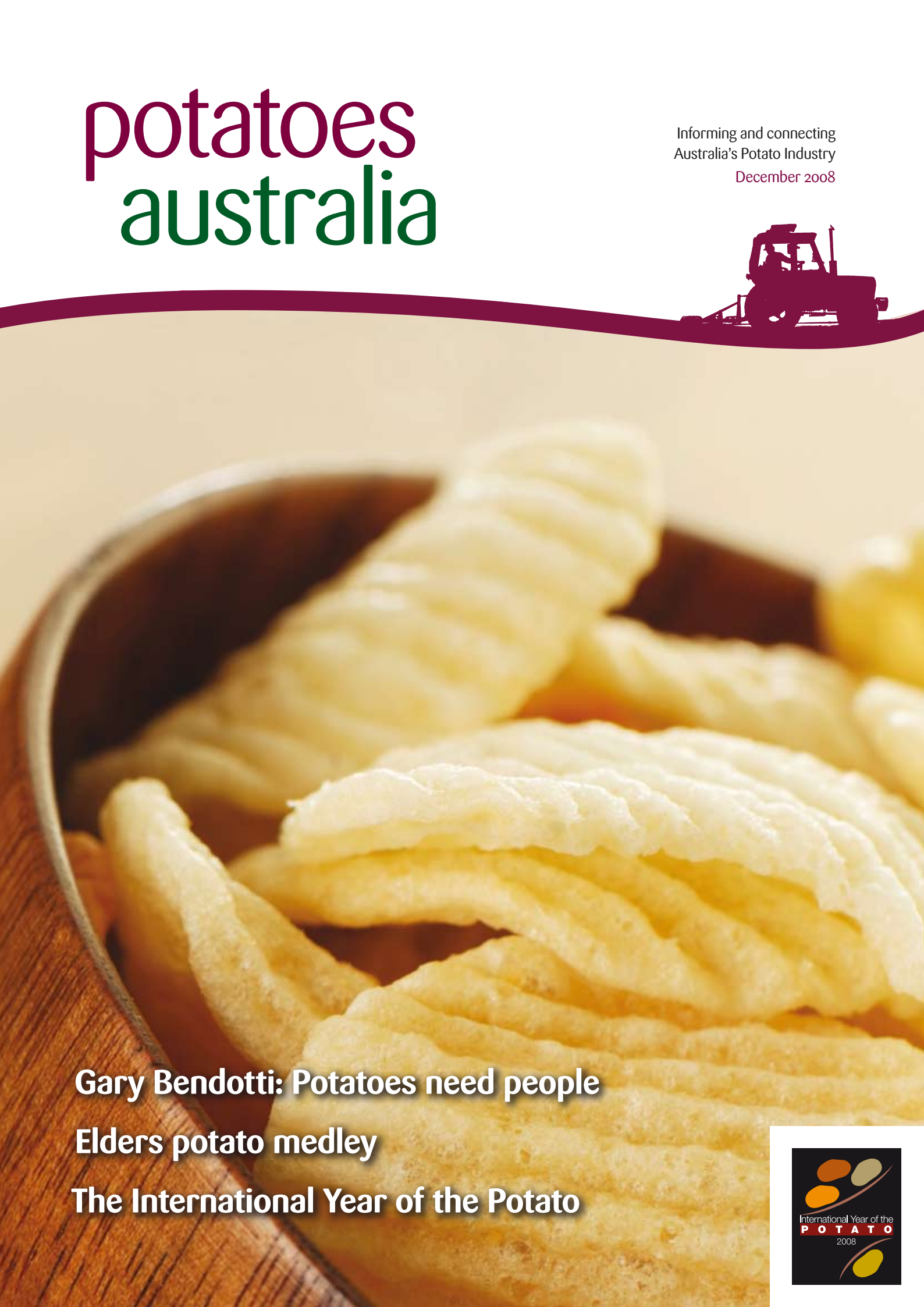
potatoes australia

Informing and connecting
Australia's Potato Industry
December 2008



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The International Year of the Potato

International Year of the POTATO 2008

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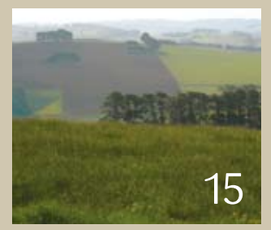

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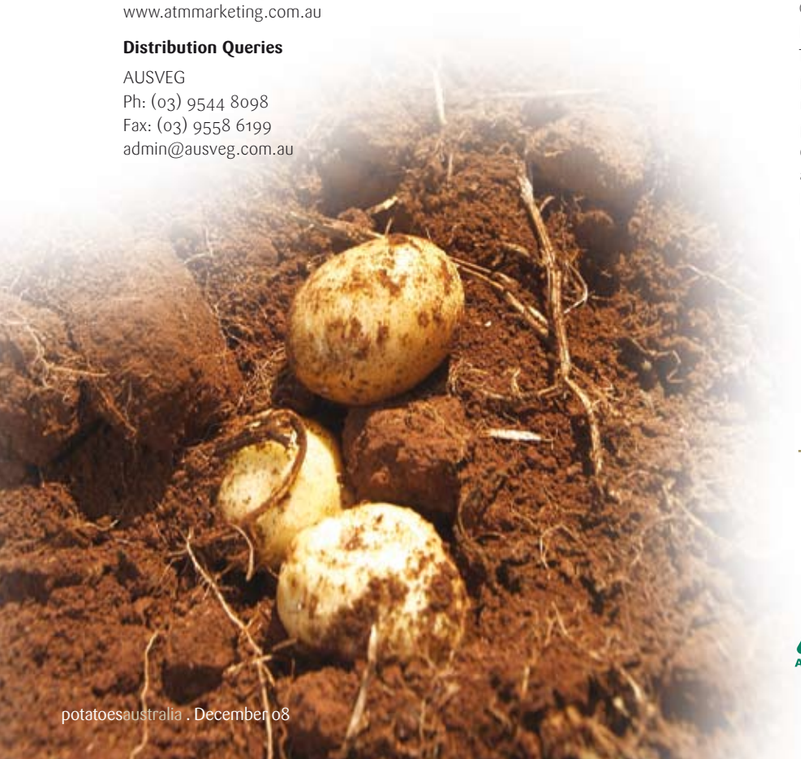

All research and development projects are facilitated by HAL in partnership with AUSVEG and the PPAA and are funded by the National Potato Levy and/or voluntary contributions from industry. The Australian Government provides matching funding for all HAL's R&D activities. For further information visit **www.ausveg.com.au**

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Changing consumer tastes to be explored at New Zealand's World Potato Congress

Changing consumer tastes and a greater focus on healthy food, has had an impact on the western world's eating habits. The implications for the potato industry will be explored at the upcoming World Potato Congress to be held in New Zealand next March.

Lauraine Jacobs, food writer and editor of Cuisine magazine, will address the Congress on changing consumer tastes and what this means for the potato.

Terry Olsen, grower and the Chair of the 7th World Potato Congress Organising Committee, says Lauraine will provide an important perspective to the Congress — what the consumer thinks.

"Consumer tastes are constantly changing, and for a sector like ours, it's vital we understand what consumers think and feel about our product," Terry said. "Lauraine knows the consumer inside out. Expect her to pick trends and issues that we need to prepare for if we are to grow potato consumption."

The 7th World Potato Congress, to be held in New Zealand from 22-25 March 2009, is being hosted by Potatoes New Zealand, the organisation representing the country's 300 potato growers.

Other speakers include:

- Understanding value chains: Martin Kneebone, Freshlogic.com and Dr Andrew Fearne, Centre for Supply Chain Research, Kent Business School, UK.
- Food safety and quality assurance: Dr Kristian Moeller, Managing Director, GLOBALGAP and Nadene Smith, Business Manager QA, Woolworths Supermarkets, Australia.
- Impact of climate change: Dr Jim Salinger, an international climate change expert and principal scientist at New Zealand's National Institute of Water and Atmospheric Research.
- Potatoes for biofuel? Dr William Bailey, Agriculture Department Chair, US

For more information, visit www.wpcnz.org.nz. pa

AUSVEG Chairman's message

On 24 November, the new AUSVEG Board appointed me as its interim Chairman following the departure of David Anderson, whom I'd like to thank and congratulate for doing a stellar job in his six months in the role.

I take on the responsibility with pleasure, and look forward to leading AUSVEG and guiding the national vegetable industry through what are indeed challenging times for the horticulture sector.

These hurdles encompass fertiliser, fuel and labour charges, along with the value of the Australian dollar, which all have a major impact on most of our input costs.

Besides those, the potato industry has its own dynamic challenges, particularly in light of the recent discovery of Potato Cyst Nematode (PCN) in Victoria. Through our related projects in conjunction with Horticulture Australia Limited (HAL), and our network of knowledge, experience and communication, we will continue to work towards identifying, clarifying and looking for solutions to cross-industry and potato-specific issues.

The International Year of the Potato has presented all of us with the unique opportunity to underscore the relevance and significance of potatoes for Australia and the world, particularly in view of rising populations and food shortages.

With this United Nations initiative now at an end we must ensure that this message and our actions concerning the importance of food security remains a priority.

As we conclude 2008, I would like to remind everyone that AUSVEG is committed to good dialogue with growers and to ensuring the same lines remain open between growers and industry in 2009.

Finally, I take this opportunity to wish you and yours a safe, happy and productive festive and growing season.

John Brent
AUSVEG Chairman

Editor's message

Who could have imagined that so much would unfold in 2008: food shortages, the rumblings of possible recession, fluctuating input costs, and the increase in green conscience in politics and business, to name a few. So much has happened in the last two months alone, the closing deadline for this edition seemed to come around at lightning speed.

Labour shortage in agriculture is an issue that has come to the fore. We were fortunate to be able bring you the experiences of one of the country's largest processing potato growers; the Bendotti story is a reminder of how important good people are to any operation.

When PCN was found in Victoria in October, its effects seemed to resonate across most of the industry and beyond. It also resulted in intense action to finalise a PCN Management Plan. We update you on the progress of this initiative, a project being developed with the entire Australian industry in mind. Its aim is to help growers affected by PCN—now and potentially in the future—find pathways back into the market place. This is particularly important, because how we as a national industry respond to the latest discovery, will determine how the rest of the world's markets respond to us. In these economically challenging times, it is especially in our interests to stand together on this issue.

Across the globe, the International Year of the Potato banners are about to be dismantled, the flyers put away, and the final verdict on what has been achieved will be handed down in Rome, just as this magazine reaches you. We thought we'd ask a handful of people who have matched good intent with action, how they saw the initiative's impact on potatoes.

Here at AUSVEG, we adopted a new constitution and with that, a new Board Of Directors. We introduce you to your new representatives and welcome everyone aboard, including interim Chairman John Brent.

With 2009 set to be a year of conferences, congresses and several other events, we look forward to bringing you more on the issues and happenings that impact the potato industry. We'll be back in February with Stuart Wales' Letter from the UK, an interesting new cultivar, and all our regulars.

In the mean time, I thank you for all your support this year and wish you a safe festive season and prosperity in 2009.

Jenan Taylor
Editor
Potatoes Australia

Potatoes, beans may prevent breast cancer

Eating potatoes and beans regularly could help fight breast cancer, according to a pre-clinical study from the Colorado State University in the United States.

The colorodoan.com reports that the study which will later progress into a clinical trial using breast cancer survivors, could produce preventative diet plans for women who want to try to avoid breast cancer altogether or avoid a reoccurrence.

Elizabeth Ryan, an assistant professor in Colorado State University's Cancer Prevention Laboratory indicated that the findings would help guide women through their options for managing the disease. "You heard from your doctors or oncologists that they don't really know what to tell people what to eat except to eat a variety of foods," she said.

The scientists say using food as a measure of prevention is natural and often can be more effective than drugs.

Researchers studied separate groups of rats that were fed a diet of potatoes, and beans, after introducing a carcinogenic into the mammary glands of the animals. After repeating the tests a number of times, the scientists collected data on the occurrence of cancerous mammary tumours, tumour size and multiplicity of tumours.

They found that the more beans or potatoes included in the rats' diets, the less the frequency for malignant tumours.

Researchers also found that though some bean or potato varieties proved more effective at prevention, all beans were better at preventing cancer than a no-bean diet.

The scientists said that the overall purpose of the study was to establish the importance of diet on disease.

