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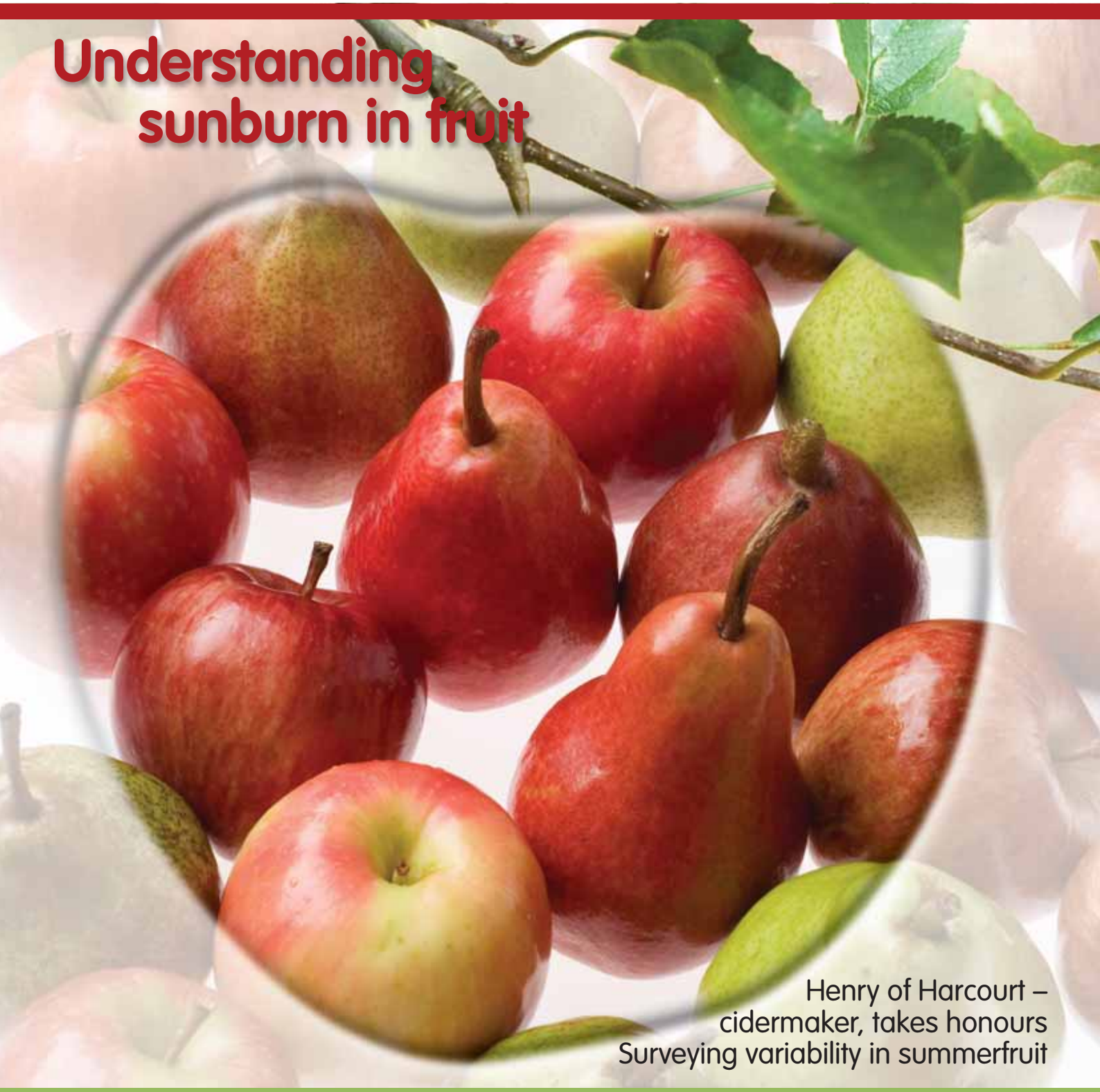

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Henry of Harcourt – cidermaker, takes honours

Surveying variability in summerfruit

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Australian Apple and Pear Ltd (APAL) and Summerfruit Australia Ltd (SAL) are the peak industry bodies representing the interests of commercial apple, pear and Summerfruit growers in Australia in matters of national importance including regulation, legislation, marketing, research and development.

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Editorial

Welcome back to Australian Fruitgrower for Volume 3 through 2009.

For some of us the effects of the "global financial crisis" have hit, for others the threat still looms. Being affected by a situation not of our own making and out of our immediate control is frustrating and the effects are uneven across industry. But it appears that if enterprises have their business basics right, they can look to the future with greater confidence.

On the next page is a Reference Index for most of the great information published in Australian Fruitgrower through Volume 2 – 2008. There was a surprising breadth and depth of information covered; this index will make it easier for growers to utilise and capitalise on information published in Australian Fruitgrower. Keep this reference handy and your magazine archive close by.

Similarly, APAL has reviewed and developed its website. There is much valuable information and data on that site for growers benefit. We urge growers to go beyond the public pages to the levy payers' section and explore the asset they helped build.

APAL chair Darral Ashton has flagged some quarantine and biosecurity issues in his report. Coincidentally a recent daily newspaper report linked the appearance of deformed fish in Queensland with insecticide use in nearby horticultural plantations. Growers should note that those links drawn by the media have not yet been either fully investigated or proven. This situation highlights the need for industry to be fully aware of the organisations and processes already in place to manage such incidents. It also highlights the absolute need for sound science to guide such investigations. 'Pseudo science', media logic, and misappropriation of the correct responsibilities have the potential to seriously damage your industry – your livelihood. When it comes to (mis) information – "be alert" just as you should be in areas of industry and enterprise-level biosecurity and quarantine.

John Fitzsimmons
Editor

Cheers
John Fitzsimmons

Dr Barry McGlasson
Technical Editor SAL

Dr Gordon Brown
Technical Editor APAL

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{References are all from Volume 2 2008 and appear as issue No. in brackets followed by the Page Number e.g. (1) 19 is Issue No. 1/February Page 19}

In addition to the listing of key reports and articles under the Subject Index below, each issue of Australian Fruitgrower usually includes:

- reports from the Chairs of Apple and Pear Australia Limited (APAL) and Summerfruit Australia Ltd (SAL)
- APAL news
- research updates, summaries and abstracts from local and international research projects
- a detailed State Roundup with reports on seasonal and market conditions, industry activities and other news from industry leaders in every state.
- an editorial reflecting matters of topical interest or concern

The detailed nature of these sections precludes a specific Index however they should not be overlooked when seeking information on industry programs, activities and trends. Archived issues of Australian Fruitgrower can be viewed and downloaded in PDF format from APAL's website (www.apal.org.au)

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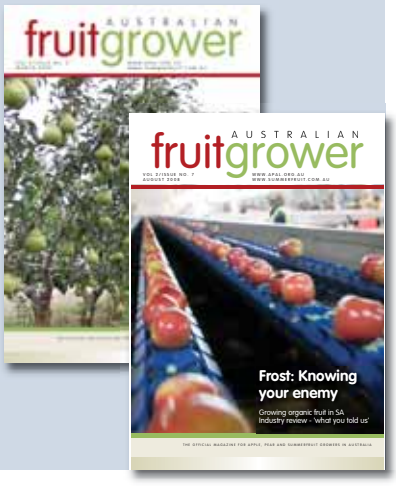


APAL Chair's report

2009 – another year of hard work ahead however a happy New Year to all.

I trust that you had an opportunity to catch up with family and friends, however I imagine that, like us, you were in the middle of thinning or, like many other of our colleagues, busy picking cherries and stonefruit and so any break was very limited.

By the time you receive this issue of Australian Fruitgrower the pear harvest will be well underway and the apple harvest will be almost upon us.

This year is again looming as a year that will again require a major effort on quarantine and biosecurity issues. Biosecurity Australia (BA) has released the draft Import Risk Analysis (IRA) for the import of apples from China and once again the technical response to this IRA will see a drain on APAL's resources as we attempt to submit a meaningful response within the required 60 days. As detailed in APAL News, a major issue we see is treating China as one region. A country the size of China will have great variation in growing conditions and pest and disease status, yet China is keen to export apples to Australia from anywhere apples are grown in China. This is a long way from the three Chinese provinces that are allowed to send pears here and this issue alone will require some concentrated work by APAL to manage.

The issue of New Zealand apple imports is still going through the World Trade Organisation process with the next hearing scheduled for late April 2009.

The Beale report.
It was interesting that in the week prior to Christmas, the Minister of Agriculture, Tony Burke, released the report from the Beale Inquiry into Australia's quarantine and biosecurity that was conducted during 2008. Mr Roger Beale chaired the inquiry and the 252-page report was handed to the Minister at the end of September last year.

There are 84 recommendations contained within the report, but, a lot of them do not have any direct impact on industry. However many of the recommendations will lead to major restructure within the Department of Agriculture Fisheries and Forestry (DAFF) with establishment of a National Biosecurity Authority and the appointment of an Inspector-General of Biosecurity.

Also to be established is "an expert and independent National Biosecurity Commission". The role of this Commission is to "provide expert advice to the National Biosecurity Authority and the Government on biosecurity generally".

One area that has always been of concern to our industry has been that of Australia's Appropriate Level of Protection (ALOP) and the Minister's role. The Beale report has advised that provision "needs to be made in new legislation for the Minister to make guidelines, consistent with our international obligations, on the principles to underpin biosecurity import risk analyses, biosecurity import policy determinations and import permit decisions".

While there does not appear to be much direct impact on industry, I imagine that all major implications will be revealed as the changes are all put into place over the next 18 months or so. I cannot help but feel that an opportunity has been lost with recommendations from this inquiry mainly responding to the horse flu outbreak and not addressing some of the really big issues that exist between industry and government. However I guess that we should just wait and see.

