Australian & New Zealand Avocado Growers Conference

VISION 2020

Conference Handbook

Bundaberg, Queensland, Australia

3rd June to 7th June 2001

Proudly hosted by
The Australian Avocado Growers' Federation and the New Zealand Avocado Growers' Association
and supported by
Horticulture Australia

A Welcome to all delegates

On behalf of The Australian Avocado Growers' Federation and the New Zealand Avocado Growers' Association it gives us great pleasure to welcome you to Bundaberg for the ***The Australian & New Zealand Avocado Growers Conference 'VISION 2020***

During the next four days we will take a good look at the future of the Avocado industry in Australia and New Zealand. Together we will examine the issues that are most likely to impact on our industry over the next few years and spend some time working towards developing strategies that will ensure we are well equipped to take advantage of every opportunity.

Looking at the list of participants it is gratifying to note that we have representatives from all states of Australia as well as a large contingent of New Zealanders and several delegates each from South Africa, the USA and Israel.

This is to be an interactive Conference where delegates and presenters are encouraged to openly discuss the issues at hand. Agree or disagree, we want to hear from you. Silence is not Golden in this forum and whilst the focus will be on gaining knowledge from the presenters we urge you to actively participate by joining in the debate and sharing your knowledge with your fellow delegates.

The Social Activities are another opportunity for us to all catch up and continue discussions so make sure you are arriving in time for Sunday nights Welcome Reception at historic Fairymead. Of course we would like to see you all at the Gala Dinner on Tuesday night where the Master himself (Mr Greg Doolan) will entertain everyone with his marvelous music and special style of irreverent humour. Join us for a happy hour on Monday evening and on Wednesday evening there will be a casual night with a Barbecue in the Rotary Park.

Whilst 'Vision 2020' may have originally been a play on words – over the past several months it has become an invaluable tool, reminding us that we do need to keep looking ahead. We see this Conference being a successful medium within which we can strengthen our Trans Tasman ties and really put into action what we learn.

We especially welcome our Sponsors and Trade Exhibitors as without their generous support it would have been much more difficult to stage an event of this calibre.

We look forward to meeting you all at some time during the Conference, we thank you for attending and supporting our Industry.

Rod Dalton	John White
Chairman	Chairman
AAGF	NZAGA

The Chairmen and Directors of the Australian and Avocado Growers' Federation and the New Zealand Avocado Growers' Association wishes to express its sincere appreciation to all Sponsors of this Conference

About the Conference

REGISTRATION INFORMATION

The Registration desk will be open in the Moncrieff Theatre for delegates each day till the end of the Conference at the following times for daily Registrations, any additional tickets and for all inquiries.

3.00pm – 6.00pm Sunday 3rd
7.30am to 6.00pm Monday 4th
7.30am to 1.30pm Tuesday 5th
7.30am to 1.30pm Wednesday 6th
7.30am to 8.30am Thursday 7th

Business Sessions
Business Sessions will be in the Moncrieff Theatre in Bourbong Street all day Monday and on Tuesday and Wednesday mornings.

Session times

8.30am – 6.00pm	Monday
8.30am – 12.30pm	Tuesday Morning
1.30pm – 5.00pm	Field Trip Tuesday afternoon
8.30am - 12.30pm	Wednesday Morning
1.30pm – 5.00pm	Field Trip Wednesday afternoon
8.30am - 4.30pm	Thursday Field Trip

Lunch and Morning and afternoon teas
These breaks will be held in the Civic Centre, Bourbong Street directly across the street from the Moncrieff Theatre.

Trade Exhibition
The Trade Exhibition will be held in the Civic Centre as above.

Field Trips
Tuesday 5th June
Coaches depart from outside the Civic Centre in Woongarra Street at 1.00pm sharp
Wednesday 6th June
Coaches depart form outside the Civic Cente in Woongarra Street at 1.15pm sharp
Thursday 7th June
The Field Excursion to the Avocado Orchards will depart from Woongarra Street at 8.30am sharp

Messages
A Message Board will be located next to the Registration Desk from Sunday afternoon till Thursday evening. Please note there is no paging service available.
In an emergency please contact Rob Donkin on mobile 0438 132 477.

Social Functions

If you are a Full Time Delegate, tickets to lunches, morning and afternoon teas and ALL Social Functions are included in your Registration package.

If you are an Accompanying Person, tickets to the Welcome Function at Fairymead House, the Opening Business Session and morning tea on Monday the Conference Gala Dinner on Tuesday evening and the barbecue on Wednesday evening are included in your Registration package

TICKETS MUST BE PRODUCED TO GAIN ENTRY TO ALL FUNCTIONS

Sunday 3rd June – Welcome Function – 6.30 - 8.30pm

There is a Welcome Function with drinks and a light meal this evening at Fairymead House, in the Botanic Gardens. A shuttle bus will run from the Tropical Gardens, via Takalvan Street and Bourbong Street to Fairymead House. ***Please advise Registration Staff if you need transport.***

Monday 4th June – Drinks in the Civic Centre. 6.00 – 7.00pm Please join fellow delegates for an hour after the end of the day's business sessions. You then have the evening free to make your own dining arrangements.

Tuesday 5th June – Conference Gala Dinner 7.00 - 11.30pm

The Gala Dinner will be held in the Bundaberg Civic Centre on Tuesday evening commencing with pre dinner drinks at 7.00pm. Following a delicious meal accompanied by excellent wines we have arranged for Award winning performer, Greg Doolan and his band to entertain you and your guests.

Wednesday 6th June – Casual Barbecue 6.30 – 9.30pm

A barbecue is to be held at the Rotary Park on Wednesday evening on the way back from the field trip.

Additional tickets to Social Function and lunches

Daily Registrants and guests will need to purchase tickets if they wish to attend the Social Functions.

Subject to availability, tickets can be purchased at the Registration Desk. These may be obtained up to 24 hours before each function.

Cost of additional tickets

All lunches	**$18.00**
Welcome Function	**$35.00**
Gala Dinner – Tuesday	**$90.00**
Barbecue Dinner – Wednesday	**$25.00**

Please note: No refunds can be given as numbers will have been confirmed with the Venue

Name Badges

Each Conference attendee will be issued with a name badge at Registration. **This is the Official Pass and we ask that you wear them at all times**. Delegates not wearing Names Badges will not be admitted to Business Sessions, Lunches or Social Functions. Should you lose your badge we will be delighted to make a replacement for you. This can be organised at the Registration desk.

