AUSTRALIAN
fruitgrower

VOL 4/ISSUE NO. 7
AUGUST 2010

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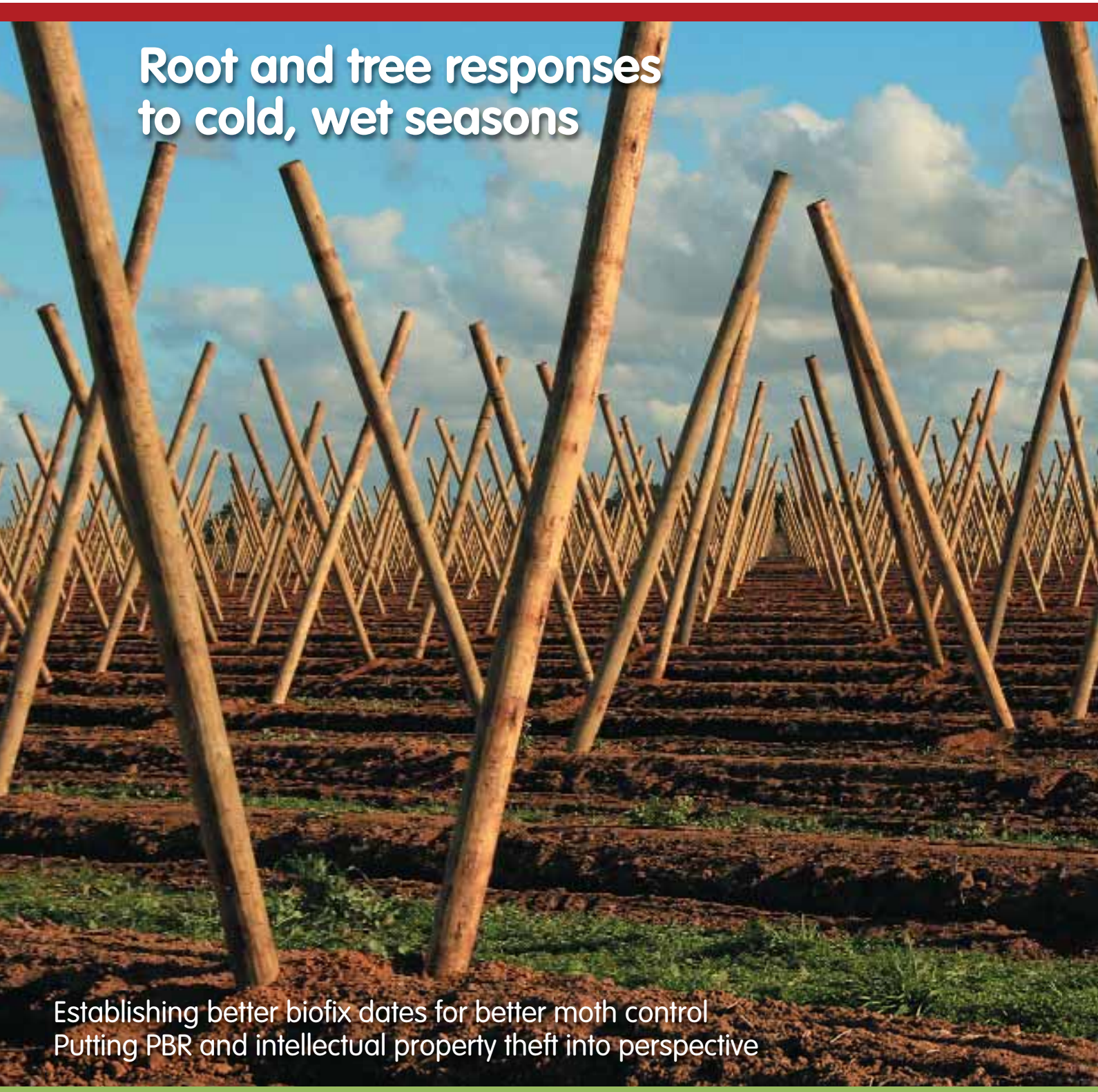

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Australian Fruitgrower will be published monthly, except for combined issues in December–January, to bring industry news to orchardists in Australia.

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t: (03) 9870 4161
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Annual Subscription
Australia: AUD$99
Overseas: AUD$110

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Editorial
Opinions expressed are not necessarily those of the publisher.

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ISSN 1447-5618

Editorial

The Australian apple and pear industry has entered a dynamic and competitive new chapter in its history. Information about these changes has been disseminated through a host of channels. If you have any sense of participating in the industry's future you will be making yourself aware of developments – how they will or could affect you – and (perhaps) how you can influence them. You can choose to be a participant or a bystander, however there is much you can do at industry, community and farm levels.

And you cannot stop learning. In this issue John Baker discusses firsthand just how the Washington apple industry competes against cheaper apples. It can be done.

At the other end of the spectrum consider how small Goulburn Valley growers Wilma and Nick Napolitano have locally grown the 'fresh and healthy' food market off their own modest production base.

In this issue you will also hear about APFIP's proposals to help growers source better trees for replanting and expansion while Summerfruit Australia Ltd has also unveiled InfoStone - the new online system for data collection for the stonefruit industry. These are both very positive initiatives and will be even more successful with widespread grower input and involvement.

And in our Grower Profile, Stuart Gray relates how the Goulburn Valley's Turnbull Brothers are future focused with a major orchard redevelopment, a professional business approach and a 30-year outlook plan. It's all very forward looking and positive.

Cheers
John Fitzsimmons

John Fitzsimmons
Editor

Dr Barry McGlasson
Technical Editor SAL

Dr Gordon Brown
Technical Editor APAL

This publication was facilitated by HAL in partnership with Apple and Pear Australia Limited (APAL) and Summerfruit Australia Limited (SAL), and it was funded by the apple and pear and summerfruit levies. The Australian Government provides matched funding for all HAL's R&D activities.

Edition 2010	Booking deadline	Editorial copy deadline	Ad material dealine
September No. 8	4th August	11th August	30th August
October No. 9	6th September	13th September	4th October
November No. 10	8th October	15th October	1st November
December/January No. 11	5th November	12th November	29th November

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Our cover:
A moody winter orchard scene at Orange, NSW.

Strategic ideas and inroads to come from Shanghai

On 1 July 1 the four industries in a queue for market access to China were invited by the Department of Agriculture, Fisheries and Forestry (DAFF) to attend the Australian horticultural day at the Shanghai World Expo.

DAFF arranged a series of agricultural functions to be held during the Expo and this occasion was attended by appropriate Chinese officials and dignitaries. It was a key opportunity to further champion our aspirations for market access. The assembly of Chairs and CEOs from table grapes, summerfruit, cherries and apples and pears also made it possible for an exchange of milestones with the Chinese to identify what has been achieved and those areas that need to be progressed before the third China–Australia horticultural workshop which will be held in Australia at a date to be advised.

Forward planning for this event is underway and it is the intention of the four industries to showcase our orchards and topography to the CIQA delegation, expected to be 30 strong.

A formal meeting on 30 June 2010 between the Australian industries' representatives and the Chinese Entry-Exit and Quarantine Association (CIQA) was jointly chaired by Mr Tim Reid, Chair - Office of Horticultural Market Access (OHMA) and Mr Cheng Gang, Director General of CIQA's Animal & Plant Committee. Each Australian industry had the opportunity to convey relevant commentary to the CIQA delegates present.

- In consultation with industry, Biosecurity Australia provided additional technical information on potential pests of concern for summerfruit and cherries to China in November 2009 to assist in their Pest Risk Analysis (PRA). The supplementary submission included information on 42 pests of summerfruit to assist the Chinese with their PRA.
- We understand that China is progressing the pest risk analyses for both summerfruit and cherries. Biosecurity Australia has strongly emphasised that summerfruit is the highest priority following table grapes, and that progress on both summerfruit and cherries is expected.
- With all the information provided by Biosecurity Australia the authorities should be in a position to complete the PRA.
- The pest and diseases are common and across all four commodities of summerfruit.
- We are looking forward to speedier work now BA has responded to all Chinese requests.
- Summerfruit's key message is mutual cooperation between quarantine agencies to develop viable export protocols.
- We encourage and welcome bilateral trade, our seasons are opposite, and we would welcome the position where consumers have the availability of summerfruit consumption.
- Since our workshop in Guangzhou, we have commenced the finalisation of our biosecurity manual which will benefit our producers with a comprehensive integrated pest management guide. We would like to share this manual with Chinese producers in due course."

Roadside packing "shed" near Zhou Zhi, Xian Province, China

Ian McAlister and myself also took the opportunity to study the vertically integrated Globalhort (New Zealand-based) company operations in the Xian province in central China (28-29 June), and met with the regional Shanghai Pudong agricultural leaders (30 June) prior to the CIQA meeting and the Expo formalities. The doors we opened in these few days will be invaluable in summerfruit's quest for market access. In the October issue of *Australian Fruitgrower* magazine I will have a comprehensive report and lots of photos.

The Globalhort model (kiwifruit) includes tissue culture, plant breeding, university connections, pollination production, orchards, packhouses and the complete supply chain. It is eye opening the scale of operations that can be developed and the cooperation of regional government. There are many lessons to take home from this and build a more lateral strategy to fasttrack market access.

The Shanghai Pudong area was where we met the organisational level of local government, three tiers of direct involvement in the Nanhui peach farming district. The Director of Agriculture of Nanhui and the Pudong Agricultural Commissioner were eager to develop intellectual property and technology transfer. This is a feasible option, whether done with organised grower groups or supply chain education, focusing on this region outside Shanghai.

To digress a little, the levy proposal campaign is underway and I encourage all to take notice of local media and mail outs for attendance at regional meetings.

Your Board has been active with the quarantine measures in place to protect our industry from new pests and enough has appeared in the media on this subject regarding apples so I will not repeat the sequence of events.

Imports of stonefruit from the USA will not appear this year and strong scientific evidence must be produced to satisfy industry prior to the 2011 US export season.

For any other information please contact John Moore, e: ceo@summerfruit.com.au ■

APAL Chair's Report

Ambushed ... Well, that's how it felt when APAL General Manager, Tony Russell and I went to China recently.

Back in early May 2010, the Australian apple and pear industry, along with table grapes, stone fruit, cherries and citrus, were invited by the Department of Agriculture, Fisheries and Forestry (DAFF) to attend the 'Australia Day' to be held at the World Expo in Shanghai on 1 July. Unfortunately the citrus industry was unable to attend, however, horticulture was to be featured early in the day, followed by another event - held later - that highlighted meat and other Australian agricultural products.

We arrived in Shanghai late on 29 June with a meeting arranged for the following day between all horticulture industries and the China Entry-Exit Inspection and Quarantine Association (CIQA). Meetings between these combined groups started back in 2004. A couple of hours before the meeting was due to start we were greeted with news that the Australian Government had made a policy determination regarding the import of fresh Chinese apples into Australia. This was despite a number of outstanding issues:

1. A request that further research work be carried out on *Drosophila suzukii*
2. A Senate committee hearing being held the following morning (1 July)
3. Outstanding letters to the Minister of Agriculture for a meeting to discuss the outcomes of APAL's appeal to the Import Risk Assessment Appeals Panel (IRAAP) that had been rejected. There were several issues left unanswered particularly around the issue of pests that had not been covered by an Import Risk Analysis (IRA).

Following discussion with government representatives who were present in Shanghai, it appeared that a formal signing had been proposed, to be held during the 'Australia Day' event. I made it very clear that if anything was going to be signed in regard to apples that Tony and I would be on the first plane out of Shanghai the next day. Late on the Wednesday night I was given an assurance that nothing was going to be taking place.

It is interesting that members of some other industries that were in Shanghai had apparently been given the understanding that their recently granted access would be formally signed while there, and that it was to be a double signing. The signing was postponed at the last minute so I guess that we can all reach our own conclusions.

> "A couple of hours before the meeting was due to start we were greeted with news that the Australian Government had made a policy determination regarding the import of fresh Chinese apples into Australia"

During the meeting with CIQA there were discussions regarding the various stages of market access for the different horticultural industries between Australia and China. It came as a complete surprise to us when the Chinese representatives mentioned an agreement reached between Australia and China in June 2009 that would see the process for Chinese apples into Australia completed before the end of June 2010.

And, lo and behold, here was the 30 June 2010 and the policy determination was announced that day. I have been around far too long to consider that a mere coincidence. We sought clarification from government officials the next morning and it was confirmed that there was some form of agreement. Since returning home we have been told that it was not really an agreement just a mention in some minutes of a meeting. Unfortunately the Chinese authorities have a different perception of what took place back in June 2009.

The actual 'Australia Day' event went off quite well, showcasing quite a bit of Australian produce and horticulture, although not much of it has formal access to China at this stage.

It was a pity that the Deputy Secretary General and Executive Director of CIQA, Mr Duan Xiaohong, was unable to attend Shanghai, however he had indicated that he would like to meet us in Beijing. Tony and I went to Beijing and met with Mr Duan and had discussions around the recently granted Tasmanian apple access into China as well as some discussion around the way the Chinese import/export quarantine process worked.

These issues were discussed during a meeting with Minister Burke on 14 July.

Pipfruit New Zealand

During early July, APAL had a visit from the Chair of Pipfruit New Zealand (PNZ), Ian Palmer, and the CEO, Peter Beaven. The visit was only for half a day but we were able to discuss a number of issues where we have a joint interest such as Prevar® and the international Pink Lady™ program. We did touch on the WTO report but it was obvious that neither PNZ nor APAL have any clear understanding of the contents of the document that is currently with our respective governments. We await the public release that will most likely occur in late July.