Horticultural Code of Conduct Review Committee.
During 2007 the previous Minster of Agriculture appointed a committee to review the contentious Horticultural Code of Conduct. This committee met on three occasions prior to the ACCC conducting its inquiry into grocery pricing. The ACCC's report was handed down in mid-2008 and one recommendation was to widen the code to include exporters, retailers and processors. As a consequence the current Minster of Agriculture has decided to restructure and enlarge the committee. The committee now comprises:

- *Christine Hawkins* – independent chair
- *Mark Chown* – citrus grower and past president of Australian Citrus Growers
- *Gerard Richmond* – processor - has been the director of McCains Foods (Australia) since 2001. He has responsibility for the supply chain function in Australia and New Zealand.
- *Ros Smerdon* – packer - she is also chair of the Natures Fruit Company, which is a grower-owned unlisted public company that operates on cooperative principles.
- *Margy Osmond* – retailer representative - current chief executive of the Australian National Retailers Association
- *Felicity Robson* – exporter - the general manager of corporate affairs for OneHarvest
- *Trish Skinner* – wholesaler - is the financial controller for Australian Produce Brokers in Perth markets
- *Brad Latham* – central markets - CEO of the Sydney Markets

The make-up of the committee does not reflect any great experience in dealing with the Code however we will continue to watch with interest. Those members of the original committee that were replaced were:
Hamish Bain – chair, Fabian Carniel – Queensland vegetable grower, and yours truly.

2009 apple and pear promotion.
This past week has seen the IAC domestic promotion advisory committee sit down with the people from Horticulture Australia Limited (HAL) to put the finishing touches to the 2009 campaign. The apple program will be building on the good work that commenced last year with the release of The Apple Report. There are still lots of great attributes about apples that need to be communicated to consumers and this year will see further work done in this area. The pear campaign is a little more involved with still some more work to be completed before everyone is happy with the result.

Farewell to Doug Hocking.
After 39 years working with the NSW DPI, Doug Hocking has decided that the time has arrived to give it away. Doug has been a great supporter of not only the NSW apple and pear industry but also the Australian apple and pear industry. I have known Doug for well over 30 years and he worked hard to chair a difficult committee that preceded the Horticultural Code under the direction of the then NSW Minister Richard Amery.

Well done Doug and I guess that you will now have time to give the Land Rover a clean and a service and head bush. ■

SUMMERFRUIT Chair's report

2008 has passed and we have started a brand new year. With the start of every new year expectations, revised goals, and resolutions that normally aren't achieved are all set out. I hope all of industry can look forward to a prosperous 2009.

The stonefruit season before Christmas, in my opinion, was a lot better than all the pundits had predicted. Fruit moved efficiently through the system without any obvious gluts, supermarket promotions and specials were well timed, the central; markets performed strongly, exporters – with the lower dollar – took fruit off the domestic market, and overall grower returns reflected a positive outcome.

Without the benefit of actual statistics I would say the crop was lighter than predicted but quality was excellent and, with the unusually mild mid-summer, fruit could be left on the trees longer to enhance that quality.

However at the time this report was being written (mid-January) the temperature in Swan Hill is 45°C, we are in the problem timeslot of the previous two years, and export orders for the Chinese new year are all but over. We will now see if the planned promotions will alleviate the pain experienced in past years; only time will tell. With the very low budget available to the IAC for promotions the majority has been allocated for the the next three weeks.

Summerfruit CEO

On Monday 11 January the final interviews were conducted for the Summerfruit CEO appointment and the successful applicant was John Moore. John won't be familiar to many stonefruit growers but is well recognised within the tobacco industry. On behalf of the board I and the IAC congratulate John on his appointment. A full profile on John will appear in the next issue of Australian Fruitgrower.

The appointment of a CEO will take a lot of pressure off the board but to have a strong association we need individuals to stand up and become directors to ensure the needs of industry are met in these trying times. The elections will be held in March and the major production areas should have a voice on the board.

Finally I would like to apologise for not having a chair's report in December, and for this one being as brief as it is. But, like the rest of you, I have to keep my eye on the game and this year in particular has been full-on. ■

Ian McAlister
Chair –
Summerfruit
Australia Ltd

Seasonal labour pilot 'on track'

Horticulture Australia Council (HAC) recently confirmed that the Pacific Seasonal Labour Pilot (PSWP) for Horticulture was on track for a commencement in the near future.

"This is the first time in our history that the Australian Government has undertaken such an ambitious immigration program to address the critical seasonal labour shortages in our sector", said HAC chair Stuart Swaddling.

"A new program initiative of this kind – involving many government agencies, commercial providers, the governments of the Pacific island nations, and the significant number of industry and other stakeholders - is a complex undertaking. Despite the concerted efforts of the departments concerned, there have been some delays, particularly over the Christmas-New Year period", Swaddling said.

"Our understanding is that the final step to be completed before implementation of the pilot has been the tendering process for the labour hire companies which will take on the 'employer' role (recruitment and selection, travel and accommodation arrangements, 'pastoral care' for the workers). Naturally, the government and interested stakeholders are keen to ensure that the preferred commercial providers are bona fide, and meet all the appropriate standards and probity checks.

"The pilot will commence in the Swan Hill-Robinvale, Vic, region in the near future; followed by Griffith; work is still underway to identify a potential region(s) in Queensland.

"We have been waiting for this moment for more than a decade. By far the most critical issue is to ensure we collectively get this pilot 'right'." ■

APAL News

Richard Hawkes appointed as Technical Manager.

APAL is pleased to announce that Richard Hawkes has accepted the position of technical manager and will be employed at APAL from 9 February.

Richard has a Bachelor of Agricultural Science degree from Melbourne University. For the past three and a half years, he has been an agronomist with EE Muir & Sons in southern Victoria, working with orchardists. For 18 months prior to that, he was an agronomist with vegetable growers.

Richard gained valuable overseas experience, when in 2007, he was a youth exchange candidate and spent one month at the Auvil Fruit Company in Washington State.

(see full report from Richard in February 2008 *Australian Fruitgrower*). He also was a member of the APAL study tour of Europe in August 2006. Richard also has an interest in the family farm that now specialises in growing boutique potatoes. Richard's interests include cycling, water skiing and snow skiing, and overseas travel. His duties at APAL will include managing the Future Orchards 2012 project. ■

WTO update

The World Trade Organisation dispute hearing into apple imports from New Zealand continues.

A technical expert group has been selected and is currently reviewing the submissions and will provide advice to the hearing panel.

A second panel hearing will be held in late April 2009 and a final ruling is expected later this year. It is possible that appeals will further delay the final outcome of this dispute.

APAL general manager Tony Russell has attended follow-up meetings in Canberra with Department of Foreign Affairs and Trade (DFAT), Department of Agriculture, Forestry and Fisheries (DAFF) and Biosecurity Australia (BA) staff who are working on the hearing. Tony said the relationship and dialogue continues to be very open and constructive.

In other news, research commissioned by APAL and conducted by scientists in Valencia, Spain, which describes how the 'viable but not culturable' form of the fire blight bacteria could be a possible mechanism of transfer of the disease, has been accepted for publication in the internationally respected *Journal of Applied Microbiology* (publication date not yet advised).

The research has confirmed that

- fire blight bacteria can exist in the apple calyces in a 'viable but not culturable' (VBNC) form.
- the bacteria have been 'resuscitated' from the VBNC form, regaining culturability under laboratory conditions.
- inoculating immature pear fruits with the 'resuscitated' bacteria caused typical fire blight symptoms.
- VBNC fire blight bacteria can survive in this state in the calyces of mature apples for at least one month."

This information will be used in the current WTO dispute hearing. ■

Draft IRA for China

The draft import risk assessment (IRA) for apple imports from China was due to be released by Biosecurity Australia (BA) at the end of January.

APAL is putting together a team of experts in many fields to prepare a comprehensive response to the IRA. Current BA rules applying to the conduct of the IRA allow only 60 days for stakeholders to submit their response.

It is critical that the industry gets the right protocols to ensure that our relatively disease free status is protected. ■

Future Orchards 2012

The continuation of the Future Orchards 2012 has commenced with orchard walks in 'southern' locations occurring in the last week of January with Craig Hornblow from AgFirst and Steve Tancred as guest speaker, and the 'northern' locations in the first week of February with John Wilton from AgFirst and Marcel Veens as guest speaker.

The two-year extension of the Future Orchards 2012 program will include three orchard walks each year and a continuation of recording detailed information from monitoring blocks in each major apple and pear growing region.

The monitoring block information is available from the levy payers site (formerly the members only site) on the APAL website (www.apal.org.au). Log in from the front page of the APAL site and then click on the Future Orchards 2012 box in the middle of the page.

If you do not remember your password, you can either use the 'forgotten password' facility available or contact the APAL office and Stuart Gray will be able to provide it too you. ■

Future Orchards 2012 Draft Program 2009-10

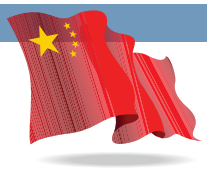
Actual dates will be confirmed closer to time

Field Walk	*Potential Orchard Walk Topics (subject to change)*	*Consultants and Guests (subject to change)*
Jan-Feb 2009	**Field Subjects**	
	• Inspection of Gala and early variety crops using specific monitoring blocks and their associated data. Identify best practice in each region	*South: Craig Hornblow* *North: John Wilton*
Mid June 2009		
	• Pruning and Training • Trellis support structures • Nutrition. (fertigation, foliar & ground applied solid)	*South: Steve Spark* *North: Ross Wilson and Craig Hornblow*
September 2009		
	• Spray Technology • Irrigation strategies to maximise water efficiency and maximize crop • Chemical thinning strategies	*South: Ross Wilson* *North: Craig Hornblow*
November 2009		
	• Australian costs of production reporting • Filling the allotted space • Managing 3-4th leaf blocks vs. 1st and 2nd leaf trees	*South: Steve Spark* *North: Ross Wilson*
End March beginning April 2010		
	• Utilisation of key Monitoring Block data to demonstrate best/profitable practice • Post-harvest management	*South: Craig Hornblow* *North: John Wilton*
June 2010		
	• Maximising pomefruit profit • Apple and pear business opportunities • Discussion of the previous crop result	*South: Steve Spark* *North: Ross Wilson*

Apple and Pear Conference Hobart, 5 and 6 August 2009
Theme: Innovation in Production – Growing our Future.