GENERAL INFORMATION

Conference Attire

Light winter clothing is suggested with a warm jacket for evenings and early mornings.
As a general guide we would suggest the following minimum dress codes:

Welcome Function –	Smart Casual
Business sessions -	Smart Casual
Gala Dinner -	Dressy Casual to optional Cocktail attire for ladies and optional jackets or suits for gentlemen
Barbecue –	Field visit clothes / Smart Casual
Field Trips and Tours	Comfortable clothes with appropriate footwear

Accommodation Accounts

All bookings made through the Congress Secretariat will have the deposit you paid credited to your room account. You will need to pay the remainder plus any extras upon departure.

Transfers

Coaches will be available to transfer delegates and partners to Fairymead House on Sunday evening departing at 6.15pm. Please advise the Registration Desk if you require transportation

Accompanying Persons Program

If you had indicated on the Registration Form that you wished to take part in an Accompanying Persons Tour or have since decided you would like to enjoy some of the special attractions the Region has to offer please visit the Registration Desk after the Business Program has commenced on Monday morning for further information or to arrange bookings.

BUSINESS PROGRAM

Sunday 3rd June

3.00-6.00pm **Registration**

6.30 – 8.30pm ***Welcome Reception – Fairymead House, Botanical Gardens, North Bundaberg***

Monday 4th June

7.30am **Conference Registration – Moncrieff Theatre**

8.30am ***Welcome***
Rod Dalton, Chairman, AAGF
John White, Chairman, NZAGA
Official opening
Senator Judith Troeth, Parliamentary Secretary to the
Minister for Agriculture, Fisheries and Forestry, Senator for Victoria

9.15am **Session 1.**
Chairperson ***Rod Dalton***

Adoption of Field Practices to Assist in Expanding Avocado Markets.
Dr Anthony Whiley - Principal Horticulturist (Research), Queensland Horticulture Institute, (QHI)
Avocado production in Australia and New Zealand continues to increase due to an expansion in the numbers of trees planted over recent years. There is some urgency to find new markets either by expanding domestic consumption or developing new outlets. Low consumer confidence due to unpredictable quality is hindering expansion of the Australian domestic market. This may be addressed in part by the adoption of production practices that increase the ability of fruit to withstand the stresses imposed when passing through the market chain. These are reviewed in the light of the most recent results from R and D programs.

10.00 - 10.45am **Morning break – Civic Centre**

10.45am **Session 2.**
Marketing Avocados into the Future
Chairperson ***Mary Ravanello***

10.45 – 11.25am **Future Trends for the Sales, Marketing, Packaging and Consumption of Avocados**
Avi Crane – Vice President, Calavo International, California.
A number of case studies will be used to highlight the trends and opportunities for avocado marketing towards 2020

11.25 – 11.55am **Moving beyond "Commodity" – Positioning Avocados for the Future**
Lisa Cork, Produce Marketing Strategist -The Marketing Department Ltd. Auckland NZ
This paper provides background information relating to positioning Avocados for Retail Sale

11.55 – 12.30pm **New Directions in Promoting the Promised Fruit.**

Wayne Prowse, Industry Manager, Horticulture Australia

Avocados are relatively new to Australia and consumers have not accepted them as a regular staple. Developing consumer demand has been helped by promoting health benefits, taste benefits and now functional food benefits.

The challenge for the Avocado Industry is to provide avocados to the consumers that promise to meet their expectation for clean, safe and healthy fruit

12.30 –1.45pm LUNCH – Civic Centre

1.45pm Session 3.

The Challenge of Quality at Retail Level

Chairperson ***Jonathan Cutting***

1.45 – 2.15pm **Quality in Distant Markets**

Dr Henry Pak, Quality Champion, New Zealand Avocado Industry Council

The challenges associated with developing a reputation as a consistent supplier of high quality product in distant markets are significant. The development of systems throughout the production chain to ensure fruit quality is maintained has been critical to the development of the USA market for the New Zealand industry.

2.15 – 2.45pm **Avocado quality at Retail Store: We have a role to play.**

Dr Peter Hofman – Senior Principal Horticulturist, Maroochy Research Station, QHI

The results and observations of two surveys which recorded 'Hass' fruit quality and practices from the riperner to sale from the retail shelf will be described, and suggestions for improvements to the supply chain given to increase fruit quality for the consumer.

2.45 – 3.15pm **Field and Post Harvest Management of Avocado Fruit Diseases**

Dr Lindy Coates – Principal Plant Pathologist, QHI

The aim of the paper is to present the latest information on the biology and management of avocado fruit diseases, with particular emphasis on the use of the new strobilurin fungicides.

3.15 – 4.00pm Afternoon Break – Civic Centre

4.00pm Session 4.

The Manipulation of Plant Growth to Improve Productivity

Chairperson ***Graeme Thomas***

4.00 – 4.30pm **Developments in Plant Growth Regulators and their use in the**

Manipulation of the Growth and Flowering of Avocados.
Dr Carol Lovatt, Professor of Plant Physiology, Department of Botany and Plant Sciences, University of California, Riverside
Plant growth regulators at the present time are perhaps the most powerful tools available to manipulate the vegetative and reproductive growth of crop plants. In avocado production, the use PGR's remains underdeveloped despite the enormous potential they offer for maximising yield, solving fruit quality problems and increasing net dollar return to the grower

4.30 – 5.00pm **Irrigation – Physiology of Turning Water into Oil.**
Dr David Turner, Senior Lecturer, Plant Sciences, Faculty of Agriculture, The University of Western Australia
This paper points the way towards doubling irrigation efficiency in Australia's Avocado Industry by 2020, using information gained in the Avocado Irrigation Project.

5.00 – 5.30pm **Controlling Anthracnose in Avocado by Enhancing Natural Fruit Resistance: the Role of Rootstocks and Nutrition.**
Dr Sonia Willingham, Plant Pathologist, QHI
This paper reports on the recent discovery that rootstock can significantly influence the development of postharvest anthracnose in 'Hass'. The difference in fruit susceptibility was related to differences in mineral nutrients and diene concentrations in the scion tissue.

5.30 – 6.00pm **The Management of Fruit Size in Hass**
Professor (Emeritus) Nigel Wolstenholme, School of Agricultural Sciences and Agribusiness (Retired) University of Natal, South Africa
The small fruit size in Hass is primarily genetic, but can to a certain extent be managed by alleviating stress and use of growth retardants.