"What you eat has a significant impact on health," said Mark Brick, Professor in the Department of Soil and Crop Sciences. "There is a segment of society that understands the role of food in health... You need specific data to bring more attention to health." pa

Researcher set to beat potato scab

A doctoral student from the University of Tasmania is poised to synthetically produce a toxin that causes potato scab, and potentially save the Australian potato industry about $20 million a year, the ABC has reported.

If Peter Molesworth, a member of the Potato Scab Research Group at the Tasmanian Institute of Agricultural Research (TIAR) successfully produces thaxtomin, the compound that causes potato scab, it could give Australian researchers new scope in their efforts to beat the disease.

Potato scab is a common disease caused by the soil-borne bacteria, Streptomyces scabies, that causes flaws in the appearance of the potato, but doesn't affect crop yields.

Peter told the ABC that potato crops infected by scab were liable to be affected again under certain weather conditions for up to 10 years.

"My main aim is to make the compound in the laboratory to try and find out how the disease works."

Producing the compound synthetically is currently an expensive process that yields small amounts of the toxin, but Peter says that he has been able to produce compounds that are structurally similar and that he is close to achieving his goal.

According to Peter there are two advantages to being able to mass-produce thaxtomin: It can be used as an easy way to detect scab-resistant varieties of potato; and it can potentially act as a natural herbicide because the toxin has the ability to adversely affect plant cellulose.

Dr Nigel Crump, from the Victorian Department of Primary Industries, says Peter's work has important implications for management of the disease. "It's allowing us to target research strategies to understand how the bacteria use the toxin and the life cycle of the disease."

Peter's work could help potato growers implement nutrient and water strategies to reduce the impact and prevalence of the disease, he says.

The study could be another success for TIAR which earlier this year announced it had developed a line of potatoes resistant to common potato scab, modelled on the Russet Burbank variety. pa

APRP2

The next phase of the Australian Potato Research Program (APRP2), the major investment platform for the Processed Potato levy, is underway with a scoping study being conducted by Pyksis Pty Ltd.

The APRP2 scoping study has included survey of processed potato levy payers and other supply chain participants to identify key industry issues.

Potential service providers met in Melbourne on Tuesday, 7 October, to discuss the program content and formally register their interest. The areas of interest included diagnostics, soil health, nematodes, tuber-borne inoculums, new cultivars, controlled traffic farming, entomology and climate change.

The program's international collaborators were included in this process and input from Industry Advisory Committee members was considered.

Tender applications for selected research areas are being prepared, to be submitted by 12 January 2009. Projects proposals will be subject to the usual Horticulture Australia Limited (HAL) review process, which involve assessment by HAL staff, endorsement by the Processed Potato Industry Advisory Committee and allocation of funding from the HAL Board. Once the program content and structure has been determined, the program management capacity will be defined and tendered. This management tender process is planned to start in March, with APRP2 due to start in September, 2009.

For further information contact Lucy Keatinge, HAL, on lucy.keatinge@horticulture.com.au or phone 02 8295 2342, fax: 02 8295 2399 or mobile: 0439 601 198. pa

PCN talks take to the road

A PCN roadshow that toured potato-growing districts in South Australia, NSW and Queensland, has been hailed a success by PCN Harmonisation Committee members.

The tour was organised by Elders National Potato Manager René De Jong, initially for the purpose of promoting certified seed potatoes interstate, but ended up comprising Victorian industry representatives including growers form the PCN-affected area in Thorpdale, as well as some members of the state regulatory bodies, and ViCSPA.

Roadshow delegates met with growers and other industry stakeholders in Parilla and Virginia in South Australia; Dorrigo in NSW; Gatton in southern Queensland; and Atherton in northern Queensland.

Presentations at the meetings included an overview of the pest and options for its control; existing practices in farming the PCN-affected area of Thorpdale; and seed certification.

"Discussion was free flowing at all meetings and several issues were noted for follow up. Interaction was encouraged and most growers attending the meetings took part in this," said René.

"The information was well received and brought everyone up to date on PCN at Thorpdale, ViCSPA seed integrity and the status of the National PCN Management Plan."

The Harmonisation Committee praised René's initiative and the participation of the other delegates as "beneficial" for the industry and the aims of the PCN Management Plan.

Elders has a wealth of experience in providing solutions for the battle against pests, such as PCN, and diseases with their new and existing potato varieties. René De Jong outlines their range in this edition. pa

More grunt at Grimme expo

More than 600 growers from throughout the country are expected to converge on a property near Ballarat to see and learn about the latest in potato technology when Grimme has its "Big Australian Potato Expo" in March next year.

On display and hard at work will be the complete range of Grimme potato planting, harvesting and handling equipment, as well as Amazone tillage, spreading and spraying equipment and CLAAS tractors.

The event is being organised by leading farm machinery company, Landpower, distributors for Grimme, Amazone and CLAAS machinery in Australia and New Zealand.

The expo near Ballarat, Victoria, will also feature an eight-hectare crop for harvesting, and 19 hectares for cultivation, planting and spraying demonstrations.

Landpower Horticultural Sales Manager Craig Hopkins, believes the expo will be the biggest event of its type yet to be staged in Australia.

"Normally, we take a piece of equipment out to a farmer and have a private demonstration," Craig said. "This time, we are going to showcase the entire Grimme and Amazone ranges and their application at various stages of the crop cycle. I have seen similar events in Europe but never anything like this in Australia."

The Grimme "Big Australian Potato Expo" will be held on 17, 18 and 19 March, the week before the World Potato Congress in New Zealand.

"We wanted to do something really big for Australian potato growers," Craig said. "We expect many producers will visit our expo and then continue onto New Zealand – but we wanted to make sure those who don't are still going to go home happy."

For more information visit: www.landpower.com.au. pa

Words **Graham Gosper**

Workers - the key to our future

Bendotti farms

Australia's failure to develop more effective labour supply systems is threatening the future expansion and ultimate survival of the potato and other horticulture industries.

Gary Bendotti

That's the opinion of a director of the company operating the largest potato processing and exporting business in Western Australia.

Gary Bendotti has long experience of the challenges and frustrations involved in finding the right people for the job in a big operation.

He is one of nine working directors of Bendotti Exporters—a company which operates businesses built up in WA over the past 75 years by two branches of the Bendotti family.

The family company has more than 1,200 hectares (3,000 acres) of rich farming country in the Pemberton region in the heart of WA's south west. Its state-of-the-art processing plant handles more than 18,000 tonnes of potatoes a year for the table, processing, chipping and export markets and the families also have investments in the local and export beef cattle markets.

"We are finding that we are increasingly competing with products from countries where potato growers have supplies of cheap labour, often drawing them from neighboring countries just across their borders."

The potatoes are grown on company farms and sourced from 12 contract growers from throughout the region. The processing plant is located at Manjimup, a town about four hours' drive south of Perth.

Gary runs the plant and is involved with the sourcing of the potatoes and running of the company farms. About 240 hectares (600 acres) of potatoes are planted in rotation on the company farms each year. Gary said consistent labour supply is vital to the success and expansion of the business, mainly because of the diversity of its operations. 'We have set up the business in a way that allows us to respond quickly to changes in market demands," he said. "We often need to switch people to new roles and get people at short notice, as well as take on workers to meet the seasonal requirements of the business."

Gary said part of the reason the company has spent more than $10 million upgrading the plant machinery over the past five years was to reduce its labour requirements through automation. "We also give our 19 full-time staff experience in as wide a range of company operations as possible so they can be switched to different tasks when necessary," he said.

Despite this, up to 12 part-time or seasonal workers are needed at various times each year. They assist with harvesting, grading, seed potato cutting and farm irrigation operations.

The company relies on local hostel operators, through their contacts with metropolitan based hostel operators about 330 kilometres away, to supply such workers. "We give them a ring and tell them what we need," Gary said. "They billboard the jobs then send those who are interested in coming out to us."

The system works, but Gary said it is often 'hit and miss' and it has other shortcomings. "Sometimes the hostels simply don't have the people we need and sometimes those who arrive don't have the basic skills we need," he said. "On the other hand, many of those who do come do a great job—most of them have finished university and are traveling before taking on white-collar jobs back home. They benefit from the experience and that helps to increase understanding of the industry as well. We had an Irish backpacker who was a pretty good forklift operator so we paid to get him back. He was with us for a few months before taking off to eastern Australia, then deciding to come back, so we paid his air fare."

When the hostels can't supply the workers needed, it generally means longer working hours for permanent staff and growers. Gary says that can be costly and soul destroying for those involved.

Gary believes government and industry action to address labour supply problems in horticulture is long overdue. "We are finding that we are increasingly competing with products from countries where potato growers have supplies of cheap labour, often drawing them from neighbouring countries just across their borders," he said. "Australia needs to develop more effective labour supply systems to help growers and horticulture industries to deal with that situation."

Gary said the Federal Government's trial scheme to bring Pacific Islander seasonal workers to Australia is a step in the right direction but more action is needed. Under the scheme 2,500 workers from Kiribati, Papua New Guinea, Tonga and Vanuatu will spend seven months out of 12 working in the horticultural industry on farms in Australia's eastern states.

"It should provide growers with willing workers but more needs to be done to ensure they receive worthwhile basic training and help in adjusting to Australian conditions" he said. "Growers seldom have the time or the necessary margins to spend time training people on the job."

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Gary believes worthwhile incentives for workers are essential for the success of any scheme. "Taxation for seasonal workers needs to be made simple – they should pay a flat, low rate of tax and no super," he said. "Our experience is most seasonal workers spend most of their money locally, so that would boost regional economies as well.

"Our experience is most seasonal workers spend most of their money locally, so that would boost regional economies as well."

"Cheap housing incentives also need to be provided. Increasing numbers of the workers we get say accommodation costs are among the biggest problems they face."

Gary says Australia's horticulture industries will pay a high price unless more is done to address labour supply problems. "Without the labour growers cannot afford to expand into the new lines and develop the new products that are needed to take on overseas competitors," he said. "That will mean reduced sales and the ultimate loss of some industries." pa

Processing plant

Processing plant

Chipping away - a family success story

Brothers Dominic and Giovanni Bendotti came to Australia in 1930 in the latter stages of the first wave of Italian immigration to Western Australia. They each took up settlers' blocks in the Pemberton region around 330 kilometres south of Perth and Dominic cleared part of his heavily-timbered, 28 hectare (70 acre) block to plant potatoes.

No-one then could have predicted the impact that decision would eventually have on the development of the state's potato industry.

Successive generations of the two brothers' families (operating as D. Bendotti and Sons and G. B. Bendotti) have worked ever since to establish and grow the business.

The two branches of the family operated separate companies until 2002 when a near disaster brought them together. In that year a local exporting company which had been buying and processing most of the region's potatoes went into voluntary liquidation.

The collapse left the Bendottis and other district growers as unpaid creditors, tonnes of potatoes still in the ground and the region's crisping market under threat. Within a month the Bendottis incorporated Bendotti Exporters Pty Ltd and, with State Government assistance, purchased the processing plant which had been operated by the failed export company. Despite some initial problems, the plant was soon manufacturing French fries. The company dramatically increased its output of processed and export potatoes over the next two years before undertaking a multi-million dollar upgrade of plant machinery. The installation of the latest potato manufacturing equipment has enabled the company to lift output each year since and to upgrade and expand its product range.

As a result Bendotti Exporters is now Western Australia's biggest exporter and processor of pototoes. The plant handles an ever increasing range of varieties including Eureka, Russet Burbank, Ranger Russet, Mac Russet, Nooksack, Shepody, Kennebec, Atlantic and Wilstore. The newly equipped plant has also allowed the company to react quickly to market demands and to expand its chip and product range.

Plant manager Gary Bendotti says there are many reasons for the family company's success. "The climate and soil around here has proved ideal for potatoes," he said. "We are only about 40 minutes from the coast and the high winter/spring rainfall [up to 1270mm or 50 inches a year] means water is never really a problem. The soil is gravelly sand or rich loam overlaying medium clay. Our isolation has kept the potatoes relatively free of disease problems and enhanced our ability to source high quality seed stock to plant."

Gary said another major factor in the success of the family operation has been the ability of the two branches of the family to work together. The members of the company board represent both branches of the family.

Dominic's branch of the family is represented by his sons Mick and Jack, Mick's son Danny, Jack's sons Gary and Mark, and Gary's son Jack Jnr. Giovanni's branch of the family is represented by his sons John, Peter and Stephen and John's son, Jason.

