Australian STONEFRUIT GROWER

incorporating the

Low Chill Stonefruit Grower

AUGUST 2015
…Issue No. 3/15

Lyle Wright – 1923 -2015

'Australian Stonefruit Grower' is the official publication of Summerfruit Australia Ltd & Low Chill Australia Inc. – the industry bodies representing the interests of Australian stone fruit growers.

Horticulture Innovation Australia

"This project has been funded by Horticulture Innovation Australia Limited using the summerfruit levy and funds from the Australian Government."

IN THIS ISSUE –

CONTACTS –

Summerfruit AUSTRALIA

Summerfruit Australia Ltd - ACN 105 962 196
John Moore – CEO
8/452 Swift Street, Albury NSW 2640
Ph: 02 6041 6641, Mobile: 0419 305 901,
Fax: 02 6021 0011
Email: ceo@summerfruit.com.au
Website: www.summerfruit.com.au

CONTACTS –

Low Chill Australia Inc.

ABN 283 812 712 44

Office Address:
PO Box 25, BANGALOW NSW 2479
Phone: (02) 6687 2376
Mobile: 0413 007 197
Email: president@lowchillaustralia.com.au
Website: www.lowchillaustralia.com.au
Communications Manager:
Col Scotney
PO Box 372, BURRUM HEADS QLD 4659
Phone: (07) 4129 5960; Mobile: 0407 589 445
Email: cm@lowchillaustralia.com.au
Email: australian.stonefruit.grower@aapt.net.au

CHECK OUT THE LOW CHILL AUSTRALIA INC. WEBSITE www.lowchillaustralia.com.au

SUMITOMO CHEMICAL

ReTain®

MORE FLEXIBLE FRUIT PICKING AND HARVEST MANAGEMENT WITH ReTain

'We find it helps with the maturity side of things, keeping it under control. We don't get too much over-ripe fruit here; that cuts down wastage a lot.

'We have noticed a difference since we started using ReTain. We're going to continue with it and I'd certainly recommend it.'

For the full story go to:
www.sumitomo-chem.com.au
Or scan the QR Code here:

Tony Tricollo
Fruit grower
Jarrahdale WA

SUMITOMO CHEMICAL
SUMITOMO CHEMICAL AUSTRALIA PTY LTD
www.sumitomo-chem.com.au

Tribute …

Mr Lyle Wright, Founder of the Australian Low-chill Stonefruit Industry - 1923 – 2015.

Mr Lyle Eustace Wright OAM passed away peacefully on 14 May 2015, at Howard in Queensland. Many in the stonefruit industry knew and had worked with Lyle over the past decades.

Lyle was born in Bicheno, Tasmania on 1 August 1923. He grew up in Castlemaine, Victoria and began his horticultural career when he commenced work for a Melbourne nursery at the age of twelve. Lyle served in the Australian Navy during World War II and while stationed as a coast observer at Seven Mile Beach, Lennox Head he saw Bangalow and considered it "the prettiest spot in the world". He returned to Bangalow after the war and started his nursery business.

In addition to his commercial business, Lyle set up a research nursery in which he trialled mandarins, feijoas, limes, apples, pears, grapes, cherries, apricots plums, peaches and nectarines. By far the greatest success was with the low-chill stonefruit cultivars bred at the University of Florida by Professor Wayne Sherman and imported into Australia by Mr Rex Sweedman, Principal Horticulturist with the NSW Department of Agriculture. Lyle also worked closely with Mr Ross Lobelle of the NSW Department of Agriculture and with many of the new low-chill stonefruit growers. Professor Sheman described Lyle as "a true mentor for me on growing peaches in the many microclimates in Australia."

The first low-chill peach cultivars were introduced to Australia in 1978 and by 1989 there were more than 800 ha planted on the North Coast of NSW. Lyle was closely involved with the industry during this time, propagating trees, conducting field days at his nursery, visiting the University of Florida, speaking at grower meetings and liaising with State Departments and growers. In 1989 Mr Wright was awarded an Order of Australia medal for his services to the industry. As a tribute to his industry service, Lyle was made a life member of the industry association Low Chill Australia and had the University of Florida nectarine cultivar Fla81-7n named 'SunWright' in his honour.

Lyle was a hard worker and generous with his knowledge. Upon retirement, Lyle and his wife Margaret moved to live in Howard, Queensland where Lyle continued his love of horticulture through membership of the orchid society. He kept in touch with the low-chill industry, the growers and breeders and was always keen to sample new cultivars from the Australian breeding program.

A memorial service was held at the Bangalow showgrounds on 25 May 2015. Lyle is survived by his son Terry, daughter-in-law Robyn, two grandchildren and four great-grandchildren.

Bruce Topp

2014-2015 Board

Andrew Finlay (Chair)
Pikes Creek Homestead, MS 312
Stanthorpe, QLD
Phone: 07 4685 6171
Fax: 07 4685 6171
pikescreek@bigpond.com

Adrian Conti (Deputy Chair)
482 Campbell Road
Cobram VIC 3644
Fax: 03 5872 2915
Mobile: 0418 302 873
adrianconti@summerfruit.com.au

Mike Oakley
133-137 Brown Mountain Road
Campania TAS 7026
Phone: 03 6260 4463
Fax: 03 6260 4455
Mobile: 0438 271 848
mikeoakley@summerfruit.com.au

Jason Size
PO Box 696 Berri
South Australia 5343
Fax: 08 8582 5147
Mobile: 0417 811 977
jasonsize@bigpond.com

Gaye Tripodi
Murrawee Farms
Prince Road
Swan Hill VIC 3585
Mobile: 0438 332 286

Brett DelSimone
Spring Hill Orchards 195 Urch Rd
Rolystone WA 6111
Fax: 08 9496 2252
Mobile: 0413 343 227
springhillorchard@gmail.com

Scott Coupland
Yarrawa Fruits Pty Ltd
NSW
Mobile: 0418 825 181

From the Summerfruit Chairman's Report -

Although winter is traditionally the quietest time around stonefruit orchards this winter for SAL has seen as seen a lot of activity across a number of different areas.

Trade & Market Access …

We envisage a relationship where the exchange of technology and collaboration on research and development underpin a robust and mutually beneficial relationship.

Trade and market access, as always, is at the forefront of SAL activities. China has again been the focus including visits by Summerfruit representitves to some of the growing regions in China:

- talking and doing presentations with growers and meeting with some of their key industry people;
- accompanying the Australian Department of Agriculture for their recent bilateral talks on stonefruit with the Chinese Ministry of Agriculture (AQSIQ); and

- currently accompanying Australian Trade Minister Andrew Robb on a trade mission to China for the significance of ChaFTA (Free Trade Agreement) to Australia.

Summerfruits vision for our trade with China is not just as a commodity for commodity basis. We envisage a relationship where the exchange of technology and collaboration on research and development underpin a robust and mutually beneficial relationship. It is in this area that John Moore has been tireless in his efforts to promote this vision and create the relationships in China that can allow for our aspirations to become a reality.

I would also like to acknowledge the commitment and effort of staff within the Department of Agriculture in Canberra who have been dealing with, and continue to deal with, the complexities of negotiating the many issues associated with developing the protocols for a successful two – way trade for stonefruit between China and Australia.

For the Australian stonefruit industry to be able to grow and be sustainable we need, as an industry, to approach export with a different mindset.

Within Summerfruit we have formed the **Summerfruit Export Development Alliance** (SEDA) to operate as a sub-committee of SAL, with SEDA functioning as the central supportive link between governments, Horticulture Innovation, exporters and growers, co-ordinating export market access and maintenance for Summerfruit. Increasingly export destinations for Australian stonefruit are requiring phytosanitary protocols. This is a totally new process for many growers and can entail a significant, auditable commitment at the orchard and packing shed level in order to satisfy protocol requirements. For the Australian stonefruit industry to be able to grow and be sustainable we need, as an industry, to approach export with a different mindset.

With the formation of SEDA, Australia's stonefruit growers now have an organisation whose total focus is to develop and grow our export capability. With the growers responsible for around 75 % of current stonefruit exports already members, SEDA is an exciting development for the stonefruit industry. I urge all growers who have previously exported stonefruit or are interested in exporting to contact SEDA at seda@summerfruit.com.au to find out what SEDA can offer you.

National Farmers Federation Membership …

It gives me much pleasure to write in this column that Summerfruit Australia Ltd has been accepted as a Commodity Council Member of Australia's national peak industry body, the National Farmers Federation. Our membership of NFF will further enhance SAL's role in promoting the needs of stonefruit growers throughout the country, ensuring that their interests are brought forward for debate at the highest level and supporting the development of strong and effective national farm policy.

The hopes and aspirations, the challenges and difficulties facing Australia's stonefruit growers share much in common with producers of many different commodities right across rural Australia. In order to overcome the hurdles and capture the opportunities as they happen, agriculture in Australia must be unified and work together. Summerfruit Australia's membership of NFF is a significant step towards ensuring Australia's stonefruit growers are in the best possible position to benefit from opportunities as they develop throughout our region.

Summerfruit Interim Advisory Panel …

John Moore and I recently attended the **Summerfruit Interim Advisory Panel** meeting at Horticulture Innovation Australia Ltd (HIA Limited) in Sydney as Summerfruit Australia's representatives, along with four growers selected by HIA. This interim panel replaced the former Summerfruit Industry Advisory Committee (IAC) that was in place to direct the allocation of Summerfruit levies when R & D and Marketing levies were administered by HAL. I was unsure of what to expect from the day. What I can say now is that it was a very productive meeting. It was conducted by Hort Innovation in a manner that was both engaging and professional and the outcomes from that meeting are consistent with the five year Strategic Industry Plan for R & D adopted by the Summerfruit IAC in August 2014. Underpinning this successful meeting was recognition that it is a new system that we are working under and a desire by Hort Innovation, SAL and the growers present to ensure that the best possible and relevant outcomes for the R & D & M levy spend are achieved for growers.

Subsequent conversations with **David Moore**, *General Manager of Research, Marketing and Investments* at Hort Innovation have re-enforced my impression that the mechanism put in place by them will allow for Summerfruit growers levies to be allocated through a process that ensures HIA is compliant with its Statutory Funding Agreement and at the same time delivers on the R & D & M outcomes that are so important to the Australian stonefruit industry.

The past season was disastrous for many in our industry and not a result that we would like to see repeated. While recognising that the state of play is difficult to change overnight, SAL has been doing what we can at an industry level to try and steer the industry in the right direction and ensure that future prospects are better for growers.

I hope that this season is kinder for all.

Andrew Finlay – **Chairman**

Summerfruit AUSTRALIA

To find out more about Summerfruit Australia Ltd, check out the website: www.summerfruit.com.au

Export …

Asia Fruit Logistica

- Asia's leading fruit and vegetable trade exhibition
- Strong participation from industry players – over 500 exhibitors from 38 countries including 21 national groups
- Over 8,000 trade visitors from 60 countries were expected to attend

See www.lowchillaustralia.com.au for the full Pre-Departure Briefing.

LOW CHILL AUSTRALIA INC.