End of Sessions

6.00 – 7.00pm ***DRINKS – CIVIC CENTRE***

Dinner - Delegates own arrangements

Tuesday 5th June

7.30am **Registration – Moncrieff Theatre**

8.30am **Session 5.**
The future approaches for Pest and Disease Management

Chairperson ***George Green***

8.30 – 9.00am **IPM and Avocados in Australia**
Dan Papacek AM, Integrated Pest Management Pty Ltd. (Bugs for Bugs). Mundubbera, QLD
This presentation looks at key points from the Queensland citrus IPM program to highlight elements that may be useful in meeting the challenge of furthering IPM for avocados.

9.00 – 9.30am **Development of an IPM Program for Avocados in New Zealand**
Philippa Stevens, Scientist, HortResearch, Auckland NZ
The AvoGreen programme is a first-stage IPM programme providing pest monitoring services and spray recommendations through field scouts from a commercial company. Specific pest monitoring systems for each of the key pests have been developed and refined over time.

9.30 – 10.00am **Future Management Strategies in Disease Control**
Ken Pegg - Senior Plant Pathologist, QHI (Retired)
Taking into account the changes in science, horticulture and the community, a number of issues will be addressed including the future of phosphonates, improving fruit disease control, the role of biotechnology, biological control and rootstocks.

10.00 – 10.45am Morning Break – Civic Centre

10.45am Session 6.
Phytophthora Management Strategies for the Future

Chairperson ***Henry Pak***

10.45 – 11.15am **Use of Foliar Applications of Phosphonate to control Phytophthora Root Rot in Avocados**
Dr Anthony Whiley, Principal Horticulturist (Research), Maroochy Research Station, QHI
A new formulation of mono-dipotassium phosphonate applied as a foliar spray has been developed to control Phytophthora root rot of avocados. This paper discusses the management of this product.

11.15 – 11.45am **Non-fungicidal Control Strategies of *Phytophthora cinnamomi* Root Rot control in Avocado**
Dr John Menge, Professor of Plant Pathology, University of California, Riverside
Describes the non- fungicide integrated management of avocado root rot. It includes information on clean nursery practices, grove sanitation, resistant rootstocks, cultural practices, irrigation management, mulches and biological control as they impact avocado root rot.

11.45 – 12.15pm **The Benefits of Monitoring Phosphorous Acid in the Roots of Avocado.**

Graeme Thomas, Hortucultural Consultant and Orchardsit, GLT Horticultural Services Pty. Ltd. Toowoomba.

The variations in cultural activities and the ever changing tree physiology, have made the management of root rot somewhat variable. This presentation highlights reasons behind this variability and the measures required to avoid the disasters of poor root rot control.

12.15 – 1.00pm **LUNCH – Civic Centre**

1.00 – 5.30pm **Orchard field visits**

Delegates will be divided into two groups for the afternoon field trips

7.00 – 11.30pm **Conference Gala Dinner - Civic Centre**

Join fellow delegates for a great evening with good country food, fine wine and entertainment by Multi Award Winner – Greg Doolan with his Band.

Wednesday 6th June

7.30am **Registration – Moncrieff Theatre**

Session 7.

8.30am ***Canopy Management***

Chairperson ***Alan Blight***

8.30 – 8.55am **Developments in Canopy Management in Australia**

Dr John Leonardi, Researcher, QHI

The results of summer pruning and growth application trials in 'Hass" avocado are reported and the objectives of the current research work are detailed

8.55 – 9.20am **Developments in South Africa**

Jan Toerien - Consultant and grower, Australia/South Africa

Reports on the latest developments in canopy management in South Africa with particular reference to the development of hedge row systems utilising summer pruning and plant growth regulators as part of an integrated management system

9.20 – 9.45am **Avocado Canopy Management – Sustainable Production of Top Quality Fruit**

Dr Grant Thorpe – HortResearch, Auckland NZ

Avocado trees exist to harvest the sun's energy and convert it into fruit with viable seed. Avocado growers aim to make money by nurturing this process, by managing the soils and water supply needed for plant growth

and by canopy management. This paper discusses the major avocado canopy management issues being covered by research in New Zealand

9.45 – 10.00am **Developments in the Bundaberg region**
Dr Chris Searle, Development Extension Officer, QHI

10.00 – 10.45am **Morning Break – Civic Centre**

10.45am **Session 8.**
The Avocado Industry in 2020
Chairperson ***Ron Bailey***

10.45 – 11.15am **Avocados and the "Information Age"**
Simon Newett - Extension Horticulturist, QHI
This paper examines the information age, its implications for agriculture and the opportunities it presents to the avocado industry.

11.15 – 11.45am **Structures, relationships and issues for avocado grower organisations in 2020**
Dr Jonathan Cutting, New Zealand Avocado Growers Association
The opportunities for grower organisations to be involved in the development of our industry into the future are discussed and the challenges that will be associated with those changes will be highlighted

11.45 – 12.15pm **Avocado Production in 2020**
Professor (Emeritus) Nigel Wolstenholme, School of Agricultural Sciences and Agribusiness (Retired) University of Natal, South Africa
Based on expected changes by 2020, suggestions are presented for increased yields, technology targets and research priorities

12.15 – 12.30pm **Conference Closing address**
Rod Dalton, Chair of Conference Organising Committee

12.30 – 1.15pm **Lunch- Civic Centre**

1.15 – 5.30pm **Orchard field visits**
Delegates will be divided into two groups for the afternoon field trips

6.00 – 8.30pm **Barbecue Dinner – Rotary Park**
Delegates will be taken direct to Rotary Park from the Field Visits for a delicious Barbecue. For partners who wish to join delegates at Rotary Park, a bus will leave from the pick up point at the rear of the Civic Centre at 5.45pm. The bus will pick partners up from Motels along Takalvan Street if required. Please advise Registration Staff. At function end coaches will return everyone to their Motels.

ORCHARD FIELD VISITS

Tuesday and Wednesday afternoons

Coaches depart from the rear of the Civic Centre in Woongarra Street at 1.00pm Sharp on Tuesday and 1.15pm Sharp on Wednesday

Four local orchards including a large packing shed operation will be visited on Tuesday and Wednesday afternoons. Topics such as Orchard Floor Management, the use of Growth Regulators, Irrigation Management and Harvesting Equipment will be discussed. Delegates will be divided into two groups, visiting two farms each day. The smaller groups will enable everyone to be involved in discussions.

Groups will alternate between farms each day to see all the crops and sites chosen for the Field Days.

Delegates are particularly asked not to use any private transport for these Field Days to ensure minimum vehicle traffic on the farms involved.