Gary says the fact that the members of each successive generation of the families are of similar age has aided the cooperation and there is one other important reason. "Some say the fact that the brothers always owe each other so much money means they can't afford to have an argument," he says with a laugh. pa

Announcing the new AUSVEG Board of Directors

John Brent – Interim Chairman

John has a deep interest in regional and rural issues, and as Mayor of the Scenic Rim Regional Council in South-East Queensland, is heavily involved in the local community. He has more than 40 years experience in vegetable production and has spent the last 30 of those balancing his business life with his work in local government.

John has served on a number of boards, and is currently a Board Director for the Queensland state horticultural body, Growcom, a Board Member of Local Government Mutual Queensland, Deputy Chair of the Council of Mayors in South East Queensland and was an inaugural director of Horticulture Australia Limited (HAL).

He is also a director of Bunny Bite Foods, a family-owned business that grows and processes vegetable crops for diverse markets.

John believes that there has been a great base established by the previous board, with two arms to AUSVEG—the desire for enhanced R&D and the issues surrounding advocacy for industry.

"We are developing a new team with new directors and our administrative wing, to work closely with Horticultural Australia Limited (HAL) and Horticulture Australia Council (HAC) to achieve these goals.

We need to put our resources where we can best add value and ensure we are not doubling-up on the efforts of others.

"There has never been a more challenging time for industry as a whole, but in particular the horticulture industry. The problems presented by fertiliser, fuel and labour prices, along with the drop in the value of the Australian dollar affect our operational costs," John said.

John hopes to bring the vegetable industry closer together, which he believes is achieved through "interaction, advocacy and integration from the grower through to retail with strong advocacy on behalf of growers".

John was appointed to the AUSVEG Board in January 2007 and became interim Chairman in November 2008.

John Said, Victoria

For the past 15 years John has been the Managing Director of Fresh Select a production/ marketing company in Victoria and Queensland that supplies a wide range of vegetables to local and overseas markets.

John participated in the Australian Rural Leadership Program in 2008, and is also a member of the Vegetable Industry Advisory Committee (IAC) and Chairman of the Consumer Advisory Group.

He hopes to see the vegetable industry create a sustainable future for farmers and better value for Australian consumers.

"The industry needs to be re-engaged throughout the supply chain; this is for the benefit of growers right through to consumers. Growers have to be at the beginning and at the end of this process in order for whole of industry to benefit," John said.

John was appointed to the AUSVEG Board in November 2008.

Jim Trandos, WA

Jim runs a third-generation family business, Trandos Farms, with his brother and cousin in Western Australia. Jim has three farms producing sweet corn and beans throughout the year in Wanneroo, Gin Gin and the Kimberleys near Broome.

As a Director of vegetablesWA, Jim represents the many interests of Western Australian growers and hopes to serve the industry's needs at a national level.

"I'm looking forward to working together with the new AUSVEG board, whilst adding stability and common sense to the industry," Jim said.

Jim identifies water as the biggest issue and believes that together, the Australian vegetable industry can work towards finding practical solutions and achieving them for the good of industry.

Jim was appointed to the AUSVEG Board in January 2007.

Geoff Moar, NSW

For about the last 40 years Geoff has grown fresh and processed potatoes in Riverina area of NSW for crisping and fresh markets. He is a current member of the Horticultural Committee of NSW Farmers Association, and is very keen to improve the percentage of retail dollar that is delivered to growers.

"When I first started growing potatoes, the percentage was much larger than it is today and everybody seems to be able to justify a larger share leaving the grower with much less at the end," Geoff said.

Geoff is also concerned about the availability of water throughout Australia, especially the Murray-Darling Basin, which after several years of drought is in a dire condition.

"The handling of water in general, with irrigation supplies needs to be closely observed by both growers and government."

He fears that growers may find themselves having difficulty in retaining the water rights that they have already secured with the Federal Government, something that he hopes to improve for industry.

Geoff was appointed to the AUSVEG Board in 2004 and is the longest-serving current Board member.

Romeo Giangregorio, SA

Romeo is the Production and Marketing Manager for Rainbow Fresh, a family owned business that grows and packages fresh salads and herbs, hydroponic lettuce and Asian vegetables on the northern Adelaide Plains. He holds a Bachelor of Management and has majored in Marketing and Human Resources.

Romeo is Deputy Chairman for the Virginia Horticulture Centre and has been on the Board for four years. He also serves as Board Director for the Virginia Irrigation Association, the Adelaide Plains Grape Growers Association, and is part of the South Australia-grown Steering Committee and a South Australian commodity group Chair.

"I want to be a part of AUSVEG because I believe the industry has a lot of potential and future growth. Environmental factors including water shortages have constrained the expansion and development of our industry and its members, that is, the growers," Romeo said.

"I don't think that the political arena gives enough consideration to the importance of the horticultural industry, given the necessity of food. Politicians and consumers need to be reminded of the necessity and importance of growers in Australia—whether they're producing lettuce in Werribee or marrow in Manjimup."

Romeo was appointed to the AUSVEG Board in June 2008. pa

CEO's message

November was a significant month for AUSVEG with a new board of Directors being appointed under the guidelines of the amended AUSVEG constitution.

Under this revision the AUSVEG Board will consist of one Director from each State and the Northern Territory, nominated by its members and up to two skills based Directors.

At this stage the new board consists of interim Chairman, John Brent (QLD), Geoff Moar (NSW), Romeo Giangregorio (SA), John Said (VIC), and Jim Trandos (WA). Directors from Tasmania and the Northern Territory are yet to be appointed and we envisage this happening in the coming weeks.

I would also like to thank the outgoing Directors for their hard work and dedication to the Australian vegetable industry. Thank you to: David Anderson (WA), Luis Gazzola (VIC), Ian Young (TAS), Jeff McSpedden (NSW), Phillip Beswick (TAS), Des Jennings (VIC), Steven Page (SA), John Bishop (QLD) and John Mundy (SA).

We look forward to working with the new Board of Directors to ensure robust grower representation through an effective peak industry body.

The PCN discovery in Thorpdale, Victoria, in recent months has been felt by the national potato industry. With the potential for this to impact on potato prices around the country, the Australian industry needs to act in ways that will address the long term as well as the immediate well-being of the entire sector. The National PCN Management Plan is being developed to achieve the best outcomes for everyone.

The HAL Annual General Meeting and forum was held recently. Discussion sessions at the forum included a presentation on the new HAL industry strategy, 'Future Focus', carbon footprints and emissions trading.

These are all issues that need considered action as well as discussion, and we can begin by re-thinking our approach to our practices and operational processes. As always, we will bring you the news about local and international research projects and innovative grower strategies to ensure you're up to date on these initiatives.

That brings me to the Australian Vegetable Industry Conference 2009 which will be held from 4-6 May at the Melbourne Convention Centre.

The conference is an excellent one-stop shop for knowledge transfer with networking opportunities for growers and other industry stakeholders. There will be a wealth of expert speakers presenting on a wide range of topics, and a packed program. Please keep an eye out for the registration forms which will be available soon.

As always, I look forward to meeting and hearing from you, so don't hesitate to drop me a line at robert.lawler@ausveg.com.au or on 03 9544 8098.

Robert Lawler
Chief Executive Officer
AUSVEG

And the winner is...

We're pleased to announce that Matt Poggioli of Atherton Tableland Seed Pty Ltd in Tolga, Queensland, has won the Garrison small-framed industrial generator, courtesy of Vin Rowe the farm equipment suppliers.

Matt, who also grows hay and grass seed, could barely contain his joy—and relief.

"The generator will be very handy coming in to cyclone season, especially if the power goes out. We only recently got back on our feet after Cyclone Larry!" he says.

"Our seed grading plant blew down and it was hard to get builders and other trade people in to get it all up and running again after the cyclone. We had to hire a big generator just to keep the dryer going. So this is going to be more than welcome."

We certainly hope his words aren't self-fulfilling, but are certain the generator will do what it does best, if it comes to that.

Thank you also to everyone else who returned their *Potatoes Australia* Reader Survey. Your generous feedback will prove invaluable in helping us to pin point what you do expect from our magazine, and improve the quality of what we present to you. pa

Words **Laura Bowles**

Towards a PCN plan for the Australian industry

Following the detection of Potato Cyst Nematode (PCN) in Victoria's Thorpdale region in October, the harmonisation agreement for PCN management has taken on a new level of urgency.

A PCN Harmonisation Committee comprising members of Plant Health Australia, Biosecurity Australia, HAL, AUSVEG, the Victorian Farmers Federation Potato Growers Council, researchers from the Victorian Department of Primary Industries, Nematologists, Growers and other state regulatory representatives, was formed. The committee's role is to come up with a set of national guidelines for PCN management in Australia, and to that end, the group held a series of meetings in November.

The meetings were intensive but have brought the possibility of legislative changes in Victoria and interstate to allow a less prohibitive method of trading for growers in districts that have had PCN detections, closer.

Key elements discussed include:

- Clear definitions of 'associated' and 'linked' properties with corresponding regulation.
- 'Defined Area'-based containment zones instead of unscientific exclusion areas. This should cancel out the current 20km exclusion zone that has been put in place.
- Secure supply chain pathways for access for produce from associated, linked and infested properties interstate.
- Methods for 'associated' farms without PCN to continue production.
- Under-grader/piler sampling guidelines for Australia-wide surveys.
- Guidelines for the formation of protection districts.
- Awareness and promotion of better hygiene strategies on potato farms
- Request for all "certified" seed grown in Australia to be PCN tested – currently ViCSPA is the only scheme in Australia testing certified seed for PCN.

The committee formulated a draft table outlining procedures for ware, seed and processing production on tested, positive and linked properties. The draft is based on risks associated with movement of soil on potatoes, not the potatoes themselves, and it covers nursery, bulbs, bare rooted plantations, PCN host crops and other soil-carrying products.

The state representatives were given three weeks to come up with amendments or an agreement on the content of the draft table, in the hopes that the results of this process would lead to the clarification of interstate market access for the affected region.

A Scientific Advisory Panel comprising some of the country's leading scientists was formed to help clarify some of the major issues. These include the definition of 'linked' properties (how far do you go?), appropriate soil testing regimes to prove a property free of PCN, and acceptable amount of soil on brushed potatoes from linked properties for interstate markets.

The panel met on 28 November and focussed on agreed pathways for Thorpdale market access from within the '20km containment zone'. Discussions were strong and there were very positive messages from the other state regulators. A 'sub' group was formed to establish the best scientific approach to finding solutions that would enable 'linked' paddocks to continue seed production in the future, and to determine how long other affected properties would have to be tested before they could be given a clearance.

The panel's final recommendations will go to the Harmonisation Committee for assessment and inclusion in the plan.

If this National Management Plan is successful and adopted by all states, it will undoubtedly benefit Victoria's Koo-wee-rup and Gembrook control areas and may also enhance market access for those in the industry who have no PCN status.

At this stage I am hopeful, but uncertain whether a decision about Thorpdale's market access to other states for this growing season, and the regulations required for such access, will be made before Christmas.

PT08023

The Bottom Line

- A PCN Harmonisation Committee and a Science Advisory Panel have been formed to urgently action a management plan.
- The National Management Plan aims to find ways to help PCN-affected producers resume market access.
- It is hoped that a decision about the market access and regulations governing this access will be made soon.

For further information contact Laura Bowles, Executive Officer, Victorian Potato Growers' Council on laura@ag-challenge.com.au

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Words **Ian James**

Potato still King, but beware the foreign devil

As mentioned in the October edition, the potato industry now has access to a comprehensive range of industry data. This article builds on the snap shot provided in that issue and includes some breakdown of data between the fresh and processing sectors. It also includes new trade figures which should send alarm bells ringing through the processing side of the industry.

Number of growers

Grower numbers fell in both the fresh and processing sectors of the industry in 2006/07. A net 38 growers ceased production of processing potatoes during the year, with 650 growers remaining. There was a similar percentage reduction in the number of fresh potato growers with numbers down 46 to 745. Over one third of potato growers are located in Tasmania with a heavy concentration producing for the processing sector. Although Tasmania lost the largest number of potato growers in 2007 (31), NSW had the largest percentage fall. South Australia was the only State where the number of potato growers increased. The majority of potato producers either operated on farms with a total hectarage of between 25 to 75 hectares or between 100 to 250 hectares, and on average, planted 30 hectares of potatoes. Farms in NSW were generally small with more than half the number of growers operating on establishments of less than 50 hectares. In contrast, more than one third of producers in South Australia operated on farms larger than 750 hectares.