ABN 283 812 712 44

2014-2015 COMMITTEE

PRESIDENT
Mark Napper
P: 02 6687 2376, M: 0413 007 197
E: president@lowchillaustralia.com.au

VICE PRESIDENT
Ross Stuhmcke
P: 07 5462 5202, F: 07 5462 5333, M: 0413 179 133
E: vice.president@lowchillaustralia.com.au

SECRETARY
Position Currently Unfilled
Email Directed through the President's Email
E: secretary@lowchillaustralia.com.au

TREASURER
Greg Foster
P: 02 6687 1295, F: 02 6687 2406, M: 0407 871 756
E: treasurer@lowchillaustralia.com.au

COMMITTEE MEMBER
Neil Mungall
P: 07 4160 0500, F: 07 4162 4748, M: 0427 739 540
E: neil.mungall@lowchillaustralia.com.au

COMMITTEE MEMBER
Frank Pirlo
P: 02 6628 2328, F: 02 6628 2139
E: frank.pirlo@lowchillaustralia.com.au

COMMITTEE MEMBER
Kuldeep Smagh
M: 0423 307 128
E: kuldeep.smagh@lowchillaustralia.com.au

COMMITTEE MEMBER
Rod Thomson
P: 02 6629 5187, F: 02 6629 5427
E: rod.thomson@lowchillaustralia.com.au

COMMITTEE MEMBER
Dr Bruce Topp
P: 07 5453 5973, F: 07 5453 5901
E: bruce.topp@lowchillaustralia.com.au

CHECK OUT THE LOW CHILL AUSTRALIA INC. WEBSITE www.lowchillaustralia.com.au

NOTICE: Low Chill Australia Inc. Annual Memberships were due for Renewal by 30th June 2015. Renewal Notices and Invoices were forwarded by email to current Members on 1st June 2015. If you are not a member, your membership has lapsed, or you wish to become a member, please use the following *Membership Application Form*.

The Taste of Spring

LOW-CHILL AUSTRALIA Inc.

ABN No. 283 812 712 44

Office Address: PO Box 25, BANGALOW NSW 2479
Phone: (02) 6687 2376; Mobile: 0413 007 197
Email: president@lowchillaustralia.com.au; Website: www.lowchillaustralia.com.au
Communications Manager: PO Box 372, BURRUM HEADS QLD 4659
Phone: (07) 4129 5960; Mobile: 0407 589 445
Email: cm@lowchillaustralia.com.au

MEMBERSHIP APPLICATION FORM 2015/2016

Dear Secretary,
I wish to apply for membership of Low-Chill Australia Inc. I agree to be bound by the LCA Articles of Association and Rules and By-Laws of the association. Below are my contact details.

As we are updating our records, please complete the following contact details when applying for membership: PLEASE PRINT DETAILS SIGN AND RETURN FORM

Name: …… ***Company Name:*** ……

ABN: …… ***Postal Address:*** ……

Town / City: …… ***State:*** …… ***Post Code:*** …… ***Ph:*** ……

Mobile: …… ***Fax:*** …… ***Email:*** ……

(PLEASE TICK √ APPROPIATE MEMBERSHIP BOX)

Website: …… ☐ ***Grower / Researcher ($110.00)*** ☐ ***Corporate ($275.00)***

Annual membership is on a financial year basis from 1st July to 30th June. Annual Membership for growers and researchers is $110.00 (including GST). Annual Membership for corporate members is $275.00 (including GST).

The membership fee for growers and researchers comprises $50 membership fee, $50 devoted to research and development, plus $10 GST. The Corporate membership fee comprises $50 membership fee, $100 devoted to research and development, $100 advertising fee for Australian Stonefruit Grower, plus $25 GST.

Membership Payment Details –

☐ ***BY CHEQUE*** - Please make Cheque Payable to **Low Chill Australia Inc.**
Post Cheque and this Form to -
Greg Foster, Treasurer, L.C.A.
38 Brooklet Road, Newrybar NSW 2479

OR

☐ ***BY 'ELECTRONIC FUNDS TRANSFER'*** –

Account -	*Low Chill Australia Inc.*
Bank -	*Westpac*
Branch -	*Ballina, NSW*
BSB -	*032 591*
Account No. -	*14 8934*

Note: Please advise of EFT payment by email to – treasurer@lowchillaustralia.com.au . When paying by EFT -
FAX THIS COMPLETED FORM to 02 6687 2406 or SCAN and EMAIL to treasurer@lowchillaustralia.com.au

Name (please print): ……

Signature: …… Date: ……/……/……

Message from the CEO of Summerfruit …

I apologise for the brief column for this addition of The Australian Stonefruit Grower.

A new SAL Director nomination has been accepted by the Board. **Mr. Mick Young** has filled the vacancy in Victoria, welcome Mick.

I have been frequenting various events within China as preparations to our market access and forming relationships with important organisations along the way. The SAL Board, as you know, has adopted the philosophy of collaboration with our Industry contacts and Statutory Chinese Government authorities within China for future improvements to both of our Industries.

Concurrent trade is the key to our success and developing the pathway for this to occur necessitates these visits.

As I write this, I am accompanied by **Ian McAlister** (Chair of SEDA) on our way to Beijing for the very important bilateral meeting with the Ministry of Agriculture – China's AQSIQ division and our own DoA negotiators. For your information, the SAL Board has sanctioned an export sub-committee of SAL, **Summerfruit Export Development Alliance**. Many of you will no doubt have heard of this committee. They are very active in the attention to detail needed for exports, protocol development, market access and future market maintenance.

For successful market exports it is essential that such a committee is operational and the twelve-strong committee bring expertise to strengthen our Industry base.

For over 12 years, Industry has been waiting for the tick of approval for a commercially viable protocol for China and it is hoped that this bilateral will see some closure and an outcome for all of the Summerfruit growers to move forward with increased productivity and financial gains. If we *'crack'* China those of you who choose not to export will gain by the expectant volumes that will leave the shores for China. Ideally the train wreck that has plagued everyone for a number of years will gradually decongest and a freer domestic market will appear.

Not putting the cart before the horse, we are expecting this bilateral to yield some good news for all of you.

Your Chair, Andrew Finlay, will cover off on some other issues to bring you up to date.

Other news is that the domestic market has seen a somewhat static result for sales and consumption. Summerfruit represented about 6.4% of total fruit on offer to consumers. Volume sales increased marginally, being driven by Coles & IGA but the overall value of sales contracted marginally. The household reach increased across all states with the exception of WA – NSW accounting for a third of volume sales however the state consumption decreased slightly.

Finally, **I urge you all to think about purchasing a DA meter now**. The Federal Government is offering tax concessions announced recently by the Treasurer in the budget handed down. SAL has the sole distribution rights and for around $4,900, your marketable fruit quality will be enhanced. Seriously thinks about this. In past editions of the newsletter we have published the information to make informed decisions about this meter. Back copies are available at our web site or send me an email and I will pass on the information.

John Moore – CEO Summerfruit Australia Ltd.

For any further assistance, please contact **- John Moore –** *CEO – Summerfruit Australia Ltd.* **– Ph: 02 6041 6641; +61 419 305 901; Mobile: 0419 305 901 - Email:** ceo@summerfruit.com.au **– Address:** 8/452 Swift St., Albury NSW 2640

From the LCA President – Mark Napper …

President's Report

In my capacity as the Co-Chair of the Review of the *Horticulture Code of Conduct* I have had the pleasure to meet with a wide number of businesses within horticulture across all sectors of the supply chain. Additionally I have met with others from the government and private sectors whose primary aim is to assist small businesses.

What struck me was the vast number of programs that I had little or no awareness of and conversely the lack of knowledge of, or engagement with, horticultural growers and indeed the broad farming community by these agencies.

Should I be surprised? Probably not because how many of us do not refer to ourselves as "business owners". Generally we talk about being "growers" and usually that is in a self-deprecating and apologetic manner.

Why not say we are business owners operating in the health and well-being sector, producing the best stone fruit on the planet! By so doing we would be implying our commitment to best practice in all elements of our business from production to sales and marketing.

Perhaps if we paid more attention to our whole business, many of the issues covered by the *Code of Conduct* would be non-events.

Unfortunately many of us spend the majority of our focus on the very important production and spend little or no time on the sales and marketing. Sadly, all too often we even abdicate those responsibilities to others and those 'others' are often outside of our own business! Perhaps if we paid more attention to our whole business, many of the issues covered by the *Code of Conduct* would be non-events.

So as we get down to the "business end" of the production cycle how are you going considering your marketing plans for the season? Discussed the market with your wholesaler, marketer? Have you discussed price expectations? Have you agreed the basic terms of your horticulture produce agreement? Better to start early and work toward a clearer understanding on your sale, delivery and payment requirements.

All submissions to the review of the Code of Conduct are welcome, but don't delay any further as the closing date is 5pm Friday 18th September.

Kevin Dodds has put together a great overview of registered and permitted chemicals for use in the control of Queensland Fruit Fly. **The overview is contained within this publication but a copy can be obtained by contacting Kevin or myself.**

Best wishes for a successful conclusion to your production run and a profitable conclusion to your sales and marketing plan.

Regards

Mark Napper – President

Low Chill Australia Inc.

Australian Stonefruit Grower

incorporating the Low Chill Stonefruit Grower

- 2015 Publication Timetable -

Contributions are invited for the next scheduled publication - **MAY 2015**.

FEBRUARY	MAY	AUGUST	NOVEMBER
Advertising Deadline **7 February**	*Advertising Deadline* **21 April**	*Advertising Deadline* **31 July**	*Advertising Deadline* **31 October**
Copy Deadline **10 February**	*Copy Deadline* **28 April**	*Copy Deadline* **21 August**	*Copy Deadline* **7 November**

Note: Publication Dates are subject to change at the discretion of the Publishers.

Advertising in this publication are very reasonable and provide a cost effective way of informing members about your products and services.

ADVERTISING RATES – ***Please request an ADVERTISING BOOKING FORM.***

Full Page - $250.00* **Half Page - $175.00*** **Quarter Page - $100.00***

**Rates are subject to GST if applicable. Advertisers will be invoiced following the publication issue and the terms are Strictly 30 Days.*

CONTACT –

Col Scotney – *National Producer/Editor*

***Australian Stonefruit Grower* – Email:** australian.stonefruit.grower@aapt.net.au

Communications Manager

Low Chill Australia Inc., PO Box 372, Burrum Heads QLD 4659 – *Phone: (07) 4129 5960; Mobile: 0407 589 445 – Email:* cm@lowchillaustralia.com.au

Industry Information …

ChemClear contributes to a cleaner Queensland

ChemClear has successfully completed its second largest collection of unwanted agricultural and veterinary chemicals in Queensland.

The final pool equated to 37.16 tonnes, with 22,041 L/kg of Group 1 classified chemicals and 15,120 L/kg of Group 2 chemicals collected from farmers, businesses, golf courses, government departments and councils across the state.

"We are extremely pleased with the result," said National Program Manager Lisa Nixon. "In total, ChemClear has collected over 178.7 tonnes of obsolete or unknown chemicals across QLD over the past nine years".

QLD exceeds any other state's retrieved collection totals under the program, with NSW coming a close second with around 138.7 tonnes collected to date.

Ms Nixon said, "After 12 years with ChemClear, the level of really old, nasty chemicals that comes out of the woodwork on state collections still amazes me. Our data shows that there are a lot of agvet chemicals that are inherited from farm purchases or family takeovers. A lot of the products are also simply no longer required due to changes in agriculture. It's really important that farmers have a service available to dispose of these chemicals as they can pose a real safety and health risk."