Tasmanian apple access into China

As mentioned above, after a wait of 13 years the protocol for the access of Tasmanian apples into China has finally been amended. When originally signed in 1997, it was apparent that the protocols were unworkable and since then they have been on the agenda of various discussions between APAL and Biosecurity Australia (BA). At last, agreement has been reached and hopefully some exports of apples from Tasmania into China will occur next year.

Vale Lindsay Apted

It was with sadness that I recently heard of the passing of Lindsay Apted on 17 June.

Continued over...

Continued...

APAL Chair's Report

Lindsay was in his late 80s. I first met him when, as a young bloke wet behind the ears, I attended my first meeting of the then Australian Apple and Pear Growers Association (AAPGA) executive. Lindsay was the Treasurer and ensured that, despite the odds, the finances were always in good shape. He went quietly about his business and made sure that the views of Victorian apple growers were always heard. Our thoughts are with his family.

... and John Martin

I was also saddened to hear of the passing of John Martin on 19 June. John's name may not be well known throughout our industry, however, he was a Commissioner with the Australian Competition and Consumer Commission (ACCC). I came across John several times over the years as he worked on issues such as the Horticulture Code of Conduct. He was always colourful in his bow tie and braces and always displaying his preparedness to listen and engage. His was a voice of common sense and reason during the mayhem of some of those discussions. He will be missed.

NSW milestone

I recently attended the launch of the 50th issue of the NSW *Orchard plant protection guide* in Orange. This was a great event as a number of the previous editors turned up. Among them was the current editor Dr Shane Hetherington along with the previous editor Dr Graham Thwaite.

To entertain those present was the 87 years young Ken Hutton who was the editor of the very first edition of "The Guide". Ken, who was a plant pathologist, highlighted the trials and tribulations in putting together such a publication in those early days. Prior to that, growers relied on what was known as *The NSW Agricultural Gazette* with the major horticultural challenge of the day being trying to keep apple scab under control. It was a terrific morning and it was good to know that the NSW Department has copies of all but one of "The Guide" as it is now known.

It was also the day that the *Apple Report 2010* was released and there was a great deal of media interest in the findings of the CSIRO document. ■

Lobbyist engaged in Canberra

APAL has engaged veteran Canberra lobbyist Steve Carney and noted communications specialist, Grahame Morris, to provide advocacy services to APAL.

The Carney-Morris agreement provides APAL with on-the-ground advocacy and communications capability in Canberra in this pre-election period, when politicians are particularly mindful of community and industry concerns.

The lobbyists will arrange meetings with key decision makers and people of influence, provide APAL with strategies and advice on materials for use with media and politicians, provide intelligence on what is happening in government and give guidance on where best to focus APAL resources to achieve its goals.

One of the results of this engagement is all candidates for the upcoming election have been canvassed with a questionnaire to establish their position on apples from China and quarantine issues. Policy advisors and the media will be given the results of the survey to try to create a receptive environment for the industry after the election, no matter who wins.
consultancy is for an initial period of six months. ■

Meetings to the fore

July was a busy month with meetings. Darral Ashton and Tony Russell had meetings in China (see APAL Chair's Report Page 5), a meeting with the Pipfruit NZ chair Ian Palmer, and CEO Peter Beaven (also in Chair's Report), and a meeting with the Minister for Agriculture, Tony Burke along with John Corboy.

Tony, along with the Apple Import Taskforce, met with Dr Colin Grant and Dr Vanessa Findlay from Biosecurity Australia and Tony attended the NSW Farmers Association Horticulture AGM in Sydney.

Meeting with the Minister

APAL chairman Darral Ashton, along with Tony Russell and John Corboy, met with the Minister for Agriculture Tony Burke. The discussion with the Minister covered a range of issues concerning the apple and pear industry, including concerns about pests from China and problems with the IRA appeals process where new scientific evidence cannot be included in an appeal.

The Minister encouraged us to participate in the legislative drafting phase of the recommendations from the Beale review to address our concerns with the IRA appeals process. He also said he would review the decision in regard to further research into Drosophila suzukii.

Darral said he was pleased with the discussion and believes the apple and pear issues are now better understood in Canberra though he said it remains to be seen whether the Minister will act on our concerns. ■

IGA promo huge success

The HAL-managed promotion with IGA Supermarkets to donate 20 cents from every specially marked 1kg punnet of IGA Fresh Pink Lady™ or IGA Fresh 'Granny Smith' apples sold has been a huge success.

Awareness of the campaign was driven through public relations including newspapers and talk-back radio coverage; significant online activity leveraging the loyal fans on the McGrath and Aussie Apple facebook pages, as well as the websites; and IGA stores celebrated with wonderful pink and green in-store displays.

As a result about 300,000 punnets, or 2.7 million apples, were sold resulting in $60,000 being donated to the McGrath Foundation!

Marketing manager apples and pears, Michelle Toft said this was a great achievement.

"This promotion almost doubled sales from last year's inaugural partnership and again generated so many kind words of praise from shoppers applauding the partnership..

"The money raised will help the McGrath Foundation to fund additional McGrath Breast Care Nurses in communities right across Australia, as well as increasing breast awareness in younger women," Michelle said. ■

Queensland

A crisp Queensland apple was given to every person who participated in community based health promotion activities.

Stanthorpe growers have been very busy working on their apple industry stand at the Royal Brisbane Show this month. More than 450,000 individual visitors attend the show making the stand a not to be missed promotional opportunity for industry. The Stanthorpe Apple Committee and Growcom would like to sincerely thank the following growers and volunteers for their help in coordinating the stand this year: Ian Jackson, the Favaro family, Adrian Minotto, the Calvisi family, Ron Cook, Ross Johnson, Michael Cowan, the Tomasel family and the Nicoletti family. Thanks must also go to David and Ros Sutton of Sutton's Juice Factory for the donation of juice for use on the stand. Stanthorpe apples have also been used to support the activities of Queensland Health whose core business is health education and health promotion focussing on nutrition, physical activity and limiting lifestyle risk factors. A crisp Queensland apple was given to every person who participated in community based health promotion activities coordinated by the Metropolitan South branch of Queensland Health in late June.

The activities were targeted at children, teenagers and middle-aged men and many more sessions are planned over the coming months. Apple slinky machines were used in the school based educational sessions. These activities were funded through Apple and Pear Australia Ltd's (APAL) state promotional allocation.

Lastly, Queensland apple and pear growers had the opportunity to attend APAL's climate change best management practices workshop in mid-July. Those in attendance felt the workshop was very helpful and found sharing their experiences a rewarding exercise. Growcom's apple Industry Development Officer Julie Moore attended the event as did Peter Deuter, Senior Principal Horticulturist, Horticulture and Forestry Science with Agri-Science Queensland.

Julie Moore
Growcom

Western Australia

Most growers have removed unviable blocks.

At the half way point through winter, most growers have done heavy pruning and are now deciding whether to spend any more dollars on the detailed stuff.

Most growers have removed unviable blocks, especially 'Golden Delicious' and 'Hi Early'. It was interesting to note that Woolworths was selling 'Hi Early' in Manjimup for just 99 cents a kilogram in July. The numbers are quite scary!

Water issues loom large at the moment, with many meetings being held to try to understand the methodology used to determine environmental sustainable yields of each catchment, consumptive pools and security of tenure of water licences.

Market wise, demand is very flat and prices are poor. Hopefully, warmer weather will lift consumption of our delicious fruit.

As I write this morning the temperature is 1°C with the prospect of a glorious calm sunny day ahead. There is no excuse to be behind with spraying or pruning.

Jonathan Cutting
Fruit West

New South Wales

Orchardists in NSW have been keenly watching the progress of decision-making which will allow the import of apples from China and New Zealand.

Production in the recent NSW apple season was down on average. In Batlow the crop was on average 30 per cent down, with some orchards being 60 to 80 per cent down. This was due to poor fruit set in the beginning. Pruning is now underway on NSW apple orchards.

Damage to the late varieties by flying-foxes was a major issue in both Orange and Batlow. Orchardists have received much support from their local councils and communities to find a solution to flying-fox damage. The flying-foxes have now moved on from Orange and Batlow.

Time will tell if the visit by flying-foxes was a one-off event or whether they will return next season. The growers in Orange have formed a taskforce with Orange and Cabonne Councils to develop a management plan in preparation for any return of the flying-foxes next season. The launch of the 50th edition of Industry & Investment (I&I) NSW's most enduring agricultural extension tool – the Orchard plant protection guide for deciduous fruits in NSW was held in Nashdale, near Orange on 12 July 2010. Half a century of independent and reliable information from the NSW Government's horticultural advisers has been celebrated by I&I NSW staff, both past and present, growers and industry representatives from across NSW.

With the apple industry across Australia, orchardists in NSW have been keenly watching the progress of decision-making which will allow the import of apples from China and New Zealand. Orchardists have received many phone calls of support from other farmers, the community and local councils asking what they can do to support Australian fruit growers. Additionally the issue of imports has received plenty of coverage in the media.

Peter Darley
NSW Farmers Association

Tasmania

With the start of the new financial year, Fruit Growers Tasmania (FGT) membership invoices have been distributed to all apple and pear growers within Tasmania as well as cherry and stone fruit growers and the many companies that support FGT through their Associate Membership.

The members' contact booklet will be revised and 2010-11 pages will be collated and distributed through September, so make sure you have your membership up to date by 31 August if you wish to be included.

The Marketing Fruit Businesses workshop with Trevor Forshaw of SED Consulting and Dr Doris Blaesing will be held on 18 August at the FGT office with a Berry Night Seminar that evening.

Full details can be obtained from Karen Watson at FGT Office. The workshop is supported by HAL and CGA and facilitated by FGT.

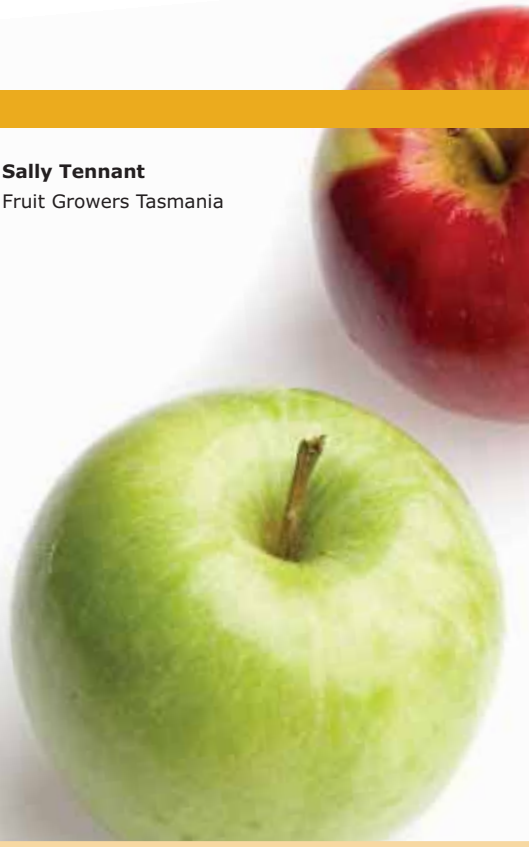
The season for apple growers appears to be generally positive with a medium crop of good quality fruit.

Tasmania is experiencing a very dry winter to date with quite cool temperatures and some frost. Comment from one of the Southern growers indicates that the season for apple growers appears to be generally positive with a medium crop of good quality fruit. Export demand is also generally fairly good but is obviously influenced by movement in the dollar.

Dates to remember –

- Friday 27 August: Export registration & information day – apples/pears, cherries and stone fruit
- Saturday 2 October: FGT Annual General Meeting and annual industry awards dinner
- Tuesday 31 August: Closing date for entries in the FGT members contact booklet (financial members only will be included)

Sally Tennant
Fruit Growers Tasmania



South Australia

Late June and early July have heralded some of the coldest winter weather seen for some years. Let's hope this steady accumulation of chilling units bodes well for a good fruit set next spring. Frosty conditions herald clear days and excellent pruning weather. But as they say, it's a chill wind that blows no good.

The IRA decision on China apple imports was met with universal disappointment from growers - disappointment that the APAL submission was dismissed so readily, and basically, disappointment with the whole process.

On 22 June, a successful Future Orchards 2012 technical day was held at Lenswood. There were two presentations - one by Victorian grower Ian Armour of Warragul, and another by Steve Sparkes of Ag First. Ian Armour is well-known to most South Australian growers and talked about how his family's involvement with the 2012 project had both heightened their awareness of need for change to adapt to new challenges that face the industry and had assisted them in making decisions for that change. The theme of Ian's talk was him asking, "What have we achieved and what is my vision for 2012 and beyond".

The IRA decision on China apple imports was met with universal disappointment from growers.

Steve Sparkes from AgFirst talked predominantly on the economics of fruit growing. He described a need to focus on how one must find ways to maximise profit before considering ways to cut costs. He again and again came back to the need to monitor. Monitor profitability of fruit blocks, and then monitor the associated costs.

Monitor packing per unit costs and monitor packing house procedures that may impact on your profits. And lastly, monitor through benchmarking which can, incidentally, be done via the 2012 link on the APAL website. "Know your production and marketing costs intimately, in order to maximise profit," he said.

After the indoor session the group moved to some recent plantings on the orchard of Robert Green at Lenswood. Here, Steve demonstrated his pruning techniques, which are simple, and easy to demonstrate and implement. Steve advocates much tying down of branches to calm the trees and looks to maintain optimal fruit load without the need for complicated tree training. The fruiting branches are tied down pointing at the wheel marks and spurs growing at 6 o'clock and 12 o'clock on that branch removed. There are to be two only large branches removed (cut for renewal) every season; no more, no less. This system is the one largely adopted by Robert on his new blocks.

