

potatoes

australia

June/July 2010



Sarah Pettitt

Horticulture in
the blood

AUSVEG National Convention

A stunning success

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PO Box 563, Mulgrave, Vic, 3170
ISSN 1834-2493



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FRONT COVER:

Sarah Pettitt - Chairman
NFU Board for Horticulture
& Potatoes UK

Photo by James Cunningham

Editorial

The inaugural AUSVEG National Convention, Trade Show and National Awards for Excellence, which took place at Jupiters Hotel-Casino on the Gold Coast two weeks ago, has been hailed as a fantastic success for the industry.

With 650 delegates in attendance the four-day National Convention was arguably the largest gathering of the potato and vegetable industries in history. The event provided attendees from across the supply chain with access to a range of tailored events.

Not only was the Convention a fantastic networking opportunity but the trade show and speaker sessions offered growers an invaluable chance to find out about what is happening in the horticulture industry today.

Over 70 trade displays featured in the two day long trade show, where industry-specific goods and services were displayed and demonstrated, enabling delegates to engage with leading agribusinesses and industry service providers.

The line-up of speakers at the Convention was as impressive as any, with Australian cricketing great, Glenn McGrath, and Independent Senator for South Australia, Nick Xenophon, heading the field. A number of prominent researchers and industry experts also featured in speaker sessions which focused on research and development, the supply chain and the retail side of the sector. Please go to page seven for a full round up of the AUSVEG National Convention.

For those of you who were unable to attend, we will publish a series of interviews which were completed at the Convention in coming editions. Our first feature is with Ms Sarah Pettitt, Chair of the Horticulture and Potatoes Board at the National Farmers' Union in the United Kingdom. In this edition of *Potatoes Australia*

Ms Pettitt talks about her views on the current state of agriculture from an international perspective, while future editions will include interviews with other high-profile attendees at the Convention, including speakers and research scientists.

Also in this edition we cover a number of issues which are high on the potato industry agenda at the moment. Articles in this edition include an update on the threat of Zebra Chip disease (ZC), with the technical advisory groups Dr Kevin Clayton-Greene discussing his latest trip to New Zealand as Australia's Observer with the New Zealand Tomato Potato Psyllid project. Dr Clayton-Greene reports on his findings from the trip, which took place in an effort to try and create an action plan to prevent ZC from getting to Australia.

We also include an interview with Simplot's Agricultural Manager and Processed Potatoes Association of Australia Chair, Mr Peter Hardman, who talks about current concerns in the processed potato industry. It has been one year since AUSVEG CEO Richard Mulcahy was appointed by the AUSVEG Board. He talks to *Potatoes Australia* about what he has achieved so far and the challenges that lie ahead.

Finally, we report on a number of R&D projects which are either underway or have recently been completed. These include a report on The National Potato Breeding Program at the Department of Primary Industries (DPI) Victoria; a project which finished late last year on the use of nitrogen to increase potato seed yields in generation one crops; the National public potato variety tissue culture collection of Australia; and a current project which is seeking to better understand the genetics of a pathogen which causes Powdery Scab.

We hope that you enjoy this edition of *Potatoes Australia*.



Pg 6 Gold Coast Mayor Ron Clarke and AUSVEG Chairman John Brent open the Trade Show at the Inaugural AUSVEG National Convention, Trade Show and Awards for Excellence.



Pg 11 Profile: Sarah Pettitt - Chairman NFU Board for Horticulture & Potatoes UK

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“The Inaugural AUSVEG National Convention, Trade Show and Awards for Excellence has been hailed a stunning success with an incredible 650 delegates attending.”

- pg 6



Chairman's message

I am extremely pleased to report that AUSVEG set out what it aimed to do, and that was to put on a world-class Convention which brought together all levels of the vegetable and potato industry supply chain.

The team at AUSVEG, including our Board of Directors, did a tremendous job in organising the event, which featured a first rate speaker line-up, a large horticulture focused trade show and a social program that allowed growers and industry members to network extensively.

During the Convention I had the pleasure of meeting many delegates and talking to them about a range of issues which are currently impacting on the horticulture industry. This experience made it clear to me how crucial these events are, because they ensure that the crux of the issues are brought to the fore, which in turn allows for the sharing of ideas and solutions.

The Convention included two days of speaker sessions, with experts reporting on relevant issues including current R&D projects. The Convention also featured presentations by leading industry figures such as: Greg Davis, General Manager of Fresh Produce at Coles; Mike Guerin, Chief Operating Officer, Elders Rural Services; and Sarah Pettitt, Chairman of the Horticulture and Potatoes Board of the National Farmers' Union in the UK.

Although there were many high points to the event, the attendance of Elders Ambassador and former Australian fast bowler, Glenn McGrath, perhaps ranked at the top of the list. He attended many events at the Convention but his most important appearance was as the special guest at the 'Women in Horticulture' breakfast; an event which raised almost \$10,000 for the McGrath Foundation, a part of which was

generously donated by Elders.

The Convention had a fitting finale with the National Awards for Excellence Gala Dinner, where recognition was given to those who have made significant contributions to the industry. The night saw 11 different awards presented to various worthy winners.

The Convention also provided an opportunity for the AUSVEG Board of Directors to meet with a representative group of potato growers from all states to discuss ideas for even further promotion of potato industry issues, and we will be announcing some of those plans in a future edition of *Potatoes Australia*.

This National Convention, however, was not just about networking, awards and speaker sessions. It was also about AUSVEG continuing its support for the industry by providing a voice for all its members and member associations; something it aims to continue in the future.

I am pleased to say that the Convention was the success I had hoped it would be, and I very much look forward to next year. To my Board of Directors and everyone at AUSVEG a sincere thank you for all your support.



John Brent
AUSVEG Chairman

CEO's message

A little over two weeks ago, the inaugural AUSVEG National Convention, Trade Show and National Awards for Excellence took place on the Gold Coast. Meetings of both the Fresh and Processed Potato Industry Advisory Committees (IACs) coincided with this momentous industry gathering.

The Processed Potato IAC met on the morning of 27 May and included a HAL program update from Stuart Burgess, the HAL Industry Services Manager for potatoes. Representatives from SED Consulting also gave presentations on the status of APRP2.

The Processed and Fresh Potato IACs then had a joint meeting to discuss common issues. Following this meeting, the Potato Processors Association of Australia (PPAA) members met the IACs, as did the Technical Advisory Group (TAG) Chair, Dr Kevin Clayton-Greene and one of its members, Peter O'Brien. One of the main topics of discussion in the joint meeting was Zebra Chip disease. Tony Slater from the Department of Primary Industries (DPI) Victoria also gave a presentation on the National Potato Breeding Program.

The Fresh Potato IAC met in the afternoon and included discussions on the development of the fresh potato industry relating to needs assessment and strategic planning. It was also resolved that three key members from the Australian fresh potato industry be sent to South Africa at the end of the year to attend the African Potato Association Conference and the International Levy Payer Country meeting.

Potato growers were also able to attend the National Potato Levy Payers' meeting which took place on the second day of the Convention. Stuart Burgess from HAL gave an overview of the R&D funding expenditure in 2008/09. Another purpose of the meeting, however, was to vote and hold further consultation about the proposal by AUSVEG for a Biosecurity Levy. AUSVEG has proposed that an Emergency Plant Pest Response (EPPR) levy be instituted and applied at a rate of zero per cent of the value at the point of sale.

Consultation on this matter is ongoing and the levy would only be utilised to provide funding to tackle serious incursions which threaten the industry, so if you were unable to attend the levy payers meeting, we would invite you to please contact AUSVEG as soon as possible on (03) 9822 0388 or email info@ausveg.com.au with your written comments. Further information explaining the proposed levy modification is included on page five of this edition of *Potatoes Australia*.



Richard Mulcahy
AUSVEG Chief Executive Officer

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Convention exceeds all expectations

The inaugural AUSVEG National Convention, Trade Show and National Awards for Excellence has been hailed as a stunning success with an incredible 650 delegates, including a huge number of growers, attending from right across Australia.

The National Convention, held at Jupiters Hotel-Casino on the Gold Coast between 27-30 May, exceeded all expectations and delivered on its promise as the largest gathering of growers, researchers, suppliers and representatives from the retail sector ever seen in the vegetable or potato industries.

Delegates were welcomed to the event by Queensland Liberal National Party Leader, The Honourable John-Paul Langbroek, at a memorable Welcome Reception on the Thursday night. The event signified the beginning of an exciting weekend which allowed for an unprecedented level of networking between growers and members of the industry supply chain.

Following the Welcome Reception, a large group of young growers gathered for a bowling night as part of the Young Growers Night sponsored by Dow AgroSciences. This fun-filled night brought together young growers from right across Australia and provided an important networking opportunity for the future leaders of the industry.

Fantastic Friday

Friday's program began with a special breakfast sponsored by the Queensland Department of Employment, Economic Development and Innovation (DEEDI). Attendees had the rare opportunity to listen to one of Australia's most high profile politicians, Independent Senator for South Australia, Mr Nick Xenophon.

The Senator highlighted the issue of food labelling laws in Australia and the need for changes to ensure consumers are better informed about the country of origin of the fruit and vegetables they are purchasing, and ultimately consuming. Senator Xenophon also addressed the market

1) Gold Coast Mayor Ron Clarke visits the Choice Seedlings stand at the Trade Show **2)** Festivities begin at the Welcome Reception **3)** Terranova Seeds Trade Show stand **4)** Elders Ambassador Glenn McGrath speaks at the Gala Awards Dinner **5)** Enjoying the Gala Awards Dinner **6)** Major General Michael Jeffery delivering his keynote address **7)** Artwork in the hotel lobby brought to you by Boomaroo Nurseries **8)** Australian Made, Australian Grown Campaign's Chief Executive Ian Harrison speaks at the business sessions **9)** Lifetime Achievement Award winner Luis Gazzola **10)** Elders Chief Operating Officer, Mike Guerin speaks at the business sessions **11)** Gold Coast Mayor Ron Clarke opens the Trade Show **12)** Daniel Maher [left] accepting the Dow AgroSciences Young Grower of the Year Award presented by John Gilmour [right] **13)** The group from the Dow AgroSciences Young Growers Night **14)** The Bayer CropScience Trade Show team **15)** The iconic Jupiters Hotel-Casino **16)** Greg Davis, General Manager of Fresh Produce Coles Supermarkets, speaks at the business sessions **17)** The Alan Brown Big Band end proceedings at the National Awards for Excellence Gala Dinner.



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domination of Australia's largest organisations and the affect of this on the potato industry. Over 70 displays greeted delegates when the buzzing Trade Show was officially opened by the Gold Coast Mayor, Ron Clarke. The room was quickly filled with growers and other industry members who were eager to engage with the many different exhibitors, including the industry's leading agribusiness organisations and service providers who were showcasing the most up to date information and services available to potato growers.

Accompanying the Trade Show was an impressive list of first class speakers, including prominent researcher, Mr David Hughes, Group General Manager Commercial from Plant & Food Research New Zealand, as well as senior representatives from leading companies, Elders and Bayer CropScience, and a passionate presentation from Australian Made, Australian Grown Campaign Chief Executive, Mr Ian Harrison.

A highlight for many was the keynote address delivered by Major General Michael Jeffery. The former Governor General of the Commonwealth of Australia engaged the large audience with a thought-provoking speech which addressed the need to restore the natural health of our soils, which he contended would create healthier produce and result in healthy people.

On Friday night, the social program again provided a 'hit', as more than 200 delegates ventured to the Australian Outback Spectacular—a tribute to the Australian Light Horse Brigade. The show received rave reviews from the delegates in attendance, who returned with new friends and contacts from all over Australia.

Super Saturday

Elders Ambassador and cricketing legend Mr Glenn McGrath was the special guest speaker at Saturday's 'Women in Horticulture' Breakfast. The event raised \$10,000 for the McGrath Foundation and recognised the important role that women play in horticulture. The Breakfast also played host to international keynote speaker and Chairman of the Horticulture and Potatoes Board of the National Farmers' Union in the United Kingdom, Ms Sarah Pettitt. Ms Pettitt's powerful speech provided guests with an insight into the issues being faced by the horticulture industry in the UK.

The Trade Show continued on Saturday, with even more delegates attending and enjoying the opportunity to network with suppliers, government departments and other key industry groups and service providers.

A specifically designed R&D session, presented by Incitec Pivot, was held in conjunction with the Trade Show and featured some of Australia's most prominent researchers from the science world. The session included presentations on all the major issues confronting the potato industry, such as insects and diseases, soil health and water usage, as well as innovations and new technologies.

Addresses were then delivered by Dr Eva Bennet-Jenkins, CEO of the APVMA and AUSVEG CEO Mr Richard Mulcahy.

At lunchtime, delegates were treated to the Bayer CropScience Sporting Identities Lunch, which was headlined by Elders Ambassador and former Australian cricketer Mr Glenn McGrath. Former AFL champion Robert "Dipper" DiPierdomenico played host at the lunch posing questions to the former champion fast bowler and the other world class athletes; hockey player and Olympic Gold Medallist with the Kookaburras, Brent Livermore; Olympic silver medallist and cyclist, Michelle Ferris; and professional Ironwoman, Hayley Bateup.

