros ending up as landfill because they are slightly under the size needed to meet regulatory weights for certain produce," Mr Sines said.

Manager for Queensland Fruit and Vegetable Grower (QFVG) Services, Mark Panitz, said that recycled cartons may save growers some money, but they can pose a few problems.

"Presentation isn't as good in recycled packaging, which can hinder the grower's marketing prospects," said Mr Panitz. "They also may not be as strong and therefore not travel as well as expected."

"The major concern that we have defined at QFVG is the problem of obliterating past growers' names properly."

"Growers with bad names could ruin the reputation of good growers by selling poor produce in boxes that have not had the name obliterated properly."

"The Queensland Government no longer enforces packaging requirements, so our growers are concerned about retaining some standards," said Mr Panitz.

"I think the ideal type of packaging would be plastic reusable cartons which are used on a hire basis."

Grower and user of recycled boxes, Bill Taylor, said that he thinks second hand packaging has a place as long as it is sound enough for transporting produce down the cycle.

"There is nothing wrong with recycled boxes as long as they are clean and strong," said Mr Taylor.

"I don't agree that they reduce the selling power of the grower. Produce should sell itself, not the packaging."

"I think the major benefit of reusing packaging is the conservation of natural resources."

"Close to half of my packaging is recycled and I experience very few difficulties."

Vegetable grower, Lawrence Faustini, said that he likes to use recycled boxes as often as possible.

"Recycled boxes do not hinder our sales and save us 60 per cent in packaging costs," said Mr Faustini. "It is slightly prohibitive having to spend time putting our brand name on the boxes, but the savings make the extra work worth it."

Avocado Rootstocks Go Clonal

From Good Fruit & Vegetables, February 1992

For years avocados were grafted onto seedling rootstocks and, although the seed came from carefully selected mother trees, the orchard trees had genetic variation causing differences in vigour, maturity date, disease susceptibility and other factors.

Attempts failed to develop clonal propagation techniques using various types of cuttings, layering and other methods of vegetative propagation.

Work with other tree fruits, such as apples, showed the value of growing shoots in the dark and restricting nutrient flow before attempting to induce root formation.

The combined treatment of growing in the dark (etiolation) and restricting nutrient flow (cincturing) has been applied to avocados and most Californian plantings

are now grown on uniform, clonally propagated rootstocks.

Carefully selected seed is sown in long, narrow polyethylene tubes which are rolled down half way. A shoot on the resulting seedling is grafted with the desired rootstock and left in the nursery to develop. Leaves at the base of the grafted shoot are stripped and the restrictive collar put on.

Plants are then placed in a dark room where the shoots develop rapidly without chlorophyll (etiolated). When the shoots are sufficiently tall the tubes are unrolled and filled with pasteurised potting mix.

Plants are returned to the open nursery and, as the base of the grafted shoot expands, the collar tightens and restricts the movement of nutrients and other metabolites.

This produces a physiological environment which is favourable for the production of roots on the grafted rootstock which can be removed from the original seedling, potted up and subsequently grafted with the desired avocado cultivars.

Clonally propagated rootstocks will be identical to the tree from which the graft was taken and avocado trees grown on rootstocks produced from the same tree will behave uniformly in the orchard.

This will provide avocado growers with the same benefits as apple and pear orchardists but it is important to remember that identical trees will all be susceptible if a new virulent strain of disease attacks or if growing conditions have sufficient genetic differences to exhibit variable susceptibility—or sometimes complete tolerance—when adverse conditions develop.

Tree Fruits - Medium Term Outlook

National Agricultural and Resources Outlook Conference 1992

The medium term outlook for the major tree fruits industries is dominated by investment decisions taken by growers during the 1980s.

Over the past ten years there was a major expansion in tree plantings of most perennial tree fruit crops. As a result, bearing tree numbers are increasing and yields are improving as these new plantings reach their full commercial bearing potential. Therefore, during the next few years domestic production is projected to continue to increase.

These new plantings are generally new varieties of table fruit that will extend the marketing season and allow growers to become less dependent on processing outlets. This is particularly the case for citrus and stonefruit where most of the new production is of non-processing varieties.

Changes in management practices associated with high density plantings and new trellising arrangements were other features of investment in horticulture in the 1980s. While yields per tree under high density planting are lower, trees bear fruit earlier and yields on an area basis are improved.