Apple and pear sales remain steady, but with very little excitement in demand or price. Small fruit and anything less than first grade is pretty much unsalable. 'Red Delicious' is showing some resurgence with improved demand for high-coloured strains, but this is the only bright light in an otherwise flat market.

There is much uncertainty in the industry as we head into the new financial year. A stronger market, making healthy the industry, would go a long way to providing some certainty to cheer growers.

Greg Cramond
APGA of SA

Continued over...

How Washington growers compete against cheap apples

By John Baker, Produce Marketing Australia

Retail training programs delivered in 11 countries have provided an insight into how Washington (US) apples have been able to compete against much cheaper apples.

Workshops delivered for the Washington Apple Commission for the emerging supermarket sector in Asia, the Middle East, Russia and Mexico have highlighted the fact that price is not the only driver of apple sales. In almost every country where the workshops were held, Washington apples were in strong competition with much cheaper apples from China, other countries and local production, yet the market for Washington apples was strong and growing. For example, in China, India and Dubai, the Washington apple industry exported almost two million cartons (2008-09) to each of these countries, competing against much lower priced apples.

So what are some of the non-price points of difference for Washington apples? Growing conditions in Washington state provide a good foundation, with excellent soils, ample and high quality water, and an ideal climate. Then there is the technology used in the production, harvesting and marketing of apples.

The wide range of varieties is another strength, with up to eight varieties on retail shelves at any one time in some countries. Industry grade standards and resultant consistent quality provide retailers with confidence they can source long lines of these different varieties over an extended period each year.

John Baker discussing the finer points of apple merchandising with retailers during a Washington Apple Commission workshop in China.

Finally, retail support provided by the Washington Apple Commission is highly regarded in all countries, from on-the-ground local representatives, to promotion activity, and other support, such as retail training. Taken together, no other country or industry can make this combination of claims. The Chinese market is a good example of success, with around two million cartons of Washington apples been shipped each season and competing successfully against same season cheaper Chinese apples.

Innovation is a feature of the retail support. In China, retail display competitions, judged on the key messages in the workshops, encouraged many creative displays, as well as achieving increased sales. Six retailers reported that they all increased sales by more than 200 per cent in the three months after the workshops. In addition, they reported allocating between 10 and 15 per cent more space to Washington apple displays, as well as reducing shrink by between four and eight per cent. Participants in China included the big-two of global retailing, Wal Mart, Carrefour, as well as other international, national and regional chains. How Washington apples compete successfully on the international stage could have lessons for how Australian apple growers can compete successfully on the Australian domestic market, as we as rebuilding an export ethos.

John Baker is the Project Leader for the AFFCO Well Informed Grower project, supported by Horticulture Australia Ltd. ■

Victoria

▶ The Fruit Growers Victoria Limited (FGVL) annual general meeting and industry dinner will be held in the Goulburn Valley this year on 24 September. Members will receive information packs in the mail and all fruit growers are welcome to come to the dinner. Last year's AGM in the Yarra Valley was well attended and a great night was held by all at the dinner. Hopefully this year's dinner will be just as good if not better.

The FGVL directors and staff held their annual planning day in Bendigo to coincide with the Victorian Farmers Federation (VFF) annual general meeting. Many issues were covered including in-depth discussion as to what activities FGVL should be involved in. It was determined that FGVL will canvass the opinions of its members over the next few months. Following on from last month's comments about cannery quotas, a new high (or low, depending on how you look at it) has been reported with one grower telling us that his peach quota has been reduced by 20 per cent. SPC Ardmona is sending the wrong signals to the growing industry and FGVL wants the cannery to reintroduce grower consultative committee meetings and engage in constructive dialogue with its suppliers. The new SPC Ardmona managing director, Vince Pinneri, has been invited to meet with the FGVL board. FGV chairman Andrew Plunkett and I, along with the Apple Import Taskforce, met with the senior managers of Biosecurity Australia to discuss issues surrounding apples from China and quarantine matters. The robust conversation saw some drilling down on some contentious issues and BA was left in no doubt as to what was the taskforce's position.

BA was left in no doubt as to what was the taskforce's position.

John Wilson
Fruit Growers Victoria

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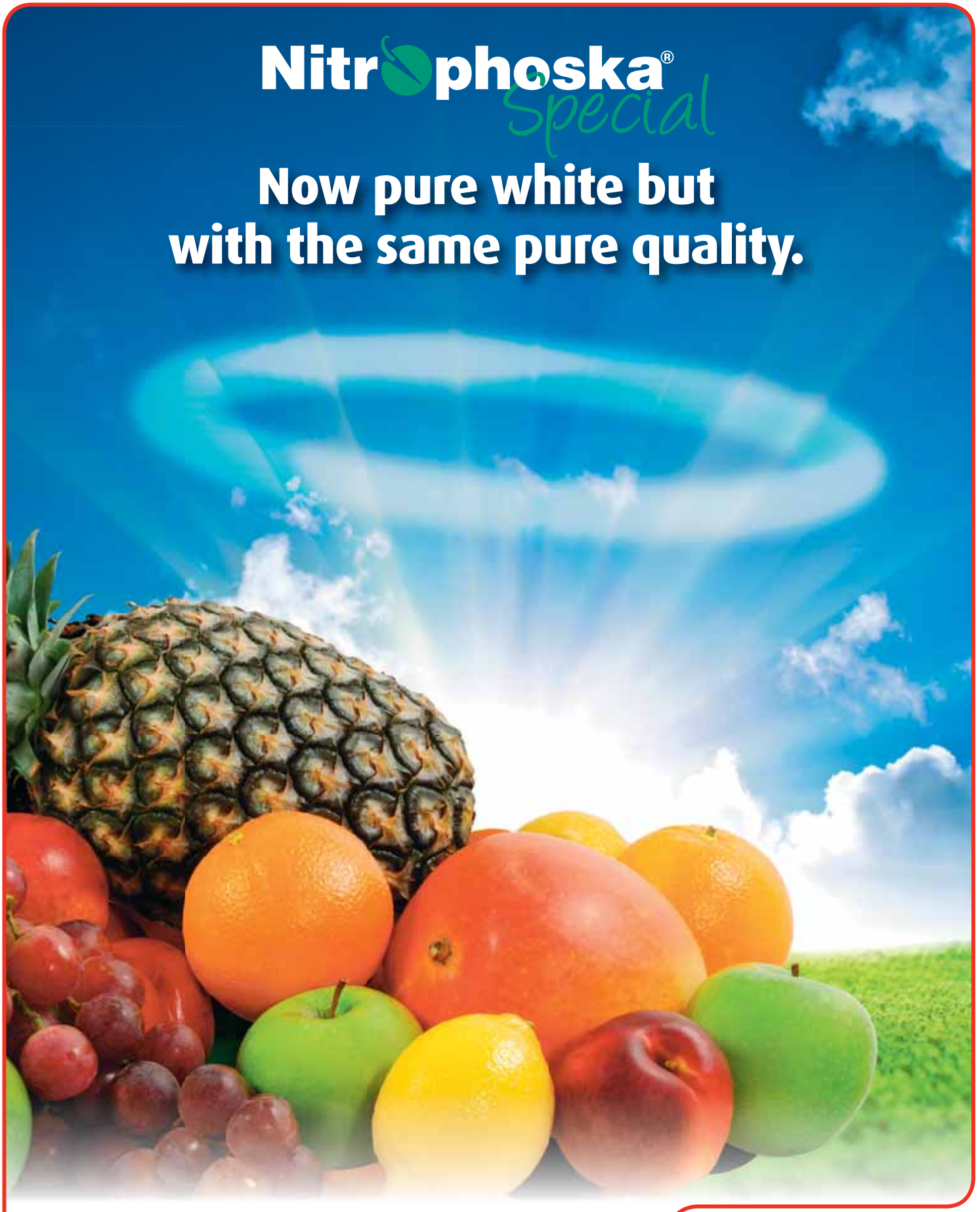

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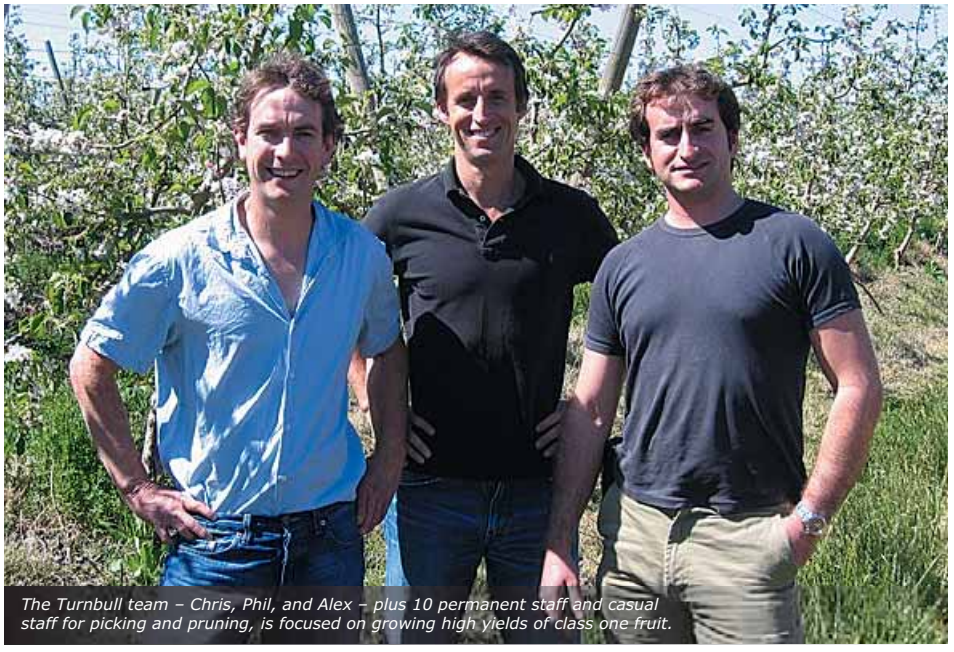
Turnbull Brothers: A decade of major change

Phil, Chris and Alex Turnbull are fifth generation mangers of the Turnbull Bros orchard at Ardmona, near Shepparton, Victoria. For more than 100 years it was predominately a pear orchard, but the last 10 years have seen major changes. Stuart Gray spoke with Chris Turnbull.



The Turnbull team – Chris, Phil, and Alex – plus 10 permanent staff and casual staff for picking and pruning, is focused on growing high yields of class one fruit.

Chris Turnbull's great, great grandfather, Edward Turnbull, was attracted to the Shepparton district in 1892 by a newly installed irrigation project. He started a mixed farming operation that included a small orchard.

His two sons, Jack and Bert consolidated virtually all the 315 hectares of the existing farm and extensively planted 'Williams' pears for canning, along with some 'Packham's Triumph'. They were also closely involved in establishing Ardmona Foods Ltd processing factory.

Chris said the next two generations reaped the benefits of Jack and Bert's efforts.

"Jack's son Charles and his son Ross (Chris' father) got most of the benefit of the pear plantings. Some of the trees are still going and they are more than 100 years old.

"Ross was really good at producing high yields of medium quality fruit at low cost, but when he wanted to retire about five years ago, it prompted a major review by Phil, Alex and I. We had to determine if the existing plantings had the capacity to be profitable enough to achieve our longer term goals. That was the start of a major restructure that is still happening," Chris said.

The returns from pears had declined over the years but the business had built up a substantial asset in Ardmona Foods Ltd.

> "Ross was chairman of Ardmona Foods Ltd for 23 years and we remained committed to the canning industry after the merger of Ardmona and SPC"

"By the time SPC Ardmona was sold to Coca Cola Amatil, we had an orchard of 50 to 100 year old pear trees with declining yields, higher cost structure because of the drought, and no control or influence over the processing, value adding side. The strategy Ross had used to grow the business was no longer available to us."

Chris said they had to change their strategy from low cost/high yield/medium quality processing production to high quality fresh fruit production with sustainable and protected yields.

"We pushed about 100 hectares of old pear trees over five years and replanted quite a bit of that land with apples, cherries, pears and peaches on Tatura trellis."

At this stage the brothers were taking over the business and redeveloping the orchard and it was at that time they realised they did not have a management structure that clearly defined their roles and created a common goal. This was despite Chris having studied business management at Monash University.

"None of us studied horticulture at the tertiary level, Phil studied marketing and Alex studied international trade. I was behind on my horticultural knowledge when I came back to the orchard, but it was something I learnt from my father and other growers. My role is a mix of business and horticulture and a lot of the skills I gained at university I use each day," Chris said.

Getting outside help was important.

"We hired a management accountant, as this was expertise we did not have. But we then realised at our management meetings, we were not always focused on the same things. So we worked with a management consultant who helped us improve our management skills. Through that process we developed short and long goals and soon found we were communicating and working together better."

"We each specialise within the business and once we had set some agreed goals we were able to better contribute our efforts to the common goal."

"While Phil is not hands-on in the day-to-day running of the orchard, he makes a significant contribution by working on longer term strategies and contributing ideas he picks up from his broader industry involvement, such as being on the Board of Apple and Pear Australia Ltd."

"Alex has taken on orchard management; he specialises in the technical aspects of fruit growing and undertakes the day to day management with our staff. I work with our fruit packers and selling agents, and manage larger projects like this year's apple planting and making our growing and administrative systems more effective.

"Once we had that sorted out, which took about 15 months, we then set about developing a 10 year plan, which was a very interesting exercise," Chris said.