China IRA released

Biosecurity Australia released its Import Risk Assessment (IRA) for apples from China on 21 January.



This is a detailed document (the full document is 314 pages) and many of the issues involved are highly technical and complex, so we need time to thoroughly digest the report and the implications of its recommendations.

One major issue we see is that China is a large country, about the same size as Australia. However in Australia, we recognise regional differences in disease status, (eg Tasmania and Western Australia) while China is currently considered as one region.

Australia imports pears from China, but they are only allowed from three provinces. The apple IRA would allow apples from all production areas in China to be imported into Australia. There are production areas in China about which we know very little in relation to their pome fruit disease status.

It is critical that the Australian apple and pear industry gets the right protocols for imported apples to ensure that its relatively disease free status is protected.

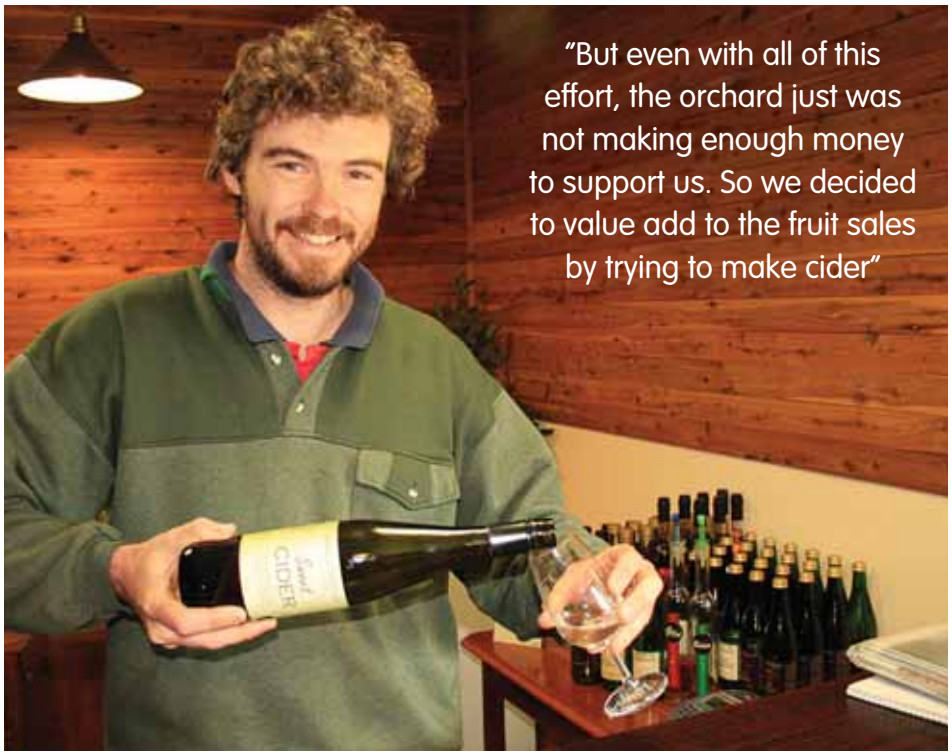
To respond to the IRA, APAL has put together a team of experts from many relevant fields to prepare a comprehensive report.

Current Biosecurity Australia rules allow only 60 days for stakeholders to submit their response, which means the deadline is 23 March 2009. ■

Grower profile

Michael Henry: Henry of Harcourt, Cidermakers and Orchardists.

A little known cidermaker from Harcourt in central Victoria, in 2007 took out the top honours at the A.E.M.S. International Cider Tasting, and generated a lot of interest in the Australian cider industry. Stuart Gray spoke to Michael Henry from Henry of Harcourt about developing a cider business.



After spending a good number of years in Papua New Guinea, and travelling all over the world as an exploration geologist, Drew Henry and his wife Irene decided a slower lifestyle was in order. Along with their son Michael, who trained as a garden designer, they purchased a property at Harcourt in 1993. It was 40 hectares, with about four hectares of apple and pear orchard. The majority of apples were Red Delicious, with Golden Delicious and Starkrimson making up the rest, and Buerre Bosc pears with a few Packham's Triumph and Williams.

Michael Henry said that for the first few years, they made a concerted effort to make the property profitable.

"The old furrow irrigation was replaced with drip irrigation, new varieties such as Cripps Pink (Pink Lady®) were planted on Tatura trellis expanding the orchard, and varieties such as the Red Delicious that were not very profitable were gradually removed and replaced with Fuji.

"But even with all of this effort, the orchard just was not making enough money to support us. So we decided to value add to the fruit sales by trying to make cider.

"The first batch of cider was made from some Red Delicious apples, on borrowed equipment, and using very rudimentary methods. As ciders go it was not the best, but it proved that we could make cider," Michael said.

After that, Drew and Irene went to England and toured around Somerset and Devon talking to cidermakers. They soon discovered that like wine, there were specific apple varieties from which to make cider. After talking to one of England's best 'real' cidermakers, Drew and Irene returned home greatly encouraged and set to finding some of those traditional cider apples in Australia.

In 1998 after discovering some varieties as close as Castlemaine (Badgers Keep – no longer operating), a small area of the orchard was given over to the 10 new varieties, Kingston Black being the most prominent. The Henrys continued to experiment with the apples that they had, and found that the Cripps Pink made a very pleasant cider particularly when naturally carbonated through bottle conditioning.

Borrowing some of the design ideas of the presses they had seen in England, Drew designed and built a cider press, and 'real' cider production started in earnest, and the job of quality control fell to friends and neighbours, whom all proved enthusiastic volunteers. When asked what 'real' cider was, Michael replied.

"Real cider is cider that is fermented from the juice of fresh apples, and has a measure of maturation, complexity and seasonal variance like that of wine"

A.E.M.S International Cider Tasting

Henry of Harcourt participated in the A.E.M.S. International Cider Tasting at Lenswood in the Adelaide Hills in 2007. There was a strong field of entries from such places as Canada, England, France, US and Australia. England and France are big cider makers as cider is the second most popular alcoholic drink in those countries (beer is the most popular drink in England and wine the most popular in France).

The Henry of Harcourt perry (cider made from pears) took out the 'best in show' award with a score of 18.4 out of 20, with the next best scoring 17.5, so it was a clear winner. There were 43 entries in the competition.

Buoyed by the positive feedback, construction of a cellar door and cidery went ahead, and on the Easter weekend in 2003 Henry of Harcourt opened its doors to the public.

"Since then, we have grown from having our cider stocked in one retail outlet to now having it in more than 80 outlets around Australia"

Cider trees

The Henrys have a deep fascination with the traditional cider apples, and the ciders that can be made from them. Originally starting out with only 10 varieties, they have grown the number to 34 varieties, and about one third of the orchard now comprises traditional varieties.

Their association with David Pickering of the NSW Dept. of Primary Industries (Ref. *Australian Fruitgrower* 2008 No.s 3 and 5) netted them access to 11 new French varieties he discovered in Tasmania.

In 2004 a reference collection of ciders was made from the cider varieties that were grown on the property. These served to further the Henrys' understanding the different characteristics of the apples and resulting ciders. Then in 2005 the collection was opened to the public for a tasting.

"It was very successful. People were surprised by the diversity of the ciders, and showed more enthusiasm for the traditional varieties than I thought they would."

"From this we launched a number of varietal ciders and blended ciders that only used traditional varieties. One in particular, the Kingston Black, has turned out to be a big success," Michael said.

Continued over...

Continued...Grower profile

Michael Henry: Henry of Harcourt, Cidermakers and Orchardists.

▶ Some of the cider apples that are grown at Henry of Harcourt:

Kingston Black: A bitter-sharp cider apple from Kingston St Mary in Somerset, England. It has a full bodied flavour with strong bitter tannins that make a well rounded cider.

Yarlington Mill: A bitter-sweet apple that was a chance seedling found in the wall of a mill in Yarlington, England. It produces fantastic aromas of fresh orange blossom.

Bulmers Norman: A very heavy flavoured bitter-sweet cider apple that has massive tannin flavours, and is used to fill out some of the lighter ciders.

Antoinette: A French variety that we have just grafted, and are looking forward to running some tasting trials on in the next few years.

Pink Lady: Not a traditional cider apple, but it makes a very popular cider which is very light and refreshing, with a clean zesty finish. Excellent on hot summer days.

Gin: A perry pear that is very sharp and tannic, producing a perry that is best used in blends. Still undergoing tasting trials.

Marketing

Originally in 2003 there was just the cellar door and one outlet in Castlemaine. Gradually the business was built through various farmers' markets in the region, and word of mouth. Attendance at bigger events such as the Taste of Slow, and The Age Harvest Festival saw demand for Henry of Harcourt cider grow, and more outlets began stocking the ciders.

"With the installation of new equipment in 2006, we increased production levels & that allowed for more aggressive marketing"

"Rather than wait for an outlet to become interested, Drew started finding good reputable independent bottle shops that were run by people who were interested in the cider.

"This proved to be one of our best policies. Owner operators that liked the ciders and saw the potential behind cider turned out to be some of our best outlets.

"And with the increase in outlets that stocked Henry of Harcourt cider, the need to attend farmers' markets dwindled and we are selective about which of the bigger festivals we attend - only going to those that drive the wholesale markets more."

Measured development

The Henrys have developed the business in a very measured manner, and have not taken out business loans, nor a mortgage nor bank overdrafts.

Drew maintained his geological consulting to support the growing business in the early years, and now is able to cut back on the consulting to concentrate on the cider making.

"We have always maintained that you need to be able to crawl before you walk, walk before you run," Michael said.

"We have always encouraged people who have looked at starting a cidery, as we believe that a larger and more diverse range of ciders, coupled with development of regional characteristic, will help the cider industry grow.

"The more real ciders there are in Australia, the more people will take notice of real ciders.

"Already there are three areas of cider production in Victoria; central Victoria, Yarra Valley and Gippsland. There are also areas in South Australia, Western Australia, and Tasmania.