International factors, such as production in other countries and trade issues, will continue to play a role in the outlook for the major fruits.

Avocados, Kiwifruit and Mangoes

The rapid growth in production of 'non-traditional' fruits such as avocados, kiwifruit and mangoes has been a feature of the past decade.

While the avocado and mango industries have expanded their domestic market outlets, the kiwifruit industry has faced increasing competition from imports, particularly from New Zealand.

Although domestic production has risen significantly over the past few years, the avocado, kiwifruit and mango industries have not been able to develop sizable overseas markets and this is hindering the future prospects for these industries. Production of avocados, kiwifruit and mangoes in 1991-92 is expected to increase, mainly because of the higher average yields being achieved from existing young plantings. For mangoes this increase will be supported by increasing bearing tree numbers.

With total tree numbers plateauing at around 530 000, avocado production is forecast to be 15 kt in 1991-92, an increase of 6 per cent on the previous season. Domestic wholesale avocado prices, however, are expected to rise by around 5 per cent from \$1900/t as the expected increase in production is likely to be more than matched by growing domestic demand. The increasing availability of avocado supplies all year round helped to develop domestic markets and maintain domestic retail prices in recent years.

Kiwifruit production is also forecast to rise by 6 per cent in 1991-92, to 5.6 kt. While average yields are generally increasing as plantings mature, the area planted has declined slightly in recent years. Domestic kiwifruit prices are expected to fall by around 24 per cent to \$2200/t mainly because of substantial production increases forecast for overseas producing countries, resulting in very low international prices for kiwifruit.

Mango production is expected to reach almost 21 kt in 1991-92, an increase of nearly 20 per cent over the previous season. As a result domestic mango prices are forecast to fall by 14 per cent to around \$2550/t.

Taxation And You

by Keith Johnson, Alstonville

Over the past 5 years or so there have been some quite dramatic changes in the taxation law and the way it is administered. The biggest change from the taxpayers viewpoint is the move to self assessment.

Self assessment does not mean the Taxation Office is going to let you work out your tax liability without any checking by them. It means they are not going to do a check on every tax return, every year, instead they will check selected tax returns, very very thoroughly, whenever it suits the Tax Office to do so.

You have to keep all your tax returns for seven years and thus if they only check you over once every seven years the result is the same as an annual check but with less effort expended on the part of the Tax Office. Obviously, when they do decide to run a check on a taxpayer, their aim will be to ensure that all tax liabilities have been met; and it is now your job to ensure you get it right.

The Tax Office is not run by idiots. They know, just as you know, that Australians are

notorious tax evaders—it has been close to becoming a national sport. So in going to self assessment have they suddenly decided we can all be trusted? Not at all!

Self assessment means the Tax Office will now be able to use more effort auditing dodgy taxpayers. It also means the Tax Office needs to catch and penalise as many tax evaders as possible. Clearly the Tax Office has to publicly show us all that if we cheat we will get caught sooner or later, and when caught, we will pay dearly for it. When the public finally accepts that we just can not get away with cheating, then self assessment will be working the way it was intended.

So what is the message for the typical farmer? Very simply—do everything right.

For example, you need receipts or similar paperwork for every expenditure claimed. You need to document properly all income received. Some of the old practices are no longer acceptable.

"Cash in hand" payments to employees be they casual, temporary or permanent, is

a practice that can only cause you grief. When you employ people on any basis, it is your legal obligation to subtract the income tax liability of that employee from the wages paid by you. You then pay that tax to the Tax Office. If you fail to do so, you will end up paying the tax due by your employee.

It is not good enough to pretend the employee is really a self employed contractor. The rules on who is, and who is not, a contractor are clear—break them at your peril.

Apart from the tax aspects you also have to consider award requirements and Workers Compensation Insurance. Imagine the mess you will end up in if one of your workers has a major accident and you do not have Workers Compensation cover.

So what is the message—where tax is concerned—do it right—do it right the first time—do it right every time. If you have any doubts on how to do it right, see a professional Tax Agent and get some guidance.

Assessing Avocado Maturity on the Farm

Queensland Fruit and Vegetable News 27 February 1992

The avocado market standard requires certain cultivars to reach at least 21 per cent dry matter. This ensures that all avocados marketed are capable of normal ripening without shrivelling or decay. The cultivars specified by the regulations are Fuerte, Hass, Sharwil, Hazzard, Rincon, Edranol, Anshcim, Nabal, Wurtz, Zutano and Ryan.