"We realised we had to do a lot better than we had done in the past. We set some very high targets which put self-imposed pressure on us. But in the end, it came down to what now looks like a simple process. For example we, set a yield target of an average of 80 tonnes a hectare for Pink Lady® apples with a specific size ranges where the majority of fruit is class one.

"But from that quite simply stated target, a whole new approach to what we do emerged," Chris said.

"We did a lot of analysis on varieties, we travelled extensively to Washington state (US), New Zealand, and most states in Australia to gain knowledge on growing systems etc, we engaged consultants and learnt a lot from a very active young growers group in this district. We also visited an almond orchard at Robinvale (Vic) to see the latest in irrigation technology.

"We had lots of discussions on yield targets at year three, four, five and so on. We altered the growing techniques on the orchard we already had in the ground through better pruning, tree training and irrigation management.

"Setting some very basic goals had a big impact on how we operated," Chris said.

The apple project

This year, the Turnbulls are planting 44,000 'Rosy Glow' and 'Ruby Pink' trees at 3,000 trees a hectare. The 14.9 hectares open Tatura trellis development has a row spacing of 4.5 metres and a tree spacing of 75 centimetres. Rootstock is M26.

"This development came directly from our 10 year plan. We moved very quickly once we had agreed to our plan and finalised our nursery orders in January 2009.

"But in hindsight, I would take a little more time in future. We ended up going to four nurseries for our stock; all the 'Rosy Glow' came from Graham's Factree and the 'Ruby Pink' came from the other three nurseries. Next time I would spend longer planning and try to get all the trees from the one nursery."

"As for trellising, we are putting them on four metre posts with eight wires a side. The posts are taller than we have used in the past and we have pushed them closer together along the row.

"We have to put in a new irrigation system. The old pear block had flood irrigation, but now we have a dual sub-main system, one for drip irrigation and the other, a sprinkler system for frost protection. The sprinklers are about 40 centimetres above the ground and in the event of frost, the warmth from the water through the sprinkler rises through the tree and reduces frost impact.

"The drip system increases our water use efficiency, but we have also installed an automatic fertigation dosing system and that allows us the flexibility to fertilise at whatever frequency is needed. It gives us a lot more control over tree nutrition," Chris said.

The soil pH was adjusted with lime application, was fumigated and the top soil banked to provide a better root bed. This is the first time Turnbulls have fumigated replant land.

"When we first changed over the pears to apples, we were not familiar with M26 rootstock so we were not sure what impact replant disease had.

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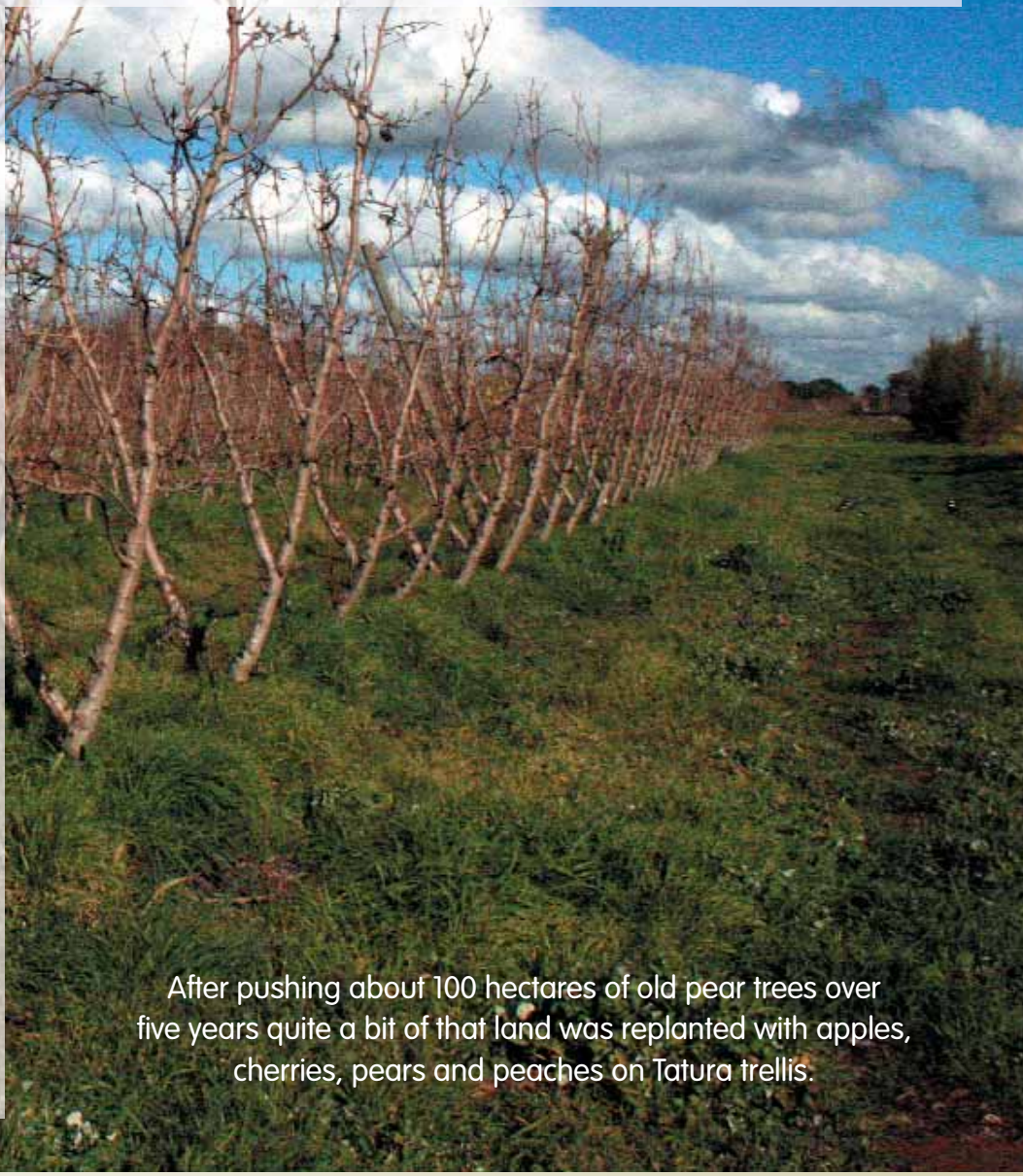


After pushing about 100 hectares of old pear trees over five years quite a bit of that land was replanted with apples, cherries, pears and peaches on Tatura trellis.

Continued...

Turnbull Brothers: A decade of major change

However, recently we saw direct evidence of it in a block, so we decided that we had to fumigate for this development."

One of the disadvantages of fumigating is it requires little organic matter in the soil.

"We will mulch the rows to help add organic matter as well as conserve water and reduce soil temperatures in the summer."

At this stage, Chris said they are not putting netting over the orchard, even though they have made provision for it.

"A development of this size is still based around available funds and what risks you are prepared to take. Hail is a problem, but intermittent. We also use hail cannons and have someone rostered on all the time to monitor weather so we can turn on the cannons at least 15 minutes before a front comes through. I know a lot of people don't believe in hail cannons, but the only hail problems we have had is when a cannon failed to operate."

Chris said they would remain focused on just growing fruit and will continue to contract out their packing, storage and sales functions.

> "We have a strong relationship with our packers to ensure we get the best prices."

The future

Chris admits to been a little nervous about the future. "The most difficult thing to pin down when planning for the future is what price will you get for your product? We have factored in a drop in prices when imports arrive, but putting in the new orchard is part of our strategy to combat imports."

"We expect the new planting will give us the system to grow a good volume of high quality fruit in a tight size range. We aim to eliminate as much as possible second grade fruit. We also want to develop simple systems to make it is easy for all of us to know what the orchard is doing and to make it easy to train people for pruning and other maintenance work.

"I believe there is both a revenue benefit and a cost benefit in keeping things simple." Chris said this is all part of their focus on building a strong business.

"Our objective is to create a viable business through building a strong team around us, with people who have good skills combined with enthusiasm, motivation and a common goal.

"The team consists of Phil, Alex and me, 10 permanent staff and our casual staff for picking pruning etc and we all have to be focused on growing high yields of class one fruit."

Chris said they are about to embark on a 30 year business plan for the orchard.

"That's exciting. It includes what size the business will be in 30 years time, what assets do we expect to have, and what standard of retirement do we want?

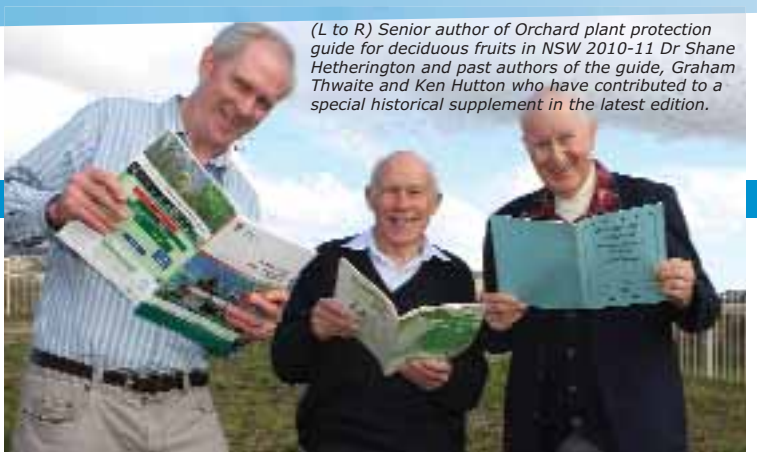
"Of course we can't be too detailed in a 30 year plan, but it should act as a guide to how we manage from here on," Chris said.

The current orchard consists of:

- Cherries - 16ha
- Pears – 52ha – 'Bosc', 'William', 'Packham's Triumph'
- Apples – 48ha – 'Granny Smith', Pink Lady™, 'Gala'
- Canning peaches – 25ha
- Canning plum – 5ha
- White flesh nectarine – 2ha

Soil pH was adjusted with lime, fumigated, and the topsoil banked to provide a better root bed. This is the first time Turnbulls have fumigated replant land.

Independent orchard advice celebrated in NSW



(L to R) Senior author of Orchard plant protection guide for deciduous fruits in NSW 2010-11 Dr Shane Hetherington and past authors of the guide, Graham Thwaite and Ken Hutton who have contributed to a special historical supplement in the latest edition.

History was made recently with the launch at Nashdale of the 50th edition of Industry & Investment (I&I) NSW's enduring agricultural extension tool –the.

Half a century of independent and reliable information from the state government's horticultural advisers has been celebrated by departmental staff both past and present, growers, and industry representatives from across NSW.

I&I NSW horticulture research leader and senior author, Dr Shane Hetherington, said the publication of the latest edition marks the long term contribution the Department has made to local horticulture.

"Not only is it the longest-running Australian agricultural advisory publication available to growers, it's an up-to-date guide which continues to give growers the latest information on orchard and pest management," Dr Hetherington said.

"Clearly much has changed in the last 50 years, but one standout move for the industry has been to reduce chemical use and embrace softer integrated pest management (IPM) options to control pests and diseases."

NSW Farmers' Association vice president and horticulture committee chair, Peter Darley said the publication was "the fruit growers' bible – the information generated by I&I NSW allows us to produce the clean, green fruit consumers demand. We're in a better position to tackle overseas competition because we are using independent, science-based advice to produce top quality fruit."

Past authors of the guide, Graham Thwaite and Ken Hutton, have contributed to a special historical supplement in the latest edition.

The new *Orchard plant protection guide for deciduous fruits in NSW 2010-2011* can be obtained from I&I NSW offices and bookstore (t: 1800 028 374) and is available on the website http://www.dpi.nsw.gov.au ■

What is nursery tree quality?

By Mark Hankin, APFIP

What is nursery tree quality? It is a good question and seems to be a part of any conversation when fruit growers get together. However, the response is quite an individual thing as currently we don't have a standard nursery tree type in our industry.

There are currently at least five different types of nursery trees that growers require nurseries to produce. So, with this in mind, we could conclude that tree quality is getting a product that suits the grower's orchard situation and a product that he or she is happy to plant and establish. Nursery tree quality in Australia has improved over the last five years with some nurseries producing very well feathered trees and with improvements to delivery methods that reduces transport damage.

But if we were to have a standard across our industry we still have some way to go. Growers must think about their own situation, as large feathered trees on dwarfing rootstocks may not be for everyone as they need close attention and a good level of commitment in the first year. Any stress related issues from lack of water, fertiliser or weed control can be disastrous. So how do growers receive what they want? First of all know what suits your situation, plan well and most of all, communicate with your nursery. Communication is paramount; nurseries can't be criticised for failure to deliver if they don't know what your specification is.

To help you with nursery specifications, APFIP has developed a nursery tree specification for three different types of nursery trees:

- one year old whips
- 18 month old budded and
- two year old nursery trees.

APFIP considers this specification quite achievable with good nursery practices. The specification is posted on the APFIP website (www.apfip.com.au).

A nursery procurement service

APFIP is currently considering introducing a nursery tree procurement service for growers. This would involve APFIP taking on a support role to assist growers to get the nursery trees they want. APFIP's aim is not to be a tree broker but to work with growers and nurseries and help bridge the communication gap.

We anticipate that growers would contact APFIP with their nursery tree requirements, including tree type and specification, we would then seek out a nursery that could complete the order. Once an order has been confirmed between the grower and the nominated nursery, APFIP's role would be to supervise the growing of the nursery trees and keep the grower up-to-date on their progress, as well help develop the relationship between the two parties.