"I would now describe ourselves as cidermakers rather than orchardists. Orchardists grow fruit to sell for consumption, which we will still do on a small scale, but most of our fruit goes into the ciders. It is quite a different business from the one we started," Michael said. ■

Hort. industries must unite to reverse diminishing R&D trend

By Prof. Barry McGlasson

Government support for R&D and extension in horticulture is diminishing. In May 2008 the Federal Government imposed a $63 million cut to CSIRO's budget over the next four years, which resulted in the announced closure of the 90 year-old Merbein, Vic, research station that has contributed millions of dollars of value to irrigated crops including grapes and citrus. This is the latest cut back that has continued a trend that has been going on for several years.

Effectively CSIRO no longer works in horticulture. Its work in food science and technology has also been run down.

Twenty years ago when I retired from the CSIRO Division of Food Research there were more than 100 scientists at the North Ryde Laboratories, NSW. Now there are about 20. Marvellous facilities like the refrigerated shipping container test facility are now mothballed.

These cuts to CSIRO contradict the Prime Minister's remarks when he opened Outlook 2008 in Canberra in March 2008. He stated his strong support for agriculture and commended his governments intended 'education revolution'.

Although agriculture has had some adverse publicity, the horticultural sector is one of the fastest growing and second after meat in gross value. The overall picture is that enrolments in many food and fibre programs at Australian Universities have fallen to unsustainable numbers. Continuing reductions in support for CSIRO do not encourage students to consider careers in science and technology related to agriculture and horticulture so the present shortage of skilled people will get worse.

> "Politicians and their advisers are poorly informed about the horticultural industries and their worth and the real value of the work being done by the public research agencies"

This discouraging situation has now been compounded in New South Wales by the announcement (November 2008) of the closure of eight research stations over the next three years. This announcement was a short-sighted knee jerk response to the poor budgetary situation in that State. The Minister for Primary Industries gave no reasons for the closure of these stations other than to say that they were not needed. He did not consult with any of the stakeholders - including the scientists - before announcing these cuts. The Minister reversed the decision to close the Gaden fish hatchery at Jindabyne after heavy lobbying and agreed to consider alternative plans for retaining the Tropical Horticulture Centre at Alstonville and a research centre at Glen Innes. Still at great risk of closure are the Griffith Irrigation Centre and the Gosford Primary Industries Institute, which is the NSW DPI's Centre of Excellence for market access and greenhouse horticulture.

Public pressure has led the Minister to state that the DPI will continue to maintain strong research and technology programs in NSW and that alternatives are being considered.
The Gosford Institute is particularly important to Summerfruit because of the research on the disinfestation of fruit against Queensland fruit fly required to regain access to Taiwan and other markets that is being conducted there. Regaining the Taiwan market alone could be worth at least $25 million per year at farm gate as well as relieving over-supply on the domestic market. The Gosford Institute is the only DPI centre equipped for postharvest and market access research. Closure of Gosford will mean the loss of many well trained scientists. I estimate this would set back horticulture in New South Wales and Australia by 15 years.

These threats to horticultural research, development and extension can be successfully opposed if the horticultural industries take a united stand. I suspect that the politicians and their advisers are poorly informed about the horticultural industries and their worth and the real value of the work being done by the public research agencies.

It is worth noting the strong support of the US Government for science and technology. President-elect Obama announced on 20 December 2008 the appointment of three leading scientists including a Nobel Laureate in Physics to the President's Council of Advisors on Science and Technology.

Obama stated "Today more than ever, science holds the key to our survival as a planet and our security as a nation. It's time we once again put science at the top of our agenda and worked to restore America's place as the world leader in science and technology." ■

Minimising sunburn damage of fruit

By Dr Gordon Brown, Technical Editor – Apple and Pear

Sun burning of apple fruit costs growers millions of dollars annually. In Washington State (USA) some Fuji growers have reported that 70 per cent of their crop has been lost to sunburn (Schrader, pers comm) while in Australia, for varieties such as 'Granny Smith', it is common to lose 20 per cent or more to sunburning (Agnova).

As well as the physical damage to the fruit sunburning has a negative impact on orchard incomes due to reduced fruit size, poor storage and increased grading costs. Hence, in the production of fruit, methods of controlling or reducing sunburning are needed to minimise its impact on farm incomes. Care needs to be taken, however, as expensive control methods are not needed in all seasons. As a result, information is needed to ensure control methods are efficiently incorporated into orchard design or applied only when they are required.

Unfortunately, the complexity of the mechanisms of fruit sunburn is not fully understood and this makes informed management decisions difficult. This is due to the complex nature of the blemish which includes climatic factors, such as the impact of UV and Infra Red (IR) light exposure, air temperature, wind and relative humidity, fruit physiological factors such as the presence of fruit hairs, antioxidants, heat shock proteins, fruit transpiration rate and skin characteristics such as level of wax development as well as cultural practices such as canopy structure, irrigation methods and crop protectant sprays that have been used (Wunsche et al 2001 & 2004).

This article attempts to summarise the current state of knowledge of the impact of the above sunburn factors, where known, on the incidence and severity of sunburn damage. The article then moves to a brief study of potential design and control strategies that may be employed to reduce the impact of fruit sun exposure while maintaining farm profits.

Why do fruit sunburn?

The production of apple and pear fruit occurs in orchards where there is minimal, if any, protection from the environment. While the fruit are reasonably resilient to environmental stress, situations do arise where fruit are overexposed to harsh conditions which causes damage. This may be due to extreme climatic events damaging sun hardened fruit or due to foliar movement exposing fruit skin that has been shaded. The situation is aggravated by canopy manipulation practices to improve colour development in red cultivars where the market requires maximum colouration.

While sunburn can occur at any stage of fruit development, research has shown that conditions are most suitable for sunburn in the three months prior to harvest and particularly in the afternoon, between 2.30 and 4.45 pm (Schrader et al., 2003).

Symptoms of sunburn damage to apples and pears.

The first visible sign of sunburn damage involves a reduction in the levels of chlorophyll (green colour) and anthocyanins (red colours) in the skin. This is accompanied by an increase in the levels of antioxidants such as carotenoids and polyphenolics (Felicetti and Schrader, 2008) as well as ascorbic acid (vitamin C) and glutathione (Chen et al, 2008). The lower chlorophyll and anthocyanin concentrations allow the yellows from the carotenoids and polyphenolics to become more dominant giving the sunburn portion of the fruit a bleached yellow appearance *(Figure 1)*. Sometimes the levels of certain chemicals can give a brown discolouration and this can be a problem on 'Fuji' fruit (sometimes termed 'Fuji' stain). These symptoms of sunburn appear on the fruit if the skin temperatures exceed 45°C which can occur when air temperatures are above 30°C and will occur when air temperatures are above 35°C (Schrader et al., 2003). An example of skin temperature with air temperatures is shown in *Figure 3*.

If exposure to the sun is severe enough then death of the skin and epidermis can occur leading to a necrotic patch on the fruit which may be sunken if underlying fruit flesh is also affected *(Figure 2)*. This occurs due to the high levels of oxidants generated from UV light exposure and high temperatures generated from IR light exposure. This will occur in exposed fruit if skin temperatures exceed 52°C.

Figure 1.

Skin yellowing and browning due to mild sunburn damage.

Figure 2.

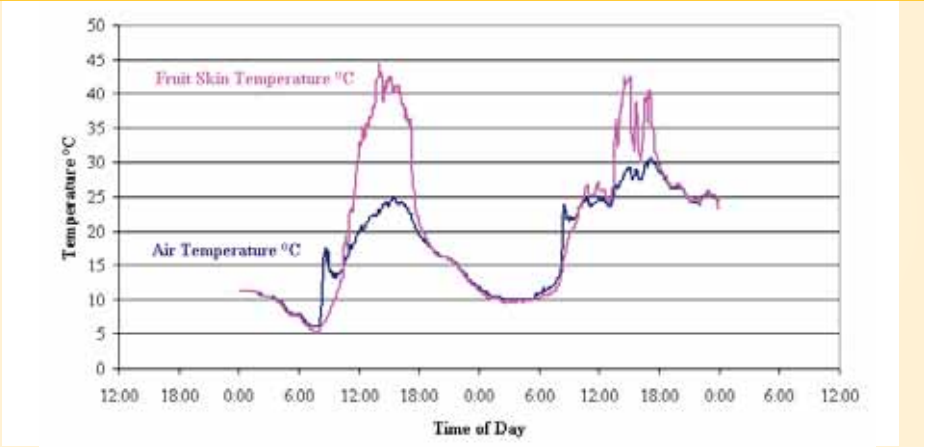
Skin and epidermis death due to severe sunburn damage.

Figure 3. The air and skin temperature of 'Fuji' fruit two days just before harvest in Tasmania. Note that skin temperatures are at a maximum from about 2pm till 5pm and that the skin temperatures were higher on day one when air temperatures only reached 25°C but were not hotter on the following day despite air temperatures reaching 30°C indicating the variability that can occur.

Climatic factors affecting sunburn

Between the air temperatures of 30 and 35°C the risk of sunburn damage is variable. One of the reasons for this is that oxidant levels in the skin, due to UV light interception, have the effect of reducing the skin temperature where damage will occur.

Figure 3.



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Continued...Minimising sunburn damage of fruit

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Hence factors that reduce UV light interception or reduce skin temperatures will reduce the severity of sunburn damage. Cloud cover, wind and humidity, through its impact on transpiration rate, all have an impact on sunburn damage with days of low UV radiation levels and a hot dry wind (providing tree water levels can be maintained) having a lower level of sunburn risk to calm and humid days with high levels of UV radiation (Schrader et al., 2003).

Physiological factors affecting sunburn

For any given cultivar of tree there are two separate sets of fruit chemistry that have an impact on the appearance of sunburn damage, antioxidants and heat shock proteins. Antioxidants are chemicals, such as anthocyanins, polyphenols and Vitamin C, found in fruit skin. These materials are preferentially attacked by the oxidants produced by UV light, neutralising the oxidant and rendering them safe for the cell.