Please wear comfortable clothes and closed shoes and be prepared to go straight to the Barbecue on the way back from the Field Trip on Wednesday.

Introduction

The Bundaberg/Childers/Gin Gin district is a rapidly growing horticultural area in SE Queensland. The hot subtropical climate provides ideal growing conditions for a range of subtropical and tropical crops (Table 1). The main crop in the district is sugar cane with an estimated 52,000 ha of cane producing 717,00 tonnes of sugar per annum worth $140 million. This cane is processed through the districts 4 mills.

Of the tree crops grown in the district avocado is third in importance to macadamia and citrus in both the area under production and the gross value (Table 3). In the 1999 season it was estimated that there was some 640ha of avocado in the district producing 411,000 trays with a market value of approximately $ 5.2million.

There is a large range of varieties grown in the district but as in most areas Hass has become the dominant variety. The district is generally warm enough to produce reliable crops of Shepard, though in some years and on some low lying blocks, fruit set can be adversely affected by low temperatures. Flowering generally occurs in September for all varieties. Depending on the year the Shepard season generally commences around mid-February and ends in late-April when the Hass season commences. The last Hass are usually picked by late-August. Early indications from the few bearing Lamb Hass blocks in the district indicate that this variety may extend the picking season into October.

Farm size in the district varies considerably with some larger growers having 30,000-40,000 trees but there are many smaller farms with 300-500 trees. While there is no cooperative pack house in

the area many growers send their fruit to Natures Fruit Company at Nambour or are members of the Avocado Marketing Cooperative Ltd.

Root rot caused by *Phytophthora cinnamomi* is a major problem in the district due to the summer rainfall pattern. While the district average rainfall is some 1,035mm (41 inches), falls in summer can be quite heavy causing water logging and root rot problems. The heavy but sporadic nature of the rainfall pattern means that irrigation is essential in the district. Heavy falls of rain can often be followed by many weeks of little or no rain which, when coupled with the high summer temperatures and evaporation rates, leads to an extremely stressful climatic environment for avocado production.

While irrigation is essential for production in the district the availability of water is often limited. Most of the district's production lies within the boundaries of the Bundaberg Irrigation Area where the supply of water from the irrigation scheme and underground bores is highly regulated. Most land has a 'nominal' allocation of water attached to it, usually 2.5-4.5 MgL/ha, which is generally the maximum amount of water available to the grower for that farm from the irrigation scheme. However, in most years only a percentage of this nominal allocation can be supplied by the scheme. In the current year the percentage of the nominal allocation actually available from the surface water scheme is 75**%** for the north side of the Burnett river and 50**%** for the south side.

Route A - Goodwood/Childers

① Dorrian Farms - John and Jay Dorrian

John and Jay Dorrian started growing avocados in 1978 on the home farm. In the intervening years the enterprise has grown considerably and John and Jay now manage some 30,000 avocado trees and 4,000 mango trees. The home farm is also the site of the avocado and mango processing plant that is used to process all second grade fruit. As a result only a first grade line is packed.

In 1996 they purchased the 58 ha Clayton's farm which has been planted entirely to avocado. The Clayton's farm is approximately 75% Hass, 15% Wurtz and 10% Shepard. Trees range in age from 5 years at the back of the farm to 2.5 years closest to the road. At Clayton's John has used a unique planting design in order to maximise early returns while still ensuring long term viability. On mounds 12m apart John has planted Hass on either Velvick, Duke 7 or Reed rootstocks and in between each Hass he has planted Wurtz. On the flat between each mound he has planted Hass on rootstocks collected from the large seedling trees on the property. This year it is John's intention to remove the trees on the flat as there is now significant shading. This will leave the Hass on the mounds inter-planted with the less vigorous Wurtz. Once the Wurtz trees become shaded John intends to remove the Wurtz leaving a Hass block growing on the better rootstocks at a 12x10m spacing.

Close to the road at Clayton's John has established a block of Hass on clonal Velvick rootstocks. These rootstocks were cloned and grafted in the home farm nursery. This nursery is also providing trees for the extensive orchard replacement program that is occurring on the home farm. John is currently replacing former mango, lychee and old avocado blocks with Shepard and Hass on

indexed Velvick rootstocks. This year John intends to plant some 12 ha of Shepard. John is also top-working the remaining 1500 Fuerte to Shepard.

There are no major pests on either farm although Monolepta beetles (*Monolepta australis*) can be a problem on the Clayton's farm.

John has tried a range of canopy management options and has not found one that suits his operation. Presently trees are pruned annually with an Afron pruner. John is also cooperating with QHI staff involved in the AAGF/HAL funded 'Canopy Management Project'. At the Clayton's farm Dr John Leonardi and Dr Tony Whiley have imposed a wide range of treatments aimed at determining the optimum time to both prune and use plant growth regulators (PGRs) under Australian conditions.

② Simpson Farms - Ron and Fay Simpson

Packhouse - Manager John Walsh

Simpson Farms, a family company, is located on 1600 hectares made up of the “Goodwood” and “Redridge” plantations at Goodwood and also “Avocado Hill” plantation at Childers. The family owned operation The three largest crops produced are avocados, sugar cane and melons. There are currently two hundred hectares of avocados producing approximately 400,000 trays annually though this is expected to increase to 600,000 trays when the orchard is fully mature. There are 3 main varieties of avocado in the plantations. They are Shepard (6,572 trees) Wurtz (7,475) and Hass (26,453) giving an overall total of 40,500 trees. The Shepard are harvested from the last week in February to mid-April and the Wurtz and Hass are harvested from the second half of April to September. These crops are produced on deep, red, volcanic clays (Krazsnozems). The farms employ a permanent full-time workforce of 20 people with another 40 casuals employed during peak production.

A 1400 m^2 packing shed is used to receive, pack, cool and dispatch the fruit. The shed includes computerised grading equipment and a sealed loading dock, which provides access to a 180m^2 cold room. The packline contains several innovative features. On arrival the fruit are unloaded by tipping the bin in a water bath to minimise bruising and remove any dirt and leaves. The pH and the specific gravity of the water in the bath are adjusted to ensure the fruit float and water does not move into the fruit via osmosis through the stem end. The water is also kept clean and sterile through constant filtration and chlorination. Fruit is lifted from the bath by elevating rotating brushes which have the advantage of keeping the fruit apart on each brush unit again minimising damage in the packline. Elevating rotating brushes do not rely on pressure from other fruit below the brushes to force fruit up the brush line. Damage has also been minimised by the installation of single rotating brush units at each drop point in the grading line. The packline also uses automatic box fillers that put the exact number of fruit in each box. This reduces staff numbers as the packer only has to rearrange the fruit in the box. Also the fruit coming off the line only land in the tray and not on top of other fruit as in a conventional bin system. Using the computerized grading system it is also possible to maximise efficiency by adjusting the program to ensure that fruit are evenly distributed across packing stations according to the size of fruit being picked that day.