The ChemClear truck collected product from hundreds of farmers in less than six weeks during June and July, and covered 12,063 kilometres in total. On the return trip to Melbourne, the program also took the opportunity to collect 6.5 tonnes of chemicals from two farmers in Walgett and Wee Waa as the truck passed through New South Wales.

Together these quantities accumulate to bring the overall amount of chemicals collected across Australia to 500 tonnes since the inception of the program in 2003 – a wonderful achievement for all involved.

This year's agvet chemical in the Group 2 pool was partly funded by the QLD Department of Environment and Heritage Protection. The Department funded the collection of 11,853 L/kg from 156 farmers and the remainder of 3,267 L/kg was paid for by a further 34 waste holders. Feedback collected after the run has also been positive, with 100% of program users indicating that the delivery process was straightforward and convenient, and they would use the service again in the future.

Health and safety, followed by concern about damage to the environment associated with irresponsible disposal, were the main motivators behind users registering their chemicals for collection.

Coral Sanders, a user from Nanango who was a funding recipient said, "Registering online for the service was convenient and I was easily able to store my chemicals, some of which were approximately 10-years-old, in a poison's shed prior to collection." Ms Sanders encourages any agvet chemical user holding onto unwanted products to register them with ChemClear to ensure that they are safely taken care of. "By disposing of my chemicals, I've removed the burden from others if something was to happen to me. ChemClear is a valuable service for all agvet chemical users," she said.

Ms Nixon said, "We would like to thank the Department for supporting ChemClear in this year's state-wide collection. Farmers really need a helping hand in securing a safe disposal option for their unknown and aged chemicals." 98% of chemicals collected by ChemClear are used as an alternative fuel source in the manufacturing of cement. Most of the material is destroyed in kilns which reach temperatures in excess of 1,800°C.

If you have missed the recent collection and would like to utilise the service, please take an inventory of your unwanted chemicals and register for the next collection in QLD by visiting www.chemclear.com.au or calling 1800 008 182.

Research …

UPDATE:
Development of molecular diagnostic tools to detect endemic and exotic pathogens of summerfruit and almonds for Australia

Fiona Constable[1], Narelle Nancarrow[1] Wycliff Kinoti[1,2,] and Brendan Rodoni[1,2]
[1]*AgriBio, Department of Environment and Primary Industries, 5 Ring Road, Bundoora, Victoria 3083*
[2]*La Trobe University, 5 ring Road, Bundoora, Victoria 3083*

The plant microbiology group of the BioSciences Research Division, Department of Economic Development, Jobs, Transport and Resources (formerly DEPI) in Victoria have undertaken a research project to develop molecular diagnostic tools to detect endemic and exotic pathogens of almonds and summerfruit for Australia. These diagnostic tools will support biosecurity continuum of the Australian almond and summerfruit industries at the border during post entry quarantine (PEQ) facilities, during an incursion event and internally through schemes that supply high-health planting material.

Diagnostic tools were developed for a total of 48 exotic pathogens of almonds and/or summerfruit including five bacteria, ten phytoplasma species or groups, 31 viruses and two viroids. Molecular tools have also been identified, developed and established for 15 endemic pathogens of almonds and/or summerfruit including four bacteria, nine viruses and two viroids. The primary molecular diagnostic tools that have been developed use polymerase chain reaction (PCR) techniques, which detect and make multiple copies of a small portion of the genome of the targeted pathogen. For a few pathogens, (e.g. *Xylella fastidiosa*, almond leaf scorch) some simpler tests, such as Loop Mediated Isothermal Amplification, have been developed, which are potentially adaptable to field-based diagnostics for smart surveillance.

A national survey was undertaken to validate the molecular diagnostic tools on field collected samples. It is vitally important that these surveys are conducted prior to the use of these protocols for certification in a quarantine or commercial situation. The purpose of the survey is two-fold: (i) to update the disease status for each pathogen in Australia and (ii) to test protocols under "local" conditions and identify any potential "false positives" or organisms that can make interpretation of results difficult.

So far, a total of 80 samples were collected from New South Wales (33), Queensland (16), South Australia (5), Tasmania (18) and Victoria (8) and have undergone testing. The samples included 33 almond, four apricot, 12 cherry, five nectarine, nine peach, two peach/almond hybrids, 14 Plum and one *Prunus cerasifera.*

The following viruses are considered present or endemic in Australia: *Prunus necrotic ring spot* (PNRSV), *Prune dwarf virus* (PDV), *Apple mosaic virus* (ApMV), Apple chlorotic leafspot virus (ACLSV), *Apple stem pitting virus* (ASPV), *Apple stem grooving virus* (ASGV), *Little cherry virus 2* (LChV2), *Cherry virus A* (CVA) and *Cucumber mosaic virus* (CMV).

ACLSV is an economically important pathogen of almond and summerfruit species worldwide. It has been associated with pseudopox disease of plum and apricot, apricot viruela disease and plum bark split. It may be associated with chlorotic leafroll of almond in combination with PDV. ACLSV is associated with graft incompatibility. ACSLV was detected in two apricot, two cherry one peach and four plum samples in the survey. Some strains were only detected using a generic test for viruses in the family *Betaflexiviridae* to which this virus species belongs. Conversely some of the ACLSV strains were detected with the specific test but not the generic test.

This result and the result of sequencing of some isolates indicates significant diversity amongst ACLSV strains that can impact upon detection using molecular methods. Further work is required to determine the best test to detect ACLSV in *Prunus* species in Australia.

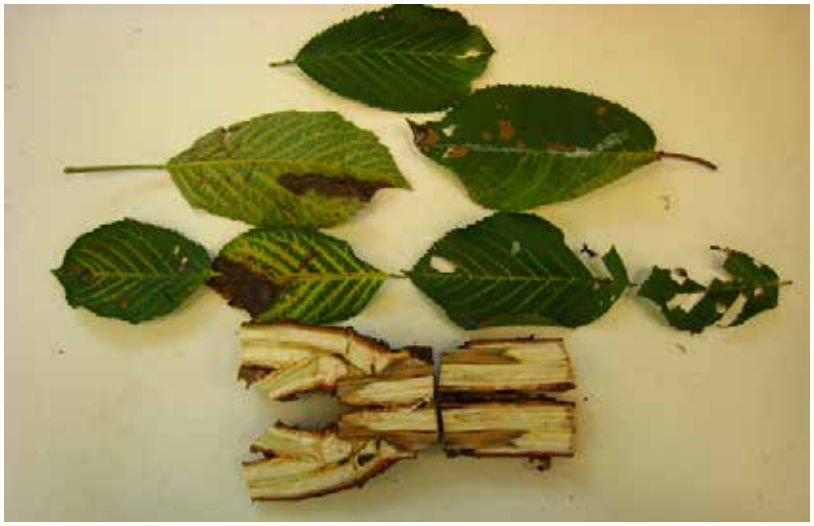

Figure 1. *An Australian cherry sample infected with Plum bark necrosis stem pitting associate virus. Note the discolouration and failure of the graft union between the rootstock and the scion. The yellowing along the veins of the leaves may be caused by disruption of the vascular issue associated with the graft union failure. (Photo: Ramez Aldaoud, DEDJTR)*

PNRSV, *PDV* and *ApMV* are members of the genus *Ilarvirus* in the family *Bromoviridae* and are important viruses of almonds and summerfruit in Australia. PNRSV was most frequently detected (43/80 samples) during the survey compared to PDV (2/80 samples) and ApMV (1/80 samples). In Almond PNRSV has been associated with necrotic shock, bud failure, calico and chlorotic mottling. It may be symptomless in some almond cultivars. In other *Prunus* species PNRSV may be associated with more serious diseases such as sweet cherry rugose mosaic, necrotic ringspot and European plum line pattern. When PNRSV occurs in mixed infection with other viruses, such as *Prune dwarf virus* (PDV), the impact of virus infection can be greater causing severe stunting in some species and varieties of *Prunus*. Yield losses of up to 60% have been reported in trees infected with PNRSV and PDV. In *Prunus* species, both PNRSV and PDV are spread in pollen and seed as well as in propagation material. There is some evidence for spread of Ilarviruses, particularly PNRSV and PDV, by vectors including mite (*Aculus fockeui*), nematode (*Longidorus macrosoma*) and thrips (*Frankliniella occidentailis*).

During the survey the detection of PNRSV, PDV and ApMV viruses was often confirmed using a generic test, which can detect all species in the *Ilarvirus* genus. However occasionally PNRSV or PDV strains were detected by the generic test and not with their specific test and vice versa, suggesting genetic diversity amongst *Ilarvirus* species occurring in Australia. Interestingly in some of these trees the generic test confirmed the presence of a virus in the *Ilarvirus* genus, but sequence analysis suggested the presence of another *Ilarvirus* species. The biological significance of this detection is unknown.

As a part of the project next generation sequencing (NGS) methods have been developed so that the sequence of full genomes of endemic *Prunus* viruses can be obtained. This information will give a greater understanding of the genetic

variability along the whole genome of a virus and allow better tests to be developed. This methodology will be used to characterise the *Ilarvirus* species that was detected at the molecular level.

CVA is known to infect several *Prunus* sp. overseas including sweet cherry, sour cherry, apricot and plum. It is not associated to disease and is considered a latent virus. CVA was also detected in *Prunus cerasifera* during the development of NGS techniques. This constitutes a first report of this virus in Australia and *P. cerasifera* is a new host for CVA. It has subsequently been detected during the survey in nine of the cherry samples, confirming its presence in Australia.

ASPV, ASGV and CMV have been infrequently detected in *Prunus* species overseas. ASPV is an important pathogen of pome fruits. There is an unconfirmed report of an association between ASPV and yellow vein disease in sweet and sour cherry in India. ASGV naturally infects and is an important pathogen of pome fruits, citrus, lily and kiwifruit. Natural infections of ASGV are also reported from nectarine, plum, apricot and cherry but the economic impact is unknown. CMV has a very broad host range, including almond, apricot, flowering cherry, sour cherry and plum. In combination with other viruses it is associated with deformed, chlorotic mottled leaves in sweet cherry and pseudopox disease of plum. The economic impact when CMV occurs on its own in *Prunus* species is unknown.

ASPV and CMV were not detected during the survey. ASGV was detected in one 50+ year old plum tree. The low frequency of detection of these viruses in *Prunus* trees in Australia and overseas indicates that they are likely to be minor pathogen of almonds and summerfruit in Australia and low risk to certification programs.

During the survey *Cherry green ring mottle virus* (CGRMV), *Cherry necrotic rusty mottle virus* (CNRMV) and *Plum bark necrosis stem pitting associated virus* (PBNSPaV) were also detected and are now considered present in Australia. CGRMV is associated with green ring mottle disease of flowering and sour cherry and may be associated with cherry rusty mottle and cherry necrotic mottling diseases. A strain of CGRMV has also been associated with apricot ring pox disease. CNRMV is associated with necrotic rusty mottle in cherry. It also naturally infects apricot, peach and plum but the association with disease is unclear. PBNSPaV is associated bark necrosis and stem pitting disease in susceptible almond, plum, prune, peach, cherry, and apricot varieties. In sensitive cultivars can also cause gummosis and graft union failure (Figure 1). All three viruses are transmitted during propagation and grafting. No vector is reported for the three viruses, although natural spread of PBNSPaV has been observed overseas.