In fruit grown in the shade, without any exposure to UV light, the levels of antioxidants in the skin are extremely low compared with fruit that has some sun exposure.

Heat shock proteins (HSPs) are materials produced by fruit in response to exposure to high temperatures. These proteins operate by attaching themselves to vital enzymes giving them structural resistance to high temperature breakdown such that the cell can survive exposure to higher temperatures. It has been shown that HSPs are not detectable in shaded fruit of 'Fuji', 'Jonagold', 'Gala' or 'Delicious' apples but are present in high concentrations in fruit exposed to sunlight (Ritenour et al 2001).

In a controlled experiment 'Gala' fruit were exposed to 45°C for 2, 4 or 6 hours and this treatment lead to increasing quantities of HSPs which increased the fruits resistance to sunburn detected by exposing the fruit to full sun three days after heat treatment. (Zhang et al 2003).

Hence if rapid leaf thinning practices are employed to improve fruit colour of shaded fruit there is a risk of sunburn damage at relatively low air temperatures due to a lack of antioxidants and HSPs in the fruit.

When are control strategies needed?

As described above sunburn damage is most likely to occur on calm, humid days with high UV radiation levels when air temperatures exceed 30°C.

The symptoms will first appear on fruit that has been recently exposed to the sun (within the last 24 hours) and on these fruit may even occur at lower temperatures due to a lack of antioxidants and HSPs. If the weather forecast is for a dry, windy day with low UV radiation then the air temperature for the appearance of damage is increased to 35°C. As the sunburn period is usually in the afternoon this allows for application of protectant materials or other strategies to sensitive blocks in the morning after an accurate forecast is obtained.

The climate in the previous week also has an impact on the fruit susceptibility to sunburn because the level of HSPs and antioxidants in the fruit skin are related to the level of exposure to heat and UV radiation over that period. Hence fruit sunburning will be worse if a week of cool, windy, overcast weather is followed by a hot calm day with full sunshine. Under these conditions it would be wise to assume sunburn will be a risk if the temperatures exceed 30°C and control strategies need to be in place.

It should also be noted that sunburning of fruit can be from an exposure as short as 10 minutes to suitable conditions (Campbell chemicals, 2007). This means that sunburning can potentially occur in the picking bins during the harvesting process where shade grown fruit or portion of fruit could be exposed to the sun. Hence, when harvesting in temperatures over 30°C, it would be wise to provide shade for fruit in the field bins ensuring they do not overheat

and sunburn after harvest. Shading the fruit gives an added bonus because they will require less energy for cooling in the packing house.

Control strategies

The first step in sunburn management is to identify which blocks are more susceptible to sunburn, what control strategies can be employed in each block and which blocks provide the highest financial return for the investment. In most cases there will be different control strategies in different blocks due to different fruit values, tree structures, training systems, irrigation systems and other resources.

Canopy development and tree training systems can be manipulated to minimise fruit exposure. Fruit that is shaded by leaves will not sunburn, however, if the shade is too dense fruit colour development will be poor. A feature of the V trellis system is that there is potential for the fruit to be located on the lower surface with the leaves on the upper surface to provide shade to reduce the risk of sunburn while maintaining enough light for fruit colouration.

Reflective cloth/mulch under the trees, rather than summer pruning, allows for improved colour development while maintaining the canopy above the fruit to provide shade from direct radiation. If there is insufficient reflective cloth for the entire orchard and some summer pruning is required in some blocks then give consideration to applying the reflective mulch under the trees for a week prior to summer pruning. This should stimulate an increase in the antioxidants and HSPs in the shaded fruit prior to exposure to direct sunlight after summer pruning.

Bird, hail or shade netting has been shown to dramatically reduce the level of sunburning of the fruit. In Queensland's Granite Belt research identified that hail netting reduced sunburn of 'Granny Smith' apples from 20 per cent to just 4 per cent (Middleton and McWalters) while in South Africa 20% shade cloth reduced sunburn of Fuji apples from 29 per cent to 10 per cent (Smit, 2007). As fruit grown under netting are up to 10°C cooler on a hot day and the exposure to UV is reduced (Gindaba and Wand, 2005) there will be lower levels of HSPs and antioxidants in the fruit which may be responsible for the reduced heat tolerance of these fruit (Smit, 2007). Hence covers or shade should be applied to open field bins during transport from shaded orchards to the cold room as these fruit do not tolerate heat exposure well.

Irrigation maintains a tree's water status and its ability to cool itself through transpiration. This means that water stressed trees are more prone to sunburn damage and it would be wise to allocate some irrigation water for use on sensitive blocks prior to days of high sunburn potential.

Light reflecting materials such as kaolin clays and calcium products can be applied to trees to reduce the absorption of radiation by the fruit. As the reflected light is often utilised by normally shaded parts of the tree the total tree yield is not reduced and there is an improvement in fruit colour on the shaded side of the fruit. The downsides of this treatment is that there is a heavy spray residue at harvest and, as for the use of shade netting, there is a reduction in the fruits tolerance to heat with heat damage occurring at lowered air temperatures.

UV filtering products filter out the UV radiation from reaching the fruit while having no impact on the IR radiation. As such the fruit still get hot and will suffer heat damage although the reduced levels of oxidants will reduce the severity of the damage. As well as products designed for this purpose there are some other materials, such as Vapoguard® and NuFilm®, which have also been found to have a positive effect against sunburn (Yuri 2004) and these possibly also work through filtering of UV radiation.

Continued over...

Continued...Minimising sunburn damage of fruit

By Dr Gordon Brown, Technical Editor – Apple and Pear

As these materials do not stop fruit heating, HSPs are produced normally and thermal tolerance of the fruit is higher than when light reflecting products are used.

Evaporative cooling by the use of overhead sprinklers or frost control systems keep the fruit cool and have been shown to be effective at limiting sunburn damage (Ginbada and Wand, 2005). The problem with this technology is the requirement for large volumes of water as well as the capital expense of installation although the method can be fully automated.

Application of antioxidants is another treatment with a potential to be effective against sunburn damage although this treatment has not been commercialised. It has been found that 3% ascorbic acid (Vitamin C) or its cheaper analogue, isoascorbic acid, reduced sunburn damage in 'Fuji' but not 'Granny Smith' (Johnson et al 1999). The antioxidant Vitamin E has also been found to have an impact on the incidence of fruit sunburn (Yuri 2004) demonstrating that these materials have potential to aid in the reduction of sunburn damage.

Summer pruning and leaf thinning should be performed on cool days when the forecast is for cool weather in the following three to four days to allow for time for antioxidant and HSPs to accumulate in the fruit prior to exposure to strong sunlight. If a hot day is forecast in this time period then spray treatments, evaporative cooling and / or irrigation need to be applied to these trees prior to the hot afternoon to reduce the incidence of sunburn damage.

AVOIDING SUNBURN DAMAGE - SUMMARY

- Sunburn damage is a result of heat damage to the fruit with UV radiation reducing the temperature at which damage occurs.
- There are two chemical systems in fruit, which reduce the incidence of sunburn, the production of antioxidants and Heat Shock Proteins (HSPs)
- Fruit antioxidants and HSPs are produced by the fruit in response to exposure to UV radiation and high fruit temperatures and levels peak about 3 days after exposure.
- Commercially the risk of sun burning can be reduced by reducing exposure to solar radiation, filtering out UV light, cooling the crop, and building up levels of fruit antioxidants and HSPs prior to sunburn conditions.

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Figure 4.

Reflective cloth for improved fruit colouration with minimal Summer pruning.

Figure 5.

Reflective spray applied to apples to reduce solar radiation interception by the fruit.

New reference book on peach

A new reference book was published by CABI (Centre for Agricicultural Bioscience International) in 2008 - *The Peach, Botany, Production and Uses* (ISBN 978 1 84593 386 9. www.cabi.org). CABI is is a not-for-profit international organization providing scientific expertise, knowledge and information.

The book was edited by Desmond R Layne and Daniele Bassi. This comprehensive work includes chapters by many international scientists including two Australians who work on summerfruit.

The table of contents includes:

- botany and taxonomy
- history of cultivation and trends in China
- classical genetics and breeding
- genetic engineering and genomics
- low-chill cultivar development
- fresh market cultivar development
- processing peach cultivar development
- rootstock development
- propagation techniques
- carbon assimilation, partitioning and budget modelling
- orchard planting systems
- crop load management
- nutrient & water requirements of peach trees
- orchard floor management systems
- diseases of peach caused by fungi and fungal-like organisms - biology, epidemiology and management
- diseases caused by prokaryotes - bacteria and phytoplasmas
- viruses and viroids of peach trees
- insects and mites
- nematodes
- preharvest factors affecting peach quality
- ripening, nutrition, and postharvest physiology
- harvesting and postharvest handling of peaches ■

Major overhaul of biosecurity urged

The growing threats of climate change, globalisation and agri-terrorism mean Australia needs to overhaul its biosecurity system, according to a major new report.

On 18 December last, the Minister for Agriculture, Fisheries and Forestry Tony Burke released the detailed report by an expert panel chaired by Roger Beale AO, One Biosecurity: A Working Partnership. The report makes 84 recommendations that represent the biggest reforms to Australia's biosecurity system in more than a century. Key recommendations include:

- establishment of a new national authority to bring together the major functions of Biosecurity Australia; the Australian Quarantine and Inspection Service and parts of the Department of Agriculture, Fisheries and Forestry
- establishment of a new biosecurity standards commission to assess the biosecurity risk of imports, with greater emphasis on risks to human health and the environment
- development of new biosecurity legislation to replace the Quarantine Act which is a century old
- appointment of an Inspector-General of Biosecurity with broad powers to audit and investigate the authority's work
- establishment of a new council of experts to advise government
- states, territories, industry and the Commonwealth must coordinate better to monitor biosecurity after goods and people enter the country, not just at the border.

The panel, which held 170 meetings with domestic and international stakeholders and received more than 200 submissions,.also recommended increased funding and substantial information technology upgrades.

Mr Burke said the Australian Government had accepted all 84 recommendations in-principle, but more consultation was needed on how to implement the findings and fund the reforms. Interim administrative arrangements will take effect from 1 July 2009.