18) Professional Ironwoman Hayley Bateup speaks at the Bayer CropScience sports lunch **19)** John Deere leave their mark on the Trade Show **20)** Syngenta General Manager Paul Luxton speaks at the business sessions **21)** Pre drinks at the National Awards for Excellence Gala Dinner **22)** The Boomaroo Nurseries stand at the Trade Show **23)** Senator Nick Xenophon speaks at the DEEDI breakfast **24)** Head of New Business Development at Bayer CropScience Richard Dickmann presents at the business sessions **25)** Andrew Meurant [right] accepts the AUSVEG Industry Leader award present by AUSVEG Chairman John Brent [left] **26)** Sarah Pettitt and Glenn McGrath amongst the speakers at the Women in Horticulture Breakfast **27)** Roving MC Robert DiPierdomenico addresses the delegates **28)** Place settings for the National Awards for Excellence Gala Dinner **29)** Co-Host of the National Awards for Excellence Gala Dinner ABC news reader Jessica van Vonderen **30)** AUSVEG Chairman John Brent delivering his address at the Welcome Reception **31)** Leading Partner DuPont at the Trade Show **32)** Luis Gazzola with wife Gloria accepting his Lifetime Achievement award **33)** Group General Manager Commercial, Plant & Food Research New Zealand David Hughes speaks at the business sessions.

A large crowd gathered to listen to the high profile athletes, as they answered questions and returned fire to Dipper, with the laughs continuing right through lunch.

Rewarding Excellence

As a fitting end to a highly successful Convention weekend, the National Awards for Excellence Gala Dinner was held on Saturday night. The much anticipated evening was a glamorous affair with the vegetable and potato industries most outstanding members recognised for their contributions and significant achievements.

Dipper was joined by ABC Newsreader Jessica van Vonderen to co-host the industry's night of nights, which included Elders Ambassador Glenn McGrath as a special guest speaker.

Ballarat potato farmer, Daniel Maher led the way for potato growers, taking home the coveted Young Grower of the Year award, proudly sponsored by Dow AgroSciences. After doubling his production to 150 acres in just 12 months through innovative farming techniques, Mr Maher was a worthy winner and he spoke about the importance of keeping young growers in the industry as he accepted the award.

There were 10 other winners who were recognised at the gala event and these included: Len Tesoriero; Researcher of the Year, proudly sponsored by Bayer CropScience; Jim Trandos, Grower of the Year, proudly sponsored by Syngenta; Narelle West, Women in Horticulture Award, sponsored by McCain Foods; Syngenta, Productivity Partner Award, sponsored by Elders; Gazzola Farms, Industry Impact Award, sponsored by Boamaroo Nurseries; Andrew Philip, Innovative Marketing Award, sponsored by Brisbane Produce Market; Jim Turley, Industry Recognition Award, sponsored by DuPont; and Andrew Meurant, Horticulture Segment

Manager from Elders, who was recognised with a special AUSVEG Industry Leader Award for his leadership in the horticulture industry and the formation of crucial partnerships between industry bodies and key industry organisations. Luis Gazzola from Gazzola Farms received a special Lifetime Achievement Award for his long standing contribution to the industry, while David Anderson from WA was awarded the Premier's Award.

AUSVEG Chairman Mr John Brent spoke with pride as he thanked delegates for attending the Convention, the first of this magnitude ever held in the vegetable or potato industry. He also thanked the AUSVEG Board for their support and commitment in what has been a significant period of change for the organisation over the past 12 months.

Mr Brent offered his sincere thanks to the organisations who had supported AUSVEG in the holding of the AUSVEG National Convention, Trade Show and National Awards for Excellence.

He paid tribute to the event's leading sponsors Elders, DuPont, Syngenta and Bayer CropScience and other sponsors, Incitec Pivot, Boamaroo Nurseries, The Australian Government's Department of Immigration and Citizenship, John Deere, Dow AgroSciences, Brisbane Produce Market, Terranova Seeds, The QLD Department of Employment, Economic Development and Innovation (DEEDI), Dobmac Agricultural Machinery, Toolpak Engineering, Vin Rowe Farm Machinery, The Department of Agriculture, Fisheries and Forestry, Landpower Australia and the Australian Made, Australian Grown campaign.

Even bigger plans are already being discussed for next year, with the success and momentum generated from this year's event, certain to be beneficial for all Australian potato growers.

Congratulations to winners of the AUSVEG National Awards for Excellence 2010



[from left] DuPont Industry Recognition Award winner, Jim Turley; AUSVEG Premier's Award winner, David Anderson; AUSVEG Lifetime Achievement Award winner, Luis Gazzola, Gazzola Farms, who also won the Boamaroo Nurseries Industry Impact Award; Bayer CropScience Researcher of the Year Award winner, Len Tesoriero; AUSVEG Industry Leader Award winner, Andrew Meurant; Brisbane Produce Market Innovative Marketing Award winner, Andrew Philip (award accepted by Colin Hudgson); Dow AgroSciences Young Grower of the Year Award winner, Daniel Maher; McCain Foods Women in Horticulture Award winner, Narelle West; Elders Productivity Partner Award winner, Syngenta Australia (award accepted by Sean Richardson); and Syngenta Grower of the Year Award winner, Jim Trandos.



Horticulture in the blood

Sarah Pettitt is a woman with fire in her belly. Due to her own experiences as a farmer's daughter, she has been spurred on to work hard for growers, which she does around the clock as the Chairman of the Horticulture and Potatoes Board of the National Farmers' Union in the UK. In this edition of *Potatoes Australia* she shares her views on the current state of the industry and what steps she believes are needed for growers to get the most out of their businesses.

Words | [Mignonne Rawson](#)

Whinging and moaning is not something that Sarah Pettitt, Chairman of the Horticulture and Potatoes Board of the National Farmers' Union (NFU) in the United Kingdom accepts—from herself or from anyone else.

Ms Pettitt was one of the keynote speakers at the AUSVEG National Convention, Trade Show and National Awards for Excellence, which took place at Jupiters Hotel-Casino on the Gold Coast from 27-30 May 2010. Speaking at the Women in Horticulture breakfast, which was held in support of the McGrath Foundation, Ms Pettitt made it clear that she was a woman to be reckoned with. This is not surprising since she is the UK's first female NFU Chairman, as well as its youngest.

In the opening remarks of her presentation she declared that she wished to be known as a Chairman because she does not see herself as a woman in horticulture.

"I don't think of myself as a woman in horticulture," she said.

"Would anyone think of asking a man in a female dominated vocation what it was like being a man in a woman's world?"

Perhaps this confident attitude is not surprising given her deep roots in vegetable growing. She was born into a third generation family farming business in Boston, Lincolnshire, which grows a range of brassicas plus cereals and rotational legume crops.

Passionate campaigner

While talking with Ms Pettitt it is absolutely clear from the outset that she is a woman brimming with knowledge that she wants to share with growers. She can barely contain her passion for vegetable and potato growers and their needs, which she explains is largely a result of personal experience.

"Back in 1999 we were, for a small growing farming business, quite large in terms of the volume we produced. In this year we grew a particular brassica and we doubled our production on the whimsical demand of the food chain. Unfortunately, the bottom fell out of the jar and we got a return of less than what it cost to produce and that had a massive impact on the business," she said.

"As a daughter, to watch your father go through such an emotional process, with worry for the business and to see the pain that caused, has affected me forever. That was the ignition that created such a huge raging fire inside me to want to make a difference to these growers."

Since that time, Ms Pettitt has been spurred on to help farmers from all over the world.

"When I hear of growers finding it difficult in this country or that country, my natural instinct, without a thought process, is to help

because I know exactly what they're going through, I know exactly what their families are going through and it is that passion that really does drive me on," she said.

Speaking at the AUSVEG National Convention

It is this zeal which brought Ms Pettitt half way across the world two weeks ago, to speak to Australian growers at the AUSVEG National Convention. In the short space of time she was in Australia it was apparent that Ms Pettitt quickly grasped the issues facing the local industry.

"The issues are very similar to the UK, for example, resource issues, such as depleting resources in terms of fertiliser, crop protection products, water issues, and obviously the food chain itself and how volatile it is. Plus there is the dominance and the pressure of the retailers flexing their arms," she said.

It was through talking to growers at the Convention that she decided her original presentation was no longer relevant, and so she re-wrote it with an idea to share her knowledge about what the UK has been through, particularly in regard to retailer dominance and improved regulation for the industry.

"I really felt a responsibility after talking to growers here at the Convention to extend some of our learning, and the walk and the journey that we've been on [in the UK] to inspire growers to come together and also for AUSVEG and others to work with growers to try to create the remedy based on the lessons from other countries."

She said countries like the UK, which have tried several avenues, are now realising that legislation is required to ensure power is spread evenly and not deposited solely with the major retailers but also with the growers too.

In her presentation at the breakfast, Ms Pettitt went back 10 years and described the evolution that the UK industry has been through.

She said that in 2000 following criticism of profits and prices of

retailers in the UK, the Competition Commission launched an investigation into the big four retailers—Tesco, Sainsbury, ASDA and Somerfield.

The Commission concluded that certain practices carried out by supermarkets gave rise to a complex monopoly situation.

"This led to the establishment of the Supermarket Code of Practice to regulate the conduct of the four largest grocery retailers with respect to their suppliers," she said.

Ms Pettitt said that the NFU was a heavy critic of the code because it was flawed and relied on a supplier to complain about an abuse of power which would never happen.

"No supplier that values the future of his business is going to be prepared to make a complaint," she said.

After years of campaigning for the code to be tightened and expanded in its scope, it was then recommended that an Ombudsman be enforced but on a voluntary sign up basis. Ms Pettitt said that it was at this point that the Office of Fair Trading stepped in and formally requested that the Government put in place legislation that would bring an Ombudsman into force.

"We are now in 2010 and following a general election have a new Coalition Government in power as a result of a marriage between the Conservatives and the Liberal Democrats. Both of these political parties while in opposition pledged to introduce the legislation required to establish an Ombudsman," she said.

"It is great that we now have this Coalition and I will be expecting them and encouraging them and working with them, to stand by their pledges."

Ms Pettitt is clearly proud of the NFU's lobbying efforts to get the Ombudsman established and from this, she said, Australia and other countries can learn.

"There's no embarrassment in saying we've tried in other measures and it just hasn't worked, now we've got to legislate," she said.



Sarah Pettitt and Glenn McGrath feature at the Women in Horticulture Breakfast

Collaboration is power

In spite of her passion to give back power to the growers, Ms Pettitt is also adamant that the growers need to take some of the responsibility for the circumstances that they find themselves in. She said if it is less than satisfactory, do not blame others and complain about the system, do something about it.

“Complacency is one of the biggest issues for growers,” she said. She stressed that growers have to remember to work with their customers and give them what they want.

“There are always going to be people on the other side of the fence waiting to push you out of the way to negotiate a cheaper price in order to get the business,” she said.

“Don’t whinge and moan about it because nobody wants to listen to that. They want to listen to someone who will come to them with solutions about how they’re going to drive their business.

“If you’re a retailer and I’m a grower, all you want to know is how I am going to help increase your market share and increase your margin for your stakeholders.”

According to Ms Pettitt, the UK and mainland Europe are some of the better examples of how the industry has progressed, but this has not been without sweat and tears, with both areas having struggled to create more structure and regulation in their industries. Ms Pettitt said this is where places like Australia and other countries can learn.

“I went to New Zealand a couple of years ago and I saw them as about 15 to 20 years behind the UK in terms of the structure of the industry, which is very fragmented for individual growers and not particularly collaborative. They are being picked off one by one. Australia is more advanced but still needs some work,” she said.

“In mainland Europe, retailer dominance is not so wielding.”

Ms Pettitt explained that “collaboration is the key” which helps to shift power and dominance away from the retailers.

“If you have got a lot of growers working together that are

supplying huge amounts of volume into a retailer, it is very difficult for that retailer to switch that off and source from somewhere else,” she said.

Advice to Australian farmers

In addition to collaboration and co-operation, Ms Pettitt came to Australia with some other key messages for growers to remember.

“First of all you need to regulate. Then you need an ombudsman in there that has the power and the authority to actually go in and proactively look for issues. You then need that extending down through the supply chain,” she said.

“You’ve got to take a stepwise approach to this, and growers in Australia at the moment are in a prime position with a general election coming up to influence and lobby MPs and say to them, if you want votes, horticulture votes, this is what we demand from you, should you then get into power.” Ms Pettitt also stressed the importance of growers doing their own homework. “Growers need to find out what the customer wants in the first place before they go and invest a lot of money,” she urged. “Look at your costings very very carefully. For individual crops, know what your costings are. If it’s not viable, don’t grow it. Don’t say ‘oh well, we had a bad year last year, we’ll have a good year next year’. If it doesn’t make the margin then don’t grow it, grow something else.”