LChV2 was detected for the first time in Australia in early 2014 and is now considered to be present. LChV2 was detected in two cherry samples during the survey. Sweet cherry, Japanese cherry and bitter cherry are primary hosts of the virus. There has been one unconfirmed report from plum in the USA. This virus is not known to be a significant pathogen of almonds or summerfruit and may not be important as a part of their certification programs. However, as the name suggests this virus can have a significant impact on the quality and yield of sweet cherry fruit and it may result in decline of infected trees.

Based on the results of this survey PNRSV, PDV, ApMV and ACLSV remain important to the production of high health almond and summerfruit planting in Australia. PBNSPaV is present in Australia and may also have an impact on the production of high health almond and summerfruit material. Testing for PBNSPaV should be undertaken within certification and high health programs. CGRMV and CNRMV are important to the cherry industry, and may have an impact on summerfruit species. Bioinformatic analyses for all of the viruses that were detected indicate that significant genetic variability may occur within some virus species. This information has been used to design more reliable molecular diagnostic tools. The diagnostic protocols for both endemic and exotic pathogens that have been validated have been incorporated into a National pathogen-testing manual that can be used by pathologists and industry in Australia to support biosecurity. These results have also assisted the development of management strategies and biosecurity plans for the summerfruit and almond industries.

Acknowledgements

We thank the growers, consultants and intestate colleagues who assisted with the sample collection for this survey. This project has been funded by ***Horticulture Innovation Australia Limited*** *using the* ***almond*** *and* ***summerfruit levies*** *with* ***co-investment from Department of Economic Development, Jobs, Transport and Resources and funds from the Australian Government.***

Life and growth of the stone fruit canopy experiment – the first two years

Janine Jaeger, Dario Stefanelli & Mark O'Connell

As part of **Profitable Stonefruit Systems Project**, supported by **Summerfruit Australia Limited** and **Horticulture Innovation Australia**, the **Agriculture Research Division of DEDJTR** have been studying the effect of rootstock and canopy training system on stone fruit bearing and growth. The project aims to generate knowledge of how to consistently produce fruit of optimal size and quality in commercial orchards by studying the interaction between rootstock, tree training system and crop load and how this affects the physiology of trees and fruit development.

Peach (cv August Flame) and nectarine (cv August Bright) trees were planted in the Canopy Experiment in the Stonefuit Field Laboratory, Tatura in 2013 to study the effects of training systems and crop load on fruit size, quality, uniformity and composition. Trees have been trained to Central Leader with 2 main branches and Tatura Trellis canopy systems ***(Figure 1).*** All fruit was removed from the trees this season to ensure consistency of flowering and production next season when crop load treatments will be applied.

Information from the Canopy Experiment has been collected since 2013. Trunk and branch size, were measured and branch growth calculated during winter 2013, 2014 and 2015. The growth results are shown in ***Table 1.*** Dry weight of prunings and canopy size were also measured as additional indicators of tree growth during the growing seasons (data not shown).

Table 1: *Average trunk and shoot cross sectional area, growth of trunk & shoot cross sectional area and branch length of Peach (c.v. August Flame) and Nectarine (c.v. Autumn Bright) trees in the canopy experiment at the Stonefruit Field Laboratory, Tatura.*

Cultivar	Tree training[1]	Cross sectional area (cm^2)		Growth of cross sectional area (cm^2)		Branch length (cm)
		Trunk 2015	Shoot 2015	Trunk 2013-15	Shoot 2014-15	2015
August Flame	CL	18.6	8.9	17.4	3.3	194.7
August Flame	TT	17.2	6.7	15.6	2.1	147.8
Autumn Bright	CL	18.7	8.0	17.8	4.2	178.6
Autumn Bright	TT	17.7	8.7	16.6	5.2	165.2

[1] CL = Central Leader; TT = Tatura Trellis

The results suggest that the trees are at a similar stage of development, as shown by similar cross sectional areas of both branches and shoots and branch length ***(Table 1).*** Not only was it important to know how the trees had grown since planting but also that they are at a similar developmental stage in anticipation of fruiting. At the end of year 2, all trees showed similar canopy growth, filling up their allotted space ***(Figures 1 and 2).***








Figure 1. *Tree growth and canopy development during 2013/14 (left) and 2014/15 (right) of Peach c.v. August Flame trained on Central Leader (top) and Tatura Trellis (bottom) at the Stonefruit Field Laboratory, Tatura.*

Figure 2. *Tree growth and canopy development during 2013/14 (left) and 2014/15 (right) of Nectarine c.v. Autumn Bright trained on Central Leader (top) and Tatura Trellis (bottom) at the Stonefruit Field Laboratory, Tatura.*

It is well known that yield and sustainability of production requires a well-balanced and consistent source-sink relationship in the tree. That is, the amount of resources that a tree will be able to accumulate due to photosynthesis during the year (source) will be affected by the number of fruit produced on the tree (sink). Understanding the resources available to the tree at important growth stages, such as flowering, fruit set and during fruit growth and development will identify the effort the tree is putting into production and provide an indication of the energy used for vegetative growth and fruit production.

Tree reserves can be a good indicator of this and gives an understanding of the effect of crop load and the interaction with canopy structure on tree production and fruit quality. Elucidating the relationships between photosynthesis, tree reserves and partitioning of resources between vegetative and fruit growth will enable reliable prediction and manipulation of fruit size, yield and quality.

Starch content of wood is being measured as an indicator of tree carbohydrate reserves. This study will determine if crop load and training system affects starch reserves in the wood and how this changes over time, especially during the growing season and during the early stages of tree growth. Pruning was performed during winter 2013 and winter, spring and summer of 2014. The wood collected during pruning of trees was dried, processed into small chips, finely ground and then analysed for starch content ***(Figure 3)***.

Figure 3: *Steps involved in wood reserves (starch) measurements: Wood chipping (top), fine grinding (bottom left) and starch extraction (bottom right)*

Table 2: Average starch content measured in dried wood from Peach (c.v. August Flame) and Nectarine (c.v. Autumn Bright) canopy experiment at the Stonefruit Field Laboratory, Tatura.

		Starch (mg/g) glucose equivalents		
		2013	2014	
Cultivar	**Tree Training**	**WINTER**	**WINTER**	**SPRING**
August Flame	CL	9.1	12.0	14.3
August Flame	TT	7.0	12.0	19.1
Autumn Bright	CL	0.3	10.7	16.4
Autumn Bright	TT	0.6	12.8	17.3

[1] CL = Central Leader; TT = Tatura Trellis

Table 2 summarises the starch content measured in the wood of peach cv August Flame and nectarine cv Autumn Bright. Large differences between peach and nectarine were found in 2013 with peach wood having several times the starch content of the nectarine wood. This effect was not observed in 2014, supporting the proposition that the winter 2013 result was due to the nectarine trees being delivered by the nursery with leaves already formed while peach trees were still dormant when the wood collection occurred. Therefore, starch reserves had been mobilised in nectarine to support growth while this had not occurred to the same extent in peach. Current data indicates that training system did not have a statistically significant effect on starch accumulation for either peach August Flame or nectarine Autumn Bright in either year. Wood material from spring 2014 seems to have higher starch content but this needs to be confirmed from other growth stages such as summer 2014 and winter 2015 which are still being collected and analysed. If the spring 2014 observation is confirmed, there may be remobilization of reserves from the roots during spring. Analysis of starch from wood collected is ongoing and Summer 2014 is being processed. Collection of 2015 winter wood is underway.

The 2015/16 season will see the first crop harvested from the orchard and the impact of the low, medium and high crop load treatments applied to the different canopy training systems. Defruiting the trees last season provides 2014/15 as the reference point before first fruit and will allow us to see the effect of training and crop load on development and health of the tree, as well as the performance and quality of the fruit. Although early days, the knowledge generated from the field laboratory will provide clear, science based production practices for growers to effectively manage tree establishment and growth. Producing consistent yields of uniform, high quality fruit, will increase the competitiveness and viability of the Australian stone fruit industry.

Further information on the project may be found on the Horticulture Industry Network (HIN) website (www.hin.com.au/projects/stonefruit-field-laboratory) or by contacting the authors (janine.jaeger@ecodev.vic.gov.au; dario.stefanelli@ecodev.vic.gov.au; mark.oconnell@ecodev.vic.gov.au).

SUMMERFRUIT Permit Update - Updated 19/06/15

CURRENT PERMITS – List of all current permits

Permit ID	Description	Date Issued	Expiry Date	Permit holder
PER12590	Delegate (spinetoram) / Pomefruit & Stonefruit / Fruit fly (Suppression only)	06-Oct-11	31-May-16	SAL
PER12907	Maldison / Stonefruit / Fruit Fly	06-Oct-11	31-May-16	SAL
PER13527	Samurai (clothianidin) / Apricots / Oriental Fruit Moth	28-Jun-13	30-Jun-18	Growcom
PER13840	Lebaycid (fenthion) / Possession, supply and use during suspension / WA only - Fenthion will be withdrawn Oct-2015	31-Oct-12	29-Oct-15	APVMA
PER13841	Lebaycid (fenthion) / Possession, supply and use during suspension / ACT, NSW, NT, Qld, SA, Vic and TAS - Fenthion will be withdrawn Oct-2015	31-Oct-12	29-Oct-15	APVMA
PER14252	Samurai (Clothianidin) Persimmons, Pome Fruit & Stone Fruit/ Fruit Flies (Ceratitis and Bactrocera)	5-Sep-13	30-Jun-15	Growcom
PER14562	Thiacloprid (Calypso) / Pome Fruit and Stone Fruit / Mediterranean Fruit Fly (WA only)	13-Dec-13	30-Nov-18	Growcom
PER14124	Fosetyl (Aliette WG Systemic Fungicide) / Apricot, Peach, Nectarine and Plum / Phytophthora trunk / collar rot	18-Dec-13	31-Dec-16	Growcom
PER14875	Alpha-Cypermethrin / Stone Fruit (except cherries) / Fruit Fly	5-Sep-14	31-Dec-16	SAL
PER14654	Fenthion / Apricot & Peach / Fruit Fly Fenthion will be withdrawn Oct-2015	21-Oct-14	30-Oct-15	SAL
PER13859	Dimethoate / Orchard cleanup - fruit fly host crops following harvest / Fruit Fly	9-Feb-15	31-Jul-24	Growcom
PER14683	Trichlorfon / Stone fruit & guava / Fruit Fly	24-Feb-15	31-May-17	SAL

EXPIRING PERMITS – Permits that will expire by November 2016 with comments:

PERMIT NO.	PERMIT DESCRIPTION	COMMENTS	STATUS
PER14252	Samurai (Clothianidin) Persimmons, Pome Fruit & Stone Fruit/ Fruit Flies (Ceratitis and Bactrocera)	Permit expires 30-Jun-15 Industry undertaken residue testing	Application submitted with residue data 12-Feb-15 Assessment due for completion 18-Aug-15
PER12907	Maldison / Stonefruit / Fruit Fly	Permit expires 31-May-16	Renew
PER12590	Delegate (spinetoram) / Pomefruit & Stonefruit / Fruit fly (Suppression only)	Permit expires 31-May-16	TBC by Industry APVMA requirements - requires residue data. APVMA to determine requirements