Growers would need to commit to planning their requirements, advanced ordering and to meet the payment schedule required by the nursery. This could include deposits and progressive payment options. Nurseries would need to commit to the production of trees to an agreed specification so the anticipated outcome for each party is fulfilled.

Any questions or feedback on this proposed service would be welcomed. Contact Mark Hankin, m: 0408 503528, e: mark@apfip.com.au, or t: (03) 6264 1540 ■

InfoStone: Helping industry and growers plan a future

Report by Vanessa Wight, Summerfruit IDO

Progress on InfoStone, the new online system for data collection for the stonefruit industry is well underway and growers will soon be able to enter data. Resulting from a Summerfruit Australia Ltd (SAL) project, stonefruit growers will soon have access to the system to collect important industry data.

InfoStone will provide an industry-wide picture of plantings, yield and related harvest time. Initially we will collect and correlate information on the number of trees each grower has planted by fruit type, tree age and harvest window. On an annual basis, growers will also be asked to record an estimate of the volume of fruit they expect to produce and at the end of the season to provide updated information on actual yield.

The data will be collected in an online (internet based) system which is being successfully used by a number of other horticultural industries. Growers will be provided with a username and password to access the system, so they can update their own information and collect reports online. Individual data is aggregated into 'Industry Reports'. Data related to individual businesses is confidential and can only be seen by the business entering the data. Data related to individual businesses is not identifiable in Industry Reports. Full Industry Reports are only available to those that contribute. Summerfruit Australia will also provide support to those growers that do not have computers / internet.

So the industry can have confidence in the data generated it is imperative that as many growers as possible enter accurate data and update it on an annual basis. Like any data collection system, the information which it generates is only as good as the data that goes in. The more accurate and comprehensive the individual data which is supplied, the more accurate the aggregated industry reports will be. Only those growers that provide data will have access to the full reports.

The collective data will assist growers and SAL in making better informed decision about a range of management and marketing issues, which ultimately impacts the profitability of industry. Information provided by growers will be strictly confidential and will only be used to develop aggregated reports, ensuring that individual data is not identifiable.

When data collection is complete, growers should for example, be able to determine how many and the age of white nectarine trees that are planted nationally in a specific harvest window, such as the first two weeks of November. This type of information can be invaluable to assisting growers in deciding which varieties to plant in the future to maximise returns. Access to this technology is free for growers and there is no direct cost to growers to enter data or collect reports. ■

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117 Tonnes/ha
4th year of Regalis

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81 Tonnes/ha
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"Regalis® will always be a key part of our orchard management system"

Rodney Taylor, Orchard Manager,
Montague Orchard, Narre Warren North, Victoria

Block D

- Variety: Rosy Glow™
- Rootstocks: M9 and M26
- Planting: 4.2m x 0.75m (V trellis)
- Trees/ha: 3174
- Age of Trees: Planted 2002

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Root growth and potential tree productivity after a cold wet spring

By Dr Gordon Brown, Technical Editor – Apple and Pear

It is now the time of year when planting of new orchards is either underway, or close to it. In 2009 some apple growing regions in Australia received unseasonal rainfalls during this crop planting period (Table 1).

This resulted in new trees being planted into cold and wet soils and many of these orchards experienced poor tree performance and often extensive tree death was also experienced. In fact the conditions were so severe that these effects were also seen in established orchards.

As growers we are aware of growth cycle of tree foliage and the impact of temperature but we are not so aware of what is occurring underground, with the tree roots. This lack of knowledge is not limited to growers as scientists do not often study the roots either, although, there is some information to outline what is happening underground in our orchards and the impact this has on orchard productivity. This article will cover the state of knowledge of the impact of cold wet soils on apple root growth and development predominantly from a root physiological point of view.

When do apple roots grow?

Traditionally the study of root growth has involved the digging up of soil beneath a tree and extracting the roots from the soil prior to measuring their characteristics. This has been a time consuming and destructive process and as such is not commonly practiced.

Fortunately an alternative method, using a rhizotron and a digital camera, has made the study of root growth simpler and non destructive on the roots. In essence a rhizotron is a tube with a slit in it which is inserted into the soil in the tree root zone. A lightproof cap is needed to ensure relatively normal root growth occurs. Periodically the lid is removed and digital

Table 1. Average temperature and total rainfall at APFIP test sites in September and October, 2009

	Average Temperature (°C)		Total Rainfall (mm)	
	September 2009	October 2009	September 2009	October 2009
Huon Valley	7.9	9.0	86	45
Batlow	9.2	10.7	0.6	0
Manjimup	9.5	12.7	94	32
Adelaide Hills	9.8	10.8	62	78
Orange	10.5	11.4	23	51
Goulburn Valley	11.0	13.6	16	14
Yarra Valley	11.6	12.3	93	49
Stanthorpe	15.0	15.2	3	30

photographs of root growth through the slit used to study living roots growing in the soil. (A picture of a unit made from domestic PVC piping and used by the author is shown in *Figure 1.*) These are cheap and easy to construct and are useful tools to monitor root activity. This information can be used to assist in judging whether to use soil applied or foliar applied fertiliser early in the season. If the roots are not active then soil-applied tree nutrition will be less effective. Of interest is that the level of water saturated soil can also be observed in the rhizotron by the water level in the bottom of the tube.

With the use of a rhizotron, Eissenstat et al studied the growth of roots under M9 trees for three complete seasons (*Figure 2*). This showed that for two of the seasons the main period of new root growth, the most effective for absorption of nutrients and water, was just prior to full bloom with a second smaller growth period in June (December) and a final growth period around fruit harvest time.

For these two years root growth was observed from six weeks prior to full bloom. In 2003, however, a different pattern was observed where the spring flush was not observed and root growth started in June and increased for about two months then diminished during fruit maturation and increased again after harvest.

The problem is that these two fundamental root growth patterns have been described in other studies and this indicates that apple trees are variable in their root growth patterns from one season and location to the next. It could be speculated that the winter/spring environment is affecting the pattern of root growth and that this should have an impact on management practices, such as decisions as to foliar versus soil applied fertilizer and

Continued over...

Continued...Root growth and potential tree productivity after a cold wet spring

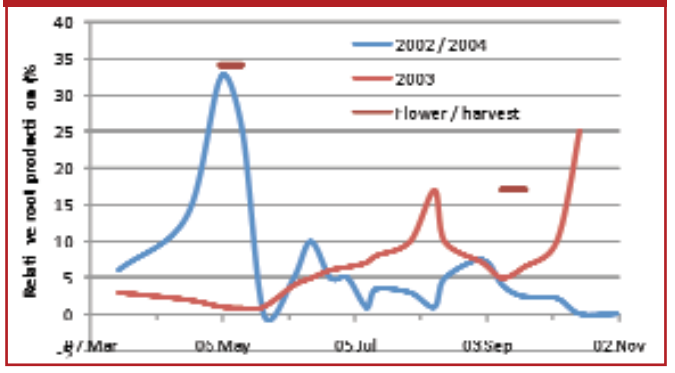
irrigation regimes. This justifies the installation of rhizotrons in orchards and monitoring root growth to assist in orchard management decisions.

Temperature effects on root growth

There are few studies on the influence of root zone temperature on root growth, although, if data on shoot growth or root nutrient uptake activity is used as an indicator of root function and hence activity, then it is possible to develop a hypothetical graph of the root activity response curve to temperature (*Figure 3*). While the effect of high root temperatures is not the subject of this article the curve into this region has been included for completeness and this region will be important for many orchards.

At low root temperatures, using apple seedlings, Looney *et al* found that as the root temperature increased from 10 to 16°C there was an increase in the dry weight of the roots and that this increase in dry weight diminished when the temperature was increased to 19°C. To obtain an estimate of the low temperature that root growth ceases data from Tromp, using three year old potted trees on M9 rootstock in controlled chambers for a growing season found that there was no shoot growth if the roots were maintained at 7°C, indicating minimal root activity at this temperature. It would be expected that root death would not be rapid at lower temperatures down, so the line of activity is made horizontal between 0 and 5°C in *Figure 2*. Data from Gur *et al* on rate of nutrient uptake suggests that root activity is at a maximum from 19 to 29°C before declining due to heat effects. In this figure the high temperature at which root activity ceases and death begins was determined from the author's experience with apple tree growth under thermotherapy, for virus elimination, where tree death occurs with extended exposure of both shoots and roots to 39°C although shoot growth occurs if roots are cooled to 35°C. This indicates that thermal death of roots is in the region. Of interest is that the impact of soil temperature on tree nutrient uptake is not equal for all nutrients.

Figure 2. Relative root growth activity of M9 apple in 3 seasons. Modified data from Eissenstat et al 2006.



The data of Gur *et al* indicates that in cold soils the uptake of calcium (Ca - important for cell wall function and development in developing fruit), potassium (K) and manganese (Mn) is reduced while in hot soils the uptake of zinc (Zn) and potassium is reduced. This again can be used as an indicator of when to apply K, Ca and Zn as foliar fertilisers.

Different growing locations

At this point in this article I had planned on providing information on soil temperatures in different growing locations. Unfortunately I found that this data is not readily available from the Bureau of Meteorology (BOM) website and difficult to find for most of Australia.

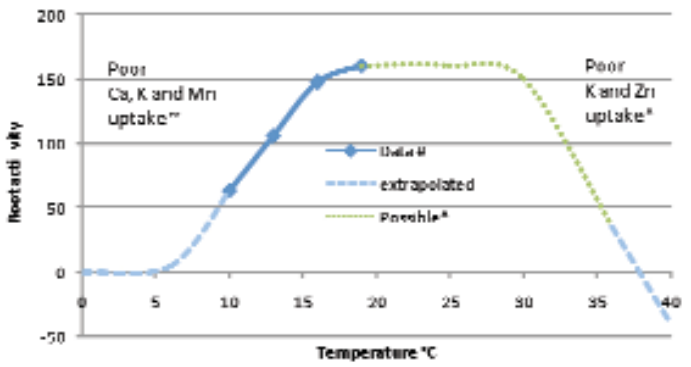
Further, while the BOM has historically collected this information from numerous locations, the number of stations currently recording this data is now extremely limited. The exception for data availability is Western Australia where the Department of Agriculture and Food has online access to all their weather stations *(http://agspsrv34.agric.wa.gov.au/climate/livedata/sumpages.htm).*

To assist, I collected the data for September and October, 2009, and studied the relationship between air and soil. This revealed that, in essence, soil temperatures are 4°C (±3) higher than air temperatures. This 'rule of thumb' could be used at other sites where only air temperatures are recorded. Soil temperatures will be lower than predicted from air temperatures on cloudy and higher on sunny days. Other factors such as different soil types, moisture content, angle to the sun and soil mulches will also have an impact.

Using this relationship between air and soil temperature, along with air temperature data from the BOM site in the Huon Valley - the coldest apple growing site in 2009 - it is possible to estimate soil temperatures. Then, combining this with the root growth data in *Figure 2* the increase in root activity for both the Huon Valley and Manjimup regions over the flowering period in 2009 can be estimated (*Figure 4*). This shows that due to the colder soils in the Huon Valley

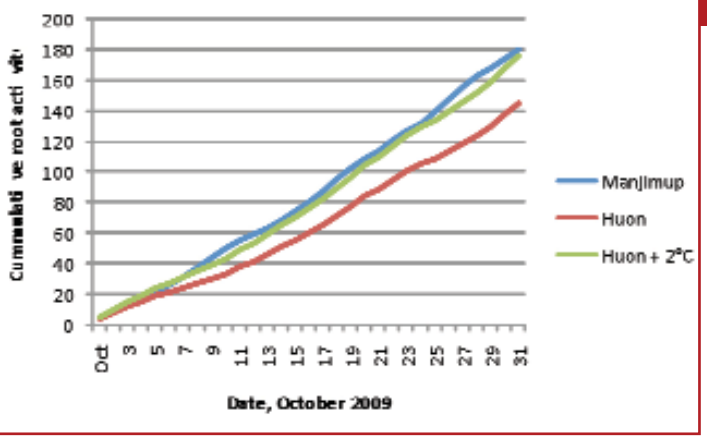
Figure 1. Rhizotron to observe root activity.

Figure 3. Hypothetical root activity response curve with temperature. # data from Looney et al. ~ from Hogue and Neilsen.



**Data based on root nutrient uptake by Gur et al. Extrapolated = line extended from data plus hypothetical, for low temperature, or author experience with apple growth under thermotherapy for virus elimination where tree death occurs for extended exposure of shoots and roots to 40°C although shoot growth occurs if roots are cooled to 35°C.*

Figure 4. Calculated cumulative root activity for apple trees growing in Manjimup and the Huon Valley over flowering, October, 2009. The impact of a 2°C increase in soil temperature is also demonstrated.



the root activity was potentially reduced by just over 10 per cent compared to the warmer Manjimup region. Further, if the soil temperature in the Huon could be increased by 2°C then the level of root activity would be similar. Hence, a small change in soil temperature can have a big impact on root activity. The trick is developing management practices, such as black soil mulches, weed free soil and angle of hilling up to maximise absorption of solar radiation to achieve this objective. Equally important is the impact of other management practices that have a negative impact on soil temperatures. While the use of mulches and other treatments to keep the orchard soil cool in summer have been studied, there are few studies on treatments to increase their temperature in spring. ■

Would you steal a car?

By Graham Fleming

It becomes no surprise to me when every time I visit a fruitgrowing district I hear about "that grower up the road who has trees that he hasn't paid for". Why am I not surprised? It is because I hear it so often.

I often wonder if those who have done this illegal propagation would steal a car? I would think that most would not, but why then steal from the owner of the variety?