Another point that Ms Pettitt implored growers to be aware of is investment.

“Be careful not to be led down a blind alley because of promises without any firm commitment. Take a stepwise approach towards investment and don’t plan it over 20 to 30 years. Be very ruthless in terms of your ability to invest and try to limit your risk as best you can. And if you can get a contract signed by your customer, you’re ahead of the game,” she said.

Her final message to Australia’s growers;

“Don’t whinge and moan. Do something about it.”





Australia: on the front line

The Australian potato industry is boosting its defence lines in a determined bid to prevent Zebra Chip disease from entering our borders.

Words | **Gretel Sneath**

The potato industry is standing at attention, and a taskforce specifically established to combat Zebra Chip (ZC) disease says it has good reason to be on high alert.

“It is extremely difficult to overstate the threat that this organism complex poses to Australia; in over 30 years in horticulture, I have never seen a pest or disease that is impossible to control,” said Taskforce Chair Dr Kevin Clayton-Greene.

“This is a disease complex that has the potential to destroy many people and companies.”

First discovered in Mexico in 1994, the symptomatic dark and light streaking associated with ZC has since appeared in potato crops as far afield as the USA, Honduras and Canada. It was, however, its discovery across the Tasman in 2006 that really highlighted Australia’s vulnerability.

“Its mode of entry into New Zealand is unknown, but it was probably there a period of time before it was discovered, and in the meantime, its consequences were ascribed to other causes,” said Dr Clayton-Greene.

In late February, Dr Clayton-Greene visited affected sites in the Pukekohe, Waikato and Hawke Bay regions of New Zealand.

“A number of the producers are desperate and facing financial ruin. The disease complex has not only devastated commercial crops but has also destroyed most home garden tomato production in the North Island,” he said.

Scientists have linked ZC to a species of bacterium, *Candidatus Liberibacter psyllauros*, which is rapidly transmitted by tomato-potato psyllid insects to other potato plants, with devastating results.

“One infected psyllid feeding for only one hour will produce infection in 60 per cent of cases. Two hours and infection is guaranteed. The reverse is also true for infected plants transferring infection to psyllids,” said Dr Clayton-Greene.

The psyllids to date have proved almost impossible to control and even those producers who have followed the most rigorous spray program possible still have psyllid infection.

“The tubers show no signs of infection until the customer performs the final cook and intermittent sections of the chip develop brown or burnt appearance, thus only crisping companies can grade out product,” said Dr Clayton-Greene.

“Fresh market and French fry producers have very little hope.”

ZC has now been found in Canterbury, New Zealand, and as far south as Southland, and while there is uncertainty about how the disease will progress in the South Island, there is little to suggest that it will not become just as devastating as in the North.

The only bright news is that the past season has not been as severe. This may be due to more effective, earlier control as well as earlier planting. New Zealand’s monitoring program has revealed that the infection is not as bad in early crops, and that the psyllids do not start to show significant numbers until mid-December, with signs of damage starting to appear three weeks later.

“From the data collected so far, it is clear that any monitoring program in Australia would have little point until late December and would probably be able to be wound back in April,” said Dr Clayton-Greene.

Work is underway to develop a rapid identification test for the *Liberibacter*, and trials with insecticides and bio-control agents are

showing some promising leads.

Researchers are also investigating whether a phytoplasma, also found in Australia, may play a role in the disease.

“It is clear from the research and development that it will be some time before the problem is sufficiently understood to bring about management and control options, and it is important for Australian representatives to meet with all the relevant researchers so that a communication line with all members of the New Zealand program has been established,” said Dr Clayton-Greene.

Dr Clayton-Greene’s visit to New Zealand stemmed from the Zebra Chip Industry Summit convened by AUSVEG in Melbourne in December 2009, which was attended by state grower organisations including, government representatives, major potato growers and processors, and other relevant bodies.

Vigilance is also being urged at a domestic grower level; growers should inspect their crops for any signs of the psyllid or the symptoms caused by the bacterium such as yellowing, enlarged stems, shortened internodes, curled leaves, swollen axillary buds and aerial tubers.



Zebra Chip Disease in Potatoes

“Plants attacked by psyllids do not die, but suffer yield losses of up to 50 per cent, and tubers display a number of defects including chaining, whilst plants infected by the *Liberibacter* usually die within three weeks,” said Dr Clayton-Greene.

Biosecurity Australia’s current import conditions have been designed to reflect the current risks. As per an agreed “Code of Practice” between Australia and New Zealand, loose tomatoes produced in glasshouse conditions that control infestations need not be fumigated if they have been washed and brushed. Capsicums and truss tomatoes still need to be fumigated with methyl bromide because they are not brushed, and washing alone may not remove all psyllids from the fruit. The importation of tamarillos, tomatillos and cape gooseberries (which can be affected by the bacterium and the psyllid) is now also permitted, provided they are fumigated with methyl bromide.

While all relevant nursery stock coming into Australia is also fumigated to kill any psyllids, Dr Clayton-Greene still wonders if existing entry requirements are adequate, and he said anyone who visits New Zealand growing areas should adhere to a Code of Practice which commands the thorough washing of clothing and hair before returning to Australia.

“After being in Hawke Bay, I had psyllids flying around in the car on the return trip to Auckland which were almost impossible to remove. Remember it takes only one. That is not much margin for error,” he said.

The AUSVEG Zebra Chip Working Group has recently held talks with Plant Health Australia and will be working with the organisation to produce a contingency plan on behalf of the industry.

Suggested additional reading:

Biosecurity Australia – www.daff.gov.au/ba

Potatoes New Zealand – www.potatoesnz.co.nz

FritoLay Agricultural Research and Development
– www.fritolayag.com





One year on

12 months after assuming the position of AUSVEG CEO, Richard Mulcahy talks to *Potatoes Australia* about clearing the decks, the substantial gains already made and the challenges that remain.

You have a history of successfully tackling industry associations that required substantial re-invigorating or repositioning. Was this what attracted you to the position of CEO at AUSVEG?

AUSVEG represented a major challenge but had at its disposal a very positive message. It also appeared critical to the Australian economy and the Australian people especially given the emerging importance of food security in this country.

The organisation has an important role to play in engaging the general public and decision-makers, so that every possible effort is made to encourage growth in profitability in the industry. Having a viable food production industry will not only provide economic benefits to Australia but also benefit the broader Australian community which is tackling obesity and diabetes on an epidemic scale. We as an industry are poised to be part of the solution to these dietary and lifestyle issues, if we can develop new ways of conveying our message.

What were your major objectives when you were appointed to the position?

When I started at AUSVEG there were significant challenges that the AUSVEG Board wanted me to address. These issues became quite evident after a review of operations in the initial weeks following my appointment.

AUSVEG was challenged on many fronts. Its financial position was less than ideal, its media profile wasn't strong—except in those circumstances where it was strong for the wrong reasons—it had no advocacy program in place, and its relationship with its member organisations was weak, with limited ongoing communication.

But arguably our biggest challenge was to reconnect with growers, who had become disenchanted by the organisation's failure to adequately convey their concerns in relation to the expenditure of R&D levies.

Your first year as CEO has seen enormous change to the organisation. How did this change occur?

It was a matter of tackling things in a logical fashion, starting with the foundations and ensuring that we restructured with a team of highly skilled young professionals. We needed a team who would be dedicated to promoting the interests of growers/levy payers, as well as being responsive to the concerns of our member organisations and the views of the AUSVEG Board of Directors.

The next stage was to address those areas that were likely to impact on the affairs of the operation, or that related to the concerns raised by our constituents. Enhanced financial resources were required but so too was the need for greater interaction with the Fresh and Processed Potato Industry Advisory Committees (IAC). To ensure growers' concerns were well understood in the process of awarding funding for R&D projects, our relationship



- Enhanced media profile.
- Increased communication with state members.
- A stable financial position.
- Reinvigoration of IACs, Advisory groups and Working groups.
- A stronger voice in agri-political affairs, Underway

with these groups needed to strengthen.

AUSVEG has made substantial gains in a short period of time, how do you see the accomplishments of the last 12 months?

Everything is on track. We now have a young, skilled and enthusiastic team that is second to none in terms of agricultural or horticultural industry associations.

On the financial front, AUSVEG has just held a National Convention, Trade Show and Awards for Excellence, an event that is no longer reliant on industry levies to make it viable. In fact, there were no levy funds at all being used to stage this event.

We have also entered into a range of strategic partnerships and agreements with organisations who, with AUSVEG, share a common interest in addressing the needs of growers.

These include companies such as: Elders, DuPont, Bayer CropScience and Syngenta, which have enabled AUSVEG to better inform growers of the work they are undertaking in developing methods of managing diseases and pests, on a more cost effective basis, with products that are safe and environmentally sensitive.

The IACs renewal process has also taken place and we are proud to have IACs, advisory groups and working groups that represent

the best talent available in the Australian potato industry. Finally, the dialogue with Executive Officers of our member organisations now occurs on a regular basis through teleconferences, face-to-face meetings and other forms of communication. This ensures we are aware and sensitive to their needs.

Does this mean the grower has greater representation?

Absolutely. We have strengthened the organisation dramatically in that sense. We have made ourselves more responsive to state and local bodies of which they are members. We've also become better equipped to convey their concerns to national decision makers in Canberra whether it is at the parliamentary level or in the bureaucracy.

Our profile in the national media in both electronic and print format has grown significantly, giving the grower a voice on the issues that matter most to them.

Growers have arguably never faced greater challenges. What role will AUSVEG play in helping growers confront these?

AUSVEG can't change world economics but we can work with our members on a range of fronts.

We are striving to give them greater access to the research and development work being undertaken in the industry, and to ensure the outcomes from such projects flow through to tangible benefits, which growers can see first hand in their own operations.

We are also actively involved in, and will continue to give priority to, all of the consultative processes provided in biosecurity.

Working closely with Plant Health Australia and the Federal Department of Agriculture, Fisheries and Forestry, we will ensure developments that may pose a threat to growers' viability can be tackled as expeditiously as possible.

AUSVEG will continue to develop its profile in both electronic and print media to ensure the views of our constituents are expressed. If there are public discussions on issues of concern, there will be an AUSVEG representative who is available for comment 24 hours a day, seven days a week.

Recently I participated in a radio program at 3.15am, a discussion which was broadcast on 45 radio stations across Australia, and our Head of Communications undertook a similar task at 4.30am on another morning, also broadcast extensively across Australia. If the

job calls for it, we'll not shy away from those sorts of demands.

Do you see the role of AUSVEG expanding in the future?

We are determined to build our profile in an agri-political sense which we hope to strengthen in the year ahead as resources become available to the organisation.

We want to be in a position where the interests of vegetable and potato growers are given considerable weight at the national level and this can only be achieved through an effective public affairs program.

This will encompass face-to-face meetings, an enhanced media profile and a general improvement in communication on issues of concern.

We will still maintain our involvement in R&D projects but the organisation will continue to go through further change so that we are more broadly aligned with providing a representative service on behalf of the industry.

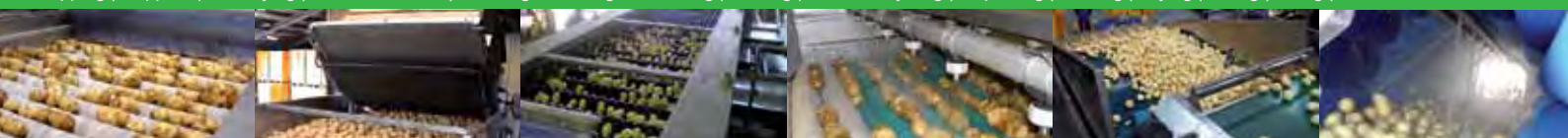
I walked into an organisation that had significant historical problems but I thrive on the challenge of continuing to improve and put it in better shape to take on the sort of issues that are looming for growers. I hope that's what we will achieve in the coming years.

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Soilborne insect pests

In the last five years there has been a focus on soil health which has led to research into soil pathogens and plant nutrition. This article focuses on the soilborne insect pests targeting potatoes.

Words | **Bronwyn Walsh, IPM Consultant**

Reports have shown that soil insect pests have been responsible for a loss to the industry of almost \$2.4 million nationally. Losses have been caused by rejection of blemished potatoes; where blemishes are either holes or tunnels on the surface of the potato. Additional costs or financial losses are through increased input costs caused by unnecessary insecticide applications.

Distribution

The particular soil insects responsible for the damage to potatoes will depend on the production region. Reports rarely show that only one species of soil insect pest is present in any one region. Studies, however, have narrowed down the pests and their status. White Fringed Weevil (WFW) is a pest in all Australian potato production districts. Other major soil insect pests include African Black Beetle (ABB), Wireworms (WW) and White Grubs (WG). Soil insect pests requiring further pest status clarification are Rice Root Aphid, Red Headed Cockchafer, Mole Crickets and Black Field Crickets.

Biology

The majority of these pests belong to the beetle order, meaning the adults have hard outer skeletons and the young, or larvae, are usually white 'grubs' found in the soil, except Wireworm larvae which are long, slim and brown. Compared to others the soil pests have relatively long life cycles, lasting anywhere between 12 months and four years. Some of this time will be spent in pasture or crop that is in rotation with potatoes.