Further information: W: www.daff.gov.au/about/publications; T: 1800 196 192
E: biosecurityreform@daff.gov.au ■

Variability in summerfruit

Report by John Golding, NSW DPI - Gosford

Sweetness of the summerfruit is measured using the soluble solids content (SSC). Low SSC and fruit-to-fruit variability was an issue for the 2007-08 Australian summerfruit season. It has been found that summerfruit with high and consistent SSC levels are critical to consumer acceptability.

Measurement of fruit SSC with non-destructive NIR in the orchard.

Research in the USA and experience in Australia shows that most consumers prefer peaches, nectarines, apricots and plums to have at least 11% sugar content (SSC% soluble solids content; TSS%, % total soluble solids, or Brix%) in cultivars with high acidity and more than 12% SSC in low acid cultivars. However summerfruit, like most other horticultural fruit are very variable despite careful grading for colour and appearance.

For example, fruit may have excellent appearance but the SSC levels may vary enormously with consumers having no way to judge whether a fruit will have good flavour at the time of purchase. This inconsistent eating experience due to fruit to fruit variability leads to the loss of consumer confidence in summerfruit and loss of future sales.

The aim of this preliminary survey is to begin to find out where this variation is occurring and potential ways to improve fruit quality and consistency. This project monitored SSC levels in summerfruit from the orchard through to the consumer. During the 2007-08 growing season, the variability of fruit SSC was measured in a range of different peach and nectarine varieties grown in three growing regions; low chill (Northern NSW), medium chill (NSW Central Coast), high chill (Tatura, Victoria). This was a Horticulture Australia project funded through Summerfruit Australia and grower levies.

SSC is traditionally measured by destructively taking the juice from each fruit, then measuring the SSC using a hand held refractometer. This is time consuming and uses good fruit to get a sample. A new non-destructive technology utilising near infra red (NIR) was used to measure of fruit SSC in the orchard, in the packhouse, and at the retail store.

This instrument was calibrated several times during the season to ensure accurate results. However measuring SSC as a final quality measure in the packhouse is not the ideal solution, as we need to improve the SSC in the field and not simply reject inadequate fruit in the packhouse. As the NIR is non-destructive, we can follow the SSC levels on the tree through the harvesting and packing lines.

Fruit SSC and size (fruit diameter) was measured in a range of orchard and packshed surveys, which were conducted in each of the growing regions during the harvest period. In addition, a survey of summerfruit SSC was conducted during the season from November to February 2008 in wholesale and retail markets in the Sydney region.

This is only a scoping study with limited field and market surveys in one growing season (2007-08). These data only provide a snapshot of the fruit at sampling times on limited orchards, varieties and orchard management conditions so limited conclusions can be drawn.

The results show for the first time the range of fruit SSC within and between different growing regions and in the wholesale / retail market across the 2007-08 summerfruit season.

Orchard surveys

The results from the low and medium chill growing areas showed there is tremendous potential to increase both the average SSC and to minimise the fruit to fruit variability. The overall fruit SSC in the low chill and medium chill growing regions in the 2007 season was low. The poor climatic conditions before harvest (cloudy and rainy) were not conducive to good sugar accumulation in the fruit in this season.

The summerfruit from the higher chill growing regions generally had higher fruit SSC, but there were still issues with low and variable SSC identified in the market. However significant inter- and intra-tree variability existed. Indeed large variations in fruit-to-fruit SSC levels were identified in all regions, and more research is needed to improve fruit SSC and to minimise this variation.

Wholesale/retail fruit-to-fruit SSC variability

Fruit SSC was determined at regular intervals from mid-November 2007 to mid-February 2008 at a commercial wholesaler in the Sydney

Measurement of fruit SSC at different parts (level /orientation etc) of the tree.

markets and at an independent greengrocer on the NSW Central Coast who sourced their fruit from the Sydney central market. The fruit SSC of at least 10 fruit per tray/box were measured and the fruit details such as sampling date, variety, count and growing region were recorded.

Individual fruit SSC values ranged from 5.7% in yellow nectarine from medium chill growing area in November and up to 17% in a medium white flesh nectarine in January. The median (middle) value of all 700-plus SSC measurements from the wholesale / retail market survey over the sampling period from November 2007 to February 2008 was 9.6%.

The average SSC of each tray / box across the entire season was combined and presented as *Figure 1* which shows the trend in fruit SSC during the 2007-08 growing season.

The results show that in the 2007-08 season no surveyed fruit from the medium chill growing region averaged over 11% SSC; indeed, the average SSC from the medium chill growing region was 8.5%.

The majority of fruit packed from the high chill growing regions were also below 11% SSC (median 10.6%), with the average SSC from the high chill growing region was 10.7% SSC.

This survey did not begin until November 2007, but it would be expected from the low chill surveys that the fruit SSC from these areas would not be significantly different to that from the medium chill regions.

These results show for the first time the range of fruit SSC in the wholesale / retail market. Given the range of fruit variability within each growing region and packed trays in the market, there is significant potential to improve Australian summerfruit SSC and reduce fruit variability.

Although new varieties offer some promise of increased SSC, improved orchard management practices are also required to improve fruit SSC and minimise fruit to fruit variability. It is important that the Australian summerfruit industry continues to be proactive in addressing this issue and provide consumers a consistent enjoyable eating experience.

Project team: John Golding, Penta Pristijono, Matt Pearse, Sandra Hardy, Roy Menzies, Phil Wilk, Lorraine Spohr (NSW Department of Primary Industries), Mohammad Shahbake (Coles Supermarkets) and Barry McGlasson (University of Western Sydney). We would like to sincerely thank and acknowledge the assistance and support for the many growers and packers who generously supported this project.

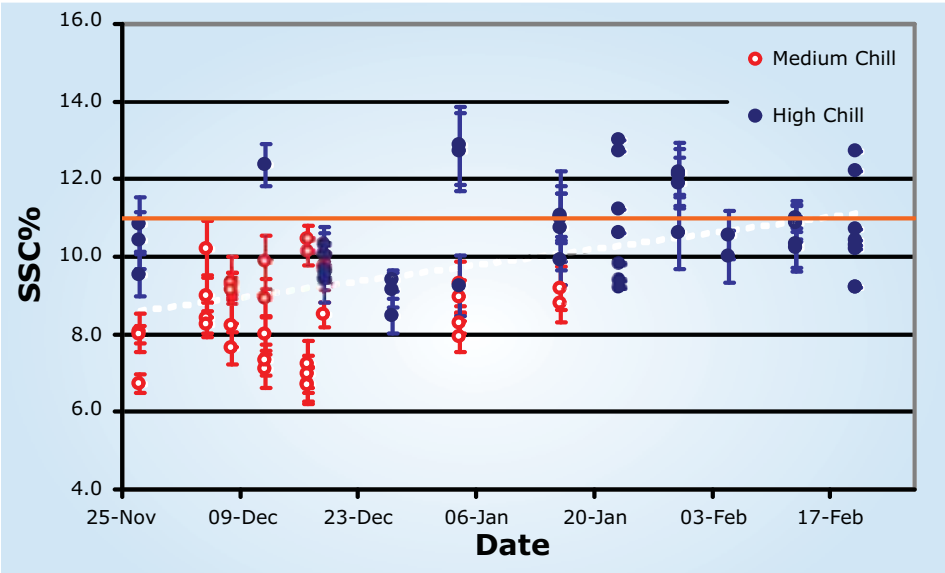

Figure 1. *A snapshot of the average SSC levels in summerfruit at the Sydney wholesale or retail markets during the 2007-08 summerfruit season. Each point represents a tray/box of summerfruit (10 or 20 fruit sample) of different varieties / counts at each sampling time from either a medium or high chill growing region during the season. The bars on each data point are the standard deviations around the mean.*

This project (SF06013) was funded by the summerfruit levy facilitated by HAL in partnership with Summerfruit Australia. The Australian Government provides matched funding for all HAL's research and development activities. ■

Study Tour Report

Stephanie Faggetter reports from Europe

WA Fruit Growers Association pome fruit IDO Stephanie Faggetter was a member of the 2008 APAL European study tour and has written a comprehensive report of the event. *Australian Fruitgrower* will publish a series of articles from that report of which this is the first.

Just how Italy and, indeed, most of European apple production, quickly change to a quite uniform, intensive production system is a key question.

This article contains a collection of my thoughts on the three topics which I found most interesting in relation to Australian production, namely:

- how did Italy and, indeed, most of European apple production quickly change to a quite uniform, intensive production system?
- are there too many new apple varieties for effective marketing?
- the issues around skilled labour and succession planning.

Adoption of production techniques

In Italy, the fruit marketing co-operatives (co-ops) instigated and performed the groundwork to establish best practice methods for intensive apple production systems. It was co-op research, according to Kurt Werth, director of the VOG co-operative, that researched optimal planting spacing and determined row widths should be between 3 and 3.25 metres with trees 0.8 to 1.25 metres apart. At these planting densities, super spindle tree structures are highly favoured so as to achieve optimal light interception. Dwarfing rootstocks are essential to this system.

While assisted by regulated small landholdings, uniform soil, and regular rainfall, what is interesting is the uniformity of intensive plantings not only across Italy but across Europe. How does a whole country, and then more or less a whole continent, change production practices so quickly?

The transfer rate to intensive planting adoption could not have been grower-driven alone. The large driver for this adoption in Europe is the support they receive not only from local communities but also local government and the European Union (EU). Without co-ops, fully funded research and tree incentives to establish intensive plantings, I doubt that orchards across Europe would be as they are now.

All of the research stations we visited were fully funded and highly involved with pest alerts, monitoring of the environment, development of chemicals and screening and breeding of new varieties. Each year there appears to be a decrease in the funds allocated towards horticultural research and development in Australia. There are no mechanisms for fully funded research stations in Australia let alone co-ordinated extension services.

In Australia what we do have is the cyclical discussion of "researchers and the government need to do more" coupled with "industry needs to pay more to get things done". Without government support we will not see the rapid transition to intensive orchards as demonstrated in Europe. However, industry can still adopt aspects of intensive production such as pruning and vigour control.