Through a joint venture involving a New Zealand grower-based marketing group and a prominent Australian Exporter, Simpson Farms were the first Australian avocado producers to supply the New Zealand market. Accessing this market involved developing post harvest treatments to ensure quality, developing quarantine protocols, and developing a marketing strategy for New Zealand. Simpson Farms also plans to extend its export operations, which currently focus on Hong Kong, Singapore and New Zealand, to other areas of South East Asia, Europe and the United States of America when market access is available.

Route B South Kolan/Moore Park

③ Kachana Orchard - George and Margy Green

In 1992 George and Margy Green purchased a 40 ha farm at South Kolan and established Kachana orchard. The orchard, which covers 13.5ha, includes a diverse range of tree crops including avocado, mango, custard apples, persimmon and figs. The orchard's soil is a well-structured, deep volcanic, red clay loam (Krasanozem) which is ideal for avocado production.

The main crop, avocado, covers some 8 ha (not including wind breaks and roads). Hass is the main variety (1100 trees) with Shepard (200 trees), Fuerte (200 trees), Sharwil (200) trees and Wurtz (200 trees). Trees range in age from 8 years though to a 4 year old block of Hass and Sharwil near the house. Tree spacing is 9x5m for Hass and 8x4m for the other varieties. Tree heights average 6m in the 8 year old trees and 4.5 m in the 4 year old trees. Yields across the farm averaged 13 t/ha in 1999 and 19 t/ha in 2000. Fruit is packed and marketed by Natures Fruit Company, Nambour, of which George is a Director.

One of the most problematic insect pests at Kachana is Monolepta beetles (*Monolepta australis*). Dense swarms of these beetles have the potential to rapidly defoliate trees and cause skin marking on the fruit. Spraying for all pests and diseases at Kachana is done with an air-blast sprayer fitted with 2 span spray heads which allow spray to be directed down into the top of the canopy.

In an effort to combat the 'small fruit' problem in Hass, a serious issue in the hot subtropical Bundaberg/Childers area, George has implemented an innovative range of orchard floor management practices. These include the annual use of mill mud (Table 2), mulching with cane trash, watering the entire orchard floor, and growing a large body of grass in the inter-row. The mill mud is applied at the rate of 100 t/ha to the inter-row. This mill mud provides approximately 80% of the orchards N requirements and also acts as a mulch. Under tree mulch is provided by applying 2 bales of cane trash annually to each tree and by growing a mulch in the inter-row which is side-slashed and dispersed under the trees. In order to increase the number of predatory mites and lacewings George only mows every alternate inter-row on a 6 weekly basis. The entire orchard floor is watered with Nelson sprinklers and is watered daily in summer at a rate close to pan evaporation. Water use is 8-10 MgL/ha/year.

George also uses the growth regulant 'Sunny' across the entire farm in order to increase fruit size and has inter-planted Sharwil as a pollinator in his young Hass block. As on many farms in the district George has an evolving canopy management strategy and he is using a modified hedge row approach with a late autumn/spring prune followed by a summer prune in February.

④ Welcome Creek plantation -Andrew and Mandy Pearce

Macadamia are the fastest expanding crop in the Bundaberg/Childers district with an estimated 1500 ha of trees. This expansion is largely driven by the ideal climate coupled with the availability of large blocks of relatively low cost of land compared with the traditional production areas of northern New South Wales and the Sunshine Coast.

Welcome Creek Macadamia Plantation was established by the Pearce Family in 1987. The Plantation, which comprises 3 farms totalling 130ha, contains some 33,000 mature trees ranging in age from 11-13 years and a recent planting of 9,000 two year old trees. Most of the trees are Hawaiian varieties. Tree spacing is 8x4m which is typical of macadamia orchards in the Bundaberg area. Yields of nut-in-shell from the mature trees have averaged 4.5t/ha (14 kg/tree). Prices paid by processors over the last few years have ranged from $2.00-$2.50 kg nut-in shell delivered. Andrew manages the farm with the assistance of 3 permanent staff and 2 casuals used to grade nuts during the harvesting season. The major pests are fruit spotting bug (*Amblypelta nitida*) and macadamia nut borer (*Crytophlebia ombrodelta*) which Andrew controls with 3-4 sprays during the season. The trees are fertigated throughout the season and water use is monitored via an Enviro-Scan soil moisture monitoring system.

Peak flowering generally occurs during August/September though in some seasons there may be several distinct flowering periods. This is followed by a period of immature nut shedding in November when the trees adjust their crop load. Oil accumulation in the nuts starts in December and continues in most varieties until February/March when the nuts are mature. Mature nuts fall naturally from the trees over a period of several months and for early varieties this starts in late-February and is generally over by the end of May. Late varieties may not start dropping nuts until the end of April and can continue into September. This can cause some disease cycling problems due to the overlap with the following seasons flowering. There are generally 2 vegetative flushes in the year, a spring and summer flush, though these are usually not as distinct as in avocado. Nuts are harvested directly from the ground using either finger wheel pickers or sweepers. For these machines to operate effectively it is essential to have bare earth under the tree. This may cause some problems with water infiltration and a decline in soil organic matter over time. Once picked up, the nuts are de-husked in the field before being transported to the sorting area and silos where the damaged and immature nuts are removed. The sound nuts are then dried to 10% moisture content in the silos using forced ambient air before they are sent for processing.

As in avocado production two of the main problems facing the macadamia industry are managing the tree to produce assured quality and canopy management. Growers have tried several canopy management options but at this stage growers are either conducting light side pruning or topping, or removing trees. The quality issue is being addressed by projects that are determining nut quality parameters and by a nutrition project. The macadamia industry is also funding a large breeding program to improve yields by pest and disease resistance and a large rootstock project which will determine the effect of rootstocks in macadamia and identify potentially superior rootstock scion combinations.