Correct identification is a significant step for effective soil Insect Pest Management since hundreds of different beetle species have been found around potato crops but are not pests of potatoes. Another significant feature of the different species is the mobility of either the adults or larvae. For example the adult ABB and WW can fly into crops and affect the potential pest load of the crop

beyond initial monitoring. Also larvae of Wireworm are particularly mobile within the soil profile, which can affect monitoring, and the target location and effectiveness of soil applied insecticides.

Management

Monitoring can prevent insecticide treatment and there are guidelines available which advise about monitoring prior to planting for WFW, ABB and potato Wireworm. They are based on pre-crop soil sampling in a grid pattern across the paddock to be cropped using a spade. Samples are then inspected for WFW and ABB grubs and adults. Baiting prior to planting will give an indication of the presence of Wireworm.

To monitor for adult ABB and WFW flight activity, light trap catches or observing activity around lights near buildings during summer/autumn, and prior to planting, will give an indication of any movement of high numbers into the crop and subsequent egg laying and larval development. Monitoring should continue into the crop.

Applying management options at the correct time will help to prevent damage to crops. Crop rotation and time of planting are both effective ways to reduce the impact of soil insect pests. For example WFW is favoured by legumes in rotation, and is the more difficult to control of the pests, therefore including a grass in rotation with potatoes will help reduce WFW numbers.

In the majority of cases good control can be achieved with insecticides that are incorporated into the soil, however, you need to carefully read registrations since different products are effective against different soil borne insect pests. Considering soil moisture, rotation of insecticide group and targeting application to the pest zone will also ensure its effectiveness.

Our knowledge of the soil insect pests in potatoes is built on Australian research and experience and I acknowledge this contribution to this article.



White Fringed Weevil



African Black Beetle



Rice Root Aphid

Breeding better potatoes

The National Potato Breeding Program has entered an exciting and rapidly developing molecular breeding phase. Adopting these new technologies into the program will mean that breeding new cultivars with more desirable traits will be greatly accelerated.

Words | **Tony Slater**

Now is a particularly good time to adopt new molecular breeding technologies, since the potato genome is currently being sequenced and numerous laboratories around the world are investigating the use of molecular genetic markers.

This work is being performed within the National Potato Breeding Program (NPBP): Strategic Trait Program, which is a project funded through Horticulture Australia Limited (HAL) and the Department of Primary Industries (DPI) Victoria.

The project will have benefits for all the commercially funded cultivar development programs which are running now and in the future. The program is working on important or strategic traits for the majority of the commercial programs, such as disease resistance and improved agronomic and cooking performance.

The focus of the work is to understand and use the genetics of these traits to screen the parent collection to identify which cultivars have the desirable characteristics (and therefore the relevant genes), and eventually to develop molecular tools to enable the program to establish a potato molecular breeding program using marker assisted selection for these traits.

Investigations have also gone into finding out which are the best markers to use, and Simple Sequence Repeats (SSRs) have proven to be most cost effective for the program.

The program has established the priority of the characters to work on. This was done using: the input from the companies investing in the commercial programs, understanding the methods to screen for the traits, knowing the genetics and the number of genes

controlling expression of the trait, and the availability of molecular genetic markers that can be used.

When the characters are relatively easy to screen, traditional methods will be used but molecular markers will be a great benefit when the traits are difficult or expensive to measure, or when they enable the screening to be done much earlier in the development of a cultivar.

Testing for resistance

Disease resistance traits fit into this latter category and resistance to Potato Cyst Nematode (PCN) is a high priority for Australia, as well as elsewhere. Unlike other regions such as the UK and Europe, Australia has only had one pathotype detected in Western Australia and Victoria. This is *Globodera rostochiensis Ro1*.

Since 2005, the NPBP has been conducting PCN resistance screening trials in a quarantine facility at the DPI in Knoxfield, Victoria. These trials have allowed the screening of the main commercial cultivars and the majority of the parental cultivars in the NPBP's germplasm collection for resistance or susceptibility to this PCN pathotype.

To date, over 500 cultivars have been screened to identify resistant parents to use in the commercial breeding programs. This screening is also crucial for the validation of a useful molecular marker.

A number of resistance genes have been introduced into potato breeding programs which provide resistance against various





Tony Slater out in the field as part of the National Potato Breeding Program

pathotypes of PCN, although the most widely used resistance gene that provides resistance to *G. rostochiensis* *Ro1* is known as 'H1', and has been mapped to a location on chromosome 5.

Useful marker

What is a molecular genetic marker? A molecular genetic marker is a distinct piece of DNA that varies in sequence (combinations of A,C,G and T units). The variable DNA sequence can be used to predict linked inheritance with a nearby desirable gene on the same chromosome (called genetic linkage). The marker is of greater use the closer it is linked to the gene of interest.

Investigations have been made into the usefulness of two markers that are closely linked to the H1 gene, which are 'CP113' and 'TG689'. CP113 was considered too unreliable and of limited use, while TG689 is being used by a number of groups.

To validate whether TG689 can be of use to the program, leaf samples have been collected from each cultivar in the parent germplasm collection and each cultivar's DNA has been examined for the presence or absence of the molecular marker. Since TG689 is closely linked to but not a part of the H1 gene, it can become separated from the gene, which will occasionally suggest the H1 gene is present when it is actually absent and vice-versa.

Glasshouse screening data has been compared with the molecular marker data and there is a 98 per cent match between the two data sets. This means that the majority of the resistance in the

germplasm collection can be attributed to the H1 gene, and the TG689 marker will be very useful.

Since there is a 98 per cent match, it is understood which parents the TG689 marker can be used to select from their progeny and which cannot be. This will enable the vast majority of families to be screened very early for the presence of PCN resistance in individuals. Because the marker can become separated from the H1 gene the glasshouse screening trial will still be needed to confirm resistance or susceptibility.

This work has the potential to select only PCN resistant cultivars very early from the glasshouse or first field generation to advance in the screening trials for other traits. This will ensure that all new cultivars released from the program will be PCN resistant.

The Bottom Line: PT08033

- The National Potato Breeding Program is investigating the use of molecular genetic markers.
- The program has been conducting PCN resistance screening trials in a quarantine facility at the DPI in Knoxfield, Victoria.
- TG689 has been identified as a potential useful molecular marker which will help to identify cultivars resistant to PCN.



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Let's be positive

Communication and positivity are the main ingredients that Peter Hardman has employed in his many years working in the potato industry. In this issue of *Potatoes Australia* he talks about the processed potato industry—past, present and future.

Words | **Mignonne Rawson**

After over 30 years in an industry, it would be easy to excuse a little cynicism or even a lack of enthusiasm to creep into one's outlook. Not so for the Chairman of the Potato Processors Association of Australia (PPAA), Peter Hardman, who is by his own admission "very positive" about the future of the Australian potato industry.

Considering his breadth of knowledge and experience, surely Mr Hardman's positivity is good for Australia's potato growers and processors to hear?

Mr Hardman is well versed on many of the

industry's issues—past and present—which is not surprising in someone who has been so heavily involved. He is the current Chairman of the PPAA, formed in 1992 to provide a voice on issues of common concern in the processing of potatoes. He is also Simplot's Agricultural Manager in Ulverstone, Tasmania; a role he has held for the past 12 years.

Why potatoes?

For someone so involved in the industry it is surprising to learn that Mr Hardman was not born into potato farming as one might have expected. Rather, he was brought up on a sheep farm which also grew various cereal crops.

As a young man he went out on his own and bought a dairy farm from his family, which he sold in the 1970s when the prices plummeted.

"I then got a job with the Agricultural Department and had various jobs within it for a 21 year period. Over the years in the Department I had a number of jobs which all involved vegetables and potatoes," he said.

Perhaps, it is this varied work in the agricultural industry that has made him appreciate potatoes, which he said is such an exciting and important crop for Australia.

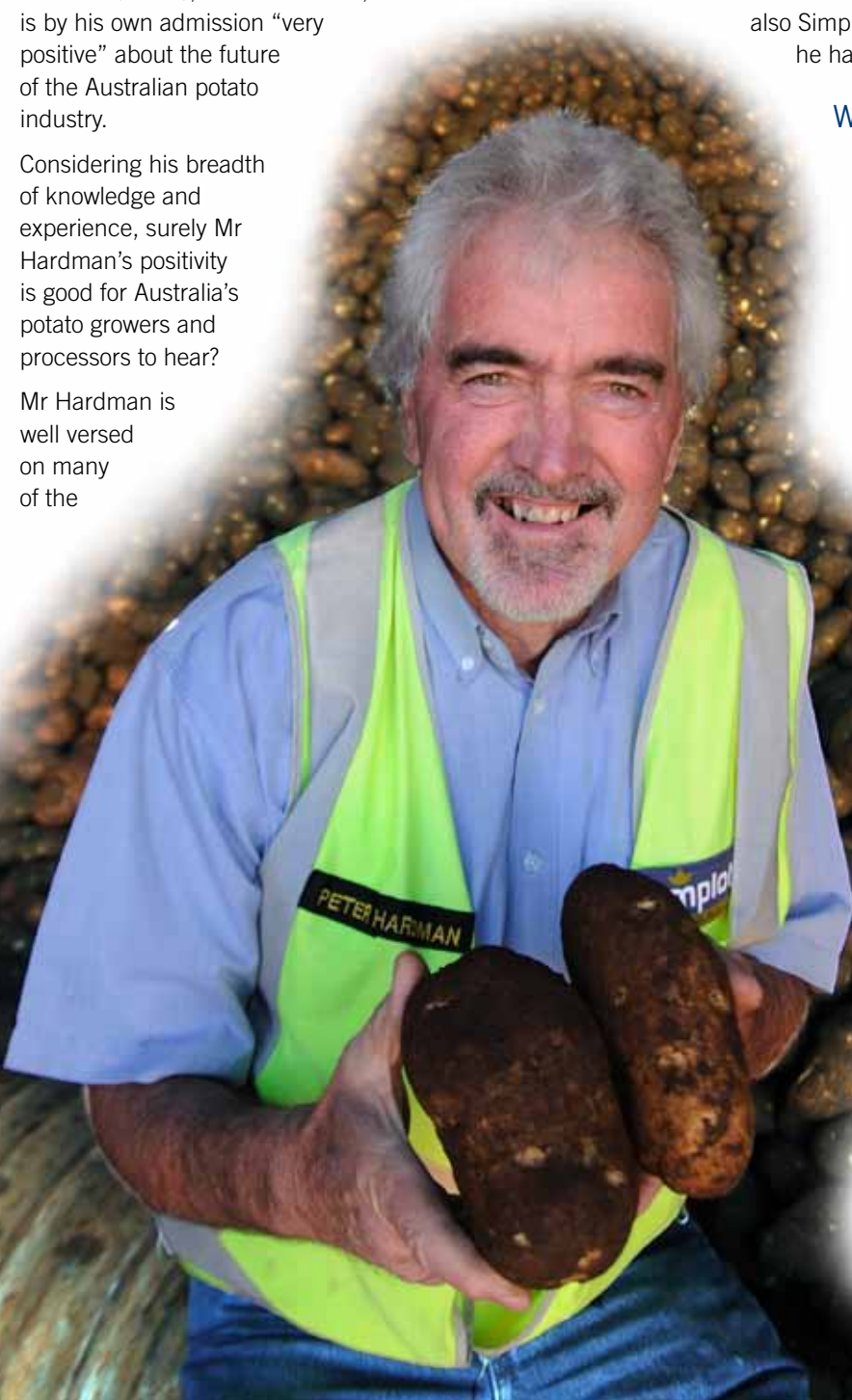
"It is a high value crop for growers and very important," he said.

"I suppose it was just a natural development that I would end up working with potatoes after all my years working in agriculture, especially vegetables."

The PPAA cause

According to Mr Hardman, the PPAA was set up because of the problem of Cadmium levels in potatoes in the early 1990s. Since that time the PPAA has continued to help highlight and solve problems in the industry.

"It was originally set up to act as a task force to tackle the problem, which was resolved in 1993. Fertiliser was found to be one of the sources of



the Cadmium issue,” he said.

“Then when the research levy system came in the Cadmium issue had been resolved, so it gave us a reason to keep the association going.”

Mr Hardman said the PPAA took up the new challenge to create better representation for processors, and ended up changing the shape of how the system worked.

“The potato industry is unique in that the processors along with the growers pay a levy to HAL unlike all other industries where only the growers pay. The processors wanted a voice,” he said.

“The growers had a voice through grower associations, so they had a say about levies. The processors didn’t.”

Mr Hardman said that for about 10 years the fresh and processing levies were combined and projects were generic to both sectors after which the PPAA stepped in to help the processors and the processing growers. He said that the PPAA were instrumental in splitting the Industry Advisory Committee (IAC) in half, to form two separate committees—the Fresh and the Processed Potato IACs.