DATA GENERATION PROJECTS CURRENTLY UNDERWAY

PERMIT DESCRIPTION	COMMENTS	STATUS
PER14252 - Samurai (Clothianidin) / Persimmons, Pome Fruit & Stone Fruit/ Fruit Flies (Ceratitis and Bactrocera)	Survey data on clothianidin residues was collected from three summer fruit sites in Qld during the 2013/14 season. Samples from peach, plum and nectarine trees treated as per PER14252. Residues found following two applications of clothianidin were 0.78 (nectarine), 1.35 (peach) and 1.03 mg/kg (plum). The levels found are all below the current Australian MRL of 3 mg/kg indicating that the use under the current permit will not result in violative residues. No samples were collected from cherries as pressure in cherry production areas was such that no growers were identified where clothianidin was applied exactly in accordance with the current permit.	MT13050 Complete

OUTSTANDING DATA REQUIREMENTS ASSOCIATED WITH PERMITS

PERMIT NO.	PERMIT DESCRIPTION	TRIAL DETAILS	STATUS
PER12907	Maldison / Stonefruit / Fruit Fly	APVMA data requirements - residue data. Yet to be confirmed by APVMA. Stone fruit - No additional data required for registration as the permit use pattern (62.5 g ai/100L, 3 day WHP) is the same as that registered (for different pests).	Cheminova to register - Application submitted Dec 2014
PER12590	Delegate (spinetoram) / Pomefruit & Stonefruit / Fruit fly (Suppression only)	APVMA requirements - requires residue data. APVMA still determining requirements due to Dow possible registration. Dow will not be perusing registration	Industry to confirm if permit required
PER14501	Lebaycid (fenthion) / Apricot & Peaches / Fruit Fly (1application per crop/ 21 day WHP / All States)	Interim Permit ONLY Subject to: APVMA review, Monitoring for compliance and provision of additional GLP residue studies addressing the use pattern contained within this permit or an alternative use pattern that can comply with established MRL's.	
PER14124	Fosetyl (Aliette WG Systemic Fungicide) / Apricot, Peach, Nectarine and Plum / Phytophthora trunk / collar rot	APVMA requirements – Residue data – 4 conducted in plums. Samples to be analysed for both fosetyl & phosphorous acid. Each trial site should include plots treated for foliar and soil. A group MRL in stone fruit should be discussed with the APVMA and include cherries. Efficacy & Crop Safety – must be supplied prior to renewing this permit. Discuss with the APVMA prior to undertaking trials.	Industry to confirm if permit required
PER14875	Alpha-Cypermethrin / Stone Fruit (except cherries) / Fruit Fly	APVMA requires: Residue data – 2 trials in each of peaches, nectarines, plums & apricots plus the 2008 JMPR (full details) evaluated in the application must be submitted. Efficacy data - 2 trials for each of the following is required QLD FF & Med fly Registration must be sought.	
PER14252	Samurai (Clothianidin) Persimmons, Pome Fruit & Stone Fruit/ Fruit Flies (Ceratitis and Bactrocera)	The gathering of residue survey data would assist affected industries by providing a clearer profile of residues resulting from the fruit fly use pattern. This coupled with the collection of grower spray information would help build a clearer residue profile of clothianidin use under the permit. The collection of this information would have the dual benefit of clarifying the residue situation for growers of export fruit, as well as assuring the APVMA that residues would be manageable from a trade perspective, thereby building confidence with regard to the eventual renewal of the permit, i.e., the information would aid the APVMA in refining any future risk assessment in relation to the use of clothianidin.	MT13050 Complete

Summerfruit AUSTRALIA

PERMIT NO.	PERMIT DESCRIPTION	PERMIT HOLDER	DATE SUBMITTED	APVMA Appl #	STATUS	SUBMISSION
13859	Dimethoate / Stonefruit, pomefruit & table grapes (post harvest cleanup) / fruit fly	Growcom	12-Dec-12	13859	Permit issued PER13859 9-Feb-15 To 31-Jul-24	New application. Submitted by Growcom.
14501	Lebaycid (fenthion) / Apricot & Peaches / Fruit Fly (1application per crop/ 21 day WHP / All States)	SAL	5-Feb-14	14654	Permit Issued 21-Oct-14 to 30-Apr-15	Permit renewal prepared and submitted by HAL
12907	Maldison / Stonefruit / Fruit Fly	SAL	21-Feb-14	14689	Permit extended to 31-May-16	HAL prepared application and submitted
12590	Delegate (spinetoram) / Pomefruit & Stonefruit / Fruit fly (Suppression only)	SAL	21-Feb-14	14685	Permit extended to 31-May-16	HAL prepared application and submitted
12690	Trichlorfon / Stone fruit & guava / Mediterranean fruit fly	SAL	21-Feb-14	14683	PERMIT ISSUED PER14683 24-Feb-15 to 31-May-17	HAL prepared application and submitted to include all states and FF – Fruit West Permit originally
NEW	Alpha-cypermethrin / Stone fruit / Qld FF & Med fly	SAL	30-May-14	14875	Permit Issued 5-Sep-14 PER14875	AKC prepared application CAT21 and HAL submitted
14252	Samurai (Clothianidin) Persimmons, Pome Fruit & Stone Fruit/ Fruit Flies (Ceratitis and Bactrocera)	Growcom	12-Feb-15	DC21-75611912 #101560 (PER80790)	Submitted Assessment due for completion 18-Aug-15	AKC prepared application Item 21 and Growcom submitted with data from MT13050

PERMIT APPLICATIONS WITH APVMA FOR ASSESSMENT

For permits to be renewed (that do not have any outstanding data requirements), the APVMA fee is $350. The expected time frame to renew APVMA permits is 3-5 months. Therefore the renewal process should commence 5 months before the permit expires to ensure a continuation of the permit availability.

It is difficult to provide specific costing for the generation of additional data required by APVMA as it is unique for each permit. But approximate costs are:

- $8000 per GLP residue trial (generally APVMA requires 2-4 residue trials per crop).
- $7000 per efficacy or crop safety trial (generally APVMA requires a minimum of 2 trials per crop).
- $2000 for permit application preparation
- $350 APVMA fees

WHO WE CONTACT FOR PERMIT INFORMATION

The person(s) contacted by HIA with any issues to do with permits are:

- John Moore (SAL)
- David Williams (Vic DPI)
- Mark Wilkinson (WA)
- Andrew Finlay (Qld)
- Adrian Conti (Vic)
- Jason Size (SA)

NOMINATED PERMIT HOLDER

- Summerfruit Australia Ltd

PESTICIDE REGISTRATION AND PERMIT INFORMATION

Information on Australian registered pesticides can be found at the APVMA website: https://portal.apvma.gov.au/pubcris

Information on Australian permit pesticides can be found at the APVMA website:
https://portal.apvma.gov.au/permits

STRATEGIC AGRICHEMICAL REVIEW PROCESS (SARP)

Industry meeting conducted and provided with final report - June 2011.

Industry priorities:

The diseases identified as a high priority with possible alternative/new fungicide options were:

Disease (common name)	Disease (scientific name)	Fungicide option (action)
Bacterial spot	*Xanthomonas arboricola pv pruni*	No new fungicides available
Blossom blight	*Monilinia fructicola or M. laxa*	Pristine (boscalid + pyraclostrobin) – new registration
Brown rot	*Monilinia fructicola or M. laxa*	Pristine (boscalid + pyraclostrobin) – new registration Scholar (fludioxonil) – new registration
Crown gall	*Agrobacterium tumefaciens*	No new fungicides available
Leaf curl	*Taphrina deformans*	No new fungicides available
Phytophthora trunk / collar rot	*Phytophthora cactorum*	Agri-fos (phosphorous acid) - new registration
Powdery mildew	*Sphaerotheca pannosa*	Tilt (propiconazole) - add to existing registration Sulphur (various) - add to existing registration Pristine (boscalid + pyraclostrobin) – new registration
Rust	*Tranzschelia discolor*	No new fungicides available
Shot-hole	*Stigmina carpophi)*	No new fungicides available

The insects identified as a high priority with possible alternative/new insecticide options are:

Insect (common name)	Insect (scientific name)	Insecticide option (action)
APHIDS Green peach aphid Black peach aphid Cherry aphid	 *Myzus persicae* *Brachycaudus persicae* *Myzus cerasi*	MOVENTO (spirotratmat) – new use
Driedfruit beetles	*Carophilus spp.*	ALTACOR (chlorantraniliprole) – new use REGENT (fipronil) – new use
European earwig	*Forficula auricularia*	REGENT (fipronil) – new use AVATAR (indoxocarb) – add to existing registration
FRUIT FLIES Mediterranean fruit fly Queensland fruit fly	 *Ceratitis capitata* *Bactrocera tryoni*	No suitable alternative insecticides to currently registered products are available in Australia.
CATERPILLAR Heliothis Lightbrown apple moth	 *Helicoverpa punctigera* *Epiphyas postvittana*	ALTACOR (chlorantraniliprole) – new use PROCLAIM (emamectin) – new use INSEGAR (fenoxycarb) – new use VIVUS (Helicoverpa NP virus) – new use PRODIGY (methoxyfenozide) – new use

MITES Bryobia mite European red mite Two-spotted mite	 *Bryobia rubrioculus* *Panonychus ulmi* *Tetranychus urticae*	VERTIMEC (abamectin) – new use
Oriental fruit moth	*Grapholita molesta*	No suitable alternative insecticides to currently registered products are available in Australia.
SCALE Frosted scale Oystershell scale Pear scale San Jose scale	 *Eulecanium pruinosum* *Diaspidiotus ostreaeformis* *Diaspidiotus pyri* *Diaspidiotus perniciosus*	APPLAUD (buprofezin) – new use INSEGAR (fenoxycarb) – new use ADMIRAL (pyriproxyfen) – new use
WEEVILS Apple weevil Fuller's rose weevil Garden weevil	 *Otiorhynchus cribricollis* *Asynonychus cervinus* *Phlyctinus callosus*	REGENT (fipronil) – new use
Western flower thrips	*Frankliniella occidentalis*	LANNATE (methomyl) – add to existing registration

The herbicides identified as a high priority as possible alternative/new options are:

Weed (common name)	Weed (scientific name)	Herbicide option (action)
Willow herb	*Epilobium spp.*	DIURON (diuron) – new use
White clover	*Trifolium repens*	LONTREL (clopyralid) – new use
Thistles		LONTREL (clopyralid) – new use

Industry Information …

NSW GOVERNMENT Department of Primary Industries

Queensland Fruit Fly - Registered and Permitted Chemicals for use in NSW Deciduous Fruits (as at 19 August 2015)

Kevin Dodds – *Development Officer (Temperate Fruits) NSW Department of Primary Industries*

19th August 2015

Background

APVMA restrictions and/or suspensions of label registrations for both Fenthion (Lebaycid®) and Dimethoate (eg Rogor®) in recent years have left growers wondering what options remain for the management of Queensland Fruit Fly (QFF). This brief article is intended to provide NSW deciduous fruit growers with an overview of registered chemicals and permits that can be employed for the management of QFF.