> We can now access a lot of the overseas research, we just need to be a bit smarter and more open to new ideas to adapt them to work in Australian conditions.

On-farm innovation is a strength we have over the Europeans which, when it comes to issues such as water, will be a huge asset for the Australian industry in the near future. Growers in Europe have begun to notice warmer conditions yet none of the research stations we visited are looking at irrigation. Particularly for high value varieties such as Cripps Pink (Pink Lady™) Australia has the opportunity to start monitoring and recording to develop water use techniques for a warming and drying climate.

To continue supply, Australia will need to produce the same quantities to supply our domestic market (if not more as the population continues to grow) with less available and potentially more expensive water.

New varieties

There is ongoing debate worldwide as to whether there are too many apple varieties on the market. Whilst there are a number of websites dedicated to remembering and honouring heritage varieties, there is huge marketing force behind some of the new club varieties.

Fruit in Europe is marketed along similar lines to soft drinks and confectionary - quite different to Australia. They have glossy beautiful advertisements to get consumers to not only recognise their 'brand' (variety name) but also prepare the consumer to pay more for it.

Fruit is marketed differently in Europe with more 'branding' and a high country-of-origin allegiance.

New marketing campaigns surrounding club varieties are all about making the consumer seek out their product, much more than simply remembering its name.

Along with this branding is country of origin allegiance. Varieties were introduced to our tour group as being the new Swiss variety or the new Italian variety. All of the research stations had breeding programs trying to breed the next apple for each of their countries. Indeed many European growers were familiar with Western Australia and Manjimup purely because they knew that was where Cripps Pink was bred.

'Home grown' is very important to the European consumer and something that needs to be promoted more in Australia. The nature of our food culture is such that consumers do not generally question where their food is produced. Consumer groups in Australia are now becoming more vocal on this topic and it will be interesting to see if this results in greater fruit and vegetable consumption and demand for local produce.

European co-operatives are embracing new varieties and the club management models. European growers however, are sceptical about handing over full control to a third party.

Many growers also feel that variety management gives the co-operatives too much power in that you may miss the opportunity to grow a certain variety if you are not a member of that co-operative.


Co-operative research established optimal planting densities and the need for dwarfing rootstocks.

One of the comments we heard consistently across Europe was the disappointment - at grower level - regarding club variety production difficulties. A number had said that a variety was not grower friendly or not suited to their conditions and were left out in the cold by the variety managers. As a result of this there has been a return to older varieties such as Granny Smith and Golden Delicious because the European growers are familiar with them and consider them less risk and more profitable.

Most Australian growers are not governed by co-operative membership in this way and have the opportunity when considering a club variety to be 'the consumer'.

In the same way you choose a car or home loan, it is important to understand the contract and make sure that the product offers you want what you want. It also highlights to the variety managers that they must make the package attractive and provide adequate support to growers if they ultimately want the consistent quality and quantities they need to meet market demands.

Labour

The average age of the growers we visited was slightly younger than that of Australian growers. Family owned and operated businesses rely on the next generation to continue working on the farm. Many growers found it difficult to plan for the future if their children did not want to continue on the family orchard.

Even with co-operative and government support, attracting people to horticulture is difficult in Europe. One German grower commented, "We cannot pay enough for farming to look attractive".

European growers commented that they have trouble sourcing skilled labour, labour is too expensive, labour makes up most of the costs of production and there are difficulties overcoming language barriers - labour issues not unlike those in Australia.

I think it is important to recognise that whilst we like to think that things are 'easy' in Europe because of all of the support they receive, there are still a number of production factors that are common all over the world. ■

Stephanie Faggetter (Nee Whitehand)

Queensland

Over the last few weeks south east Queensland has been receiving significant rainfall in places. Most growers in the Granite Belt now have full dams and, with the semi-regular light showers, have had little need to regularly irrigate.

The earlier good weather did not hold and in late November some growers suffered serious hail damage. The strong winds and hail were isolated and seemed to be confined to a narrow strip. The hail ranged from the size of pieces of rice to that of large cherries. Any fruit not under netting has been ruined and leaves torn. In places hail netting was slightly ripped or damaged, but for the most part it remained intact.

In addition to damaging hail, this season growers have had the added burden of an unprecedented flying fox infestation in the Granite Belt area. This season is the worst in 20 years for some growers and apple production losses as of mid-January sit at approximately 30 per cent. Local stonefruit growers have lost even more fruit, in some cases up to 50 per cent.

In January several growers met with the Department of Primary Industries and Fisheries (DPI&F) and the Environmental Protection Agency (EPA) to try and find a workable, socially acceptation solution to the issue. A permanent solution is still to be decided on, but in the meantime the EPA has requested that growers complete a survey on their current flying fox management methods. It is hoped that by gathering this data a long term solution can be found. The two page survey is available on the EPA website (http://www.epa.qld.gov.au). If growers would like to complete the form they just need to follow the flying fox links to 'Non-lethal methods of deterring flying foxes'.

In other news, the final black spot warning for the Stanthorpe area has been issued. Growers and the DPI&F have been very cautious and only one major outbreak of the disease was recorded for the season in a patch of Sun-downer.

Julie Moore
Growcom

Tasmania

The Tasmanian season for cherries and stonefruit is around two weeks later than last year in a number of orchards around the state. Summer in Tasmania got off to a cool start but the weather has now warmed up and harvest is well underway with some good fruit quality and size.

There have been good growing conditions for apples with not too much heat and the season is likely to start around early March, which will be a more usual start as opposed to an early start in 2008. Apple growers are optimistic of achieving good quality fruit and probably an average size crop overall.

The December Tasmanian roundup indicated planning was already underway for a number of activities for 2009 and this has continued over the Christmas/New Year period. Arrangements for the office move on Tuesday 27 January are on track. Our new address is 262 Argyle Street Hobart Tasmania, 7000.

February will be a busy month with a cherry/stonefruit post-season debrief and meetings of the R&D committee, APIRD and executive. The strategic plan review will also take place in February.

Key events for 2009

- 2 February: Fruit Logistica – Berlin – FGT Representation
- 20 February: Strategic plan review and official office opening by State Primary Industry Minister
- 15 May: FGT annual conference (Henry Jones Art Hotel)
- July: FGT grower market visit to Asia
- August: National Apple & Pear Growers Conference & National Cherry Growers Conference
- September:Asia Fruit Logistica (Hong Kong)

Sally Tennant
Fruit growers Tasmania

Western Australia

I would like to start this month's regional roundup by wishing all readers a Happy New Year and best wishes for 2009.

Western Australia has had a topsy-turvy start to the season with hail and violent storms lashing the Perth Hills and Manjimup regions.

A number of growers have suffered significant losses. Whilst pollination this season tended to be good, bad apple dimple bug and hail damage has resulted in some extreme thinning. Since Christmas it has been dry and hot and some sunburn is starting to show. Generally most growers have taken adequate precautions since last year's heat wave.

I was in the Perth Hills recently working with plant pathologists from the Department of Agriculture and Food WA. It was a very productive day and interesting to observe the secondary infections brought on by the heat. Insect and storm damage, as well as stress, have allowed a number of pathogens to enter the trees. Such variable weather conditions have certainly made it difficult to control these secondary infections.

Retail prices are firm and supply across the market floor supply is starting to tighten up. In the middle of last season we thought there may be over-supply coming into the new season; however 2008 ended strongly and there will be minimal carryover of fruit. Stonefruit is eating well this season and we hope that this will have the flow-on effect of drawing people back to fresh fruit ready for new season Gala.

WAFGA is looking forward to an exciting year with the appointment of a new executive manager and the start of a new field day program.

Stephanie Whitehand
WAFGA pome fruit IDO

South Australia

Happy New Year to all within the apple and pear industry. Hopefully everybody had an enjoyable and safe festive season with at least a few days off from the rigours of thinning, pruning and those other routine jobs that are essential at this time of year.
The season has commenced with some early pears being harvested out of the Riverland in mid-January. Apples from the same region will not be that far away. Harvest within the Adelaide Hills will commence in earnest during February.

Overall the crop looks reasonably good for both apples and pears. It is anticipated that crop levels will be greater than 2008. The variable flowering created some variable fruitset in a number of varieties.

New South Wales

Rain in December (which devastated the cherry harvest) was most appreciated and highly beneficial. Riverland growers have been given some better New Year news with a slight increase in the water allocation – from 15 to 18 per cent. Again, water will be the defining resource that determines the quality and size of the crop.

January temperatures have begun to increase with a number of days over 30 ºC and at least one over 40 ºC. We can only hope that the period from now through to April is warm but not excessively hot. Industry does not need the temperatures from 2008.

Retail sales appear to be sluggish but with a lower crop for both pears and apples it has not had a major affect at this stage. The real challenge will be when the new season fruit is available in abundance. Early season promotions will be essential to kickstart the new sales.

With the Tour Down Under in South Australia during January there has been major interest in cycling and healthy activities. It is unfortunate that this type of activity is held in a period 'between seasons' as it would offer a great opportunity to showcase South Australian apples and pears. Given the health aspects of apple and pears any linkage with such a high profile event would create a great awareness factor. This is certainly 'food for thought' by both the state and national promotional committees.

With the New Year here so are the new challenges. Governments both state and Federal have released many reports for consideration and are now seeking input. Government agencies have returned from the festive slumber and there is an influx of correspondence. Funding opportunities are many if industry has the time and expertise to make projects fit the particular guidelines. At the same time growers are going into the most important part of production.

This makes January, February and March the most challenging periods within the industry calendar. Are we capable of meeting all these challenges? Only time will tell.

Trevor M Ranford
APGA of SA

Here we are in the New Year and at time of writing all districts in NSW report being in a fair to sound position.

Crops in all regions are medium to heavy with hand thinning being carried out to clean up those blocks where the chemicals have not quite done the job. The nerves are still on edge with the January storms having an odd flurry of hail in amongst the heavy rain. So far damage has been very light except for four orchards in Orange, so here's hoping that we all make it through the next eight weeks.