“The IACs split so the fresh market and the processed market were able to concentrate on what they wanted; the fresh market has more focus on marketing. They have different needs as far as R&D goes too,” he said.

Mr Hardman said there are now three members on the Processed Potato IAC who represent the processors and ensure that funds are spent in the right areas.

“The PPAA revolutionised the R&D format for processing potatoes when it helped to change research projects, so that they be conducted over five years,” he said.

“We decided that a five year program was the best. And this was the beginning of the Australian Potato Research Project (APRP).

“I believe it’s working well and that it was a good decision to split the IAC in two.”

The latest issue—Zebra Chip disease

The latest issue on the agenda for the PPAA comes in the form of the threat posed by Zebra Chip (ZC) disease coming to Australia Mr Hardman said.

“At the moment the biggest concern is the Tomato Potato Psyllid (Zebra Chip) which is in New Zealand. If it arrives in Australia it will cause great problems for doing business in the processing potato industry,” he said.

“New Zealand had lots of problems last year. This year they are looking to have better control of it.

“The first thing is that we don’t want ZC in Australia, so it’s essential to try to prevent it from coming to Australia through use of quarantine procedures and being vigilant by keeping our eyes open.”

Mr Hardman said that the PPAA is working with HAL on a project with New Zealand on the ZC issue.

“When it was found in the US it halved the value of the potato industry in Texas in just one year. We just need to ensure that we are better prepared than New Zealand and the US were.”

In Mr Hardman’s view this is where organisations such as the

PPAA come into play in helping to ward off threats and avoid disease outbreaks.

“Growers have their own organisations through AUSVEG and other places but processors need a forum to discuss things as well.”

Positive communication for the future

It is not surprising that Mr Hardman views communication as essential in order for the industry to thrive.

“It is key to have good communication with all members of the potato industry from AUSVEG and HAL to the PPAA and individual growers,” he said.

“The processing potato industry is under constant pressure from overseas companies trying to place their products in Australia. Therefore, we have got to be open and ensure there is ongoing communication.”

Mr Hardman said one of the main problems that Australia faces is its relatively high costs of production.

“We have got to be as competitive as anywhere else in the world. Although, we pay more for raw materials we have to make up that cost elsewhere.”

“The Australian dollar pays a large part in it but we must try to stay competitive.”

In spite of these challenges, Mr Hardman remains positive but also cautious.

“In terms of the future of the industry, I am positive, however, I also believe that there will be a need for government assistance to not only keep the vegetable and potato industries but also to keep all other food industries sustainable,” he said.

“The government has got to keep imports to a minimum because I’m worried about what would happen if the processors are forced out of the Australian market. Where would we go to? I would hate to see Australia rely on overseas frozen vegetables and potatoes.”

Achievements and aims

Mr Hardman is not just positive about the industry but also the achievements that have been gained from the PPAA’s involvement over the years.

“One of the biggest achievements of the PPAA is resolving the Cadmium issue. We also changed how R&D funding gets spent, which is seen in the formation of APRP1 and now phase 2. Lastly, PPAA has been at the forefront of the ZC issue. We have had a hands-on approach to this issue,” he said.

Mr Hardman said that the PPAA, which is made up of French fry processors and crisping processors, is open to more members signing up to make a contribution.

“I would like to think that smaller processors can come to us and be able to discuss issues that are important to them and the industry as a whole,” he said.

In spite of the troubles that the industry has encountered, and ones that may well present themselves in the future, Mr Hardman always tries to look on the bright side when it comes to his industry.

“I think the potato industry is a stable agricultural industry. It is an exciting industry to be involved with,” he said.

Evolution and genetics of the Powdery Scab pathogen—on a global scale

In the world of potato growing, disease management is an ongoing problem. A current project, however, is developing knowledge about the genetic variation of a pathogen which may help to improve control strategies for Powdery Scab.

Words | **Mignonne Rawson**

Imagine predicting the way a pathogen will change and become more damaging. Then imagine the possibilities that this knowledge could lead to in order to stay one step ahead of a disease.

It may well be the farming way of the future. A new PhD project is bringing together researchers from around the world to work on better understanding how the Powdery Scab pathogen changes genetically.

The project investigates how the pathogen has evolved in different countries which could help predict how it will evolve in the future.

The three-year project, which began in 2009, aims to determine the genetic variability and structure of *Spongospora subterranea* in order to develop effective and sustainable Powdery Scab management.

The project has four objectives:

- 1) Finding markers useful for characterising different pathogen strains and populations;
- 2) Determining evolutionary units and their relationships in a global network, and identifying region of origin, geographic races and quantification of historic and recent pathogen migration;
- 3) Determining small and large scale population structure of the pathogen (e.g. the amount of genetic variation among populations or differences amongst potato cultivars)
- 4) Using genetic markers; and identifying the impacts of

asexual and sexual reproduction in the genetic composition of the pathogen.

Genetic markers have been developed to genotype pathogen populations from every continent (see Figure 1), which will show the genetic relationships between the populations. Seven different markers have been found so far, and some differences between populations have been observed.

The Australian Project Leader Dr Iain Kirkwood, from the University of Tasmania, said that it was hoped that the results would provide a better understanding of the pathogen's potential evolution and therefore how Powdery Scab can best be managed.

"This project is about determining the genetic variation in the pathogen across the world," he said.

Global scale

Investigation into this pathogen has never been done on such a global scale, and Dr Kirkwood said the reasoning behind this project was international from the very beginning.

The project was developed by the Swiss and New Zealand



Powdery scab on a potato tuber; Lesions are filled with dark-brown spore balls

Researchers Dr Ueli Merz and Prof. Richard Falloon and was funded through the International Potato Group (IPG). The group is a collaboration between Australia, New Zealand, Canada, the UK and South Africa, which develops projects of mutual interest, pooling international resources to give collaborative benefit from levy funding.

Dr Kirkwood said that the IPG decided the project was worthy of funding and is currently being undertaken at the Swiss Federal Institute of Technology (ETH) and the New Zealand Institute for Plant & Food Research by PhD student Rebecca Gau.

Good results

The project is in its second year and Dr Kirkwood said that some positive results had already been achieved.

“First results indicate that little variability occurs. This could mean that it is easier to breed potatoes for Powdery Scab resistance across the world, and there may not be many genetic variants able to overcome resistance,” he said.

Dr Kirkwood said this project was important on a number of levels.

“Little was known about the genetic variability of this pathogen. This project is studying how the pathogen varies globally and will support further international research on the diagnostics for the pathogen.”

He also said that the project was ground breaking in the way it was being funded.

Dr Kirkwood said that until now research projects were generally carried out independently in each country with information shared afterwards. This project, however, is closely linked to phase two of the Australian Potato Research Program (APRP), and involves

leading international researchers.

“It is the first time that researchers have pooled resources and pathogen collections, in a very effective collaboration,” he said.

“More collaborative projects like this are very likely to follow.”

Dr Kirkwood said that one of the best parts about this project was that the results will be fed back to the industry, with Australian potato growers being amongst the lucky ones to benefit from the study.

“The results of this project will be given to the APRP2 technical committee. The good thing is that they will feed back into the program.”

The project was facilitated and funded (through the IPG) by Horticulture Australia Ltd, the Potato Council (UK), Horticulture New Zealand, Plant & Food Research, and ETH Switzerland. The Australian component was funded by the National Potato Levy. The Australian Government provides matched funding for all of HAL’s R&D activities.

The Bottom Line: PT08032

- The project is seeking better understanding of how a soil-borne pathogen, which causes Powdery Scab, mutates.
- It is the first time that researchers have pooled resources and cultures together.
- The results will be fed back into the Australian industry.

Figure 1: Countries from which collections of the powdery scab pathogen have been obtained



The variety bank of the industry

It is not only we humans who require banks. Our potatoes need them too. That is why Dr Nigel Crump from ViCSPA talks to *Potatoes Australia* about the importance of refreshing and maintaining the National public potato variety tissue culture collection for Australia.

It is critical for the entire Australian potato industry to have potato varieties “deposited” in a secure bank that ensures variety health and integrity according to Dr Nigel Crump from ViCSPA. Public varieties can be withdrawn from this bank by anyone wanting to grow them. Accurate and robust maintenance of this collection ensures that there are no “counterfeits”; with all varieties being true-to-type.

A current project funded jointly by ViCSPA and Horticulture Australia Limited (HAL), refreshes and maintains the public variety in-vitro collection in Australia.

Maintenance

The tissue culture potato collection was originally set up in the 1970s. This current project is a continuation on from this beginning, housing many of the mainstay public varieties such as Russet, Burbank, Atlantic and Coliban.

The National public potato variety tissue culture collection provides the industry with diversity of varieties. Niche varieties, which are not grown in large volumes, are also maintained in the collection, including Red la Soda, Nicola, Denali, King Edward, Bison and Pink fir apple.

General Manager of ViCSPA, Dr Crump, stressed the importance of this project because it allows Australian growers to have access to true- to-type cultivars that have a known high health status.

“It is critical for the Australian potato industry for several reasons. It allows the housing of a collection of the public varieties. All potatoes originate from tissue culture collections and it is important that these collections are properly and accurately maintained. Maintenance of the collection involves annually testing for bacterial and fungal contamination and ensuring viable stocks,” he said.

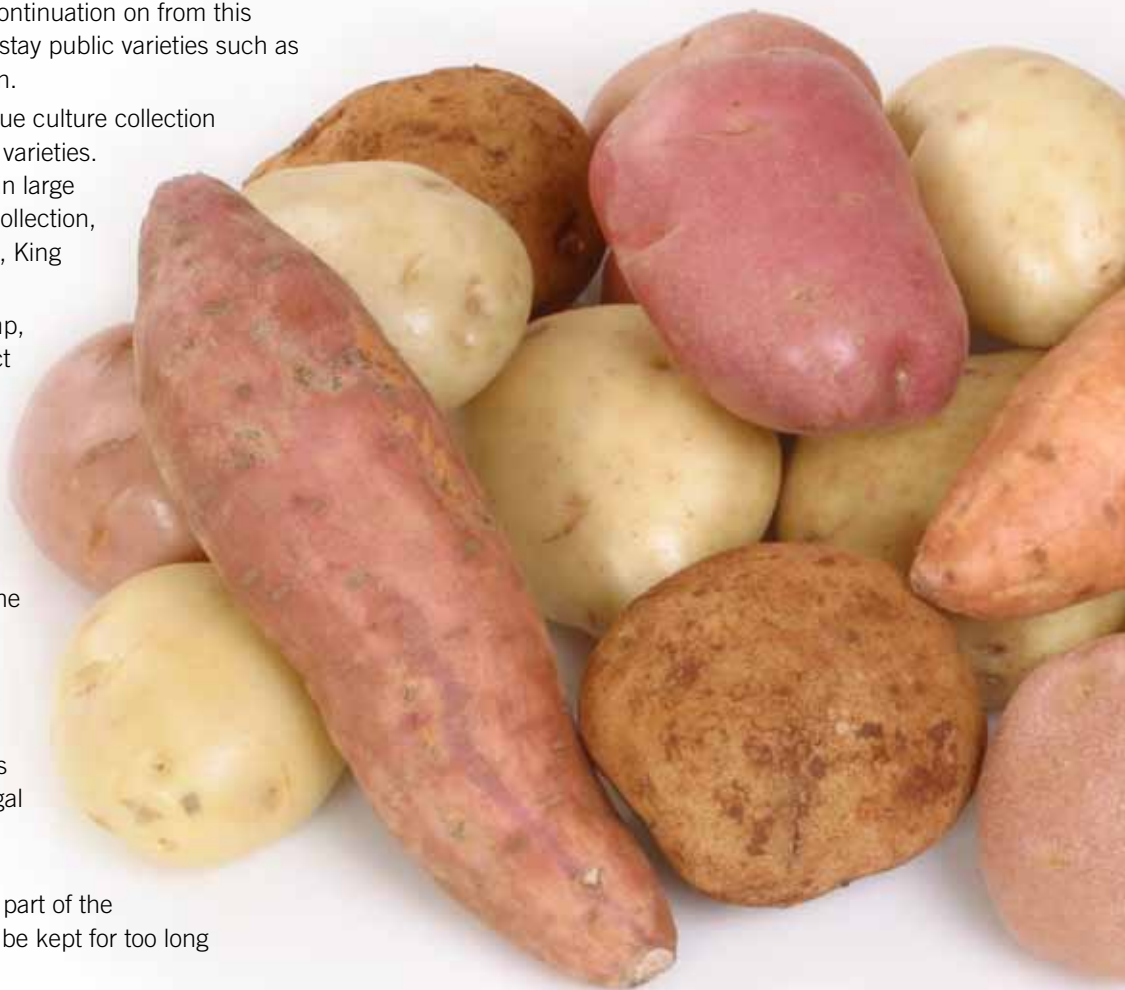
Dr Crump said that this was a crucial part of the operation since tissue culture cannot be kept for too long without being regenerated.

“It is essentially to keep the collection healthy and viable,” he said. “12 months and then the tissue should be re-cultured. It’s a bit like milk. It doesn’t keep forever.