Area planted

There were 34,096 hectares of potatoes planted in 2006/07, the lowest on record largely due to a decline in the area planted to fresh potatoes. This was a drop of more than 1000 hectares from 2005/06. 18,564 hectares of processing potatoes were planted compared to 15,532 hectares of fresh potatoes.

Fresh growers on average plant smaller areas than those producing for the processing sector. Although the number of hectares planted varies according to the seasons in different states, in the late 1990's planted areas hovered around 41,000 to 42,000 hectares. The trend is leaning toward lower plantings of potatoes, with NSW and Victoria displaying most of the reduction in area planted in 2006/07.

Production

The decrease in planting area is reflected in the fall of potato production which was at a record low in 2006/07 of 1,211,988 tonnes. This was down three per cent from the previous year. These declines were all in the fresh potato sector, with processed potato production actually increasing on the previous year.

There was surprising data fromTasmania, with production of processing potatoes up 6.3% in 2005/06. Five years ago Tasmania was the major potato-producing State, whereas South Australia now takes the lead, and accounts for 30 per cent of national production.

The decline in production volumes has not been as dramatic as the fall in planting area, reflecting increased productivity. Ten years ago 1,286,130 tonnes of potatoes were produced on areas that were 17% greater than in 2006/07.

Yields

Yields changed little over the year, although fresh potatoes were up. However, yields for processing potatoes were much stronger than for fresh potatoes, with 40.1 tonnes per hectare for processing potatoes compared with 31.6 tonnes per hectare for fresh potatoes. Although impacted by seasonal conditions, the long term trend is for an increase in yields, reflecting improved productivity associated with improved varieties and agricultural practices. Yields are up over 13 % on a decade ago.

The trend is leaning toward lower plantings of potatoes, with NSW and Victoria displaying most of the reduction in area planted in 2006/07.

Value of production

Potatoes are Australia's largest vegetable crop by value accounting for 16.6% of total vegetable production in 2006/07. The value of potato production was up 11% on the previous year. Price rises occurred for both processing and fresh potatoes but the value per tonne received for fresh potatoes was up over 20% compared to 6% for processing potatoes. There was a marked gap between the prices received for processing and fresh potatoes with the national average being $288 per tonne for processing potatoes and $615 per tonne for fresh potatoes.

Reflecting the concentration on processing potatoes, Tasmania accounted for just 16% of the total value of potato production while contributing 25% of the total national output. In contrast, South Australia accounted for 35% of the value of potato production while contributing 30% of the national crop.

There has been a marked reduction in the relative value of potatoes compared to other vegetables over the last decade. Ten years ago potatoes accounted for just over 27% of the total value of vegetable production. This reduction in importance reflects little change in the prices received from potato production, and a significant growth in amount and range of other vegetables including the emergence of 'new' produce such as Asian vegetables, okra, sweet potato and fennel.

The Australian potato industry makes an important contribution to many areas of regional Australia.

Regional data

As mentioned in the last edition, the industry also now has some powerful regional data. The Australian potato industry makes an important contribution to many areas of regional Australia. Nowhere is this more apparent than in the Mersey/Lyell area of northern Tasmania. Potatoes unlike other vegetables are relatively unimportant as a crop in the basins of the major capital cities. In NSW, production is concentrated in the Murrumbidgee and Murray basins; in Victoria it is in the Ballarat and Gippsland regions; in Queensland, in the far north on the Atherton Tablelands and, to a lesser extent, Wide Bay and West Moreton. In South Australia production is centred along the Murray River; in Western Australia in the south-west; and in Tasmania in the north of the State.

The foreign devil

The latest trade data which is released on a monthly basis is more up to date than the domestic production information. The monthly figure for September 2008 paints a disturbing picture for the processing side of the industry. In the 12 months to the end of September the value of imports of frozen prepared potatoes more than doubled compared to the same time the previous year. This follows a sharp jump in the 12 months prior to that.

Frozen, prepared potatoes have now earned the dubious title of Australia's largest vegetable import valued at over $82 million. The situation is not improving. Over the September quarter imports averaged $9.5 million per month. This compares with the equivalent three-month period of 2007 where the average was 3.6 million.

New Zealand remains the major source of frozen prepared potatoes but imports from that source barely moved over the last twelve months. Instead the Australian market is being flooded with imports from North America and the Benelux (Belgium, The Netherlands and Luxembourg) countries.

While the Australian dollar was high over most of this period (making for cheaper imports) and local processors have complained of shortages of product, these figures are worrying.

Potatoes	Processing		Fresh	
	2005-06	2006-07	2005-06	2006-07
Number of growers	688	650	791	745
Area planted (hectares)	18,196	18,564	17,072	15,532
Production (tonnes)	730,288	745,017	519,317	466,972
Yield (tonnes/hectares)	40.1	40.1	29.3	31.6
Gross value ($m)	198.7	214.9	264.7	299.6
Gross unit value ($/tonne)	272	288	509.8	615.2
Farm gate value ($m)	198.7	214.9	207.3	245.4

Australian imports of frozen prepared potatoes

Country	Oct 03-Sep 04	Oct 04-Sep 05	Oct 05-Sep 06	Oct 06-Sep 07	Oct 07-Sep 08
Total $ million	**18.7**	**19.9**	**23.9**	**39.9**	**82.6**
New Zealand	16.8	17.4	20.9	34.2	34.3
Canada	0.6	0.6	0.6	0.9	19.4
Netherlands	0.7	0.7	1.3	2.5	15.3
Belgium	0.0	0.0	0.3	1.2	8.1
United States	0.4	0.6	0.3	0.8	3.6
United Kingdom	0.0	0.0	0.0	0.0	1.6
Japan	0.0	0.0	0.0	0.1	0.1
Total tonnes	**20148**	**21866**	**28596**	**49440**	**95631**

	3rd Qtr 2007	4th Qtr 2007	1st Qtr 2008	2nd Qtr 2008	3rd Qtr 2008
Total $ million	**10.9**	**14.8**	**16.1**	**23.3**	**28.3**

The Bottom Line

- The industry now has significant information on which it may now need to act.
- The processing and fresh sectors are of roughly equal importance.
- The number of growers and area planted is declining while production remains static, but yields are increasing.
- Prices received are much better for fresh than processing potatoes.
- Other vegetables are growing more rapidly in value leading to a decline in the importance of potatoes within the vegetable industry.
- The processing sector is being swamped by imports with processors and retailers diversifying their sources of supply to a number of sources.

Further information can be found at www.ausveg.com.au/levy-payers/login.cfm

Vegetable Growers 2008 US Tour Diary

Words and Images **Helena Whitman**

I had the pleasure of leading a group of nine Australian vegetable growers on the Produce Marketing Association (PMA) tour to the United States of America, which incorporated farm visits in prime vegetable growing regions and attendance at the PMA Fresh Summit Conference in Orlando, Florida.

We started in California with visits to several farms; California Polytechnic University's Irrigation Training and Resource Centre; two supermarkets; and Associates Insectary (Integrated Pest Management for fruit growers).

Our journey took us through many vegetable growing regions between Los Angeles and San Francisco, which gave us a good perspective of the size of some of the operations:

- Most significant, was how labour intensive most operations were. This is not surprising considering that the cost of labour is US$7 per hour base plus piece rate bonus.
- Field packing was the norm. All labour was Hispanic or Mexican, with large teams on each harvester working around the clock. Most large producers also had extensive farming land in Mexico to enable production of other vegetables.
- Water shortage did not appear to be a current issue but might become one in the near future. In many cases, soil was continuously used on a rotation basis and appeared to be of poor quality.
- Generally, there appeared to be little consideration given to the environmental impact of farming practices.

A section of the PMA exhibition hall

Magnetic water meter clamp

Creatively packaged vegetables

Packaged potatoes

California Polytechnic University - Irrigation Training and Resource Centre

The Irrigation Training and Resource Centre, as the name implies, focuses on irrigation practices and efficiencies using the latest available technologies as well as testing various irrigation equipment.

The Centre gets it funding mainly from associated industries enabling the facilities to be under the Centre's and not the university's control.

Dr Stuart Styles, Director of the Centre, guided us around the facilities. He spoke about different types of water delivery systems including sprinkler spacing, drip irrigation and the best type of drip tape for uniformity of water for the crop.

He showed us the latest in metering equipment that was being tested at the facility—a magnetic meter that clamps onto the pipe and is battery/solar powered. It has proved to be a cost effective way to monitor water flows.

Stuart also took us to sites on campus where they run irrigation trials and conduct field work with growers. Information from their trial work is available on the web at www.cimis.water.ca.gov/cimis/infoEtoOverview.jsp

A weather monitoring system of 120 weather stations around the area helped farmers make informed decisions regarding watering, managing crops and spraying.

Costco Wholesale

Costco Wholesale is a large retail outlet that sells everything from jewellery to fresh produce. They also have in-store a chemist, hearing testing facility and eye testing.

We called in to see how they presented their fresh produce which is sold in bulk. The volume and range of pre-packaged produce was particularly interesting. The use of packaging was extensive and impressive and catered to the working population—all ready to go. Prices of produce worked out to be cheaper in comparison to what they are in Australia, however this is not surprising when taking into account cost of labour.

PMA Convention

The sheer scale of the PMA Convention was an eye-opener! The exhibition area was nearly 200,000 square metres, with over 17,000 people from 70 countries in attendance. Most exhibits focused around packaging with some remarkable displays, including the packaging specifically designed to attract children.

The Convention also consisted of workshops on varied topics, however most centred around Food Safety and Traceability issues and were US-focused. The recent salmonella outbreak had been a hard lesson. Originally, the trace back identified fresh tomatoes as the cause of the outbreak. This had an immediate impact on the industry with consumers stopping purchase of fresh tomatoes.

This lasted well over a month and the sector was only just recovering, when we visited. It cost the industry over $US150 million in lost sales and drove many farmers out of business. It was later confirmed that the outbreak was caused by imported chilli peppers from Mexico, however the damage to the tomato industry had been done.

The group agreed the tour was worthwhile and a great learning experience, with the take-home message being that the Americans are really good at promoting themselves and we can learn from this; we need to promote ourselves and our industry better.

The other message was that we can't compete on a cost of production basis (mainly due to higher labour costs) however, our growers are better innovators, manage limited resources better and look after their environment more responsibly. pa

Words **Gretel Sneath**

In the fryer...again!

The stand-off between the Ballarat McCain Growers Group and McCain Foods is about to enter its sixth month, and while emergence of this season's crop is already starting in some soils, the owners are yet to hit pay dirt.

The bid to strike an agreement over prices has always sparked a fair degree of passion—some years more so than others. In 2001, growers threatened to withhold supply from the Ballarat factory before McCain Foods agreed to up its price. Then, in 2005, a 2100-kilometre tractor convoy of farmers from Devonport to Canberra protested against big retailers buying cheaper imports over Australian products. But this time, the stakes are so much higher, with growers facing unprecedented production costs.

"This year, more so than any other year, the amount of dollars that are going into the ground is very significant," says Ballarat McCain Growers Group Executive Committee member Norm Suckling.

The biggest concern is increasing fertiliser prices, which can be attributed to a substantial increase in global demand and the rising energy costs.

"They've started to come down overseas, but the price drop isn't flowing through to Australian producers, and a lot of farmers are quite irate about it," says Norm.

Add on escalating diesel costs, labour, machinery repairs and environmental risk factors associated with agricultural production, and it's not difficult to see why the growers are holding their ground.

"There's a lot of uncertainty out there over future water supply - with climate conditions at the moment, if a crop fails, we could be pushed down the gurgler compared to a failed crop in years gone by," says Norm.

Ballarat district growers have been facing severe production costs in double-pumping water in the area thanks to the lack of spring rain, and they say it has become much harder for them this season compared to growers in other regions. Some have had a 50 per cent cut in water allocations this year, while a zero allocation at Newlyn reservoir has left that area's growers without any irrigation water.

"We're just over half way through putting the crops in at the moment – it is the peak sowing period and the conditions are extremely hot and dry, and growers are worried about how many megalitres of water are needed to see that crop through to maturity," says Norm.

"The risk factor is substantial; we feel that we need an increase in price per tonne to reflect this."

Annual price negotiations—and the accompanying agony for all concerned—have therefore become unavoidable.