The information presented in this document relates to products registered or permitted for use in NSW. Producers outside of NSW must check the registration or permit status of products in their respective state or territory.

IMPORTANT: Always refer to the product label or APVMA permit for rates, application method and other important use and safety information.

Chemicals with registration for spraying of deciduous crops in NSW

There is currently only one active ingredient registered as a cover spray for application in certain deciduous fruit crops in NSW.

Trichlorfon (eg Lepidex® 500) has label registration in NSW for use as a cover spray in stone and pome fruit commencing from the start of stinging. This product can be applied every 7-10 days and has a withholding period of 2 days in edible fruit crops. Refer to the product label for rates and other instructions.

Chemicals with registration for use in Trapping and Baiting in NSW

There are currently a number of active ingredients with label registration for use in traps and baits for QFF in NSW deciduous fruit orchards.

Chlorpyrifos (Lorsban® 750WG) has label registration in NSW Stonefruit (except Cherries) for use in combination with yeast hydrolysate as a bait.

Dichlorvos (BioTrap® DDVP Cubes) has label registration for use in conjunction with available traps containing a suitable lure for QFF monitoring.

Fipronil (Amulet Gel®) has label registration for use as a bait spray on Stonefruit trees and non-fruiting refuge vegetation (except Cherries). Fipronil is also included as the active ingredient in the **Amulet Cue- Lure Fruit Fly Stations**®.

Maldison (Hy-Mal®) has label registration for use in combination with yeast hydrolysate as a bait to control or eradicate fruit fly species. Maldison is also included as the active insecticide in several trap systems and/or replacement wicks including the **Q Fly Wick®, Eco-Lure®** Male Fruit Fly wick and the **Dak Pot®** Lure and insecticide trap.

Spinosad (eg Eco-Naturalure®) has label registration as a premixed fruit fly bait concentrate for use on fruit trees.

Trichlorfon (eg Lepidex® 500) has label registration in NSW for use as a bait in combination with yeast hydrolysate.

Current APVMA Permits allowing use of certain chemicals in NSW

The following is a list of APVMA permits with applications relevant to the control, trapping or baiting of Queensland Fruit Fly in certain deciduous fruits in NSW (current as at 15th August 2015). Readers are advised to source a copy of the full permit document from the APVMA website and understand and comply with its contents.

Permit 80790 allows for the use of the product Samurai® (Clothianidin) as a spray for the control of fruit fly in Persimmons, Pome and Stonefruit until 30th October 2018.

Permit 13841 allows for the possession, supply and use of the suspended product Lebaycid® (Fenthion) to control several pests including Queensland fruit fly (Bactrocera tryoni) in a range of crops including apples, pears, nectarines and plums until 29th October 2015.

Permit 13785 allows for the use of lures, attractants, pheromones and certain toxicants in traps for the purpose of monitoring and mass trapping of fruit flies until 30th April 2019.

Permit 14654 allows for the use of a single application per season on a 21 day withholding of the suspended product Lebaycid® (Fenthion) for the control of Fruit Fly in Apricots and Peaches until 30th October 2015.

Permit 12907 allows for the minor use of certain Maldison based products for the control of Queensland Fruit Fly in Stonefruit until 31st May 2016.

Permit 12590 allows for the minor use of Delegate® insecticide (spinetoram) for the suppression of Queensland fruit fly (Bactrocera tryoni) in pome and *stonefruit* until 31st May 2016.

Permit 14875 allows for the use Farmoz Alpha-Scud Elite® insecticide plus other registered products containing

100g/L Alpha-Cypermethrin for the control of fruit fly In *stonefruit (except Cherries)* until 31st December 2016.

Permit 13859 allows for the use of the registered or suspended products containing 400g/L Dimethoate for the control of fruit fly following the completion of harvest in *all fruit fly host crops* until 31st July 2024. Produce treated under this permit must not be harvested, collected or supplied for human or animal consumption.

Suggested management program

Bugs for Bugs (Dan Papacek) and NSW DPI (Dr Olivia Reynolds) have teamed-up to develop a simple 3 step action plan for the management of Queensland Fruit Fly which features Baiting, Male Annihilation (MAT) & Sanitation. A copy of the action plan will be published in this season's edition of the NSW Orchard Plant Protection Guide (expected to be out in September).

Information Sources for growers

APVMA
http://www.apvma.gov.au/
INFOPEST
http://www.infopest.com.au/
Bugs For Bugs http://www.bugsforbugs.com.au/
NSW DPI Information Resources on QFF
http://www.dpi.nsw.gov.au/agriculture/pests-weeds/insects/qff

Industry Information …

Australian Government
Australian Pesticides and Veterinary Medicines Authority

PERMIT TO ALLOW MINOR USE OF AN AGVET CHEMICAL PRODUCT

FOR THE CONTROL FRUIT FLY IN PERSIMMON, POME FRUIT AND STONE FRUIT

PERMIT NUMBER –PER80790

This permit is issued to the Permit Holder in response to an application granted by the APVMA under section 112 of the Agvet Codes of the jurisdictions set out below. This permit allows a person, as stipulated below, to use the product in the manner specified in this permit in the designated jurisdictions. This permit also allows any person to claim that the product can be used in the manner specified in this permit.

THIS PERMIT IS IN FORCE FROM 17 AUGUST 2015 TO 30 JUNE 2018. Permit Holder:
QUEENSLAND FRUIT & VEGETABLE GROWERS LTD
TRADING AS GROWCOM AUSTRALIA
68 ANDERSON STREET FORTITUDE VALLEY QLD 4006

Persons who can use the product under this permit:
Persons generally.

CONDITIONS OF USE

Product to be used:
SUMITOMO SAMURAI SYSTEMIC INSECTICIDE
Containing: 500 g/L CLOTHIANIDIN as its only active constituent.

Directions for Use:

Crops	Insect Pest	Rate
PERSIMMONS, POME FRUIT AND STONE FRUIT.	FRUIT FLIES (*Ceratitis*and *Bactrocera* species)	40 g/100L Plus MAXX Organosilicone surfactant at 50 mL/100 L of water.

Critical Use Comments:
Apply two consecutive foliar sprays 7-10 days apart when monitoring indicates fruit fly activity.

For the effective management of fruit fly this product may be required to be used as part of a broader program involving other products approved for the control of fruit fly in conjunction with appropriate pest monitoring and orchard hygiene. Efficacy of such programs may be dependent upon the level of pest pressure during the season.

THIS PERMIT provides for the use of a product in a manner other than specified on the approved label of the product. Unless otherwise stated in this permit, the use of the product must be in accordance with instructions on its label. This includes, but is not limited to the following label precautionary statement:

Protection of Bees
Dangerous to bees: Will kill bees foraging in the crop to be treated, or in hives which are over sprayed or reached by spray-drift. Residues may remain toxic to bees several days after application. Risks to non-target insects: Clothiandin may have adverse effects on some non-target beneficials and particularly to foliage dwelling predators where IPM is practiced.

It is also recommended that orchard floors with flowering weeds be mown just prior to application. Beekeepers that are known to have hives in, or nearby the area to be sprayed should be notified no less than 48 hours prior to the time of planned application so that bees can be removed or otherwise protected prior to spraying.

Withholding Period:
Harvest: DO NOT harvest for 7 DAYS after application.
Grazing: DO NOT graze treated areas or cut treated areas for stock feed.

Jurisdiction:
ALL States.

Additional Conditions:
PERSONS who wish to prepare for use and/or use products for the purposes specified in this permit must read, or have read to them, the details and conditions of this permit.

Export of Produce
To allow produce from treated plants to be supplied or otherwise made available for human consumption the APVMA has established the following Maximum Residue Limits (MRLs) for clothianidin in:

- Cherries at T5 mg/kg
- Persimmon (American & Japanese) at T2mg/kg
- Pome fruit at T2 mg/kg, and
- Stone fruit (except cherries) at T3 mg/kg

These limits apply only to produce marketed and consumed in Australia. Therefore if treated produce is to be exported due account should be taken of the residue definition and residue limits/import tolerances of importing countries and that any residues must not exceed those requirements of the importing country. **Contact your peak industry body for further information on overseas tolerance limits and other trade advice relating to this use pattern.**

Issued by the Australian Pesticides and Veterinary Medicines Authority.

Australian Government
Australian Pesticides and Veterinary Medicines Authority

Important notice: fenthion use must cease after October 2015

Do you still have Lebaycid or other fenthion products in your shed? Use of products containing fenthion is not permitted after October 2015, when the 12-month phase-out periods for all products will end.

The APVMA's final review of fenthion concluded the use of products containing the chemical may, in most situations, pose undue risks to human health and the environment.

Regulatory action was taken in 2014 including the cancellation of products and variation of some product labels. A 12-month phase-out period from October 2014 allowed people to use up existing stocks. In addition at the request of the holder, the active constituent fenthion was cancelled on 3 November 2014 which resulted in the cancellation of all remaining products.

Phase-out dates for farm and home garden products - The following products have been cancelled and may not be used or supplied after the below cease use and supply dates:

Product name	Product number	Cease use and supply date	Additional restrictions
Tiguvon Spot-on Cattle Lice Insecticide	33520	15 October 2015	
Control-A-Bird Agent	42202	15 October 2015	
Avigrease Pest Bird Eradication Compound	50244	15 October 2015	
David Grays Mosquito and Spider Spray Insecticide	51627	15 October 2015	
Avigel Pest Bird Control Agent	52075	15 October 2015	
Lebaycid Fruit Fly and Insect Killer	61308	15 October 2015	May not be used on food producing plants in the home garden
Lebaycid Insecticide Spray	32996	Label approval 0110 – 29 October 2015	*Lebaycid Insecticide Spray* bearing the label approval 0110 must only be used according to the instructions in the APVMA gazette and also in permits PER13840 (WA only) and PER13841 (other states and territories) and any other permits issued by the APVMA
Amalgamated Pest Control 1% Fenthion Dust	41138	2 November 2015	

Phase-out dates for pest control products - Registration of four products commonly used in the control of pest birds or for general pest control have been cancelled. These products must not be used after the dates shown below:

- Avigrease Pest Bird Eradication Compound, product number 50244 – **15 October 2015**
- Avigel Pest Bird Control Agent, product number 52075 – **15 October 2015**
- Control-a-Bird Agent, product number 42202 – **15 October 2015**
- Amalgamated Pest Control 1% Fenthion Dust, product number 41138 – **2 November 2015**

Product use and disposal - Existing stocks of any of these products must be used before the end of the relevant phase-out period for that product. The products cannot be used or supplied to others for use after these October 2015 dates. Please dispose of unwanted pesticide product responsibly, using a licensed waste disposal contractor or facility, such as the industry run stewardship program for the disposal of pesticides:
Chemclear – Phone: 1800 008 182 – Register online: chemclear.com.au.
Home owners may be able to access additional disposal options through local authorities or councils.

Alternate options - The APVMA has also issued permits for the use of alternatives for the control or suppression of fruit flies in certain crops in response to applications from grower groups, industry bodies or States and Territories.