“It’s very important that we make sure that this collection is accurately maintained by qualified staff. We don’t want counterfeit funds in the bank. We need identified and viable stocks.”

Dr Crump explained that there are two laboratories in Australia which are accredited to maintain the national collection, which are in Toolangi, Victoria and Stoney Rise, Tasmania.

These two laboratories supply material from the public collection to other tissue culture facilities as stock material that is multiplied to produce plantlets and minitubers.



“There are no royalties owned on them. If a grower wants a variety, there are no legal requirements needed to get it. Therefore, it is a very important resource.”

Refreshment

Dr Crump, who took over as Project Leader this year from Keith Blackmore, said that the second reason for conducting the project was refreshment of the tissue culture potato varieties.

Just like the Reserve bank refreshes notes and coins in circulation in the economy, this project refreshes varieties in the collection. This was achieved by growing potato varieties in isolated plots and checking for trueness-to-type and then re-entering the variety into tissue culture.

During this process the potato varieties are thoroughly tested for the presence of diseases and Dr Crump said that no cultivars are re-entered into the collection without their high health status being known.

Technology

An essential part of the project, aside from testing for pathogens, is to verify variety identification. To do this, the project has been using relatively new DNA technology.

DNA samples are extracted from plantlets and then sent to the Science and Advice for Scottish Agriculture (SASA) in Edinburgh, which offers a DNA fingerprinting service; technology that is

unavailable in Australia.

“We have 285 plots that have been derived from mintubers from every accredited tissue culture lab in Australia which require inspection to ensure they are true to type,” said Dr Crump.

“Instead, we can just get a leaf or tuber from the plant, extract the DNA and send it over to Scotland to be analysed to identify the cultivar or if there has been a mix of cultivars.”

Dr Crump said this new service in Scotland had several benefits which could not be denied.

“Using DNA fingerprinting technology will save costs of planting out and making sure flower colour etc is right,” he said.

“The few samples that are done per year in Australia does not commercially justify bringing the technology to Australia. Furthermore, the SASA system is proven technology and has a reference library of over 1000 cultivars.

“It captures technology that the industry would not otherwise have access to.”

Dr Crump said that it was hoped that the Australian collection would soon be put onto the SASA database, which would be a focus of any new program in the future.

“Having all Australian varieties referenced on the SASA system would mean that the technology could be extended as a tool to field certification seed crops. ViCSPA is already using the SASA technology for such purposes, but if the variety is not on the SASA reference database then the specific variety identification cannot be made,” he said.

“It’s a very important resource for industry and will continue to return significant benefits.”

Dr Crump said that although DNA fingerprinting was a wonderful resource, it would never replace the need for highly trained certification inspectors; rather, it was another tool to be used to help resolve problems when mixes are suspected.

This project was facilitated by HAL in partnership with AUSVEG. It was funded by the National Potato Levy with voluntary contributions from ViCSPA. The Australian Government provides matched funding for all of HAL’s R&D activities.



The Bottom Line: PT05005

- The project ‘Refreshment and Maintenance of the Public Variety In-vitro Collection for Australia’ maintains and refreshes Australia’s tissue culture collection to ensure growers have access to public potato varieties.
- Two laboratories maintain the National public potato variety tissue culture collection that is subsequently used to generate potato plantlets and minitubers.
- Using DNA fingerprinting technology to identify varieties will ultimately save costs and increase efficiency associated with cultivar maintenance programs.

NEWS



Warning about Potato Virus Y—keep it clean

As reported in the last edition of *Potatoes Australia*, Potato Virus Y has been cause for concern all over Australia. Now, potato growers in Far North Queensland are speaking out.

Atherton Tablelands producer David Nix was interviewed on the ABC in April about the issue, and he urged growers to ensure they are sourcing clean seeds.

Potato Virus Y can reduce yields and create brown spots on potato skins, which turn black during processing.

“There is a test that can be done on the seed before you get it and it’s called an ELISA test and it’s important that growers know their seed source and know that it has been tested for the disease,” Mr Nix told the ABC.

“It’s very important that we keep as strict a control of it as we can.”

The spud war in Canada has come to an end

Canadian potato growers and regulators finally came to an agreement in April about how potatoes can be sold.

The Winnipeg Free Press reported that the Potato Coalition of Manitoba had a meeting with its marketing board, Peak of the Market, and agreed that potato farmers who grow five acres or less of potatoes can sell to restaurants and independent retailers without any regulatory restrictions year-round.

The disagreement started over the fact that independent sales of potatoes were technically illegal in Manitoba, even though Peak of the Market typically ignored small growers who sold their potatoes at roadside stands, and farmers markets.

Earlier this month, the marketing board took steps to develop new rules that exempt small growers from having to go through Peak of the Market, provided they do not sell their potatoes during the winter, which growers found too restrictive.

Larry McIntosh, President and CEO of Peak of the Market, called the new regulations a “win-win” for growers and consumers.

He said it only took a brief meeting for the two sides to agree that giving growers more options would increase local access to Manitoba-grown potatoes.

Potato production down says ABS

Potato production has shown a marked downturn of 16 per cent from 2007-08 to 1.2 million tonnes in 2008/09, according to figures released by the Australian Bureau of Statistics (ABS).

The ABS report stated that in 2008-09 there was a decline for potatoes in both area sown and production. A total area of 33,000 hectares (down 15 per cent) resulted in a 16 per cent downturn in production to 1.2 million tonnes. According to the ABS report this continued a pattern of reduced production reported over the past decade. Below is a list of the key crop movements from 2008-09.

- Potato production down 16% to 1.2 million tonnes.
- Sorghum production down 29% to 2.7 million tonnes.
- Wheat production up 58% to 21.4 million tonnes.
- Canola production up 52% to 1.9 million tonnes.
- Banana production up 31% to 270 thousand tonnes, returning to pre-2006 levels.
- Barley production up 12% to 8.0 million tonnes.

A new super spud

Canadian researchers have been developing potatoes with antioxidant qualities as well as visual appeal according to The Telegram Newspaper.

Chef Allan Williams, who is the Research and Development Chef at the Culinary Institute of Canada at Holland College in Charlottetown, works with the BioPotato Network to create foods that are inviting yet are made in such ways that their health benefits are maintained.

The centre unveiled 13 new varieties of potatoes earlier this year. Producers will get two years to work with the potato varieties. After that, they can bid to get exclusive use of the variety for up to five years.

While part of the breeding process comes down to visual appeal it also focused on producing healthier and hardier potatoes, which means that farmers can avoid pesticides.

The work is done without any genetic modification.

Less 'early potatoes' in Spain

Could the potato drought in Spain spell good things for Australian farmers?

It was reported on freshplaza.com that this year Spain planted 10.1 per cent less of its 'early potatoes' compared to last year, and is therefore in need of importing more potatoes.

According to the Spanish Ministry for Rural Business the reduction in planting was caused by the abundant rain that the country had received.

Due to the limited supply the price of the 'early potatoes' in Spain increased in March to an average of almost 35 Euro per 100 kilograms at the farm gate. This time last year it was almost 22 Euro per 100 kilograms.

According to the Dutch Bureau for the Potato Market (BAI) less 'early potatoes' are being exported from Spain to the European market.

Cheap imports chipping away at Aussie potato profits

According to the ABC, Australian potato producers are feeling the pinch, due to an increase in processed potato imports from Europe, America and New Zealand.

It was reported that since 2004, annual processed potato imports have risen by over 400 per cent, from \$20 million to \$109 million.

The reason for the increase is due to a variety of factors, according to Tim Heissen from the South Eastern Potato Growers Association in South Australia.

Mr Heissen told the ABC that the high Australian dollar, cheap shipping rates and lower overseas production costs were all contributing factors.

"We've seen some reduction in price to try and combat these imports," he said.

"We are not sure what the full impact of that will be, but there will be an impact for sure."

What's On

22-24 June 2010

The International Potato Processing & Storage Convention

Where: The Roxburghe Hotel, Edinburgh City Centre, Scotland

What: The Roxburghe Hotel will be hosting The International Potato Processing & Storage Convention in June. It is one of the most important B2B events in the world, covering both the processing and storage sides of the potato industry and offering a programme of topics of interest to both sectors, as well as separate, highly specialised programmes.

Further information: www.potatoconvention.com or contact: convention@crier.co.uk

17-19 August 2010

AgQuip Field Days 2010

Where: AgQuip site, Blackjack Road, Gunnedah, NSW (North West Slopes and Plains) 2380

What: Australia's biggest agricultural industry field day event, staged over three days. Showcasing 500 exhibitors representing 2000 companies, the event attracts over 100,000 visitors every year.

Further information: www.farmonline.com.au/events/agquip or call (02) 6762 2399

25-26 August 2010

Dowerin GWN Machinery Field Days

Where: Dowerin, Western Australia

What: The biggest showcase of agricultural machinery and associated equipment in Western Australia.

Further information: <http://www.dowerinfielddays.com.au/dowerinfielddays>



New French fries for McDonald's

McDonald's is considering new potato varieties for their French fries after a meeting with the Potato Variety Management Institute (PVMI) earlier this year.

Jeanne Debons, Executive Director of PVMI, met McDonald's and potato industry officials in Idaho, USA.

The PVMI is hoping that the meeting will lead to McDonald's considering new varieties of potatoes for its French fries.

"I've been wanting to talk to McDonald's for three years. It's very exciting. I really want to make this meeting count," Ms Debons told the Columbia Basin Herald.

"If McDonald's were to use a variety developed by the Tri-State Breeding Program, demand for the variety would increase dramatically."

Bangladesh, the new home of potatoes

Bangladesh is looking like the next big thing in potatoes, with a Western Australian potato seed grower taking full advantage of this new export market.

The ABC reported that Bangladesh grows about four times more potatoes than Australia, with most of its seeds coming from Holland.

Tom Fox, from Lake Jasper Certified Seed Potatoes in Western Australia, is taking this cue and expanding into the region.

He is the first Australian grower to do so, which he said is because there is so much opportunity in the region for Australian producers.

"We certainly can't fill the orders, there's large potential there and they're very impressed with product from WA," he told the ABC.

Fiji imports potato seed from NZ to start own production

Fiji has bought \$75,000 worth of potato seeds from New Zealand in an effort to start the cultivation of the vegetable in the Western division of the island.

The Fiji Times has reported that a potato working group had been set up to organise and work with farmers in the selected potato growing areas.

Acting Senior Agriculture Officer, Viliame Mainawalala said the total planting target in the allocated area was 80.5 hectares in the Ba Province, which consists of 85 farmers, who would start by cultivating 33 hectares with the aim to produce 100 tonnes of potatoes.

The Red Rascal variety, which has been recommended for cultivation, is expected to be harvested after three months of planting.



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Minor use permits

Permit no.	Permit description (pesticide/crop/pest)	Date issued	Expiry date	States covered
PER9134	Alpha-cypermethrin / Potatoes / Garden weevil	31-May-06	31-Jan-11	WA
PER9160	Imidacloprid / Potato, tropical fruits, celery, cucumber, peppers (Field & protected), cape gooseberry / Various pests (consolidated use patterns)	29-Nov-07	31-Dec-10	Various states
PER10089	Chlorpyrifos / Parsley & Potato / Vegetable Weevil & Black beetle	12-Feb-08	30-Sep-13	All states except Vic
PER10283	Chlorpyrifos / Potato / Black Beetle, Wingless Grasshopper, Red Legged Earth Mite	9-Jun-09	30-Sep-14	WA
PER10822	Sodium hypochlorite / Potatoes, Various seeds & Soil / Various insect and fungal pests	30-Jan-09	1-Feb-14	All states except Vic

Biosecurity Levy to protect the industry

Biosecurity is an issue that is crucial to the operational viability of potato growing businesses in Australia. With limited resources presently in place to respond to biosecurity threats in the potato industry, AUSVEG has proposed that a biosecurity levy mechanism be put in place to respond to major incursions in the future.

Biosecurity threats exist as a range of endemic and exotic pests and diseases, the more serious of which have the potential to affect production and international and domestic trade. One such threat that currently threatens to have devastating consequences for the Australian potato industry is the Zebra Chip disease complex.

If there were to be an incursion tomorrow the potato industry currently does not have a mechanism in place which could be used to contain the problem. Plant Health Australia (PHA) is the national co-ordinating body that works in partnership with industries to build capacity and to co-ordinate national responses to pest/disease incursions. The PHA also manages the processes associated with the Emergency Plant Pest Response Deed (EPPRD), to which the potato industry is a signatory.

Proposal for a Biosecurity Levy

AUSVEG proposes that an Emergency Plant Pest Response (EPPR) levy be applied at the following rate: All potatoes at zero per cent of the potato value at the point of sale.

This requires a YES/NO answer from levy payers.

AUSVEG urges all vegetable and potato levy payers who were unable to attend the annual levy payers meetings in May to provide feedback before 15 August by contacting AUSVEG at info@ausveg.com.au.

Why does the industry need a biosecurity levy?