"Before, we were keen enough to be able to sign a contract for two or three years, but with production costs being so unstable, it makes that far too risky now. Hence we have the one year deal, and each year, McCains seem to stick out at Ballarat the longest and the hardest. McCains have tended to put us in the too hard basket, we believe, and have dealt with the other areas first," says Norm.

In the final week of September, Ballarat district potato growers rejected a price offer of an additional $66 a tonne from McCain Foods for this season's crop. They voted against it on the grounds that it would not allow them to retain profitability given the unprecedented input production costs.

"McCain gave the offer to a negotiating committee, who took it to a public (grower) meeting where it was rejected," explains McCain Growers Group Executive Officer Laura Bowles. "The company and growers have differing views on growers' cost of production."

But it appears there are also differing views on the value of each potato-growing region. Food processor JR Simplot, is offering Tasmanian growers around $80 per tonne extra (a figure which was also reached after a tense stand-off with suppliers). The revised offer represented a 32.5 per cent increase on Simplot's base price, as well as a conditional fertiliser clause protecting growers from dramatic diammonium phosphate price hikes. McCains growers don't understand why their buyer won't match it, and believe their request is not unreasonable.

"We have the most difficult growing conditions at the moment compared to Tasmania and South Australia with issues such as lack of water and high temperatures, and our margins are also less. The thing is that the product we produce out of this area is close to the factory, with minimal freight and transport costs, and the quality is exceptional. It's a matter of convincing the company that we're worth spending the money on. I think they realise it, but like any company, the cheaper you can get things, the better," says Norm.

The phones have been running hot for the McCain Growers Group Executive Committee, with members calling to say that they want to get on with things, because they're all too aware of the consequences of a deadlock in negotiations. In roughly three years, the number of growers in the area has plummeted from 85 to 50.

"McCains have lost a third of their grower base, and they aren't getting any extra tonnage, so hopefully it dawns on them that they need to look after the growers that they've got left, otherwise they won't have any," says Norm.

At the time of going to press, potato growers in Victoria's Central Highlands were yet to reach a price agreement with their major buyer, McCain Foods. pa

09 Vegetable Industry Conference
Growing a Healthy Australia

2009 Conference will be tonic

Planning is well underway for the 2009 Australian Vegetable Industry Conference, to be held at the Melbourne Convention Centre from 4-6 May.

AUSVEG CEO Robert Lawler said the conference theme, 'Growing a Healthy Australia' is about promoting the vegetable industry as a key player in the fight to improve the health of all Australians.

"We want to show that the Australian vegetable industry is not only vital in combating *current* health issues, but also in ensuring that Australians are healthier in the future," Robert said. "The conference will look at building up a healthy industry so we have the means to help grow a healthy Australia." The focus is on addressing the reality that a healthy industry is required to fulfil this important role.

Over 30 exhibitors and up to 700 delegates, from Australia and internationally are expected to attend the conference and representation from all vegetable industry sectors, including, fresh and processed potatoes, onions, organics and Asian vegetables, is anticipated.

The program will include a cocktail reception, gala dinner, trade exhibition and an array of issue-focused sessions and presentations that will also highlight the outcomes of levy funded research and development projects.

Vegetable Industry Awards 09

The Australian Vegetable Industry Awards will be a significant feature of the program; with the presentation ceremony, being held at the gala dinner on Wednesday 6 May at the Crown Palladium, Southbank.

Award categories include Landini Vegetable Grower of the Year, Landmark Young Vegetable Grower of the Year, Syngenta Researcher of the Year, Brisbane Produce Market Innovative Marketing Award and the AUSVEG Industry Recognition Award.

Nomination forms are included with this issue of *Potatoes Australia*, and can also available be downloaded from www.vegetableindustryawards.com.au.

"The awards and the conference provide unique opportunities for the industry to unite, gain valuable knowledge and celebrate its achievements," Robert Lawler said.

Program sessions will include discussions on potato R&D, environment, finance, on-farm practices, technology, consumer behaviour and global trading, with presentations from leading researchers, international guests, and representatives from the supply chain.

Meanwhile, the trade exhibition will allow delegates to network with other growers, and industry stakeholders, and will be open for the duration of the conference. It will showcase an extensive range of products and services for growers, including a trade exhibit from the Processed Potato Industry Advisory Committee (APRP).

The conference will be followed by the National Vegetable Expo in Werribee, Victoria from 7-8 May. A shuttle bus service from the conference to the expo will be available for delegates who wish to attend.

A suite of conference sponsorship packages has been created to ensure that industry partners can professionally demonstrate their support for the vegetable industry. We are proud to announce our confirmed sponsors to date.

Opportunities are still available for conference sponsorship and exhibitors. For more information, please contact Max Hyde, AUSVEG Sponsorship Manager, on 03 9870 4161 or email max@hydemedia.com.au.

The conference prospectus can also be downloaded from www.vegieconf.com.au.

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Registration forms will be issued with the February edition of *Potatoes Australia*, so secure your place early.

For more information contact AUSVEG on (03) 9544 8098 or visit www.vegieconf.com.au and www.vegetableindustryawards.com.au. pa




Perspectives

As told to **Gretel Sneath & Jenan Taylor**

What has been this year's most important lesson, and what is ahead for potatoes beyond IYP?

Mr NeBambi Lutaladio, Executive Secretary of the International Year of the Potato Secretariat in Rome, United Nations Food and Agriculture Organisation (FAO)

Some people were surprised by the UN's dedicating a whole year to something as common as potatoes. Many people were simply unaware that potato is one of the world's top four staple foods and that its production has been increasing in developing countries faster than that of any other major crop. IYP has helped raise awareness of the potato's key place in the global food system.

Potatoes will play an ever greater role in agriculture, the economy and world food security. Dramatic increases in cereal prices worldwide during 2008 have underscored the potato's age-old role as a food security crop. In the current climate of global economic uncertainty, the FAO continues to encourage those countries that have a comparative advantage to diversify into potato production, both for food security and as a source of added value that can sustain farmers' livelihoods. But realising the potato's potential requires increases in the productivity, profitability and sustainability of potato-based farming systems - by improving the quality of planting material, breeding new varieties that are more resistant to pests, diseases, water scarcity and climate change, and developing farming systems that make sustainable use of natural resources.

Dr Nigel Crump, Potato Pathologist

The International Year of the Potato was an opportunity for the industry to reflect upon and celebrate its achievements, successes and windfalls, and officially recognise the contributions of individuals. The International Year of the Potato coincided with the 70th year of certified seed production in Victoria. Furthermore, 2008 was the year the Australian Potato Research Program was externally reviewed and declared the "world's best".

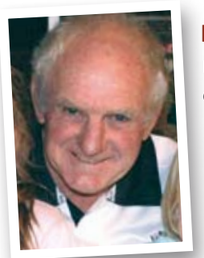
The Australian potato industry is vibrant and dynamic with a guaranteed future, and boasts adaptive and innovative people who rise to the challenges and continue to excel. This, coupled with world-leading research and development, ensures a solid foundation for the future. On a global level, potatoes are a highly nutritious product that will continue to play a role in the food security of the world.

Gary Thomas, Executive Chef, Spade to Blade

The most important lesson I have learned is that people are fascinated by potatoes. More than 10,000 kids and up to 20,000 adults went through the "spudhunters" experience. Kids were absolutely thrilled with the opportunity to dig for their own 'treasure' - then eat it, too! They came from all walks of life; all socio economic sectors, all sub cultures, all racial groupings...and they came because potatoes resonate. They all had their own stories about potatoes to share, and wanted to pick our brains for all of the potato information they could get. Connecting our next generations with the land and the source of their tucker is the most vital work we can be doing right now.

The future for potatoes lies with maintaining the biodiversity of the vine, and quality in the soil, because there is growing interest in buying clean, green and fair food.

We need to promote consumer awareness that some potatoes are best for some types of cooking over others; concentrate on the quality of taste and your market share will remain sound. We also need to pay farmers a fair price for their product, and connect farmers directly with consumers.



Neville Beaumont, Grower

Unfortunately, I learned that most growers didn't know or didn't care about the International Year of the Potato. Members of the general public, on the other hand, were another matter! Dorrigo, which is a town with a population of 1200, held a potato festival to promote the potato industry and the International Year of the Potato. People were so interested that the the town overflowed to 2000 people.

The Australian potato industry has a great future if the major supermarkets get away from being blindfolded by large players in the industry. A majority of small growers and packers support a marketing levy and therefore the potato could be marketed very successfully against its opposition. After seeing the work done in the United Kingdom and United States promoting the potato and tonnes produced per megalitre of water, it must also have a great future overseas.

Dorrigo Potato Festival

Jo Roberts, Science Co-ordinator, and students of Templeton Primary School

The International Year of the Potato held special significance for the students of 4R at Templeton Primary School as, with the help of Dr Nigel Crump, they learned to look at potatoes in ways they had never considered, and were encouraged to work together to investigate how diseases impact on production. Most importantly, they learned how scientists work with farmers to ensure that diseases do not ruin their crops.

Before I knew it, I had students who were enthusiastic about informing the rest of the school as to why potatoes were so important.

Matthew I never knew that potatoes were so important or that there were so many different varieties.

Grainne Potatoes will become more popular around the world as more people learn about their nutritional benefits. I came to realise how important potatoes are and I was so surprised to find out that they had the same amount of vitamin C as an orange.

Keiren One day there will be a new breed of potato that is drought and disease resistant, like a cactus, so that no one in the poor countries will be hungry.

Giselle All the potatoes around the world should be shared so that we all have enough to eat.

Beth There will be less potatoes in the future and potatoes will begin to cost more because of the drought.

Some of the students of 4R at Templeton Primary School

William Scientists will help growers to produce potatoes that taste great, are disease free and grow easily in any kind of soil.

Natasha People will think more about potatoes as a result of International Year of the Potato and not take them for granted like I did. I now think about vegetables a lot more.

Paul Morgan, Retailer, Spudway

The most important lesson learned from the International Year of the Potato would have to be the potential for generating awareness about the humble spud. We at Spudway have always known that the spud is a very nutritious, good food; the International Year of the Potato has helped spread the word.

We're starting to notice a more diverse spread of nationalities amongst our customers, and they continue to be people of all walks of life and ages. If this pattern is replicated Australia-wide, I can see the potato industry being very good for many years to come. One of our slogans is "A meal in a jacket that won't cost a packet", and in today's economic climate, people are looking for that. pa

The big picture

The International Year of the Potato showed that many Australians don't just love eating spuds, they're even more pleased to do so when there are good reasons. Across the nation IYP resulted in a plethora of events, including celebrations and exhibitions.

We brought you snippets of some of those, but were unable to feature a great many others including:

- Potato festivals in Pinaroo (SA), Dorrigo (NSW), Trentham (VIC), some of which featured mash potato wrestling, tractor pulls, and historical tours of potato diggers huts.
- Scouts, and Girl Guide tributes; an art competition attended by UN dignitaries, trivia nights, and dinner dances, including the recent Koo-wee-rup IYP dance that also raised over $2000 for the benefit of a charity mission in South America.

The net effect of these events is that they brought together communities and elevated business support; and boosted awareness about the importance of the potato in world food systems, biodiversity and the role of agriculture as something that cannot and should not be ignored in world economies.

The initiative gave researchers, growers, marketers and other industry representatives from Australia and around the world opportunities, in the form of conferences, tours and projects, to establish valuable knowledge connections with each other and to help seek collective solutions to some of our most enduring global problems such as dire poverty, starvation, disease and even war.

The IYP photo contest was launched to help synthesise much of these themes, but rather than attempt to cover potatoes and the entire human condition here, we thought we'd bring you a taste of some of the winning photographs, and let them do the talking.

For more information visit:
www.potato2008.org/en/photocontest/index.html. pa

"Bamboo Boat", Marlene Singh, Philippines (3rd Prize Amateur Category)

From series "Belorus soldiers eat potatoes", Viktor Drachev, Belorus (3rd Prize Professional Category)

If you have a question that you'd like addressed, please ring the advice line on 1800 067 108 or email *Potatoes Australia*: jenan.taylor@ausveg.com.au Please note that some questions may be published.

Ask the industry

Ask the industry is a regular advice column covering issues from resistance management and chemistry to occupational health and safety.

What is the significance of nitrogen nutrition in relation to development of Target Spot *(Alternaria solani)* in a potato crop?

There are often significant interactions between crop nutrition and the level of development of certain diseases in plants. Target Spot development is greatly influenced by levels of soil fertility and plant nutrition (along with other factors including environmental conditions). It is often more severe when the potato crop has been subjected to poor nutrition or other types of stress.