Let me try and put this into perspective. Let's say that a new Holden costs about $40,000 to buy, so stealing that car is worth $40,000. Compare that to illegally propagating 4,000 trees. If we include royalties, it would cost somewhere around $10 per tree. That's a total of $40,000 being stolen from the owner of the variety. So where is the difference?

Over the last five years or so, we have been forced to start legal action against at least five growers whom we suspected had illegal trees growing on their property. Added to this, we have had more than 80 growers come forward during an amnesty that we advertised widely towards the end of 2007.

One of the growers against whom we took legal action had more than 20,000 illegal trees. In this case, we finally agreed to an out-of-court settlement where the grower paid us $1.3 million, amongst other things. Now that may seem like a monetary windfall for us, but our legal bills came close to $1m. With royalties, the cost of DNA fingerprinting and the other costs involved in such action, the majority of the payment went to third parties. On top of our settlement, the grower then faced their own legal fees as well, which we would estimate would have been in excess of $400,000. In effect, those 20,000 trees cost that grower about $85 per tree.

In another recent case where we had to take legal action, there were a total of about 12,000 trees involved. The payment for that grower to reach a pre-trial settlement of the matter was $710,000, or $60 per tree. Again the majority of this payment went towards our legal fees, DNA fingerprinting costs and royalties, and the grower had to also incur their own legal costs, which we would estimate being in excess of $200,000. In this particular case, all of the infringing trees are to be removed and destroyed by the grower as part of the court sanctioned settlement.

Why does it cost so much? For anyone to begin an action in the Federal Court, the legal fees just to prepare and lodge the initial documents in court can reach about $70,000, and that's just the beginning of a long drawn-out process. It's never been our intention or desire to take everyone to court that we suspect may have trees that they shouldn't have. That is why we offered an amnesty recently - to give all commercial orchardists a genuine opportunity to 'legalise' any of our proprietary cultivars that they may have in their possession without the fear of prosecution.

It also needs to be emphasised that, in respect of the substantial legal settlements, the growers involved refused our early approaches to commercially settle the matter for a minimal amount and chose to take the risk of prolonging the litigation.

A question that I am asked on a regular basis and sometimes to justify the illegal propagation is something like "How come your trees are so expensive?" The answer is quite simple yet quite complicated and there are two parts.

The first part addresses the royalty component of the price of a tree, that is, breeding programs cost a lot to run. Imagine planting and fruiting 10-20,000 seedlings per year, with a success rate of about one in 2000 seedlings if everything goes right. The royalty component goes to the breeder and covers a bit of the importation cost.

On top of the royalty there are additional costs that we incur during the importation of new varieties; for example, we might import 20 new selections but only one or two of those might finally be commercialised. The charge for quarantine has more than quadrupled in the last 10 or so years. Plant Breeders Rights (PBR) is another $2000 per variety, with a $300 per year maintenance fee for each variety.

Added to the cost of trees from us is our virus testing program. We test for a number of common viruses, and do about 1000 tests per year in an attempt to maintain a high health status of the material we sell. If one of our varieties or root stocks proves not to be virus free, we then have to go through a heat treatment program to get rid of the virus.

Now if you keep all this in mind, compare these costs to those of a backyard nursery, or the orchardist that grows his own trees, and it will be easy to see why the cost of a tree is as high as it is from a nursery which prides itself on supplying trees of the highest standard possible.

Where to from here? I would like to think that the fruitgrowing community respects the ownership of varieties and the financial outlay that breeders and nurseries make, just the same as they would respect the ownership of peoples' cars.

However, I'm not yet convinced that the practice of illegal propagation is finished. We are considering contracting a private investigator to carry out random audits of growers' properties this year, and he/she will be armed with the very accurate DNA finger-printing technology that is now available. Our aim is to ensure that the breeders of new varieties are paid for the considerable work they have done to give the fruitgrowing industry the benefit of the improved varieties. Imagine where our industry would be if we still relied on all the older varieties that we once grew! ■

Dear Editor,

I read with interest your recent article on importing apple trees in the *Australian Fruitgrower* magazine (June 2010 issue page 22). A well covered topic.

There is probably one aspect not covered in the article and that relates to the protection of intellectual property (IP). In many cases (but probably not all) there would be an IP manager in Australia who already has the Australian rights to these new fruit varieties. Growers need to be particularly aware of these global IP aspects if considering importing new fruit varieties, legally or illegally.

While I note your comments about the agreement with the source of the budwood, it could be a fellow grower who has no idea of the IP protection in their own territory and is happy to supply budwood to an Australian grower anyway. This is a trap for many players.

Anyway it's a comprehensive article which may have some growers think twice about illegally importing budwood.

Gavin Porter

Australian Nurserymens Fruit Improvement Company Ltd (ANFIC)
Bathurst, NSW

Early season emergence of Oriental fruit moth and Codling moth

By Joanne Dawson, Alex Il'ichev and David Williams - DPI Victoria

Oriental fruit moth (OFM) and Codling moth (CM) are major economic pests of the Australian stone and pome fruit industries. OFM is a polyphagous pest with a range of stone fruit hosts including peaches, nectarines, apricots, plums, cherries and pome fruit hosts such as quinces, nashi, pears and apples. CM is more selective and primarily feeds on pome fruit such as apples and pears.

Both these pests have the potential to invade new host plants and often appear in the same fruit block. Growers should therefore consider both OFM and CM in their pheromone-based integrated pest management (IPM) strategies.

Currently, spray prediction programs for OFM and CM are based upon the first sustained catch of the male moths in sex pheromone traps. The first catch of males in the sex pheromone traps over two consecutive trapping periods provides a 'biofix' date.

Then the biofix date is used in 'degree day models' (DDM) to calculate and predict date of the first egg hatch. Degree days are the total amount of development units for an insect to develop from one stage to another in its life cycle. Degree days are the accumulated product of time and temperature between the developmental threshold temperatures for each day.

Most of the northern Victorian fruit growers use sex pheromone mediated mating disruption (MD) in their stone and pome fruit orchards to control OFM and CM. Unfortunately, sex pheromone traps placed in MD treated orchards produce highly variable moth catches and therefore monitoring results may not be reliable for biofix determination and subsequent egg hatch prediction. The use of host plant volatile traps to catch male and female moths in MD treated orchards may improve moth catches and therefore provide more accurate data for establishing a biofix date. Basing the biofix date on sustained catches of mated female moths ready to lay eggs may give more accurate egg hatch predictions.

A current research project is assessing the accuracy of biofix dates based on either male or female moth catches to predict egg hatch for OFM and CM. This work will allow modifications to the DDM to develop a more accurate predictive model and a prototype decision support system. This article also reports on our observations of OFM and CM first catches of males, virgin and mated females in different stone and pome fruit varieties.

Two big commercial orchards in Victoria's Goulburn Valley were used as field sites for our experiments. Replicated sets of sex pheromone and host plant volatile traps were placed in different fruit varieties with one trap per hectare, as recommended and widely used for monitoring in commercial orchards. Monitoring of all traps was conducted daily to ensure an accurate identification of biofix dates for OFM and CM males, virgin and mated females. All moths caught in traps were collected and taken to the laboratory for gender and mating status determination.

Also, OFM and CM were reared in the laboratory for egg hatch simulation in the field. When the first mated females were caught in traps, 50 freshly laid eggs on wax paper attached to the sticky base of a Delta trap (sentinel egg cards) were placed in the field. These traps were monitored daily until all eggs were hatched. When larvae hatched they crawled off the wax paper into the sticky trap where they died, thus avoiding pest contamination within the field site.

Predicted egg hatch dates, from moth biofix dates, could then be compared with the dates when egg hatch actually commenced on the sentinel egg cards.

Later, damaged shoot tips (for OFM) and fruits (for CM) were inspected, larvae were extracted and indentified, and their age determined by measuring head capsule width. The number of degree days required for the larvae to develop to this stage was then used to calculate the dates when the larvae would have hatched from eggs, and provide another tool for assessing the model predictions.

Figure 1 shows the overall emergence pattern of OFM. Catches of OFM males were recorded earlier in pears than in peaches. The first OFM female moths, virgin and mated, were caught in pears rather than in peaches.

Analysis of the first moth catch data collected between 2006 and 2009 for OFM male, virgin and mated female emergence pattern was as follows:

- **In pears**
  - > the time between first male and first female catches varied between 8 and 27 days.
  - > the time between the first catches of virgin and mated females varied between 1 and 11 days.
- **In peaches**
  - > the time between first male and first female catches varied between 8 and 22 days.
  - > the time between the first catches of virgin and mated females varied considerably from one year to the next (between 0-25 days) and in some years mated females were caught before virgin.

Generally the sex pheromone traps are unreliable for monitoring of OFM males in MD treated orchards, this is because MD competes with the sex pheromone traps. Host plant volatile traps (TA food traps) can attract both sexes. *Figure 2* shows the predicted egg hatch dates using degree day modelling (DDM) for OFM. Results show that 83DD from first catch of either male or female moths in host plant volatile traps provides more accurate egg hatch dates than predicted by male catch in pheromone traps.

Figure 3 shows the overall emergence pattern of CM moths. The time between first male catches and first female catches in apples varied between 22 and 36 days. The first mated females were caught 10 days after the first virgin females.

Figure 1: Emergence pattern of OFM moths in pears and peaches.

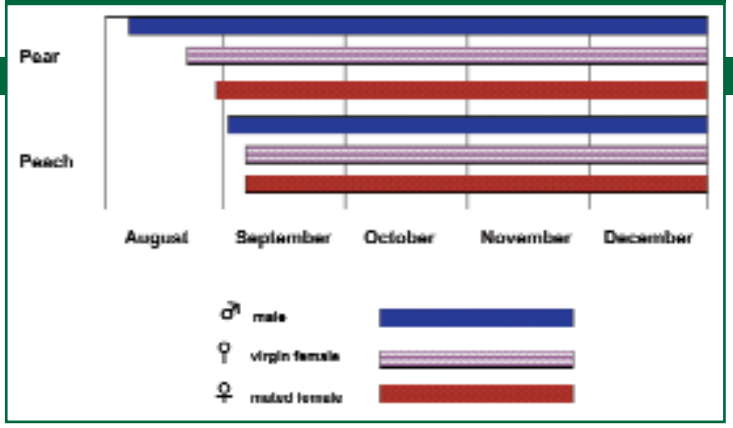


Figure 2: Predicted egg hatch using DDM for OFM in the 2008/09 season.

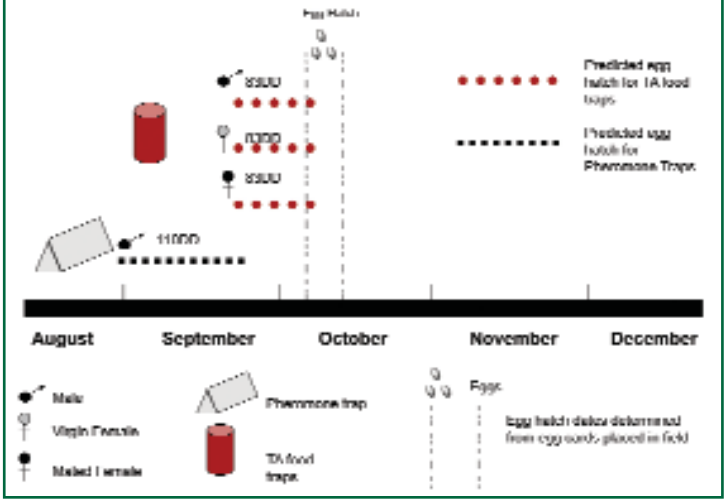
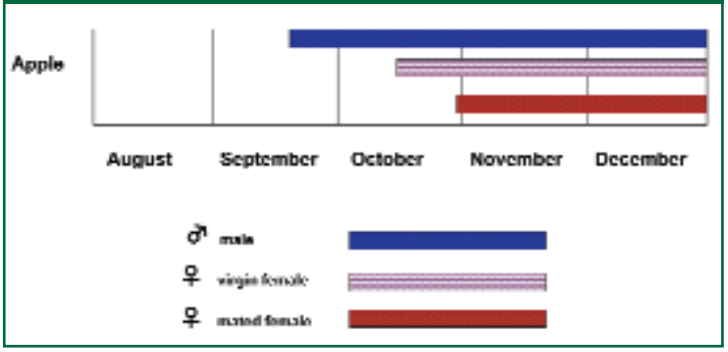


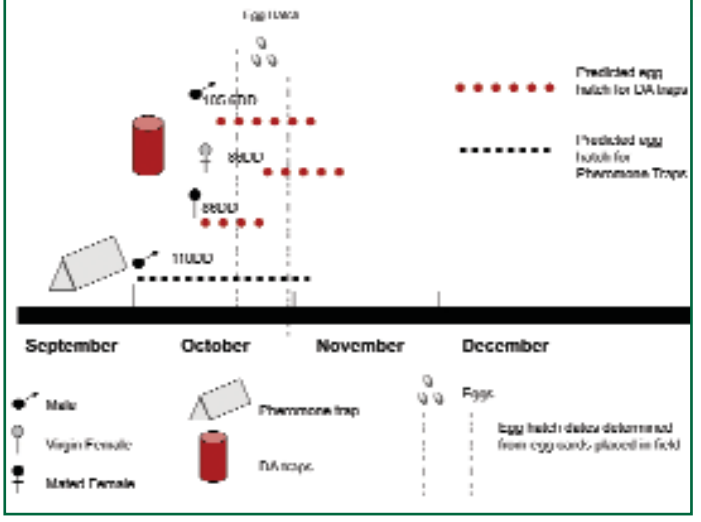
Figure 3: Emergence pattern of CM moths in apples.