Thursday - Canopy Management Field Day

⑤ Donovan Family Investments – Lachlan and Annaleise Donovan

In mid-1997 Donovan Family Investments purchased a farm on Dr Mays Crossing Road, Bundaberg. This was an expansion of the family business, which has been growing avocados on the Sunshine Coast since 1990. The farm is managed by Lachlan and Annaleise Donovan in conjunction with their farm manager Robert De Jong. The farm is 60ha in area, and already had an established orchard to which Lachlan and Annaleise have added. The orchard comprises some 9,000 trees, half of which are Hass with the rest Shepard (3,600 trees) and Sharwil (800 trees) with some Fuerte and Wurtz. Approximately one third of the total tree number is less than 5 years old. Most of the farm is planted at 10x5 m spacing though the original Shepard blocks are 9x7m. Yields for the mature trees have averaged 20-22 t/ha for both Shepard and Hass over the last few years. All fruit including that from the Sunshine Coast orchard fruit are packed on site.

The main orchard pests are Monolepta beetle (*Monolepta australis*) and Ectropis looper (*Ectropis sabulosa*). All orchard spraying is done with a single sided Electromiser.

Since the purchase of the property Lachlan has been using a modified tree rejuvenation approach to canopy management in an attempt to reduce tree size to a more manageable height while still maintaining yields. This approach involves cutting one side of the tree back to within 1m of the trunk immediately after harvest. The limbs are cut off with a chain saw, the smaller branches are mulched and the larger limbs are put through a woodchipper. The mulch is then put back under the trees. Shoots are allowed to re-grow and are pruned the following summer into a suitable structure. A light tip prune is also given every year to the 'unrejuvenated' side of the tree. Two years later the top of the tree is removed reducing height. Depending on seasons and yields, in a further 2 years the other side of the tree will be removed close to the stump. The advantages of this method are that the pruning is relatively cheap and so far yields have been maintained, for example, yields in Block 1 were 12 t/ha in the year before pruning and 24 t/ha the year after it was pruned.

Lachlan also applies mill mud annually at the rate of 220kg per tree through a modified Krone spreader. This allows the mill mud to be placed under the canopy where it supplies 80% of the orchard N requirements and acts as mulch. This is particularly important for the shallow sandy soils on which the orchard is growing. These soils also have a tendency to compact which has lead Lachlan to modify an old power shovel into an orchard aerator. The power assisted action of the aerating spikes means that the machine can break very compacted soil and is not dependant on weight or soil moisture content to assist spike penetration.

During summer the orchard is watered every 2-3 days using 70l/hr sprinklers. Water applications and use are monitored with an Enviro-Scan system and a Soilspec system. While the Enviro-scan system provides in-depth data for a few sites in the orchard the low cost Soilspec system means that all areas can be monitored.

② Simpson Farms - Ron and Fay Simpson

Field practices
Farm manager -Chris Gordon, Orchard Manager - Denham Rackerman

The canopy management system on Simpson farms is still evolving with trees planted at 10m x 5m (200/ha) and mostly hedge pruned to a maximum height of 6m. A significant part of the orchard is still hand pruned and shaped using more traditional methods, particularly in the Shepards. Machine pruning is done with a specially designed tractor mounted, double sided radial saw pruner which can cut 2 sides of the row at once. Rows can therefore be shaped in only 1 or 2 passes. At present the trees are given a shape prune every 4 years though only 1 side is shape cut in any year with the other side of the tree cut the following year to maintain yields. With the shape cut tree height is reduced to 6m. The tree shape is maintained by spring and summer pruning but the bearing surface is allowed to move outwards from the original shape cut surface by approximately 20-30cm per year. After 4 years, or an increase in canopy depth of 1m-1.5 m from the original shape cut, the shape cut is repeated to return the canopy to the desired shape and size. Ron has found that while this produces the desired tree shape it can create a 'wall of leaves' effect which can reduce spray penetration. In order to overcome this and to keep vigorous water shoots in check some selective limb removal is undertaken to create 'windows' in the canopy. The shape cut is usually conducted immediately after harvest but the hand shaping is conducted throughout the year. In conjunction with the canopy management program plant growth regulators are used extensively across the farm to improve fruit size.

In order to minimise soil compaction and ensure worker safety, fruit on the terraced and sloping blocks is picked using a Fruit Commander system. The picking efficiency of the fully tracked vehicle is comparable to the same number of workers using cherry pickers but offers a higher degree of worker safety. The machine also transports fruit in water to minimise bruising. The machine has already been modified with the recent addition of two extra picking arms.

Simpson farms have also developed their own high capacity orchard sprayer as there was no suitable machine on the Australian market. This machine uses two Sylvan turbomiser avocado heads mounted on a hydrostatically driven base. The high capacity of this machine allows it to cover 160ha a week, a necessity in an orchard of this size. This machine is backed up by two tractor driven mist units and a medium to high volume span sprayer. In combination these machines can spray the entire orchard in 2 days.

Irrigation requirements are determined by Enviro-scan soil moisture probes positioned throughout the orchard. In summer, blocks are watered every 2-3 days with a deep irrigation once a week to ensure adequate sub-soil moisture.

⑥ White Bridge Park - Ivan and Robyn Philpott

White Bridge Park is a mixed enterprise growing mango, lychee, longan and avocado. The avocado orchard comprises 440 eight year old Hass spaced at 9x7.5m and 300 one year old Hass spaced at 9x6m. The soil in the orchard ranges from a sandy loam to a heavier red podzolic. The young trees planted on the red podzolic have been mounded to aid drainage. Yields from the mature trees were around 20 t/ha in the 2000 season. There are no major pest concerns in the

orchard although Ectropis looper (*Ectropis sabulosa*) did cause some damage in 2001. All spraying in the orchard is done with an Electromiser.

As in many orchards canopy management was becoming of increasing concern to Ivan as the inter-row space was declining and the trees were getting too tall to spray effectively and to pick. In order to reduce tree size and maintain yields Ivan has embarked on a comprehensive canopy management program. The first step was the purchase of a locally manufactured (P&H Rural) pruning saw which could fit on the front-end loader of a tractor. Ivan felt this was an important step in that he could prune his avocado, lychee and mango at the correct time without being dependant on a contractor. With the saw Ivan pruned his avocados to a central leader hedge system (Christmas tree shaped hedge) immediately after harvest in June 2000. However, due to the amount of wood that needed to be removed in the first year and the limitation on the saw height, the trees were pruned at a 20° angle as opposed to the optimum 22° recommended in South African literature. Immediately after pruning white plastic paint was applied to the newly exposed limbs to reduce sunburn **'**Sunny' was then applied to all trees in Block 1 at the recommended rate in September 2000 and the trees given another light prune in mid-December 2000. In Block 2 (220 trees) Ivan has agreed to cooperate with QHI staff involved in the AAGF/HAL funded 'Canopy Management Project'. In this block Dr John Leonardi has imposed a wide range of treatments aimed at determining the optimum time to prune and the use of growth regulators under Australian conditions.