Fruit prices have remained strong for the balance of last year's crop with some buyer resistance to lines with internal browning. Juice apple supplies have increased over the last four weeks mainly due to the internal quality.

It is good to see the Future Orchards 2012 project resurrected and by the time this issue of Australian Fruitgrower reaches you both Orange and Batlow will have conducted the first orchard walk. There will be a reduced number of monitoring blocks involved but the comparative information will still be extremely valuable.

The first draft report on import of apples from China will be now out and once again the industry shall have to watch the protocols proposed carefully.

The next public hearing of the WTO case involving New Zealand's application will not be until 29/30 April 2009, so again there will be no movement of apples from New Zealand during 2009.

At the moment one cannot help but be a little optimistic but as they say "to go from rooster to a feather duster" only takes 10 minutes of hail, so here's hoping I am still crowing next month.

David Gartrell

Victoria

Victorian pear and peach growers received letters from SPC Ardmona in mid-January announcing quotas for the 2009 harvest. The notices gave them little time to find alternatives for their crops, which had already commenced being harvested. In some cases SPC Ardmona had begun accepting peach deliveries before the letter arrived with growers.

The late notice of the quotas is of major concern because it extinguished many alternative marketing opportunities for growers. Growers are now faced with the loss of production costs as a direct result of the failure to provide adequate notice.

A delegation of the Australian Canning Fruit Association and Fruit Growers Victoria met with SPC Ardmona management in Shepparton on 16 January and sought reconsideration of its decisions.

While the quantities that the cannery will accept are of the order of the 2008 intake, they are significantly below the 2009 crop which has not been subject to the climatic limiting factors of previous years. Growers have grown the fruit in good faith without any firm indication from SPC Ardmona and hence have an expectation that the cannery will accept a higher volume of fruit this year.

The late notice is an unacceptable impost on growers who are trying to recover financially from three difficult seasons.

The apple and pear crop in Victoria appears to of high quality and good quantity. If markets hold up growers may experience a better year. In other news Fruit Growers Victoria and APAL were unable to agree on cost recoveries for the new Future Orchards 2012 project and so Fruit Growers Victoria will not continue as the project's facilitator in Victoria. Fruit Growers Victoria will continue to support Future Orchards 2012 and encourage all its members to participate.

John Wilson
Fruit Growers Victoria

International R&D round-up

Compiled by Dr Gordon Brown, Technical Editor – Apple and Pear

NURSERY AND CULTIVARS

USA
It has been found that spraying apple trees in the nursery with either Accel or Promalin induces branching and this effect continues into the orchard where newly planted trees have reduced apical dominance.

Croatia
A study of apple cultivars has revealed that Cooper 7, Enterprize, Rewena and Florina are cultivars that resist infection by fire blight, blackspot and powdery mildew and are potential candidates for ecological production.

China
To assist in the selection of new dwarfing rootstocks it was found that these rootstocks have lowered leaf polyphenols, auxins, PPO activity in the phloem in spring, spongy/palisade cell ratios and increased phloem ABA levels in autumn.

Germany
A study of Elstar grafted onto M9, Fleuren56, Supporter1, P16, P22, J-TE-F, J-TE-E and M27 at four locations has shown all rootstocks produce trees smaller than 'M9' with the highest yield on P16 although only Fleuren 56 produce larger fruit than M9.

Italy
A study of the genetics of red pears has identified the gene group carrying the red colour and this information can now be used for early selection of red fruited pear seedlings.

China
A study of pear rootstocks for drought damage found the following order P. pyrifolia, P. pseudopashia, P. pashia and P. betulaefolia (worst to best).

Poland
A trial has been conducted with different Pyrus caucasica seedlings as rootstocks for Bartlett and Conference pears and three, Belia, Doria, and Elia, are winter hardy, resistant to Entomosporium maculatum, and produce semi-vigorous pear trees with a good cropping efficiency index.

PRODUCTION

France
Under global warming the average temperature in apple and pear orchards in France and Switzerland has increased by 0.8°C during November and December and 1.6°C in February and March leading to observed earlier date of flowering.

Portugal
Nitrogen was applied by fertigation to a pear orchard at 6g N/year/tree. The trees used 6%, 14% and 33% of the applied N for years 1, 2 and 3 after planting and it was found that irrigation water and soil provided more N to the trees than N in the fertiliser.

Japan
The relationship between fruit quality and planting density (330 to 3178 trees/ha) was studied in 7 to 11year old Starking Delicious trees grafted onto M.9, M.26, M.7 and MM.106 and grown under a no-pruning system. On all rootstocks, flesh firmness increased while fruit weight, water core and TSS decreased with increasing plant density.

Japan
Results with plant hormone sprays to induce fruit set suggest that gibberellins before flowering trigger parthenocarpic apple fruit (no seeds).

Iran
Iran produces 2.66 million tonnes of apples although it only exports 0.19 million tonnes so studies have begun to look at postharvest practices to improve exports.

Netherlands
A study of Turkish apple production revealed that 2.5million tonnes are produced of which only 10% is exported.

USA
It has been shown that the peel of red Anjou pears has greater anthocynins and xanthophylls than the skin of green Anjou pear and this leads to greater protection of the skin from oxidants when exposed to high light levels.

Tunisia
Peach, pear and apple trees were selected to determine their tolerance to drought and this study showed that apple trees are water demanding whereas peach and pear are less water demanding and more drought-tolerant.

PESTS AND DISEASES

Czech Republic
Over six years 64 apple cultivars were placed into one of six categories from not hosting to highly susceptible to fireblight with 0, 3, 11, 58, 22 and 6% of cultivars falling into each of the categories respectively.

Chile
In a trial on San Jose scale it was found that with a minor infestation, one spring application of 0.07% pyriproxyfen, 0.05% phenoxycarb, or 1% mineral oil was as effective as chlorpyrifos although with major infestations only phenoxycarb was as effective.

Iran
Alternaria leaf blotch on apple has been found in Iran.

Poland
Products based on the bacteria Pantoea agglomerans, Pseudomonas fluorescens, Bacillus subtilis and B. pumilis as well as the yeasts Aureobasidium pullulans and Metschnikowia pulcherrima are registered in some countries for biological control of fireblight and new isolates are being developed.

Poland
New fungicide programs have reduced the number of spray applications for black spot from 12 to 7.

Poland
A survey of apple orchards in 2006 found that 20% had a high level of resistance in black spot populations to strobilurin fungicides.

Iran
A study of trees with symptoms of pear decline identified the pear decline phytoplasma as the cause of the problem and this is the first report this organism in the eastern Mediterranean.

China
Fungi, from apple fruit exhibiting bitter rot symptoms in 21 orchards in China were shown to be due to Colletotrichum acutatum which has not been previously found in China.

Japan
A method of counting mites on apple leaves by tapping onto paper, digitising and then image analysing found the method to be accurate if there were fewer than 8 females per leaf.

Switzerland
Insect sampling of apple orchards has occurred over 50 years and this has shown a large increase in woolly aphids, mussel scale and red spider mites in integrated and organic orchards.

POSTHARVEST

India
Coating apple fruit with a 20% spearmint extract reduced spoilage organisms and 20% neem extract reduced starch loss and retained fruit pectins during 180 days of air storage.

Morocco
It has been shown that calcium chloride, but not calcium nitrate or carbonate, is fairly effective against a range of postharvest apple rot fungi.

Japan
A study of the reflected light from bruised and sound apple fruit, before bruise symptoms are visible, revealed a significant difference in reflected infra red light (800nm).

Continued next month...

Industry information and horticulture quiz

APFIP Weather Station Roundup

Weather Station – Region Date of update: January 2009 (up to the 19th)	Rainfall for the month (to date, mm)	Average Max temp for the month (to date, degrees C)
Lenswood, SA	0.0	25.2
Batlow, NSW	3.0	27.3
Goulburn Valley, VIC	0.0	30.1
Granite Belt, QLD	3.1	26.2
Huon Valley, TAS	20.0	17.9
Manjimup, WA	3.7	27.3
Orange, NSW	17.6	26.3
Yarra Valley, VIC	0.0	26.5

Further weather reports and comprehensive variety evaluation reports can be found at the APFIP Australia website: www.apfip.com

HAL
Know-how for Horticulture™
This project was facilitated by HAL in partnership with Apple & Pear Australia Limited and is funded by the apple and pear levy. The Australian Government provides matching funding for HAL's R&D activities.

Quiz

Question 1:
True or False: Captain James Cook carried apple cider on his vessels to ward off the effects of scurvy.

Question 2:
Under which label did Grady Auvil, one of the stalwarts of the Washington State (US) apple industry, market his apples?
A: Cheese Whiz. **B:** Gee Whiz. **C:** Bucks Fizz. **D:** Apple Wiz.

Question 3:
Which variety of apple is thought to be the inspiration for Waldorf salad? **A:** Jonathan. **B:** Esopus Spitzenbug. **C:** Cox's Orange Pippin. **D:** Newtown Pippin.

Question 4:
Which of these insecticides has the lowest LD50 rating and is therefore the most toxic? **A:** Endosulfan. **B:** Carbaryl. **C:** Chlorpyrifos. **D:** Malathion.

Question 5:
Typhlodromus occidentalis is a well known predator mite; what does the occidentalis in it's Latin name mean? **A:** Accident prone. **B:** Big toothed. **C:** Many-legged. **D:** Western.

Answers:
Question 1 - Answer: True.
Question 2 - Answer: B: Gee Whiz
Question 3 - Answer: B: Esopus Spitzenburg (thought to be a parent of Jonathan, too.)
Question 4 - Answer: A: Endosulfan.
Question 5 - Answer: D: Western (as opposed to orientalis, which would mean Eastern).

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TAS	Sally Tennant	fruittas@bigpond.net.au	Fruit Growers Tasmania Inc 262 Argyle Street Hobart, Tasmania 7000	(03) 6231 1944
VIC	John Wilson	gm@fgv.com.au	Fruit Growers Victoria 2 Rumbalara Road, Mooroopna VIC 3629	(03) 5825 3700

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