With limited resources presently in place to respond to biosecurity threats AUSVEG has proposed that a biosecurity levy mechanism be put in place to respond to major incursions in the future. There is currently no protection mechanism in place for the industry meaning that growers are heavily exposed should an incursion occur.

What is an Emergency Plant Pest?

An Emergency Plant Pest is a known exotic plant pest, a variant form of a plant pest already established in Australia, or an entirely new serious plant pest, all of which could have an adverse economic impact regionally and/or nationally if established in Australia. An Emergency Plant Pest may also be a plant pest that is being officially controlled in Australia but requiring a significant emergency response to ensure that there is not a large scale epidemic of regional or national significance.

What is the process if a biosecurity levy is put in place?

The biosecurity levy will be set at a zero rate so that there is a mechanism for the Federal Government to proceed to fund an Emergency Plant Pest Response. It is impossible for anyone to know the amount of those costs until such an event occurs. Should an incursion occur, the impact is assessed and the quantum is determined in consultation with industry.

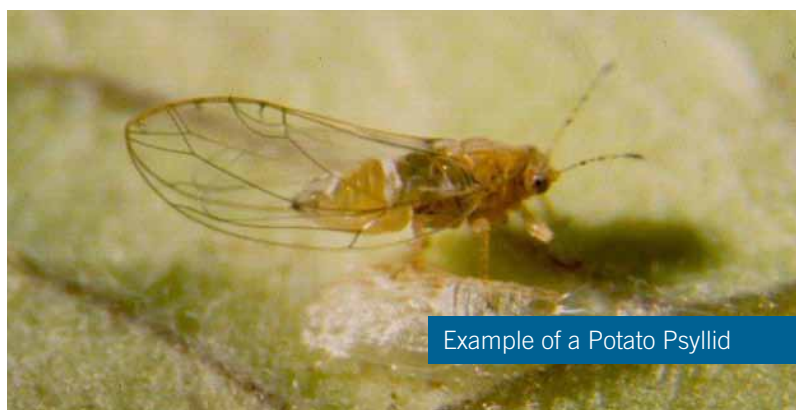
If the rate is raised from zero the Australian Government will collect and forward to Plant Health Australia amounts collected by the Emergency Plant Pest Response levy. The PHA is required to hold the payments for each participating plant industry in a separate fund.

What will happen if a levy is not put in place?

Without a biosecurity levy the Federal Government will not step in and provide funding in the event of an incursion. In light of the Equine Influenza outbreak where a levy mechanism was not in place and the taxpayer was left to foot the bill on behalf of the horse industry, the Federal Government has clearly stated that going forward industries without a biosecurity levy mechanism in place will not be supported financially in the case of an incursion. Each year Plant Health Australia responds to dozens of incursions. If there were to be a major incursion tomorrow the industry currently does not have a mechanism in place which could be used to contain the problem. The industry should act now to protect itself rather than respond once a major incursion occurs.

It is important to note that AUSVEG must consult with growers before the levy can be raised from a zero rate.

Please contact AUSVEG before 15 August to provide feedback at info@ausveg.com.au.



Example of a Potato Psyllid

How the potato levy works

Understanding how the National Potato Levy works is imperative for growers.

The National Potato Levy is collected by the Levies Revenue Service (LRS)—an agency within the Australian Government's Department of Agriculture, Fisheries and Forestry (DAFF)—and is matched dollar-for-dollar by the Australian Government.

Levy funds are managed by Horticulture Australia Limited (HAL), an industry-owned company that co-ordinates and invests research and development (R&D) levy funds on behalf of Australia's horticulture industry.

A common misconception is that levy funds are distributed by peak industry representative bodies such as AUSVEG, but this is not the case. AUSVEG's involvement in the investment of levy funds is limited to its recommendations to HAL about the composition of the Fresh and Processed Potato Industry Advisory Committees (IAC).

As the national peak industry body representing potato growers, AUSVEG is responsible for ensuring that the skills required to serve

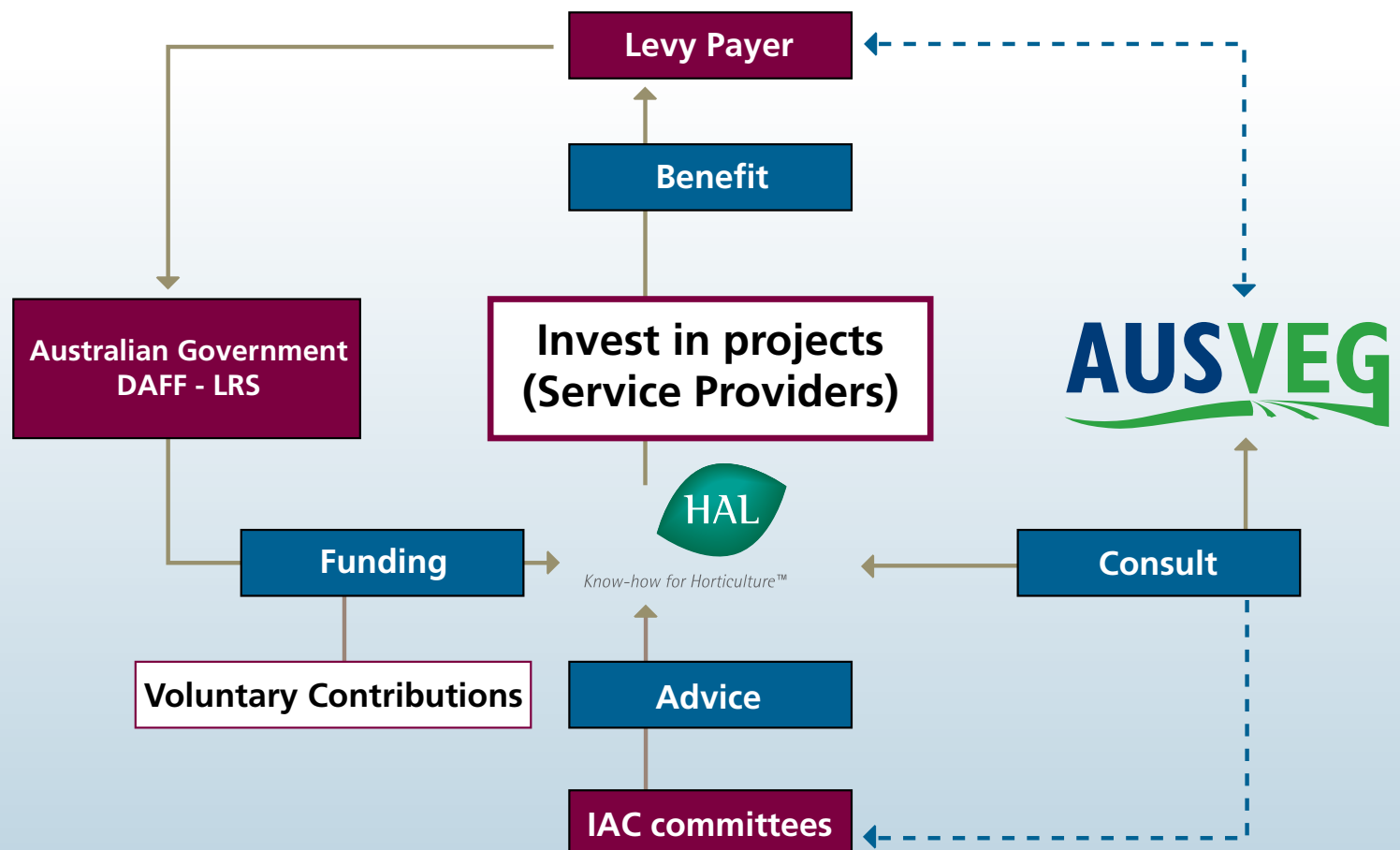
on the committees are met by the individuals they recommend.

The Potato IACs are subcommittees of the HAL Board and they make recommendations to HAL about how R&D levy funds should be invested to best meet the needs of the fresh and processed potato industries.

While HAL is responsible for managing levy funds, it is the industry's responsibility (through grower representation on the Potato IACs) to recommend how levy funds should be invested in alignment with the industry's strategic priorities. The Potato IACs meet in person twice a year and also have regular teleconferences.

Project proposals are considered by the IACs in these meetings and if approved, they are recommended to HAL for approval. Potato IAC members are often called upon to be part of specific project steering committees in order to provide advice during projects, to ensure they continue to meet industry needs.

Figure 1: Life of a Project



Improving the results

If at first you don't succeed then try, try again. That is the motto which has come out of a recently completed project which sought to increase potato crop yields by manipulating soil nitrogen levels.

Words | **Mignonne Rawson**

Who could imagine a crop performing like a finely tuned machine? It could well be the way of the future after a recently completed project developed improved tools to track nitrogen (N) and water movement through soil.

The project titled Increasing G1 Potato Seed Yield, was a collaboration between the Tasmanian Institute of Agricultural Research (TIAR) and seed company Agronico Technology Pty Ltd. The aim was to boost tuber numbers and consistency in generation one (G1) seed crops by applying techniques which have already been successfully used in the production of minitubers—small seed potato tubers grown hydroponically.

The PhD project, which was partly funded through HAL, finished in September 2009. Project Leader Dr Philip Brown was based at the University of Tasmania during the project, and is now working at Central Queensland University in Bundaberg.

Dr Brown said the project was based on observations about the effect of rapid changes in the supply of nutrients—especially N—on tuber formation. High levels of N are thought to delay tuber formation, and under hydroponic conditions a decrease in N supply to plants can induce rapid tuber formation. The hypothesis was that by understanding why potatoes behave the way they do, new strategies can be developed to manipulate their growth at critical stages of development.

The idea was therefore to have controlled application of N, combined with irrigation management at tuberisation, to reduce the concentration of N in the root zone. It was hoped that this could then lead to an increase in tuber growth rate and therefore also increase the rate of tuber initiation and decrease tuber resorption after initiation, leading to more tubers per plant in the first field generation seed crops.

However, Dr Brown said treatments that involve manipulation of N availability are very difficult to apply in field environments where plant roots are widely distributed, and microbial activity such as mineralisation contributes to the N pool in the soil.

“In the field we didn't get the same potato growth response based on the earlier trials. It became apparent that new tools to help predict distribution of water and N in potato mounds would be

needed if treatments to manipulate potato development were to be developed,” he said.

The project achieved some considerable results, by producing new insights into N dynamics in soils. A new model was developed, which Dr Brown said will prove to be a valuable tool in the design of future field treatments.

“In collaboration with CSIRO Land and Water, we have developed an improved model for predicting water and N movement in different irrigation systems in potato crops,” he said.

“This new model will allow more research to be done to better manage irrigation and N application to get the desired potato growth response.”

Dr Brown said that although this was one of the main achievements of the project it was not the only one.

“The project was about capacity building too,” he said.

“James Kirkham got his PhD from this project and has commenced his career with a position in Plant Biosecurity. As a young scientist, he will no doubt be contributing back to industry in the years to come.”

The project was facilitated by HAL in partnership with AUSVEG. It was funded by voluntary contributions from Agronico Technology Pty Ltd. The Australian Government provides matched funding for all of HAL's R&D activities.

The Bottom Line: PT06011

- The project aimed to boost tuber numbers and consistency in G1 seed crops by applying techniques already successfully used in the production of minitubers.
- The new model will provide a valuable tool for further research.
- Increased research capacity through training of a young scientist.

Ask the industry

If you have a question that you would like addressed, please ring Syngenta on 1800 067 108 or email Potatoes Australia: mignonne.rawson@ausveg.com.au. Please note that your questions may be published.

We have been receiving a number of questions in regards to the use of AMISTAR 250SC as an in-furrow application and whilst this technology and use pattern has been widely adopted in Tasmania, some mainland growers have been a little slower to adopt this use pattern.

A number of questions were received on the application requirements of "in-furrow" fungicides to obtain best disease control. Here are some of the questions.

Can any GROUP K (Strobilurin) fungicide be used "in furrow" in potatoes?

No, AMISTAR 250SC is the only fungicide from the strobilurin group that is currently registered to be used as a soil in furrow application for control of Black Scurf (*Rhizoctonia solani*) and suppression of Silver Scurf (*Helminthosporium solani*) in potatoes.

What does use of AMISTAR 250SC as an in-furrow treatment at planting offer?

When evenly incorporated into the soil mound (hill), AMISTAR 250SC provides long lasting protection against Black Scurf and Suppression of Silver Scurf within the treated area.

Is it better to use one or two nozzles to apply the fungicide at planting?

Trial work has indicated there are significant benefits from using two nozzles (see below) to apply in-furrow fungicide treatments. The 1st nozzle spraying the soil at the bottom of the furrow as it is opened in a 15-20 cm band just before the seed is covered. The 2nd nozzle sprays the soil as the furrow is closing (bow wave). It is important that the AMISTAR 250SC is mixed thoroughly within the mound.

Does AMISTAR 250SC offer control of other diseases such as Pink Rot?

AMISTAR 250SC offer control of Black Scurf (*Rhizoctonia solani*) and Suppression of Silver Scurf and offers no control of Pink Rot or other soil borne diseases

If I use AMISTAR 250SC as an in-furrow application can I then use AMISTAR Top as my first foliar fungicide application?