Further information - Contact the APVMA's Chemical Review team for further information on the review of fenthion, or for information about use during the phase-out. The current permits for the use of Lebaycid can be found on the chemicals database.
Phone: +61 2 6210 4749
Email: chemicalreview@apvma.gov.au
Web: apvma.gov.au.

Research …

Evaluation of fungicide treatments for control of Monilinia brown rot in stone fruit

Oscar Villalta, Robert Holmes and Simone Kreidl
Bioscience Research, DEDJTR, Victoria

Background

This article presents a summary of results from trials evaluating the efficacy of three new fungicide treatments for the control of brown rot, caused by *Monilinia fructicola*. The objective of the work was to generate efficacy and application data for the new fungicide treatments to increase the number of control options available for managing brown rot in Australia. The three fungicides from Syngenta, Bayer CropScience and BASF have proven efficacy against *M. fructicola* and are available to stone fruit growers overseas for the control of Monilinia blossom blight and fruit brown rot. These three products are currently not registered for use in Australia. Penthiopyrad (Fontelis®, Dupont) and propiconazole (Tilt®) were used as the standard industry fungicide treatments. The treatments were evaluated during flowering for blossom blight control and pre-harvest for fruit brown rot control. The cost-effectiveness of the treatments was investigated. The results from this study are described in detail in the final report for project SF12004 submitted to Horticulture Innovation Australia (HIA) in May 2015.

Method

Table 1 shows the fungicide treatments evaluated in a series of replicated trials. The methodology used is described in detail in chapter 2 of the final report.

Table 1 *Fungicide treatments.*

Treatment No.	Fungicide	Active ingredient(s)[A]
1	Tilt®	propiconazole
2	Pristine® (BASF)	boscalid + pyraclostrobin
3	Fontelis® 20S (Dupont)	penthiopyrad
4	Luna Sensation™ (Bayer CropScience)	fluopyram + trifloxystrobin
5	Amistar Top® (Syngenta)	azoxystrobin + difenoconazole

[A] *Rates tested as per label or recommended by manufacturers for experimental fungicides.*

Peach trials – Fungicide efficacy was investigated on inoculated flowers and naturally infected fruit in canning peach varieties at DEDJTR, Tatura, Victoria. For blossom blight control, the protectant activity of treatments was determined by spraying floral shoots before inoculation with 1 x 10^3 *M. fructicola* conidia/ml. Pre-inoculated flowers were also sprayed with the fungicide treatments 17 hours after inoculation to determine the efficacy of treatments applied at the end of a long wet period. Control shoots were sprayed with distilled water only. Inoculated and control shoots were placed inside plastic bags to maintain high relative humidity and surface wetness for spore germination and infection at average field temperatures of 15.7°C (Tinytag data loggers, Hastings). Flowers were assessed visually for blossom blight symptoms seven days after inoculation then re-assessed 3 days later. The percentage of flowers infected was then calculated per replicate shoot.

For fruit rot control, the protectant activity of treatments was determined by spraying peach fruit twice at weekly intervals three weeks before the predicted day of commercial harvest. Replicated branches (4) were used for each treatment and fruit visually assessed to determine the percentage of brown rot three weeks after the first spray was applied. In addition, ten non-diseased fruit were collected per branch to assess post-harvest brown rot. The fruit were placed into cardboard fruit boxes with plastic cup inserts and stored inside plastic bags at ambient temperature (22-25°C) for seven days to induce rot development. This process ensured any fruit with latent infection caused by *M. fructicola* were identified.

Nectarine trials – The treatments were also evaluated in a replicated trial with a late season nectarine crop (cv. Arctic Snow) in Swan Hill during three seasons (2012-15). The trial consisted of four single tree replicates per treatment in a randomised block design, with each replicate tree having a guard tree on each side. Treatment sprays were applied only during the flowering and pre-harvest periods using a Silvan Selecta 12-v 25 L sprayer calibrated to deliver 1200 L per ha (flowering) and 2000 L per ha (preharvest). Different plots were used to evaluate the treatments for blossom blight and fruit brown rot

control. Unsprayed trees were used as controls at bloom and pre-harvest. Copper was applied to the whole block before the start of flowering.

For blossom blight control, each fungicide treatment was sprayed three times over flowering at 7-9 day interval, starting at 5-10% bloom. The treatments were compared to an industry standard spray program consisting of three sprays (Chorus®; Sumisclex®; Syllit®) applied during the same period. Flowers were assessed visually for blossom blight symptoms at full bloom and end of flowering. The percentage of flowers infected in 20 floral shoots per plot was estimated in sprayed and untreated trees. Seven-to-ten days after the last blossom spray (about shuck fall), protectant sprays (thiram) were applied to the whole trial block until about 4 weeks before harvest. These sprays were applied at 14-30 day intervals adjusted according to rain forecast and occurrence of infection periods. Plots used to evaluate the efficacy of pre-harvest treatments for fruit brown rot control were sprayed with the standard program during flowering and green fruit stages.

For pre-harvest brown rot control, sprays were applied at approximately weekly intervals before the predicted day of commercial harvest, with the time and number of sprays adjusted according to wetness conditions. In the first season (2012-13), weather conditions were very dry in the four weeks preceding harvest therefore only one application was made with each treatment 7 days before harvest to protect fruit during dew-related infection periods (**Figure 1**). In the second and third season (2013-14 and 2014-15), weather conditions were slightly wetter due to rain-related infection periods, therefore two applications with each treatment were made before harvest, with the last one applied 7-10 days before harvest. Fruit were visually assessed at harvest to determine the percentage of fruit rots at harvest. In addition, twenty non-diseased fruit were collected per plot (tree) to assess post-harvest brown rot incidence as described earlier.

Rainfall, leaf wetness, RH and temperature were recorded in trial sites using a weather station (Model-T, Western Electronics Design, Australia) equipped with wireless telemetry. Temperature and leaf wetness data were used to determine which periods of dew and rain-related wetness were conducive to *M. fructicola* infection periods using the revised *Monilinia* infection criteria described in the final report (SF12004). Analysis of variance (ANOVA) was performed to determine differences in blossom blight and fruit brown rot incidences among treatments using Genstat v. 12.1 (Lawes Agricultural Trust, IACR Rothamsted).

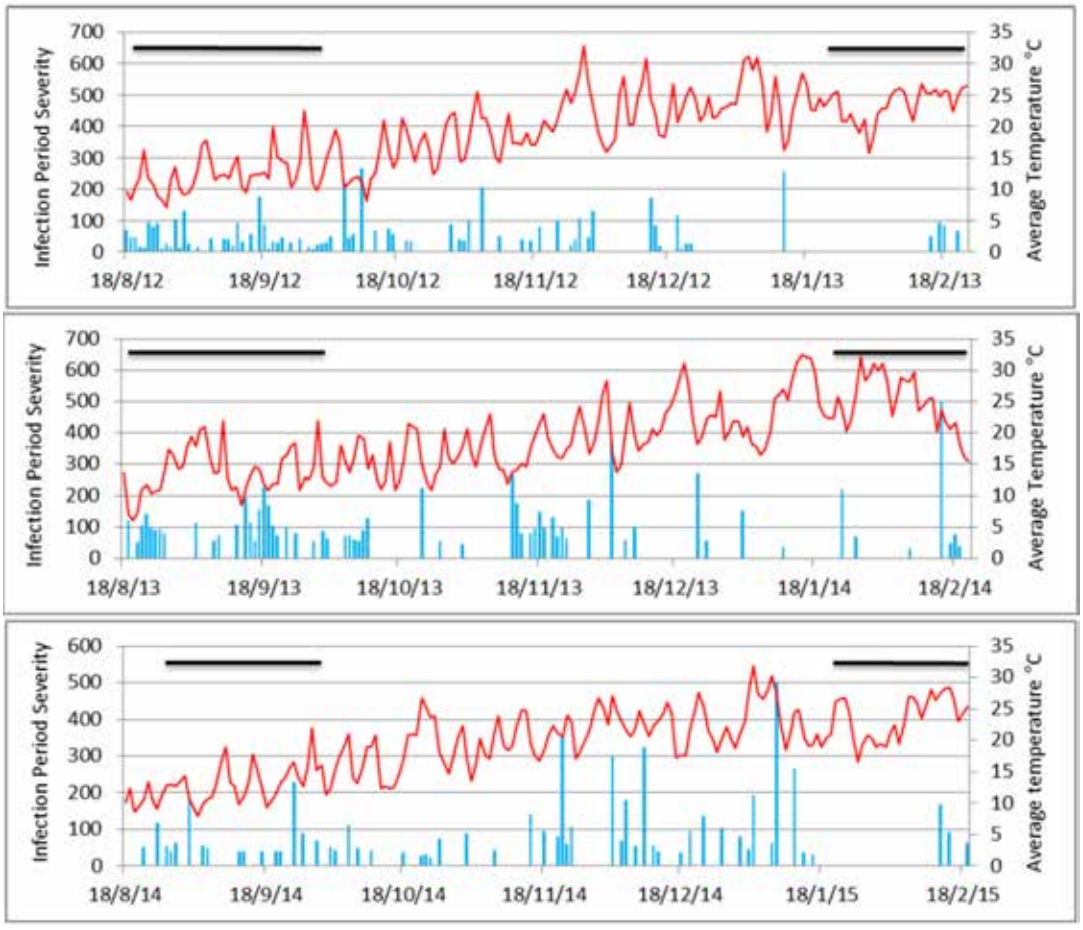

Figure 1 *Infection periods (blue bars) and average air temperature (red line) recorded at the Swan Hill site during three growing seasons (2012-15). Black horizontal lines indicate the periods of flowering and pre-harvest when fungicide treatments were applied to replicate plots. A protectant spray program was applied during green fruit stages at 14-30 days interval before rain events.*

Results

Blossom blight control – Flower infections were not observed from natural infection in unsprayed trees (cv. Arctic Snow), despite the occurrence of many infection periods in the spring of 2012, 2013 and 2014 at the Swan Hill site (**Figure 1**). Experiments with inoculated peach blossoms, however, yielded more valuable results on the efficacy of treatments for

blossom blight control. The three experimental treatments, penthiopyrad (Fontelis®) and the industry standard propiconazole (Tilt®) all showed high levels of efficacy against *M. fructicola* (**Table 2**). These treatments provided highly significant (P <0.001) pre inoculation control and post-inoculation (i.e. at the end of a 17 hrs wet period) suppression of blossom blight, compared to untreated flowers in all experiments.