A grower can monitor the maturity of his crop by determining dry matter on the farm. Determinations of adequate fruit maturity by growers, or by the advisory testing service, is no guarantee that commercial consignment of a crop will be passed for sale on the wholesale market. The final authority on the maturity of commercial avocado lots is the taste on lot samples at the markets. These tests are conducted by officers of the Queensland Department of Primary Industries Standards Branch.

The following details, taken from QDPI Farmnote AGDEX 235/52, explain how to assess dry matter content of avocados on the farm as a guide to the maturity of the crop.

Sample Preparation

Select five fruit which you consider are representative for your crop. (Remember, fruit maturation can be affected by fruit set, tree vigour, and position of the fruit on

the tree, that is east to west, north to south, top to base, exposed and shaded.)

Cut each fruit longitudinally into quarters (stem to base) and remove the skin, seed and seed coat, (the brown skin that may stick to the flesh).

Take two diagonally opposite quarters of each fruit and grate flesh using a kitchen grater. Mix all of the grated flesh from the five fruit thoroughly.

Dry Matter Determination

Dry matter can be determined by using an ordinary household radiant-heat convection oven or using a microwave oven.

Household convection oven

As the method requires the use of containers in an oven, the containers used should be heat resistant, clean and dry before use. Suitable containers would be tobacco or food cans.

Procedure

1. Zero a set of scales, accurately weigh the clean dry container and record the weight.
2. Spread about 80 g of the grated and mixed flesh in the container. Re-weigh the container and flesh sample accurately and record the weight.
3. Place the container and flesh sample into a pre-heated household oven at 100°C (225°F) for at about five hours. Avoid opening the oven door during this drying period.

4. After drying, remove the container and dried sample from the oven and cool it in a large, dry, sealed container for about 10 minutes, then re-weigh the container plus dry sample accurately and record the weight.

Microwave Oven

Containers suitable for use in a microwave oven are glass, china, microwave-proof plastic—but not metal.

Use of a microwave oven without moisture present may damage the appliance. To ensure that moisture is present in the oven during drying of the samples, place a suitable container with about 200 ml of water into the oven with the avocado flesh samples. The water will boil off during drying. Ensure that the oven vents are not blocked.

The drying efficiency of a microwave oven depends on its specifications, construction and operating conditions. Per cent dry matter may be repeated accurately with an individual appliance, but this result may differ slightly from that obtained with another Microwave oven.

Procedure

1. Accurately weigh the empty clean dry container and record the weight.
2. Spread about 20 g of the grated and mixed flesh in the container. Re-weigh the container and sample accurately and record the weight.
3. Place the container and flesh sample in the microwave oven. Remember to include the container of water.
4. Set the microwave oven for 30 minutes at a power setting of 550 watts. Consult your operation manual for power settings.
5. Ensure the oven door is securely closed before starting the oven. Do not stand in front of the oven during operation.
6. After 30 minutes drying time, remove the container and dried sample from the oven, cool it in a large, dry, sealed container for about 10 minutes, then re-weigh the container plus dry sample accurately and record the weight.

Calculation of Dry Matter

Calculate per cent of dry matter as follows:

$$\% \text{ dry matter} = \frac{\text{dry sample weight} \times 100}{\text{weight of fresh sample}}$$

where;

Weight of fresh sample = (weight of fresh sample + container) - weight of empty container.

Weight of dry sample = (weight of dry sample + container) - weight of empty container.

Results of 1991 ANVAS Nursery Survey

VARIETY	% SOLD 1990	No. SOLD 1990	% SOLD 1991	No. SOLD 1991
Fuerte	10.2	2950	5.6	1790
Hass	62.2	17900	51.0	16350
Sharwil	3.2	930	4.8	1535
Edranol	0.8	235	0.6	200
Hazzard	0.5	140	0.3	100
Nabal	0.1	20	0.1	30
Reed	3.4	985	4.1	1300
Rincon	1.2	350	1.9	625
Wurtz	7.6	2192	9.6	3095
Shepard	5.9	1710	15.9	5100
Pinkerton	3.4	970	3.1	1000
Bacon	1.2	350	0.9	300
Linda	0.2	50	-	-
Choquette	0.1	20	-	-
Gwen	-	-	2.1	673
TOTAL	100.0	28408	100.0	32098