No, for resistance management purposes, if using AMISTAR 250SC at planting, the first foliar fungicide applied to the crop should be a non GROUP 3 (formerly Group K) fungicide.

How can I ensure I get the best results from using AMISTAR 250SC applied in-furrow?

By following the best use guidelines as set out below.

1. Apply in 1-3 L of water/100 m of row. Ensure the water volume used is not so high as to wash off any seed treatments previously applied to seed.
2. Fit 2 X 100 wire mesh filters in the circulation system, DO NOT fit nozzle filters.
3. Use nozzles with a minimum 0.8mm orifice.
4. DO NOT apply AMISTAR 250SC if conditions or seed quality favour bacterial rots as these diseases may be aggravated if seed comes into contact with additional moisture.
5. DO NOT apply AMISTAR 250SC if planting in hot, sandy soils as bacterial rots may be aggravated.
6. Care must be taken with any liquid in-furrow application



Scott Mathew
Syngenta

chips

A look at what's new in potato information and technology



Emerging disease – potato purple top

An emerging potato purple top disease associated with a new 16SrIII group phytoplasma in Montana. Potato purple top disease is found throughout North America and causes substantial losses in yield and tuber quality, with chips and fries produced from infected tubers showing brown discoloration. The disease has been associated with phytoplasma infection, with at least seven distinct strains being reported. In 2007, extensive yellowish or reddish purple discoloration of terminal shoots and leaves was seen in isolated fields in Montana, USA. Genetic analyses of phytoplasma isolates from infected plants identified a distinct new strain, which appears to be tuber-transmissible. Lee et al. (2009) *Plant Disease* 93: 970.

Late blight

About 165 years ago the Irish were struggling through the infamous famine–caused largely by the fungus *Phytophthora infestans*.

Today potato growers are still battling late blight disease, and this section summarises some of the recent research that is providing options to control the disease, in both conventional and organic growing systems.

The role of oospores in the epidemiology of potato late blight. The first paper summarises the biology of the organism and explains why the disease is still so problematic in many potato growing regions—in fact, in some places it has got even worse. The reason is that throughout most of the world the organism has previously only existed as one mating type (A1), and its ability to survive between seasons was limited because the A1 type could only exist as living mycelia in its host plant. However, if the A2 type, which was originally only found in Mexico but has now spread around the world, coexists with the A1 type then oospores are formed. These spores can survive in the soil for some time – even if the potato plant isn't growing. Not only does this allow infections to build up earlier in the season, the “offspring” are more genetically adaptable and resistance to control methods can potentially occur more rapidly, while new strains may be more aggressive pathogens. Andersson et al. (2009) *Acta Horticulturae* 834: 61-68.

Strategies to control late blight in potatoes in Europe. This paper comes from a review presented to the Third International Late Blight Conference. It emphasises the importance of an Integrated

Management Program for late blight that starts with hygiene to reduce the sources of inoculum, such as dumps, volunteers and infected seed. Potato varieties with stable resistance to late blight disease should be selected if possible, while other varieties with some resistance can be used to minimise the number of fungicide applications. Fungicide use should be optimised by using information on infection conditions, such as weather data and disease pressure, to make decisions on control of late blight. Schepers et al. (2009) *Acta Horticulturae* 834: 79-82.

Canvas. A new product and active ingredient to control potato blight.

This recent paper from the German potato publication *Kartoffelbau* describes a new liquid fungicide product with the trade name Canvas. The active ingredient amisulbrom was discovered in 1999 and has a unique mode of action, inhibiting respiration in the spores. Field trials have shown that it is as effective as mancozeb fungicides, and tank mixtures with the two chemicals can increase control of late blight. Diehl et al. (2009) *Kartoffelbau* 6: 258-259.

Strategies to minimise copper use in organic potato production.

Late blight is a major challenge for organic potato farming. The main tool has been copper sprays, but the EU is phasing out the use of copper in organic cropping systems. Strict limits have been placed on copper applications—a maximum of 6 kg/ha/year until 2016. A zero copper input strategy is being developed, whereby copper can be used when inputs equal crop off-take during the rotation. However, this will rely on low levels of copper being effective for late blight control. Recent work at Kassel-Witzenhausen University in central Germany has shown that copper use could be effectively reduced to 1–1.5 kg/ha, with some treatments showing effects at 157 g/ha. Bruns et al. (2009) *Kartoffelbau* 5: 160-166.

Latent infection of potato seed tubers by *Phytophthora infestans* during long-term cold storage.

Tubers were artificially infected with *Phytophthora infestans* and kept under typical storage conditions (4.0–4.2°C) for up to 209 days. Tubers were sampled at regular intervals—with 0–44 per cent of the tubers appearing to be asymptomatic. However, when slices from these tubers were incubated in a humidity chamber at 15°C or when the storage conditions were increased to 22–23°C for three weeks, these asymptomatic tubers all developed indications of late blight

chips

A look at what's new in potato information and technology



infection. This indicates that the pathogen had survived the storage period and was still capable of infecting the tuber, despite the apparent absence of disease. Johnson & Cummings (2009) *Plant Disease* 93: 940-946.

Storage

The main challenges in potato storage are disease control and sprouting. The latter causes weight loss, tuber softening and conversion of starch to sugar—all of which add up to reduced returns for potatoes destined for the processing market. This section summarises some recent papers on reducing yield and quality losses of stored tubers.

Potato (*Solanum tuberosum* L.) tuber ageing induces changes in the proteome and antioxidants associated with the sprouting pattern. This paper investigated the underlying cellular processes that occur during tuber storage. Desiree tubers were stored at 4°C for 270 days and samples taken regularly for examination by a range of biochemical analyses. The results showed clear changes in enzymes and other cellular proteins, including those that are part of the tubers' response to stress. Studies then focused on antioxidant compounds and enzymes, and this showed that during the storage period, the tubers were able to activate biochemical pathways to prevent the accumulation of free radicals. Delaplace et al. (2009) *Journal of Experimental Botany* 60: 1273-1288.

The chip-processing potential of four potato (*Solanum tuberosum* L.) cultivars in response to long-term cold storage and reconditioning.

The research described in this paper focused on the reconditioning phases of storage. In experiments carried out over three years, tubers from four cultivars ('Diamant', 'Hermes', 'Lady Rosetta' and 'Spunta') were stored at 4.5°C for 30, 60, 120 or 150 days and then reconditioned at 16°C for 0, 15 or 30 days. Once tubers started the reconditioning phase, they underwent rapid sprouting and tuber weight loss. However, this process improved chip fry colour and decreased the concentration of reducing sugars, particularly for the 0–15 day period. The four cultivars needed different reconditioning periods, with 15 days giving acceptable chip fry colour for 'Hermes' and 30 days for 'Lady Rosetta', while this was not sufficient time for 'Diamant' and 'Spunta'. Kyriacou et al. (2009) *Journal of the Science of Food and Agriculture* 89: 758-764.

The influence of potato cultivar and storage temperature on the amount of losses in tuber mass. This study, carried out in Poland over three years, investigated loss of weight, sprouting and disease development in tubers from 10 cultivars stored at 3, 5 or 8°C for six months. There was little difference in weight loss between 3 and 5°C but loss was higher

at 8°C. Tuber mass loss did not exceed 1 per cent in five of the ten cultivars ('Augusta', 'Velox', 'Clarissa', 'Felka Bona' and 'Pirol'). Storage at 5°C delayed tuber sprouting by about 2 months compared with 8°C, while tubers stored at 3°C did not sprout (apart from cvs 'Nora' and 'Velox'). Czerko (2009) *Biuletyn Instytutu Hodowli i Aklimatyzacji Roslin* 254: 159-168.

Environmentally friendly method for the control of sprouting and tuber-borne diseases in stored potato. Chlorpropham (CIPC) is a very effective post-harvest sprout inhibitor but its use is banned in some countries and therefore alternatives are needed, particularly for organic potato growing systems. This study examined whether an extract from natural spearmint could be used to prevent sprouting and inhibit disease in stored potato. Four cultivars differing in their length of dormancy were treated with three doses of mint oil. The oil was applied as a thermal fog that was circulated by the ventilation system. Monthly fogging inhibited sprouting for nine months, while for untreated tubers sprouts comprised more than four per cent of the weight. Even if sprouting had already started before the mint oil treatment – the treatment prevented elongation of the sprouts. During the storage period, treated tubers lost three per cent of their initial weight compared with seven per cent for untreated tubers. In a separate experiment, the pathogen *Rhizoctonia solani* was exposed to mint oil vapour and 100 per cent control was achieved after two days. Maybe there is more to the "mint and potatoes" combination than just the flavour! Eshel et al. (2009) *Acta Horticulturae* 830: 363-368.

Sweetening responses of potato tubers of different maturity to conventional and non-conventional storage temperature regimes. 'Russet Burbank', 'Ranger Russet' and 'Umatilla Russet' tubers from early and late plantings (to provide tubers at different stages of maturity) were wound-healed for 17 days at 12°C. They were then subjected to one of nine conditioning/storage temperature combinations (conditioning for 1 month at 4.5, 6.7 or 9°C followed by storage for 182 days at 4.5, 6.7 or 9°C). Reconditioning was



carried out for 21 days at 16°C. The accumulation of glucose and fructose in the stored tubers (sweetening) was measured as an indication of their processing quality. The early-planted crop of 'Ranger Russet' was more sensitive to low temperature sweetening than the late-planted crop, indicating that this cultivar can be harvested at an immature stage to provide high quality processing tubers. Conditioning at 6.7 and 9°C decreased the amount of sweetening compared with 4.5°C and enabled tubers to be stored subsequently at 4.5°C. 'Ranger Russet' maintained high processing quality when kept in the higher conditioning/storage temperature regime. Knowles et al. (2009) *Postharvest Biology and Technology* 52: 49-61.

Potato Review

Biofumigant struggles to stop larvae. In an effort to look at ways for the potato industry to cut back on its use of chemicals, there has been interest in the application of biofumigants to tackle soil-borne pests and diseases. This study carried out in England focussed on control of wireworm populations and subsequent crop damage. Mustard cultivars were selected for high levels of glucosinolate compounds, which produced isocyanate gases when the crop is cut and ploughed in. The trial was sown with two mustard cultivars plus a treatment where mustard meal was applied to the soil at high rates (2.5 tonnes/ha) and incorporated. At the rates used, there was little effect on wireworms or crop damage. Although detailed measurements were not made, the mustard crops are still thought to provide significant benefits as a green manure crop, such as improving organic matter, reducing nitrogen losses and decreasing weed growth. There may be other benefits such as control of soil-borne diseases like *Rhizoctonia*, but these effects were not examined in this study. May 2009, p. 8.

Euroblight ratings get an upgrade. This article summarised a review of the Euroblight ratings, in which a group of EU scientists and specialists has set up a process for rating fungicides for control of late blight and early blight. The current ratings are based on results from ten trials across Europe and include modes of action, effectiveness at different growth stages and rainfastness scores. While the research is sponsored by agrichemical companies, the trials are carried out by independent specialists. Further information is available from <http://www.euroblight.net/FungicideComparison.asp?language=UK>. May 2009, p. 12.

Snippets from www.potatonews.com

Listed below is an article that was posted on the Global Potato News website. Please visit the site for further details.

Global: The history and future of GM potatoes. In March, the European Commission approved the cultivation and processing of a genetically-modified (GM) potato – 'Amflora'. Although destined for industrial starch production rather than food, this is a major landmark as it is the first GM crop approved by the EC in 12 years. The application was submitted more than 13 years ago, and the GM technology used is now quite outdated as the plant contains an antibiotic resistance gene – a method that is not necessarily used in genetic modification procedures today. The applications included the potential to use the by-product as animal feed, although it is more likely to be used as biofuel. Currently no GM potatoes are grown in North America, as there was considerable consumer resistance to the technology about 10 years ago. It will be interesting to see if the EC decision changes this perception of GM potatoes. March 2010, News Headline.

United Kingdom: In-furrow treatment targets early aphid activity. The thiomethoxam insecticide Actara has just been approved for use as an in-furrow application for aphid control. This highly systemic insecticide is rapidly taken up by the establishing crop and can give up to five weeks control of aphids on newly-emerged plants. Aphids are quickly killed and spread of virus is limited by the treatment. Syngenta, the company marketing the product, believes the in-furrow application can reduce the amount of chemical applied, as much is wasted with early foliar applications when the plant has less than 20 per cent ground cover. There appears to be no adverse effects on crop vigour or establishment. To prevent the development of resistance, a different insecticide group is recommended for the first foliar treatment after in-furrow application of thiomethoxam. March 2010, News Headline.

Potential Australian seed potato market in Bangladesh. Western Australia potato seed grower Tom Fox cannot fill orders for his potato seed in Bangladesh. Tom believes there is huge opportunity in this market, with Bangladesh growing about four times more potatoes than Australia. Currently most potato seed comes from The Netherlands. March 2010, News Headline.

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