Overseas studies (predominantly from the United States) have shown that applications of high rates of nitrogen (N) can suppress development of target spot. The opposite could then be stated; that target spot may have higher incidence in crops or on particular leaves that have lower or deficient levels of nitrogen. Deficient levels of nitrogen in the potato crop can make control of target spot far more difficult.

However before you all rush out and apply a big drop of N to your crop to control this disease, it must be stated that these N rates applied for control of target spot are often higher than that required for optimising yield and maintaining tuber quality. High rates of N at the wrong timing can have negative effects on yield and tuber quality.

Effective and economical control of Target Spot can be achieved by managing crop nutrition (with particular focus on N applications) for optimising yield potential in combination with use of well timed fungicides.

Why does this make fungicide application prior to row closure so critical for the control of target spot?

Primary infection of target spot generally occurs on the older, lower leaves which have lower or declining levels of N. In general N (and other associated elements phosphorus (P), potassium (K), magnesium (Mg), chlorine (Cl) and sulphur (S)) is quite mobile within the plant (via the xylem and phloem) and as such deficiency symptoms usually occur on the older leaves first. Therefore applications of fungicide before rows close over become more critical.

Potato plants (pre row closure) still provide good access for fungicide to reach lower leaves where target spot is more inclined to infect early. Good coverage and spray penetration into the lower canopy can be achieved efficiently and effectively.

Fungicide applications pre row closure can greatly assist in slowing the development of disease by keeping inoculum levels low and reducing the likelihood of infection, however as discussed, good soil and plant nutrition are also critical. Once rows close over, accessing lower leaves with fungicide becomes far more difficult.

From my perspective, in the absence of visible target spot, the best fungicides to use at this important time are the "Super Protectant's" such as Amistar SC (Group K) or if disease is present prior to or at row closure, apply early curative fungicides such as Score (Group C). It really is the last opportunity to get good coverage of high calibre fungicides onto the lower leaves to restrict the development of the disease.

Phil Hoult
Syngenta

Words **René De Jong**

Atherton area grower Pompi Pezellato with son Hamish discussing a healthy and high yielding crop of Kestrel with Greg Forsyth from Elders, Atherton, Nth Qld.

Variety Club

Ten years ago, Elders ventured into the business of managing and selling potatoes on behalf of the Caithness Potato Breeders in the UK under plant breeders rights (PBR).

The PBR-protected potatoes have enormous benefits for growers, including higher yields, pest and disease resistance, good packing turn out, better retailing and environmental advantages. The following existing and new varieties display those attributes.

Nadine is the flagship variety being grown by major growers and packers based in South Australia, Western Australia and South East Queensland. It is a challenge to grow at times but has high yield potential and outstanding market attributes including long shelf life, great washed appearance and bloom unmatched by any other variety in Australia. Nadine is restricted for production and hence is not widely available for growers,however, Elders has several other varieties with unique attributes.

Harmony is a white-washed, white-fleshed potato with strong plant structure, high yield potential, very good market attributes, long dormancy for marketing options and is partly resistant to PCN *Globodera Rostochiensis* (Ro1) and *Globodera Pallida* strains.

Kestrel is a white-fleshed potato with creamy skin that is dotted with distinctive mauve-coloured eyes. It has high yield potential, short dormancy with excellent internal attributes being probably one of the best tasting potatoes on the market. It has partial resistance to PCN Ro1 and *Pallida* strains.

Valor is a white-skinned, white-fleshed potato suited to the brushing market with a very strong plant structure that is deep rooting. It is suited to more severe growing conditions, including drought, heat and frosts, and tends to produce the highest yields, wherever it is grown around Australia. Valor is suitable for organic production because it resists many diseases and therefore needs little disease control treatments. It is fully resistant to PCN Ro1 strain.

Argos is a white to cream-coloured potato with white flesh suited to the fresh, washed market. This variety is very high yielding and suitable for growing under tough conditions. It stands up to many diseases and is resistant to the PCN Ro1 strain.

Inova is a light cream-skinned and light yellow fleshed potato with a tendency to European style cooking attributes. It is my favourite eating potato. It yields well and has good general disease resistance. Inova is resistant to PCN Ro1 strain.

White Lady is a cream to white-skinned potato with white flesh and good general internal cooking attributes. A feature of this variety is its smooth, shiny skin. This variety is challenging to grow but will perform in selected areas and times of the year. White Lady is sensitive to day-length and has not performed in the northern states of Australia. It is resistant to PCN Ro1 strain.

Eva was introduced into Australia as a crisping variety but has found a niche as a white, washing potato with white flesh. Eva sets few potatoes so if grown under tough conditions, potato size can be maintained generally coinciding with higher priced potatoes than normal. Internal quality is good and the variety is resistant to PCN Ro1.

Maxine is a new red-skinned potato with white flesh. It produces high yields of very even potatoes that wash up very well. Maxine is the "Nadine" of the reds and although it is slightly lighter in colour, it presents an excellent red, washed line. Maxine is resistant to PCN Ro1. pa

Elders trials and potato support

Before our varieties are released for commercial growing, we assess them under varying geographical, climate and soil conditions through numerous trials around Australia. This allows us to determine the merits of each variety and helps reduce the risks that commercial growers may face in trying something that would otherwise be unproven. The trials also give us the chance to ensure the potatoes match grower, packer and retailer needs. Stake holders at all levels of industry are usually invited to view or participate in the tests and provide feedback.

René de Jong is the National Manager, Potatoes for Elders Limited

Words **Jenan Taylor**

Researchers from QUT & University of Queensland monitor koalas

Eavesdropping on the environment

Remember when mobile phones were just for chatting to mates, closing deals or checking on cricket scores? Well, now you can spy—on birds, marsupials, fruit flies and a host of other organisms that might plague, or enhance, the well-being of your crops. An acoustic research project developed by the Queensland University of Technology (QUT) is adding scope to strategic Integrated Pest Management (IPM) in agricultural systems with Smart phones.

"Early detection is one of the crucial things in the war against the spread of pests and diseases, and wireless sensory technology has improved the way in which we monitor environments. This is important as our research goal is to be able to understand and manage the environment," says Professor Paul Roe an IT researcher from the Microsoft QUT eResearch Centre in Brisbane.

Paul's team has been using a high tech surveillance system based on wireless sensor networks, which may impact on the way in which monitoring for pests and beneficials is conducted. "A lot of research involves the efficient use of tools. We have adapted Smart phones, using NextG™ networking, to capture and relay valuable data. This gives researchers extra eyes and ears in their work so that they have improved capabilities for accessing the information they need."

Supported by Microsoft and Telstra, the eResearch Centre's team used new communications devices to monitor rare birds near Brisbane airport. To capture the bird calls the QUT team deployed a network of NextG™ mobile phones over a one kilometre by 30 metre area to act as sensors and recording devices. The remotely-controlled, solar rechargeable handsets enabled the researchers to upload high fidelity sound data to their laboratory, where the information was stored, cleaned of unwanted noise, and analysed.

The NextG technology was recently launched by Telstra in Australia amid claims that it would optimise the delivery of information and communication, especially in terms of speed and reach. "NextG enables the capture and upload of high definition sound recordings, therefore giving better quality information, and the reach of the network into remote areas is especially useful for this kind of research," Paul says.

Following the study at Brisbane airport, the QUT team were approached by the University of Queensland for help with monitoring koala calls on St Bees Island off the Mackay Coast. The collaboration, funded by the San Diego Zoo and the Earthwatch Institute, spawned an acoustic project that enabled the koalas to be monitored for two minutes every half hour. Using the smart phone systems koala vocalisations were sent to laboratories with the resulting data being used to develop software that enabled recognition of the marsupials' calls.

"This type of acoustic research proved that data could be gathered without disturbing the environment," Paul says, adding that their approach had also enabled 24-hour, seven days per week monitoring. "The time is ripe for automation and sensor networks are coming of age; the price of a lot of technology is dropping and people realise its potential and how vital they could be for growers in their crop monitoring. All it takes to be able to access a great deal of quality information is a mobile phone."

The project has aroused increasing scientific interest because this type of monitoring underscores low-input practice and enables monitoring at hitherto impractical scales.

The research project has also provided a general platform for the use of cameras and videos in wireless monitoring. QUT image processing experts, Binh Pham and Jinglan Zhang, developed another proto type automated system for use in the surveillance of fruit flies. The technique has been used by Entomologist, Tony Clarke, who says that the wireless sensory networks enhance existing pest biosecurity measures in his research on fruit flies in and around the Brisbane campus.

According to Pham and Zhang their prototype diminishes reliance on traditional fruit fly control and monitoring strategies which in the past have been estimated to have cost $A28.5 million annually.

"We have designed a new fruit fly trap which takes advantage of technologies from existing trap designs and also incorporates a sensor for capturing quality images," the team explain. Visual sensor constantly takes high definition photographs of insects. Any anomalies found in scanning triggers further photo taking, with the images then sent to a server for storage in a database before further processing.

Because the detection techniques can be used on the sensor side and the server side, the researchers and growers do not have to manually check traps. The automatic system, which can be applied in other situations where there is a need for pest identification, is currently being further refined to include a notification feature; it will alert entomologists and authorities when infestations are detected in the crops.

Paul says that since the bird and koala surveillance studies, the acoustic research has been used to detect many other types of species. "The project has aroused increasing scientific interest because this type of monitoring underscores low-input practice and enables monitoring at hitherto impractical scales."

While the research has focused on species and ecological structures that may not typically be present in potato and

IT researcher in the field

vegetable paddocks, growers should soon be able to tune into the rhythms and patterns of their crops systems. According to Paul the QUT team anticipates beginning trials of their detection techniques in horticulture crops as early as next year. "However we'd like to conduct general environmental monitoring including measuring the impact of humans on different ecosystems," he says.

"We will be working closely with ecologists to try to develop indices for the health of the environment, thus this research can also benefit research in environmental banking and biosecurity which will bring us closer to being able to complete a full census of ecosystem health." pa

Tell me Doc - is it healthy?

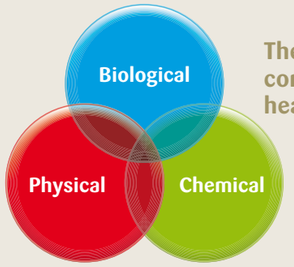
Words **Nigel Crump**

When we go to a doctor for a check-up we are really asking for a report on how healthy we are. The doctor checks our vital signs and tests for known problems such as diabetes and cholesterol. The doctor then advises us on our performance and what changes can be made to overcome problems or avoid problems in the future, actions such as changing diet, exercising, drinking more water, or getting more rest.

If we were to consider soil health for potatoes what would be the vital signs; and what actions could be prescribed to overcome or avoid problems? This directs us to one of the most frequently asked questions by growers: is my soil healthy? To answer that we first have to ask what is soil health? A definition by researchers in the US (John W. Dorana and Michael R. Zeiss) is "Soil health is the capacity of soil to function as a vital living system, within ecosystem and land-use boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and promote plant and animal health." Soil health is a measure of the sustainability of farming practices on soil.

What are the vital signs of healthy soil?

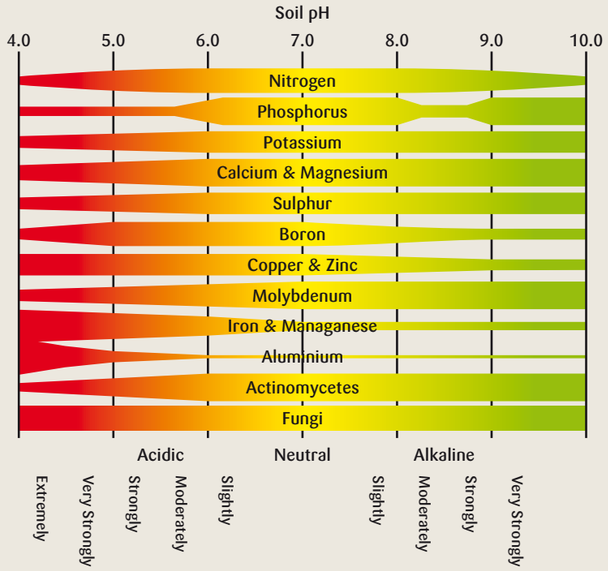
Unfortunately we do not have a stethoscope-like tool to check the heart beat of a soil. We also cannot put soil on a treadmill for a stress test to check for fitness or potential problems. We do know there are three main areas that can be checked to determine soil health.