Pear ester (DA) traps catch both sexes and are more effective under MD than the Mega lure (L2) or normal sex pheromone trap. *Figure 4* shows the predicted egg hatch dates using degree day modelling for CM. Results show that 86DD from first catch of mated female moths in DA traps provided the most accurate egg hatch dates.

Funding for this research project is provided by Department of Primary Industries (DPI) Victoria and Horticulture Australia Ltd. (via contributions from Apple and Pear Australia Limited, Australian Nashi Growers Association Limited, Canned Fruits Industry Council of Australia, Northern Victorian Fruit Growers Association, AustFresh Ltd., BioGlobal Ltd., Colin Campbell Chemicals Pty. Ltd., and Michigan State University, USA). ■

Figure 4: Predicted egg hatch using DDM for CM in the 2008/09 season



Brown rot update: Eliminate disease carryover before bloom.

Report by Dr Robert Holnmes, DPI Victoria

The summerfruit and canned fruit industries are co-funding a project with DPI Victoria to develop and implement innovative and efficient ways of controlling brown rot.

Figure 1: A mummified nectarine fruit producing brown rot conidia and associated twig blight.

The project is investigating key management strategies including:

- reducing the carryover of disease-causing inoculum from one season to the next,
- predicting when infections have occurred to optimise the timing of curative fungicides,
- understanding how the susceptibility of fruit to infection changes over the growing season,
- controlling pests (eg. *Carpophilus*) which encourage brown rot and
- predicting the potential for postharvest rot development in the supply chain

In this article we discuss the role played by overwintering brown rot in early season infections and why it is critical to eliminate disease carryover to maximise the benefit of chemical controls.

There are two species of brown rot pathogens in Australia, *Monilinia laxa* and *Monilinia fructicola*. Both are capable of causing blossom blight, branch cankers and fruit rots, however, in our surveys of Goulburn and Murray Valley orchards *Monilinia fructicola* was the only brown rot pathogen associated with the disease on peaches, nectarines and plums.

Overwintering infections provide inoculum for primary infection.

M. fructicola survives through the winter in fruit which have rotted and remain on the tree or drop to the soil. These fruit are typically shrivelled and blackened and are known as mummies (*Figure 1*). In spring conditions mummified fruit are capable of producing masses of spores which can infect blossom, developing fruit and tender wood.

Over the first two seasons of trials, several sites were surveyed during bloom for the presence of dried or mummified fruit in the trees and on the ground. Samples of these were collected and moist incubated at 21°C to encourage sporulation of the fungi. *M. fructicola* was found in the shrivelled and blackened mummified fruits and also in dried fruits which were only partially rotted away and which were to some degree still soft, fleshy and translucent (*Figure 2*). *M. fructicola* was not detected on fruit pits which had no remaining flesh.

Dried, partially rotted fruits which were more common in drier Murray Valley orchards also harboured other rot pathogens including *Penicillium, Mucor, Alternaria* and *Rhizopus* and insect larvae which could potentially be pest species.

The numbers of mummified fruit remaining from the previous season varied from site to site. Orchards with significant brown rot at harvest commonly had detectable levels of mummified fruit remaining in the trees during the bloom period. Final rot levels in these orchards were not necessarily proportionate to the quantity of mummified fruits and this could be attributed to variations between sites of conditions causing sporulation of the fungus and the success of chemical controls. Nevertheless, there is evidence that the incidence of rots is partially attributable to inoculum derived from mummified fruits.

In addition, we can speculate that the strains of brown rot carried over in mummified fruits are potentially fungicide resistant, as these sources of infection have escaped chemical control in the previous season.

The other source of overwintering brown rot detected in the surveys was diseased wood.

Figure 2:

Fruit left in the orchard from the previous harvest can support the overwintering of pests and pathogens.

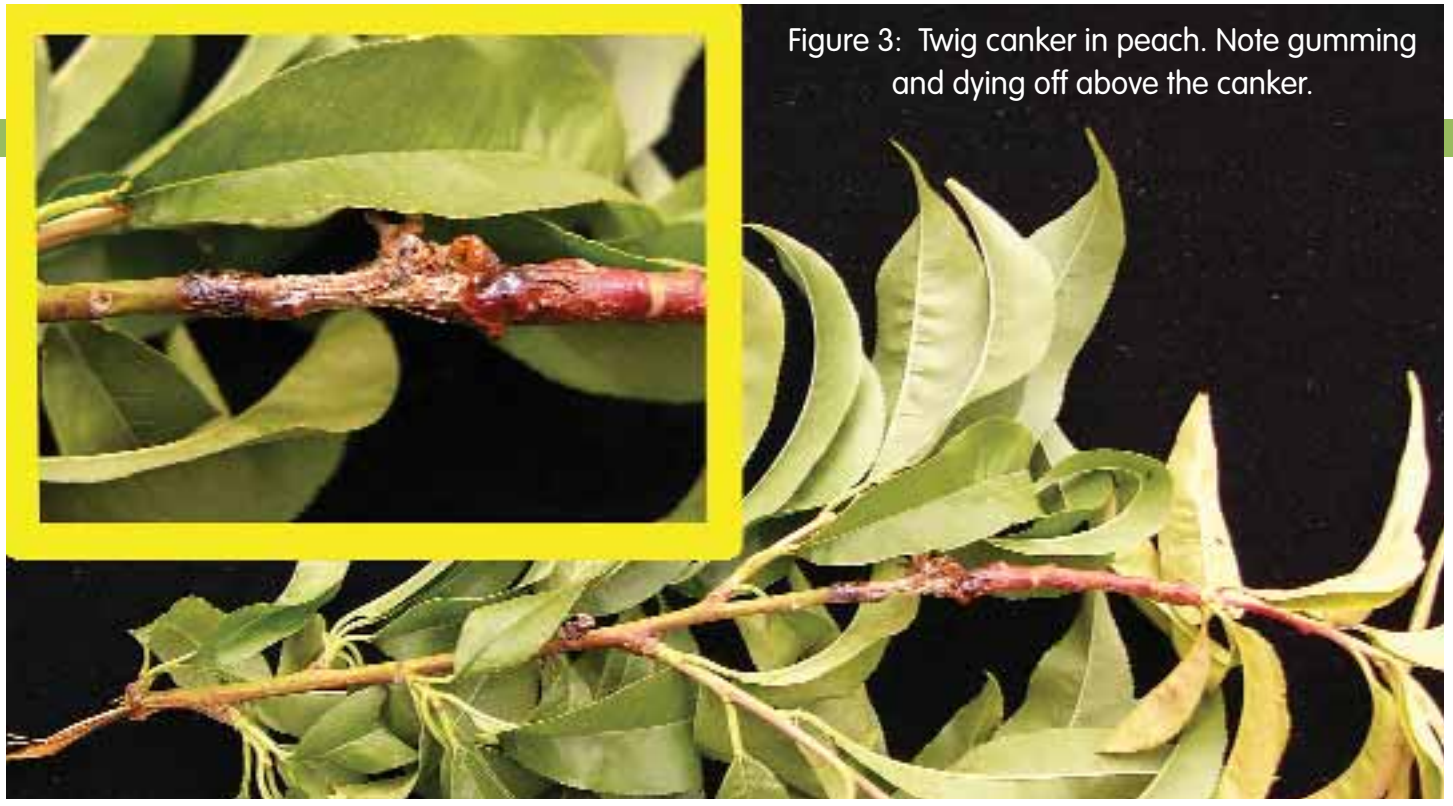


Figure 3: Twig canker in peach. Note gumming and dying off above the canker.

Twig blight (*Figure 1*) and canker (*Figure 3*) also produce brown rot conidia under damp conditions. While fruit mummies are obvious and easily removed during dormancy, cankers may be more evident as leaves emerge and shoots begin to die off (*Figure 3*).

If making pruning cuts larger than 10 millimetres - particularly in showery conditions where the trees could remain damp for extended periods - an effective tree wound dressing will help prevent infection of the cuts by silverleaf and other wood rotting fungi. Removing mummies and infected wood is an age-old control strategy. The abundance of these infection sources in some orchards during bloom suggests that some orchardists need to reassess the benefit of eliminating overwintering inoculum. While it might seem laborious to remove, burn or bury this diseased material, according to overseas work this must be done to effectively eliminate this source of infectious spores.

Failure to remove mummies and blighted wood pre-bloom can result in hot spots of disease which are difficult to eradicate (*Figure 4*).

Figure 4:

Failure to remove mummified fruit and diseased wood can result in 'hot spots' of brown rot disease.

For further information on HAL Project MT08039 (*Through chain approach for managing brown rot in Summerfruit and Canning fruit*) contact Robert Holmes at DPI Victoria, Knoxfield, t: (03)9210 9222 or e: robert.holmes@dpi.vic.gov.au ■

International apple and pear research update

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

BREEDING AND PROPAGATION

USA

The use of genetic screening of apple seedlings after initial selection but before grafting is estimated to save 60% of costs for first-stage seedling selection

Germany

Using genetic markers, 249 heritage apple cultivars from the Bodensee region were tested. One hundred and eighty three alleles were detected which allowed differentiation of each cultivar and 11 unknown cultivars were identified and two unknown cultivars were found that did not match the fingerprints of any known cultivar.

FLOWERING

Bosnia-Herzegovina

A study is being conducted to identify the stages of apple flower initiation and development to define the moment when it is possible to use physiologically active chemicals to impact on flowering. The study has shown that more than four differentiation phases of female gametophytes, can be identified simultaneously in the apple blossom.

Republic of Korea

The effects of a self incompatibility control substance on self-pollination of pears found that the material promoted self pollination when applied before full bloom or during full bloom but was not effective after full bloom.

Republic of Korea

Studies of pear pollen growth after the application of fungicides commonly used at flowering found no effects for abamectin, fenarimol, and myclobutanil; some effects of azoxystrobin+difenoconazole, difenoconazole, dithianon, and imidacloprid; and kresoxim methyl and mancozeb were very detrimental.

Republic of Korea

A study to reduce the juvenile period of apple seedlings found that grafting seedlings onto established Fuji trees was more effective than grafting onto M26 and that abscisic acid or daminozide also induced flowering.

Republic of Korea

Using S alleles and actual cross pollination tests the S alleles of apple cultivars grown in Korea were determined and the field testing confirmed that fully compatible occurs when both S alleles differ and semi compatible occurs when they carry one different and one identical allele.

PRODUCTION

China

Comparing straw and film mulching with sod and bare soil in an unirrigated apple orchard it was found that straw and sod increased soil porosity, but sod reduced soil water content compared to the straw mulch.

Republic of Korea

Four different crop loads - 4, 5, 6 and 7 fruits/cm^2 (cross-sectional area) were established in third and fourth year of a high density Fuji/M.9 apple orchard. This trial concluded by recommending to set 4-5 fruits/cm2 in the third and 4 fruits/cm^2 in the fourth year.

China

A plant canopy analyser was compared with actual measurements of leaf area index in 40 apple orchards and it was found that the plant canopy analyser over-estimated the leaf area index, particularly for a dense canopy.

China

Genetic markers were used on rootstocks from 3 genetic resource blocks for apple rootstocks (SH series to identify similar lines and incorrectly named lines.

Croatia

A study of foliar nutrient levels in different apple cultivars growing on M9 rootstock has found that while foliar levels of phosphorus and magnesium are independent of cultivar levels of nitrogen, potassium and calcium are related to the cultivar.

Slovenia

Using 6BA to thin two cultivars of apple it was found that application made at the end of bloom and up to 20 mm fruitlet diameter were effective.

India

Apple trees on MM106, M7 or MM111 were supplied with different levels of water and it was found that as watering increased the fruit firmness, TSS and acidity decreased. Drip irrigation at a volume of 40% evapotranspiration was found to have maximum water use efficiency.

Slovenia

In a study of NAA or hand thinning of European pear it was found that NAA did not reduce yield per tree and had no negative effect on fruit set, yield efficiency or crop load although it increased fruit diameter.

Switzerland

Under a European Union project to compare apple production with other countries, it has been found that in Switzerland production and labour costs are higher than other EU countries and that orchard sizes are smaller. Depending on the cultivar, yield and grading results may differ between Switzerland and the other EU countries.

Japan

An analysis of reduced chemical and conventional apple production found that the pesticide cost per kilogram of fruit sold was higher for the reduced chemical input system and that a price increase from the consumer was only achieved with the high grade of fruit, but not for the lower grades of fruit.

PEST & DISEASES

China
Chinese isolates of apple stem pitting virus were compared with other isolates and sequence analysis revealed 70 to 91% identity. There were three isolate groups identified which were slightly related to host but not to growing region.

China
A new species of *Zygophiala*, the cause of flyspeck, has been identified on apple fruit in China.

Belgium
An investigation into the comparative performance of a tunnel sprayer with pesticide recycling and an airblast sprayer, both fitted with conventional or drift mitigating nozzles, found that spray coverage was equivalent between the two sprayers with conventional nozzles but the coverage at the top of the tree in the tunnel sprayer was poorer with the drift mitigating nozzles. At the same application rate, the drift mitigating nozzles resulted in inferior spray cover to the conventional nozzles.

Australia
In a research project it has been identified that microencapsulated formulations of pheromone that can be sprayed onto trees could be an effective method for the control of oriental fruit moth as a cost-saving alternative to existing hand application pheromone dispensers.

Canada
Palmolive™ detergent (5ml/L) sprayed onto trees throughout the growing season provided equivalent control of powdery mildew of apple to myclobutanil. It was found to have protectant, eradicant, and antisporulant properties.