In 2001 Ivan again intends to prune the trees immediately after harvest but this year it will be a light prune to maintain canopy shape. He also intends to remove the top of the tree manually where the pruning saw cannot reach. Tree height will then be brought down to around 5.5 m.

Ivan has recently taken advantage of the Queensland State Government's Rural Water Use Efficiency Initiative to purchase a 'Diviner' soil moisture monitoring system. This will enable him to maximise his returns on what is a scarce resource in the Bundaberg/Childers area.

⑦ Rosehill Estate - Jan and Zenta Toerien.

Jan and Zenta Toerien emigrated to Australia in 1998 from South Africa where Jan had been General Manager for Westfalia Estates and Zenta managed her own travel agency. Jan had been responsible for managing avocados from nursery to market and running an extensive research and development program. In March 2000 they purchased the 60 ha Rosehill Estate. The avocado orchard covers some 15 ha and is comprised of 3200 trees. Fuerte dominates with 2,200 trees and the balance consists of 250 each of Hass, Sharwil, Wurtz and Rincon spaced at 9x5m with rows running north south. There are also1100 lychee trees.

When Jan and Zenta purchased Rosehill Estate it had been badly neglected for several years and most of the trees were suffering from chronic root rot, boron deficiency, manganese toxicity and severe shading. There was also a severe anthracnose and looper (*Ectropis sabulosa*) problem causing extensive fruit loss. In addition, market requirements meant that the demand for the main variety in the orchard, Fuerte, was declining. In order to correct these problems while still maintaining cash flow Jan has implemented an extensive orchard rejuvenation program.

The first stage of the program involved replacing many of the laterals and sprinklers. An intensive root rot control program was started to revive the trees. The orchard is watered every 2-3 days with scheduling determined by tensiometer readings. The eastern side of the tree was then removed close to the trunk to reduce shading and promote the growth of new shoots that could then be grafted to Hass. The orchard was limed to increase the pH and reduce the availability of manganese in the soil. Mill mud was spread close to the trunk on the eastern side to provide mulch and nitrogen. Jan then introduced a spray program which has reduced fruit loss from <40% to >5%. This has involved repeat spraying with copper fungicides to which Bt (*Bacillus thuringiensis*) was added for the control of loopers.

The second stage (2001) involves further limb removal and pruning to increase light penetration in the orchards and an intensive grafting program by Zenta increases the number of Hass grafts. The pollinator Ettinger will be worked onto some shoots in the orchard to increase fruit set and fruit size. Depending on tree health Jan will may consider using a growth regulator on the healthier trees to increase fruit set and size.

The third stage will involve removal of the western side of the tree and the reworking of the shoots to Hass. The whole process of reworking the orchard is expected to take 3 to 4 years.

Table 1 Climatic averages for Bundaberg

Mean maximum temperature °C

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
29.7	29.6	28.9	27.1	24.4	22.4.	21.7	23.0	25.1	26.5	28.2	29.1
Mean minimum temperature °C											
21.2	21.1	19.7	17.3	14.2	11.2	10.0	10.7	13.4	16.3	18.8	20.3
Mean daily evaporation (mm)											
7.0	6.2	6.3	4.2	3.7	2.8	3.1	3.8	4.9	5.1	7.0	7.0
Mean monthly rainfall (mm)											
184	153	104	62	76	42	45	34	38	73	92	127

Mill Mud

Mill mud, also known as filter press, is a by-product of the cane industry and is the material remaining after the cane juice is clarified and filtered. It contains all the soil that enters the factory on the cane as well as organic matter in the form of sugars and bagasse particles, lime used in the clarification process and ash remaining from the burning of bagasse in the mill boilers. It is widely available in the Bundaberg/Childers area from the 4 mills in the district. The material is supplied inexpensively to producers with the main cost being transport as the material is supplied in a 'wet' form. Mill mud supplied directly from the mill during the season is approximately 75% water.

Mill mud is widely used by avocado growers in the district as it has many beneficial properties. The material acts as a soil conditioner because it contains a substantial amount of organic matter and calcium. Application rates of 100 t/ha supplies calcium at a rate equivalent to 2t of gypsum. These factors in combination improve the environment for avocado root growth, an important factor in the relatively harsh Bundaberg/Childers environment. Mill mud can also supply large amounts of

nitrogen mainly in an organic form. This means that only a proportion of the N (around 25-30%) is available in the first year. In some orchards mill mud is used to supply up to 80% of the orchard N requirements. Mill mud also contains a large amount of other elements (Table 1).

Table 2. Approximate rates of nutrient application (kg/ha) when mill mud is applied at the rate of 100 wet t/ha.

Nutrient	Application rate kg/ha	Nutrient	Application rate kg/ha
Nitrogen	163	Calcium	403
Phosphorous	110	Magnesium	173
Potassium	213	Copper	0.8
Sulphur	33	Zinc	2.9

Source: BSES Fact Sheet -"Filter Mud/Ash - Getting value for you investment".

Table 3. Production, Estimated Area Grown and Gross Value of Horticultural Crops In the Bundaberg District - 1999 Compiled by J. L. Lovatt, DPI

CROP	ESTIMATED AREA PLANTED (Ha.)	PRODUCTION p = packages t = tonnes	EST.GROSS VALUE $	PRODUCTION 1999 AS % OF 1994	GROSS VALUE 1999 AS % OF 1994
FRUIT & NUTS					
AVOCADOS	640	410,850 p	5,188,250	130%	126%
BANANA	185	74,470 p	1,326,980	114%	141%
CITRUS	350	301,350 p	6,933,310	806%	1188%
CITRUS (process)		2 t	260	14%	13%
CUSTARD APPLE	50	27,880 p	321,610	273%	269%
LYCHEE	90	19,780 p	599,970	152%	163%
MACADAMIA NUTS	1,505	2,970 t	6,237,000	288%	227%
MANGOS	480	136,580 p	2,832,780	208%	281%
MANGOS (process)		3 t	1,580	5%	5%
NECTARINE	20	30,560 p	606,030	525%	779%
PASSIONFRUIT	25	19,130 p	366,460	127%	133%
PEACH	15	7,160 p	116,270	145%	184%
PINEAPPLE (fresh)	120	56,430 p	854,630	172%	307%
PINEAPPLE (process)		5,115 t	1,424,710	274%	284%
VEGETABLES					
BEANS	90	77,600 p	1,285,040	70%	44%
BUTTON SQUASH	295	294,210 p	3,782,630	170%	187%
CAPSICUM	325	1,463,370 p	14,501,980	139%	179%
CHILLI	45	184,830 p	5,537,500	287%	389%
CHERRY TOMATOES	25	120,780 p	1,568,830	56%	47%
CUCUMBER	75	295,230 p	3,060,290	121%	109%
EGG FRUIT	85	291,020 p	2,750,150	169%	186%
PUMPKINS (large)	400	4,020 t	1,173,820	87%	74%
PUMPKINS	10	5,240 p	68,850	49%	39%