The three main components of soil health

Chemical

Soil Nutrition – there is a requirement for an optimal supply of nutrients for plant growth and function. A limitation of nutrients reduces plant growth and vigour, resulting in lower yields and quality. An oversupply of nutrients can be toxic to plant growth, can pollute water ways through leaching and contribute to greenhouse gases. A soil nutrient test is a good indicator of the availability of nutrients and a basis for fertiliser management. Consideration must also be given to soil chemical properties including pH which can influence the availability of nutrients to plants. Soil pH is important because it strongly affects plant growth, nutrient availability, elemental toxicity and microbial activity.



The availability of soil nutrients as affected by pH. For example, if pH is less than 5, the availability of some nutrients such as phosphorus, calcium, magnesium and molybdenum is very low and so plant uptake is limited

Physical

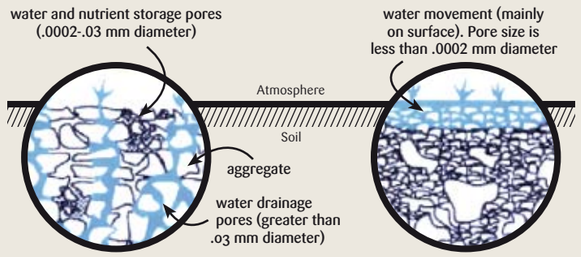
Good soil management should aim to create optimum physical conditions for plant growth through;

a) adequate aeration for growth of roots and microorganisms,
b) adequate retention of water,
c) ease of root penetration (allowing exploration of the soil for nutrients and water),
d) rapid and uniform seed germination,
e) resistance to surface sealing and erosion by wind and water

Two of the most useful indices of soil structure are bulk density and aggregate stability. Bulk density is inversely related to the porosity of the soil. In other words, the more pore spaces in a soil the lower the value for bulk density. Soil aggregate stability relates to the coherence of soil aggregates in water. Soil aggregates refers to the adhesion of soil particles through electrostatic forces or cementing substances, such as organic matter and minerals. These tests are available from most soil diagnostic laboratories. Bulk density relates to points a, b, and c above whereas aggregate stability is relevant to points d and e.

Well structured soil

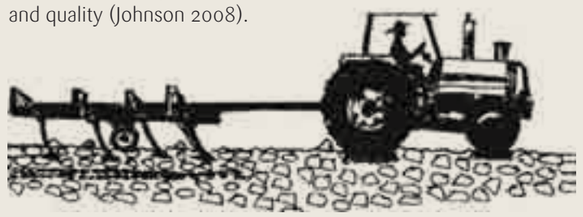
Poor soil structure



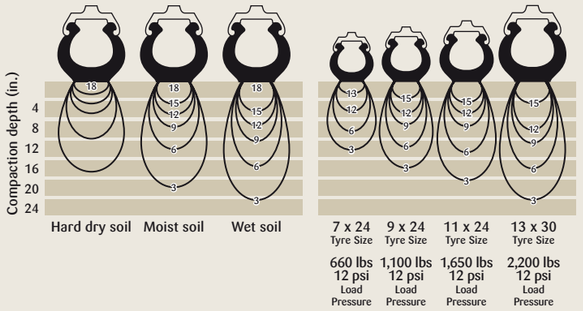
Pores of 0.03 mm and greater allow roots to easily penetrate through the soil. A well-structured soil also contains a high portion of medium sized pores and stable aggregates. Pores of this size are where the majority of water and nutrients are accessed by plant roots. A poorly structured soil has a high portion of individual soil particles and few water stable aggregates. This makes water infiltration difficult and enhances the occurrence of erosion. These soils have poor aeration and plants require more energy for root penetration. (Adapted from Principles of sustainable agriculture -managing soil structure K. Panagiotopoulus and W.K. Gardner 1990)

Soil organic matter, texture and land use affect both the bulk density and soil aggregate stability. In general terms, bulk density increases as organic matter decreases and is highest in sandy-textured soils. Soil aggregate stability decreases with declining organic matter and is lowest in the silty and fine sandy loam soil textures. A well-structured soil has a high portion of aggregates which are not easily broken down and a porosity that promotes aeration, water filtration and allows roots to easily penetrate through soil.

A soil with good depth allows roots to grow and function unrestricted. A compaction layer in the soil profile restricts root penetration and predisposes crops to environmental stresses including drought and or flooding. Soil compaction is caused by working soils when they are wet and the use of heavy machinery. Tillage equipment that shears soil through the action of cultivation such as discs or mouldboard ploughs is more likely to cause compaction than tyned implements. In the United States, marketable potato yield losses of 20-30 per cent have been attributed to compaction, measured as a reduction in tuber size and quality (Johnson 2008).



Development of a compacted layer or plough pan - Aggregates are crushed and in extreme cases a compacted layer forms below the tillage depth and under the tyres of heavy machinery (Adapted from Principles of sustainable agriculture -managing soil structure K. Panagiotopoulus and W.K. Gardner 1990)



How soil moisture affects soil compaction. *The lines in the soil under the tyre represent the curves of equal pressure. In all three situations the tyre size was 11 x 28, load was 1,650 pounds (748.4kg). On wet soil, pressures were transmitted to depths of more than 24 inches (61cm)*

How tractor loads affect soil compaction. *The lines in the soil under the tire represent curves of equal pressure. In this diagram pressure per unit area is a constant 12 psi (0.08 MPa). The size and total weight increase with tractor size, as does depth and width of transmitted pressure.*

(Adapted from: Soehne, Journal of Agricultural Engineering, May 1958)

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Biological

When most people think of soil health it is the biological component that they most readily associate with health of the soil. Soils support a diverse range of organisms, including fungi, bacteria, nematodes and insects.

A single gram of soil may contain more than 100,000,000,0000 micro-organisms. These may have beneficial or detrimental effects on plant growth and production. Micro-organisms including bacteria such *Psuedomonas*, *Streptomyces*, *Bacillus* and others, and fungi such as *Trichoderma*, *Gliocadium* and others are known to contribute to the suppression of plant pathogens in soil.

While it is possible to measure these organisms, it is not an exact science to prescribe remedies to promote beneficial organisms to enhance soil health. This is further complicated as we do not know all of the organisms associated with soil health. For bacteria alone, it is estimated that we have only identified around one per cent of the total bacteria in soil. There are many scientific programs around the world trying to establish practices that can be used to promote a sustainable pathogen suppressive microbial community in soil, and identify the main organisms involved.

Soil micro-organisms also contribute to soil structure, with fungi-producing hypha (vegetative threads of the fungus) which bind soil aggregates together, bacteria-producing polysaccharides which glue soil aggregates. This is how organic matter enhances soil structure and aggregate stability. Micro-organisms are also involved in nutrient cycling with the breakdown of organic matter, fixation of nutrients such a nitrogen, de-nitrification and mineralisation of nitrogen.

An indirect measure of soil micro-organism activity is to quantify the amount of food that the micro-organisms have available. This food is known as active or liable carbon. Active carbon consists of, among other things, fresh residues from crops, dead microorganisms and manure. The sugars, proteins, cellulose and other compounds are quickly broken down by soil microbes and used as a food source which fuels the soil microbial population. Some soil testing laboratories are providing tests for active carbon.

There is a lot of research into soil health, to understand the complexities of interactions and functions within soil and their impact on plant production and the environment. Soil health management is critical for sustainable production. To achieve this we can use simple indicators of soil quality and health some of which we have been highlighted in this article. In Australia, future research will involve developing these indicators into a package so that growers can readily identify healthy soils. pa

Words **Alisha Johnson**

Arm your farm against theft

Theft can affect growers in more ways than one—a single, rash action has the potential to destroy a year or even a life-time's worth of hard work. Spillage of fertilisers, fuels or other chemicals could contaminate crops, upset pest and disease management programs or exacerbate other problems including water shortages, or equipment damage.

With the traditional holiday festive season looming, police and Crime Stoppers are urging farmers to be particularly vigilant against theft, especially amid the drought and the global economic crisis.

"The potential for crime in rural areas increases when times are difficult," says Crime Stoppers Victoria CEO Peter Sprott.

About $5 million worth of equipment was stolen from farm properties in Victoria alone last year.

Senior Constable Terry Davies, Crime Prevention Officer in Bendigo, Victoria, says many thefts from farms are committed by people within that community. Dire economic circumstances have prompted people to act in desperation and do things they normally wouldn't do.

"As the price of an item goes up, so does the theft of that item, and that's what happened with fuel," he says.

In 2007 there was a spate of diesel fuel thefts from properties on the Yorke Peninsula and Adelaide Plains. In recent months about $400,000 worth of fertilisers and chemicals have been stolen from farms in the Victorian towns of Robinvale and Wemen, with $12,000 worth of chemicals being stolen from one Robinvale property in October.

Farms are particularly susceptible to theft over the Christmas season, when many are left vacant for long periods of time. At such times farmers need to be especially wary of "soft targets" on their properties, such as unlocked gates and machinery left in isolated sheds, Mr Sprott says.

Most targeted

Items commonly stolen from farms include tractors, GPS systems, and general tools found in farm sheds. Mr Sprott said metal, particularly copper wire, is also a popular target and is an "item to watch" as its price has climbed in recent weeks.

Ploughs, motorbikes and quad runners, as well as machinery parts such as header lights and batteries are also attractive targets for thieves.

However it is difficult to accurately identify the most commonly stolen items and farm theft 'hot spots' because "farm theft is one of the more under-reported crimes" in rural areas, Senior Constable Davies says. "We (police) need to connect more with our farming communities, but we need them to help us do that."

He says reporting incidences of farm theft helps to provide statistical evidence which gives police "ammunition" to request more resources to combat the issue. Victims should report theft no matter how petty they think it is and even if it happened as long as six or twelve months ago, because police often find patterns of theft in particular districts.

Mr Sprott says most farm theft is opportunistic and that a "common sense approach" can help prevent these crimes. Ensuring equipment is locked in sheds and never leaving vehicle keys in the ignition are some of the basic prevention techniques endorsed by Crime Stoppers.

Marking your territory

"If farmers have very expensive equipment, they should seriously consider getting it data-dotted. Particularly with large machinery, after it's stolen it's likely to show up somewhere and micro-dot technology makes it easily identifiable," Mr Sprott says.

Senior-Constable Davies says stolen items commonly appear for sale at weekend markets, in the classifieds and even on eBay. He warns against buying farm equipment at bargain prices from these sources. "If you are offered a deal that you think is too good to be true, it probably is."

Growers are encouraged to engrave and take photos of all equipment and to maintain a thorough inventory. He also suggests putting up signs stating that equipment has been marked for security purposes.

Mr Sprott asks growers to familiarise themselves with their local Neighbourhood Houses, look out for each other and to report all thefts and suspicions.

Anyone with information regarding farm theft is urged to contact their local police or Crime Stoppers on 1800 333 000.

Prevention techniques

- Keep farm records up to date.
- Engrave all tools and machinery with some identification and record their serial numbers and details.
- Mark equipment first in a uniform position, then in an obscure position known only to you.
- Photograph tools and machinery.
- To prevent thefts of radios from machinery, install radios that operate only with a security code that is connected to the auxiliary power.
- Install security lights around fuel tanks and sheds, but avoid lights which shine directly onto the tank or shed, as they will illuminate them to passers-by
- Place your dog's kennel near your sheds and tanks

Fuel tank security

- Keep track of fuel purchases
- Monitor fuel usage by dipping tanks daily, installing a flow metre and keeping a book at the tank for each user to record usage for various vehicles and machinery
- Use a strong steel padlock to lock the valve on your fuel tank
- Ideally, place your fuel tank underground. If this is not possible, place your fuel tank in a location where it is visible from the house, but concealed from roadways. pa

chips

a look at what's new in potato information & technology

Horticulture New Zealand

Studies

Control of nematodes affecting potatoes

Four articles describe the latest research into the control of nematodes that affect potatoes

An informative feature article from the University of Nebraska, USA, describes the main nematodes affecting potatoes in North America. These nematodes fall into three distinct groups – lesion, root-knot and potato cyst nematodes. The publication outlines the occurrence and seriousness of these pests, gives a brief description of the organisms and the damage they cause, and suggests some management options.