Japan
A study of Diplocarpon mali, the causal fungus of apple blotch, to the strobilurin fungicide kresoxim methyl revealed that there is no resistance in commercial orchards of Iwate Prefecture.

Japan
A simple method of assessing tree canopy density is described where a board (90cm x 180 cm) with 28 red circles (seven rows of four 20cm diameter circles) is placed behind a tree and an evaluator gives a numerical value for the extent that each red circle can be seen though the tree canopy.

FRUIT QUALIUTY AND POSTHARVEST

Japan
The efficacy of 1-MCP, (SmartFresh™) was improved when infiltrated under low pressure.

Republic of Korea
Pears were grown in normal paper bags or bags where the interior paper had been treated with calcium, methanol and wax followed by 120 days of storage were studied and it was found that the calcium bagged fruit were firmer (2.39 Vs 2.31 kg) and tended to have lower respiration and less solubilisation of pectin.

USA
Studying bitter pitted and not pitted stored apples it was found that pitted fruit had higher levels of pectin breakdown with more calcium bound to the cell walls in the fruit flesh while the calcium was located in the cell vacuole of the cell layers near the skin and these had higher membrane permeability.

Republic of Korea
Using exotherm graphs, the freezing point of fruit was studied and postharvest temperature management at above -0.7°C and -1.4°C was identified for Mibaekdo peach and Fuji apple, respectively.

Switzerland
Testing 11 new varieties of apples with 550 consumers found three types of consumers. One type prefers sweet, aromatic and crisp apples with a firm fruit flesh, tolerating a slightly lower fineness of the flesh. The second group prefer sweeter, fruity and aromatic apples, partially with a floral aroma and a higher fineness of the texture and they are less demanding on firmness. The final group are intermediate. All consumers share the rejection of soft and mealy apples with low intensity or grassy aroma.

Spain
Up to 12 calcium sprays were applied to apple trees in the second half of the growing season and this generally increased flesh firmness at harvest but this was not maintained during storage. Treatments reduced bitter pit and lenticel blotch pit after cold storage, but they were not totally eliminated. The treatments did not influence acidity and soluble solids.

Germany
Apple fruit development and quality were analysed along with measured climatic data to better predict the impact of global warming on fruit production. It was found that apple fruit diameter was affected by degree days and evaporation while fruit quality was affected by degree days and humidity.

PROCESSING AND HUMAN HEALTH

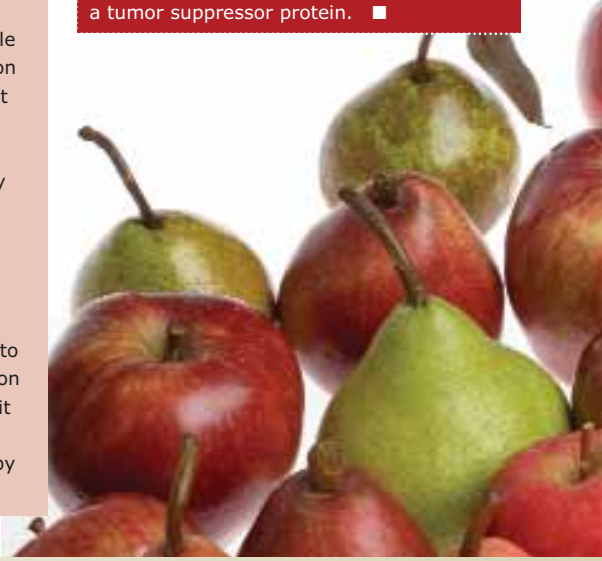
Republic of Korea
It has been found that apple pectin, when mixed with flour, can reduce the oil content required for biscuits and contributed to a more tender texture and lighter surface colour

Spain
Braeburn apple slices were dipped in calcium ascorbate and stored for up to 28 days at 4°C. Untreated or 2% CaAsc treated slices stored in air or MA showed browning, microbial deterioration and poor sensory quality and had a short shelf life of less than 7 days, however, apples dipped in 6 or 12% CaAsc and stored in MA packaging, or dipped in 20% CaAsc and packaged in air or MA had a shelf life of 21 to 28 days.

Japan
Apple extracts were studied with human cells and it was found that the extract could protect cells from glycated protein/iron chelate induced toxicity, suggesting that the extract may prevent diabetic angiopathies.

Switzerland
In studies using mice it was found that consumption of polyphenol-enriched apple extract reduced food allergy symptoms through two distinct possible mechanisms.

USA
Research has shown that apple skins decrease the growth and survival of human prostate cancer and breast cancer cells. Also, the apple skin resulted in a marked decrease in the protein levels of proliferative cell nuclear antigen, a marker for proliferation and an increase in maspin, a tumor suppressor protein. ■



Industry information & horticulture quiz

APFIP Weather Station Roundup

Weather Station – Region Report period: 16/6/2010 to 15/7/2010	Average Temp Min	Average Temp Max	Rainfall for Month	Rainfall to Date 1st Jan	Chill units for month	Total units from 15th May
Batlow NSW	1.5	8.5	238	706	551	1141
Huon TAS	0.7	11.8	27	192.5	358	848
Lenswood SA	3.8	8.5	102.6	276	410.5	927
Manjimup WA	6	13.7	76.5	197.7	434.5	704
Goulburn VIC	2.2	12	32.6	248.5	477	804
Yarra Valley VIC	2.8	12.2	66	351.2	446	897
Orange NSW	2.2	8.1	96	543	576	1178
Stanthorpe QLD	3.4	11	28.8	222.7	519	1015

This data is from the APFIP evaluation sites and may not be representative of the total district. 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.

Greg's Quiz

Question 1:

True or False: Used for genetic experiments and one of the most studied insects in the world, the Fruit or Vinegar Fly is an ideal laboratory subject because of it's short life cycle.

Question 2:

Which of these pesticides is not of the cyclodienes group of chemicals? **A:** Endosulfan. **B:** Dieldrin. **C:** Heptoclor. **D:** Carbaryl.

Question 3:

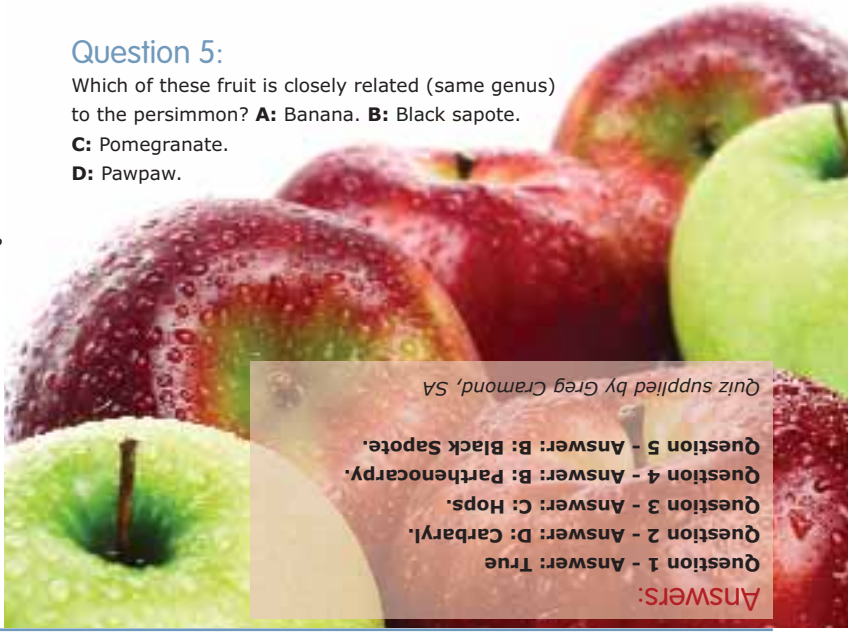
A relative of the cannabis plant, this crop has been cultivated since Roman times as an ingredient to beer? **A:** Barley. **B:** Rice. **C:** Hops. **D:** Sugar.

Question 4:

What is the scientific term used to describe a plant's ability to produce seed without fertilisation? **A:** Lucky. **B:** Parthenocarpy. **C:** Apomixis. **D:** Birth control.

Question 5:

Which of these fruit is closely related (same genus) to the persimmon? **A:** Banana. **B:** Black sapote. **C:** Pomegranate. **D:** Pawpaw.



Answers:

Question 1 - Answer: True
Question 2 - Answer: D: Carbaryl.
Question 3 - Answer: C: Hops.
Question 4 - Answer: B: Parthenocarpy.
Question 5 - Answer: B: Black Sapote.

Quiz supplied by Greg Cramond, SA

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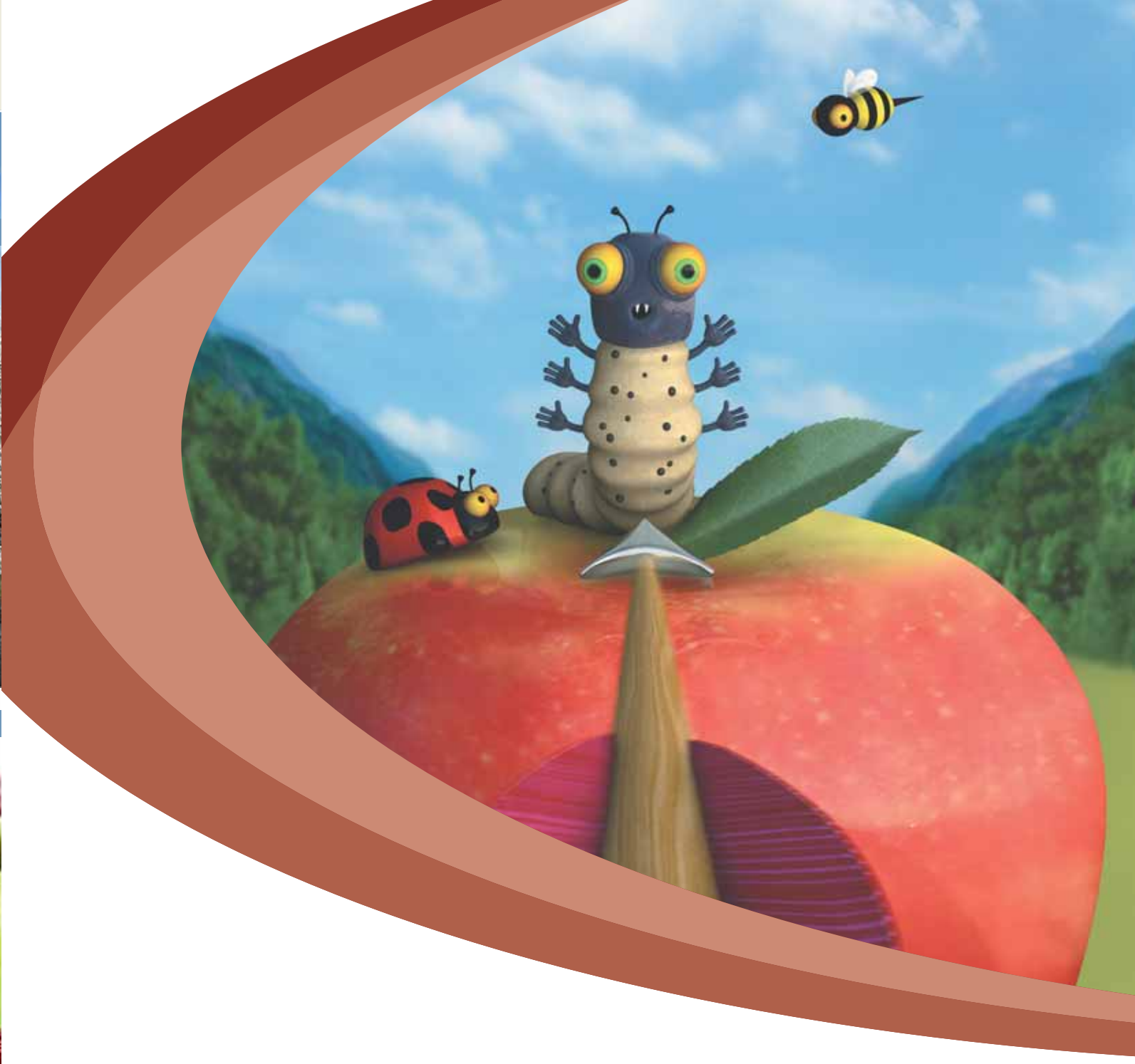

Codling moths won't be the only ones struck by the deadly precision of DuPont™ Altacor®

Altacor® targets major apple pests like Codling moth, Lightbrown apple moth, Oriental fruit moth and Heliothis spp. in a way like you've never seen before. It quickly stops them in their tracks, while leaving bees and most other beneficial insects alone. And because it has a zero re-entry period and low-toxicity to most non-target organisms it makes it an ideal tool for Integrated Pest Management (IPM) programs. So, if its time to get serious with apple pests, watch precision in action with Altacor®.

DuPont™
Altacor®
insecticide
powered by
RYNAXYPYR®

Delivering science to horticulture

DUPONT
The miracles of science®

ALWAYS REFER TO THE PRODUCT LABEL BEFORE USE.

Scholar® SC

syngenta

The educated choice for post-harvest disease management

New mode of action
Different chemistry group for resistance management.

Anti sporulation activity
Stops the spread of disease throughout a bin.

Broad spectrum protection
Superior disease control during long term storage.

Flexible and compatible
Fits different packing shed management practices.

Proven performance
Already registered in key countries, including the U.S.A.

For further information on SCHOLAR please call your local Territory Sales Manager, the Syngenta Technical Product Advice Line on 1800 067 108 or visit our website at www.syngenta.com.au