(small)					
ROCKMELON	300	600,210 p	7,033,390	105%	91%
SNOW PEAS	320	239,740 p	4,708,560	248%	132%
SWEET CORN	215	205,520 p	2,506,480	314%	329%
SWEET POTATOES	215	257,830 p	4,759,970	156%	134%
TOMATOES	715	3,716,130 p	40,770,980	94%	114%
WATERMELON	390	7,830 t	2,761,450	70%	110%
ZUCCHINI (fresh)	935	932,870 p	12,819,160	130%	141%
MISCELLANEOUS CROPS, NURSERIES, ORNAMENTALS ETC.			5,276,260		
TOTAL	8,095	-	141,175,180	-	

Note: The figures for avocadoes, citrus, passionfruit, some other fruit crops and potatoes are understated as some production figures are not available.

Responsibility

The Organising Committee of the Australian and New Zealand Avocado Conference and Acclaim Special Events and Meeting Management accept no liability or responsibility for death or illness of, or injury to, or loss or damage of any property belonging to, or financial loss by, any person attending the Australian and New Zealand Avocado Growers Conference, any persons accompanying such person or any third parties, whatever the cause, nor do they accept liability or responsibility, whether it be financial or otherwise, for the tours conducted by the tour operator or other operators in association with the Conference. Signature on the Registration Form and receipt of confirmation issued by Acclaim shall be deemed as consent to the above conditions.

TRADE EXHIBITION

The Trade Exhibition is located in the Civic Centre and will be open during the following times

Monday 4th June	10.00 – 10.45am	Tuesday 5th June	10.00 – 10.45am
	12.30 – 1.15pm		12.15 – 1.10pm
	3.30 – 4.00pm	Wednesday 6th June	10.00 – 10.45am
	6.00 – 7.00pm		12.30 – 1.15pm

Floor Plan

Booth 1

AGRIFOOD TECHNOLOGY PTY LTD is a commercial laboratory offering our customers accurate and timely answers to their concerns about pesticide residues, their nutrient status of their soils, their fertilizer program for their trees and crops, their water quality and environmental pollution monitoring issues. Our microbiology laboratory should be your first port of call for your QA program when HACCP principles have been adopted through the Fresh Care program or

Independent Food Operations (the Woolworth's auditors) QA program. Microbial testing of your produce and wash water is an Agrifood Technology specialty.

At this Avocado conference Agrifood Technology is launching its **phosphorous acid** (phosphonate) **testing service.** This service is designed to monitor the protection level the avocado tree has against root rot (Phytophthora cinnamomi) and is **designed to save you money** by establishing whether tree treatment is necessary or not. Visit the Agrifood Technology booth to discover more about this service that offers you a new management tool for increasing avocado yields. (contact 0011+61+7+46330599) or email: agritech@bigpond.com

Booth 2

BIRDWOOD NURSERY Since our beginning as Australia's first ANVAS accredited Avocado Nursery in 1978, Birdwood Nursery has had a very strong relationship with the Australian Avocado Industry.

Our continued growth up to this time and into the future is testimony to the ever increasing demand for our highest quality, hardy and productive Avocado trees grafted to superior Guatemalan/West Indian rootstock selections originating from the Nambour/Sunshine Coast Region of South-East Queensland.

Birdwood Nursery is proud to be a Major supplier of nursery trees to the Australian Avocado Industry and especially to orchardists throughout the Bundaberg Region and welcomes all growers to discuss your Avocado tree requirements with us, including new rootstock and varietal prospects during the 'Vision 2020' Conference

Booth 3

COMPAC "Absolutely ecstatic about the Compac's performance" is how Summerland House explains their new sizer supplied by Compac Sorting Equipment Ltd. Compac's accuracy and design solution has proven to be very profitable and compatible to handle the odd shape of avocados. Compac - helping to lead the fruit packing industry with accuracy, innovation and technology. Stop by our display to learn more about Compac and our special conference offer."

Booth 4

GRAY PLANTATIONS - CONTRACTING SERVICE'S business is centred around the macadamia industry, however due to the size of our orchards and age the need to move into specialised areas was required, therefore the establishment of the 'Contracting Services'.

Special interest to Avocado Growers' is the "Afron Pruner' which is capable of hedging and topping Avocado trees at any angle and height.

Other services that may be of interest are "Tree Transplanting" and "Soil Aeration".

For further information please contact
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kjwilson@grayplantations.com.au

Booth 5

HUHTAMAKI is a world leader in specialty consumer food packaging. The company operates in 34 countries, has over 17,000 employees and annual sales of approximately EUR 2.5 Billion. Huhtamaki has 13 plants and offices across Australia and New Zealand.

Booth 6

PROCESSED GYPSUM PRODUCTS produce a family of gypsum (Calcium Sulphate) products specifically designed to meet the needs of Horticulture, Agriculture & Turf enterprises. All products are produced from premium grade **natural** gypsum under our quality assurance programme. The products include

- Gypsum prills **'Ferta-Gyp' & 'Turf-Gyp** Greens Grade'
- **'Hi-Ag'** for ground spread applications
- **'Mirco-Gyp'** solution grade gypsum for Irrigators
- **'Nursery-Gyp'** a slow release grit for potting mixes
- **'Turf-Gyp'** for short cut turf

Gypsum is a very economical way to provide Calcium & Sulphate Sulphur to the soil however the choice of a quality gypsum product is essential

Booth 7

SUMITOMO CHEMICAL AUSTRALIA PTY LTD is a research and development based manufacturer of agricultural chemicals.

Sunny®, a plant growth regulator, achieved full registration for use avocados in Australia in 2000. The product was developed in conjunction with Queensland Department of Primary Industries.

Sunny offers growers number of benefits in the production of premium grade fruit. Results from the use of Sunny are increased average fruit size, improved fruit shape and increased profitability from avocado production.

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