Table 2 *The effects of fungicide treatments applied before and after inoculation with M. fructicola on blossom blight incidence of peach trees.*

Trial	Fungicide treatment[A]	% flowers infected Experiment 1	% flowers infected Experiment 2
1	Inoculated control	8.3 a[B]	8.1 a
	Untreated control	0.0 b	0.0 b
	Tilt® (pre-inoculation)	0.0 b	0.0 b
	Tilt® (post-inoculation)	0.0 b	0.0 b
	Fontelis® (pre-inoculation)	0.0 b	0.0 b
	Fontelis® (post-inoculation)	0.8 b	0.0 b
2	Inoculated control	11.0 a	9.7 a
	Untreated control	0.0 b	0.0 b
	Tilt® (pre-inoculation)	0.0 b	0.0 b
	Tilt® (post-inoculation)	0.0 b	2.1 b
	Pristine® (pre-inoculation)	0.0 b	0.0 b
	Pristine® (post-inoculation)	0.0 b	1.1 b
3	Inoculated control	17.0 a	29.5 a
	Untreated control	0.0 b	0.0 b
	Tilt® (pre-inoculation)	0.0 b	2.7 b
	Tilt® (post-inoculation)	0.0 b	0.0 b
	Amistar Top® (pre-inoculation)	0.0 b	0.0 b
	Amistar Top® (post-inoculation)	0.0 b	0.0 b
4	Inoculated control	12.1 a	29.6 a
	Untreated control	0.0 b	1.0 b
	Tilt® (pre-inoculation)	0.0 b	2.5 b
	Tilt® (post-inoculation)	0.0 b	1.0 b
	Luna Sensation™ (pre-inoculation)	0.0 b	1.0 b
	Luna Sensation™ (post-inoculation)	0.0 b	1.0 b

[A] *Treatment sprays were applied before and after (17 hrs) peach blossom were inoculated with M. fructicola.*

[B] *Means followed by a common letter within a trial and a column are not significantly different (P > 0.05) by LSD test*

Brown rot control on peach – Four infection periods conducive to *M. fructicola* infection occurred during the pre-harvest period when sprays were applied at a high disease pressure site. In all trials, the unsprayed peach fruit had high incidence of postharvest brown rot (20-45%) (**Table 3**). Two pre-harvest applications with either Fontelis®, Pristine®, Luna Sensation™ or Amistar Top® significantly (P = 0.019-0.001) reduced (70-88%) the incidence of brown rot compared to their respective untreated controls. Tilt® provided statistically similar levels of disease control at this site where none of the fungicides tested was used before.

Brown rot control on nectarine – Several infection periods occurred during flowering and immature fruit stages at the nectarine site where the pre-harvest treatments were evaluated each season (**Figure 1**). Trees at this site were, however, well protected by fungicide sprays (standard program) applied before infection periods during these two stages (data not shown). It is therefore speculated that the majority of fruit were most likely infected by *M. fructicola* in the pre-harvest period when 2-3 infection events of varying severity were recorded each season (**Figure 1**).

In the first season (2012-13), there were no significant differences in fruit rot incidences on trees (ranged 0.7 to 3.0%) among the treatments at harvest (**Table 4**). Post-harvest brown rot incidence was, however, very high in untreated fruit (41.2%) indicating that infection periods close to harvest were conducive to *M. fructicola* infections which developed into rots after harvest. Under these conditions, a single spray with any one of the four fungicide treatments significantly reduced (P = 0.007) post-harvest brown rot incidence by 54-78% compared to the untreated control. The BASF and Dupont fungicides provided the best control which was statistically similar to control provided by the other two fungicide treatments.

In the second season (2013-14), fruit rots were not observed at harvest but post-harvest brown rot incidence was high (25%) in untreated trees. Two sprays before harvest with any one of the five fungicide treatments were very effective in preventing *M. fructicola* infections in the pre-harvest period. The three experimental fungicides and Fontelis® significantly reduced (P = 0.007) brown rot by 85-100% compared to the untreated control. In this season, the Syngenta fungicide was significantly more effective than Tilt® but not the other three fungicide treatments at controlling brown rot.

In the final season (2014-15), untreated trees had significantly (<0.001) more fruit rots (3.0%) than trees treated with the five fungicide treatments (<1.2%). After harvest, brown rot incidence in untreated trees was lower (18.7%) compared to previous seasons. The five treatments (2 sprays pre-harvest) were equally effective at controlling brown rot. These treatments

significantly reduced (P <0.001) disease by 67-94% compared to the untreated control, with Fontelis® and Tilt® providing slightly better control which was statistically similar to control provided by the three experimental fungicide treatments.

Table 3 *The effects of pre-harvest fungicide treatments on brown rot fruit rot incidence in processing peaches.*

Trial	Fungicide treatment[A]	% Incidence of fruit brown rot at harvest
1	Untreated control	20.0 a[B]
	Tilt®	0.0 b
	Fontelis®	6.0 b
2	Untreated control	45.0 a
	Tilt®	5.0 b
	Pristine®	12.5 b
3	Untreated control	30.0 a
	Tilt®	2.5 b
	Amistar Top®	7.5 b
4	Untreated control	22.5 a
	Tilt®	0.0 b
	Luna Sensation™	2.5 b

[A] *Two sprays applied at weekly intervals before harvest, with the last one applied 10 days before harvest.*

[B] *Means followed by a common letter within a trial are not significantly different (P > 0.05) by LSD test*

Table 4 *The effects of pre-harvest fungicide sprays on brown rot incidence in fresh market Arctic Snow nectarine.*

Trial/season	Fungicide treatments[A]	% Incidence fruit rot at harvest[B]	% Incidence fruit rot post-harvest[B]
2012-13	None	3.0 a[C]	41.2 b
	Tilt®	2.7 a	15.0 a
	Pristine®	0.7 a	8.8 a
	Fontelis®	1.7 a	8.8 a
	Amistar Top®	1.3 a	16.2 a
2013-14	None	0.0	25.0 c
	Tilt®	0.0	7.5 b
	Pristine®	0.0	3.7 ab
	Fontelis®	0.0	2.5 ab
	Amistar Top®	0.0	0.0 a
	Luna Sensation™	0.0	1.2 ab
2014-15	None	3.0 c	18.7 b
	Tilt®	1.2 b	1.2 a
	Pristine®	0.7 ab	5.0 a
	Fontelis®	0.7 ab	1.2 a
	Amistar Top®	0.2 ab	6.2 a
	Luna Sensation™	0.0 a	2.5 a

[A] *One (2012-13) and two (2013-14 and 2014-15) sprays applied with each treatment in pre-harvest period. A conventional spray program applied during flowering and green fruit stages.*

[B] *= Fruit rots on trees at harvest and post-harvest due to latent infections on fruit samples (20 per replicate) collected at harvest after moist incubation for 7 days.*

[C] *Means followed by a common letter within a season and within a column are not significantly different (P > 0.05) by LSD test*

Photo 1 *Examples of Arctic Snow nectarines treated with the different pre-harvest treatments. After harvest, fruit stored for 7 days under high humidity at 20°C (February 2014). A = Pristine®, B = Luna Sensation™, C = Amistar Top®.*

Summary

The five fungicide treatments applied pre inoculation and post-inoculation (i.e. at the end of a 17 hrs wet period) were very effective at controlling blossom blight on peach flowers inoculated with high levels of *M. fructicola* conidia. The same treatments, applied twice before harvest at weekly intervals, were also relatively effective at protecting ripe peach fruit from *M. fructicola* natural infection at the same site. The efficacy of the treatments was confirmed in the trial with a fresh market nectarine (cv. Arctic Snow) during three seasons of varying disease pressures.

The pre-harvest sprays with the five treatments significantly reduced brown rot by 54-78% (one spray), and by 70-100% and 67-94% (two sprays) compared to untreated controls in high (41.2% incidence) and moderate (18-25%) disease pressure seasons, respectively. Although propiconazole (Tilt®) was slightly less effective that the other treatments under moderate disease pressure, the overall results showed that this fungicide was relatively effective and useful for controlling brown rot at the trial sites. Results also showed two sprays were generally more effective than one in protecting ripe fruit from *M. fructicola* infection in the pre-harvest period.

The efficacy of pre-harvest treatments may have been affected by fruit surface characteristics (i.e. smooth *vs* hairy), number of sprays and fruit injury caused by insects which are known to increase fruit susceptibility. Further work is therefore required to determine the efficacy of fungicide treatments when applied with a wetting agent or sticker to improve fungicide distribution and retention in different stone fruits free of insect damage. The treatments should also be tested integrated with protectant sprays applied much earlier in the pre-harvest period (i.e. 3-4 weeks before harvest) to prevent infections in early ripening fruit.

An economic analysis indicated that the experimental treatments and Fontelis® increased yields (cartons/ha) by 33-60% and 8-10% compared to no sprays or Tilt® sprays in the pre-harvest period, respectively, and this increased gross margins per ha (data not shown). The analysis showed that the new fungicides can increase profit and therefore can be cost-effective for industry, but margins will be significantly influenced by fruit prices in the market. The stone fruit industry should therefore benefit from having the experimental fungicides registered or with minor use permits to increase the number of tools available to control brown rot and minimise the use of Tilt®. Data generated from this work can be used for product registrations, to help orchardists improve fungicide application in the pre-harvest period with currently registered products and to develop a strategy for the deployment (i.e. bloom *vs* pre-harvest) of potential new fungicides.

Acknowledgements

We would like to acknowledge Summerfruit Australia Ltd, Horticulture Innovation Australia and the State Government of Victoria for funding this work. We also thank NuFarm (Doug Wilson), BASF (Richard Hall), Syngenta (Lauren O'Connor), Bayer CropScience (Shane Trainer) and Dupont Australia for supplying fungicide samples for the trials and growers who provided the sites for the field trials.

Employment …

Fiji joins Seasonal Worker Program -

At the beginning of April **Fiji** became the tenth country to sign on to the Seasonal Worker Program, joining the nine other participating countries of **Kiribati**, **Nauru**, **Papua New Guinea**, **Samoa**, **Solomon Islands**, **Timor-Leste**, **Tonga**, **Tuvalu** and **Vanuatu**. The Seasonal Worker Program is a mutually beneficial initiative, providing valuable opportunities for Pacific and East Timor workers to secure short-term employment in Australia, and helping Australian employers to fill gaps in the available labour force.

Currently there are about 400 people in Fiji's work-ready pool. To get on the pool individuals have to satisfy a number of criteria, including having a clear immigration history, police record, medical assessment and attitude test. Fiji holds detailed CV's for all workers in their pool, which can be made available to Approved Employers to assist with worker selection.

Once selected for placement in Australia, workers will undergo an intensive 3 day orientation that consists of 13 modules covering all aspects of working and living in Australia. They also spend considerable time team building.

Other changes that have been made to the Seasonal Worker Program, particularly for growers in the Northern Territory, the key ones being:

- Some workers can now stay in Australia for up to nine months
- Workers may not have to stay for the minimum three month period
- Other agricultural industries may be able to access SWP workers

For additional information visit:
http://docs.employment.gov.au/system/files/doc/other/expansion_of_the_seasonal_worker_programme_-_faqs.pdf

Food Safety …

New Freshcare logo and certification marks

Since Freshcare was launched in 2000, over 7,500 individual businesses have participated in Freshcare training and implemented the system in their business. 5,000 fresh produce and wine grape businesses are currently participating in the Freshcare Programs with approximately 65% certified to one or more of the Freshcare standards.

With an increasing customer focus on compliance, food safety, quality and environmental assurance in both domestic and international markets, it's increasingly important that Freshcare has a well-known and easily recognised image.

The new logo will be used on all new Freshcare publications and promotional material, our new website is scheduled for release soon and our Freshcare certification marks provide a modern, highly visible image for wholesale packaging.

The certification mark is available in two styles and three colour variations as shown.

If you wish to order a new certification stamp, request an electronic version of the new certification mark for your printers or purchase a new gate sign, please contact our office on 1300 853 508 or email **admin@freshcare.com.au**.

Freshcare certified businesses using the original Freshcare certification mark on their packaging can continue to use them until December 2016.