Lesion nematodes: life cycle, effects and management. *University of Nebraska, Lincoln, USA (2008) Potato Eyes 20: 1-4.*

In the first of three papers that investigate cultural practices to control nematodes, a biological control agent, *Pochonia chlamydosporia*, has been successfully tested against potato cyst nematodes (Tobin et al. 2008). The work was carried out at two field sites in Shropshire, England, and the biological control agent was tested alone or with the nematicide, fosthiazate. A decrease of around 50 per cent in the nematode multiplication rate was seen with the *P. chlamydosporia*-only treatment, and this was not significantly different from all plots treated with fosthiazate. This demonstrates that the biological agent gave similar levels of control to the nematicide, and that *P. chlamydosporia* was compatible with fosthiazate.

A different biological control agent, the fungus *Muscodor albus*, has been tested against four plant-parasitic nematodes and the results are described by Riga et al. (2008) in the second paper. The nematodes were exposed in the laboratory for 72 hours to volatiles generated by M. albus that had been cultured on rye grain at 24°Celsius. Mortality was over 80 per cent for *Paratrichodorus allius*, *Pratylenchus penetrans* and *Meloidogyne chitwoodi*, but only 22 per cent for *Meloidogyne hapla* and less than 10 per cent for controls. In a greenhouse study, nematodes were inoculated into soil fumigated with *M. albus* and incubated for seven days, after which host plants were introduced. At a *M. albus* application rate of 1.0 per cent w/w, mortality was very high (>85 per cent) for all four nematode species, both in the soil and in host plant roots. Clearly the fungus has nematicidal properties.

The third paper (Renco 2007) took a different approach, examining the life cycle of potato cyst nematode *(Globodera rostochiensis pathotype Ro1)* on nine potato cultivars in Slovakia during two growing seasons. Second stage juveniles were found earlier on one group of cultivars than the other, but these differences were not apparent with fourth stage juveniles. There was a small difference (three days) between cultivar groups in the emergence of the first adult males. There was an eight-day difference in the length of the complete life cycle between the two years. These factors need to be considered when designing management strategies for nematode-infested potato fields.

Effect of the fungus *Pochonia chlamydosporia* and fosthiazate on the multiplication rate of potato cyst nematodes (*Globodera pallida* and *G. rostochiensis*) in potato crops grown under UK field conditions. *Tobin et al. (2008) Biological Control 46: 194-201.*

***Muscodor albus*, a potential biocontrol agent against plant-parasitic nematodes of economically important vegetable crops in Washington State, USA.** *Riga et al. (2008) Biological Control 45: 380-385.*

Comparison of the life cycle of potato cyst nematode *(Globodera rostochiensis)* pathotype Ro1 on selected potato cultivars. *Renco (2007) Biologio 62: 195-200.*

Research summaries

Control of potato diseases without pesticides

Impact of agronomic strategies (seed tuber pre-sprouting, cultivar choice) to control late blight *(Phytophthora infestans)* on tuber growth and yield in organic potato *(Solanum tuberosum* L.*)* crops. Under high nitrogen (N) conditions, the most effective strategies to combat late blight involve accelerating the early development and tuber initiation of potato crops by (1) seed tuber pre-sprouting (yield increase of ca 18-23 per cent) or (2) selecting cultivars with earlier tuber initiation (yield increase of ca 0-21 per cent). Under conditions of a relatively low N supply, these strategies were not effective, since tuber growth was limited by lack of N before late blight limited yield. In years with an early and strong late blight development, cultivar resistance to late blight did not affect tuber yields. In years with moderate late blight, less susceptible cultivars gave higher tuber yields on fields with a low N availability. However, under high N conditions, these cultivars did not improve tuber yields. *Moller & Reents (2007) Potato Research 50: 15-29.*

Selection of isolates of *Trichoderma* spp.with biocontrol activity over *Rhizoctonia solani* in potato. Ten isolates of *Trichoderma* spp. were assessed for their ability to degrade *Rhizoctonia solani sclerotia*. Five isolates (Tho02, Tho03, Tho07, Tho34 and Th181) were selected after they colonised more than 50 per cent of the *R. solani sclerotia*. When the biological control activity of these isolates was evaluated under greenhouse conditions, *T. koningii* Tho03 and *Trichoderma* sp. Tho34 reduced damping-off in potato plants by 45.5 and 18.7 per cent, respectively. In addition, they significantly increased plant growth. *Beltran Acosta et al. (2007) Bulletin OILB/SROP 30: 55-58.*

Reduction of potato tuber diseases with organic soil amendments in two Prince Edward Island fields. Single applications of liquid swine manure (ca 49 hL/ha), ammonium lignosulfonate (a product derived from the pulp and paper processing industry, 50% solids at ca 10 hL/ha) and Nature Safe (10:2:8 N:P:K; an organic fertiliser made primarily of poultry feathers, ca 8.6 t/ha) were made in two commercial potato fields. Tubers were planted three weeks after application of treatments (1999) and again in 2000 and 2001 without further amendments. Potato scab severity was significantly reduced by both Nature Safe and ammonium lignosulfonate compared with the controls at both sites in the first year. Some effects were seen in the second year, but none in the third year. Liquid swine manure reduced scab severity only at one site in the first year. The severity of black scurf was significantly reduced compared with the control at both sites by liquid swine manure and Nature Safe in the first year only. Verticillium wilt was significantly reduced compared with the control by both Nature Safe and ammonium lignosulfonate at one site and only in the second year. The severity of silver scurf or fusarium dry rot was not affected by any amendment in any year. *Lazarovits et al. (2008) Canadian Journal of Plant Pathology-Revue Canadienne De Phytopathologie 30: 37-45.*

Fertilisers

Nitrogen (N) use efficiency characteristics of andigena and diploid potato selections. In an alternative approach to reducing losses of nitrogen fertiliser through leaching, this paper evaluated the efficiency of use of nitrogen by a number of 16 different potato selection lines grown at two fertiliser nitrogen (0 or 100 kg N/ha) rates over two years. There were significant differences between the lines in N use efficiency characteristics, and these were consistent between years, despite drought conditions in the second year. Selections with later onset of senescence and those with greater partitioning of plant N to vines tended to have greater N use efficiency. This work suggests it is practical to screen potato germplasm for N use efficiency. *Zebarth et al. (2008) American Journal of Potato Research 85: 210-218.*

Potato yield and tuber set as affected by phosphorus (P) fertilisation. This three-year study on a loamy sand soil with medium to high P levels, investigated a number of fertiliser treatments, including P rates of 0, 37, 42 and 74 kg P/ha, two P fertilisers (mono- or di-ammonium phosphate), and P banded at planting or split applications at planting and emergence. Applications of P fertiliser increased total tuber yield and yield of undersized tubers, but decreased the proportion of large-sized tubers. Numbers of tubers in these categories was similarly affected. While the concentration of P in petioles was generally consistent with the rate of P applied, this did vary between seasons. Tuber P concentration (and hence total P uptake) increased as P application rate increased, but differences were quite small. There was no effect of P source or timing on the potato yield parameters measured. *Rosen & Bierman (2008) American Journal of Potato Research 85: 110-120.*

Influence of source and time of potassium application on potato growth, yield, economics and crisp quality. This research investigated nine combinations of potassium source (potassium chloride, potassium sulphate and potassium nitrate) and time of potassium application (basal dressing, split application, and split application + foliar spray) over two seasons with two processing cultivars in India. Plant growth characteristics, such as stem number, plant height and compound leaf number, were not influenced by sources of potassium fertiliser or application time. However, there were differences between potassium sources for processing-grade tuber yield, total tuber yield, biomass yield, specific gravity, tuber dry-matter percentage, crisp yields and oil percentage of the crisps. Application time had little effect on these characteristics. When all parameters were taken into account, it was suggested that potassium sulphate was the most suitable potassium source for crisping potatoes. *Parveen et al. (2007) Potato Research 50: 1-13.*

Cultivars

Premier Russet: A dual-purpose, potato cultivar with significant resistance to low temperature sweetening during long-term storage. The primary benefit of this new cultivar is its resistance to the accumulation of reducing sugars, which allows tubers to be stored at temperatures as low as 5.6°Celsius for 250 days without the need for reconditioning prior to processing. This means that there is an associated reduction in the incidence and severity of storage diseases associated with higher storage temperatures used for industry-standard

chips

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cultivars. Tuber yields and specific gravity tend to be higher than other standard processing cultivars. Although it is resistant to a wide range of diseases, it does have a higher incidence of hollow heart than Ranger Russet or Russet Burbank, and cultural recommendations to manage this condition are provided. *Novy et al. (2008) American Journal of Potato Research 85: 198-209.*

Dakota Diamond: An exceptionally high yielding, cold chipping potato cultivar with long-term storage potential. This cultivar includes approximately 23 per cent germplasm from several wild potato species. It has smooth round tubers, with bright white skin and white flesh. The plant is very vigorous and yield potential is high. The name suggests its beautiful appearance and excellent chip quality particularly from late season storage, as well as honouring the Diamond Jubilee of the North Dakota State University potato breeding programme. *Thompson et al. (2008) American Journal of Potato Research 85: 171-182.*

Popular articles

Potato Country

This research report, "Cutting back in-season nitrogen on eight potato cultivars", summarises a three-year programme by Washington State University addressing a number of objectives. One was to develop a research method to apply treatments using fertigation techniques, which was achieved using a pull-type sprayer that applied urea through adjustable nozzles. The trials showed that some new cultivars responded differently to N fertiliser than Russet Burbank and that care must be taken with fertigation practices with new cultivars. However, petiole N concentrations appeared to be similar over time for all cultivars, despite variations between seasons. The main finding was that maximum total yield was not equivalent to maximum economic yield and there were considerable advantages in cutting back in-season N applications. *July/August 2008, p. 4.*

Aphid pest gets "egged". This article describes a new method of marking aphids so that their movements between fields can be tracked. A mixture of egg-white proteins and water is sprayed onto host plants, aphids crawling over the plants become marked with the egg proteins and they then fly off to a new location. At this location the aphids are trapped on mesh-screens with a special adhesive. The aphids are removed, and the presence of egg proteins can be detected in the laboratory using antibodies. The technique will be used in studies to monitor aphid populations and modify IPM programmes. *July/August 2008.*

Snippets from www.potatonews.com

Listed below is a small selection of the articles that are posted on the Global Potato News website.

May 2008: News Headlines

United Kingdom: More aphids threaten virus spread in British seed potatoes. Entomologist Andy Evans says that up to 15 aphid species are involved in transmitting potato viruses in the UK, and in susceptible varieties, such as Estima, Desirée, Kerr's Pink, Marfona and Russet Burbank, aphids should be controlled as soon as the crop emerges. In recent years there has been an increase in Potato Virus A (PVA), which is typically transmitted early in the season. Aphid species not normally associated with potatoes may cause more damage than normal aphids because they probe the plant and then quickly move on to other plants, spreading the infection rapidly across the field. Dr Evans outlined spray recommendations for aphid control.

China, New Zealand: University of Canterbury scientists researching superior potatoes with China. Scientists from Crop & Food Research at Lincoln are cooperating with research organisations in Christchurch's Friendship city of Wuhan, China, to develop potato cultivars with disease resistance and desirable processing traits. Senior scientist Professor Tony Conner is collaborating with the Wuhan scientists on the international potato genome sequencing project, and spoke at the China-New Zealand Science to Market conference in Beijing. Of particular interest is co-operative work on resistance to cold-induced sweetening, for which Crop & Food Research has elite breeding material.

United States: Innovations needed to boost spud sales, says new chief of US Potato Board. Many of today's consumers are not interested in a 10-pound bag of russet spuds and are looking for something more convenient, such as a small package of red, yellow or purple potatoes or a poly-wrapped microwaveable baker. It is important that growers and retailers work together to provide potatoes in the form that consumers want them, along with continuing to promote the nutritional benefits of potatoes.

May 2008: Trends

Novel coloured spuds rich in antioxidants to grab consumer interest. Recent research from Agriculture and Agri-Food Canada has shown that blue and purple flesh potatoes are rich in flavonoids, especially the flavonoids containing cancer-fighting antioxidants.

August 2008: News Headline

United Kingdom: Climate change responsible for earlier aphid flights. In the UK, the peach-potato aphid has been found to be flying 2 weeks earlier for every 1°C rise in mean temperature for January and February combined. In 2008, the first aphid was caught on 25 April, which is almost 4 weeks ahead of the 42-year average. This appears to be due to an increased frequency of mild winters allowing overwinter survival of higher numbers of aphids.

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