potatoes australia

review 07

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Potato R&D
Your national potato levy at work

HAL
Know-how for Horticulture™

AUSVEG

PPAA
Potato Processing Association Australia

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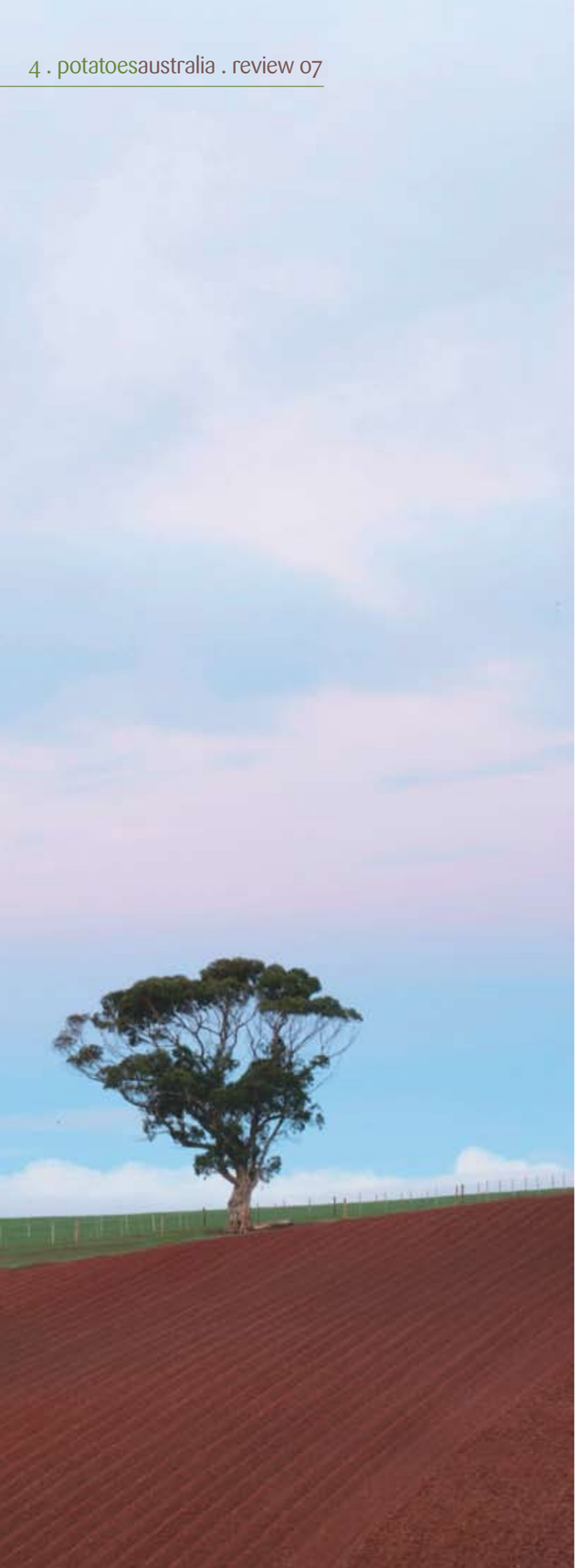

Chairman's message

Welcome to the 2006/2007 edition of *Potatoes Australia Review*, the National Potato Levy Research and Development Annual Report.

The National Potato Levy is an investment in the future of the fresh and processed potato industries. Guided by the potato industry strategic plan, that was developed to align with the overarching vegetable industry strategic plan, VegVision 2020, this year the industry has invested nearly $3 million in a broad range of projects.

Every year R&D projects are commissioned on behalf of the potato industry using the revenue collected through the National Potato Levy, voluntary contributions and matched funding from the Australian Government. This money is forwarded to Horticulture Australia (HAL) who is responsible for the appropriate expenditure, management and accounting.

HAL works in partnership with AUSVEG to administer the investment decision making process. Industry investment priorities are guided by recommendations made by industry representative groups.

In the processing potato sector the R&D investment is managed under the Processing Potato Research and Development Program (PPR&D) which uses an integrated program approach.

The PPR&D program has been an outstanding success and has focused on the major potato diseases such as common scab, powdery scab, Rhizoctonia and tomato spotted wilt virus. It has involved extensive collaboration with New Zealand and Canadian research groups and the next phase of the program will seek further overseas partnerships to become an internationally renowned research and development program for the Australian Processing Potato Industry.

The fresh potato industry has concentrated their levy investment on Market Development. The aim is to develop the knowledge on the health and nutritional benefits of potatoes and consumer attitudes towards them. This work is to provide the basis for the industry to develop a consumer marketing capability.

An important part of any R&D program is ensuring the outcomes to potentially improve farm practices and the bottom line of the industry as a whole. For this reason, the potato industry also invests in communication activities such as the *Potatoes Australia* magazine, this *Review*, the R&D website and industry conference.

Please take the time to browse through this magazine as it will give you some highlights on your investment for the 2006/2007 financial year.

Michael Badcock
Chairman
AUSVEG Ltd

HAL Potato Industry Overview 2006/07

Strategic Plans

The potato industry strategic plans for the fresh and processed industries were finalised in December 2006. These plans utilised the industry wide information collated during the Industry Partnership Program (IPP) funded by Department of Agriculture, Forestry and Fisheries (DAFF). Taking Stock, Setting Directions and VegVision 2020 were generated from this extensive consultation process and can be found on the Australian Vegetable Industry Development Group website www.avidgroup.net.au.

Fresh Potato Market Development

The Fresh Potato Industry Advisory Committee (IAC) has highlighted a market development project for the past two years, emphasised by the new strategic plan. This aims to create the framework and enabling environment to assist the fresh potato industry to consider strategies to improve the long-term viability of the fresh potato industry. Research of significant issues such as health, nutrition, related facts and figures, handling and use are the basis of investigation. Since April 2007, Matthew Wickham, employed at AUSVEG to undertake work on this project, has been compiling information from both global and local sources. Integration of the entire supply chain is an essential part of the overall approach, as is a consumer research focus. The plan is anticipated to be finalised by May 2008.

Processed Potato Research & Development Plan

Initiated in 2004, the Processed Potato Research and Development (PPR&D) programme results are rapidly accumulating. These results will guide the scientific content and approach for Phase Two. The Processed Industry Advisory Committee has recently approved funding for a scoping project to define the next phase and investigate the incorporation of international collaborators.

This position was further strengthened by a study tour by the PPR&D Sub-Program Leaders took to assess the possibilities of pooling resources with other potato research institutes, ultimately leveraging the R&D levy investment. The study included institutions in Scotland and England, and established the research specialities of each institution.

Lucy Keatinge, HAL Industry Services Manager

Breeding Program

The restructured National Potato Breeding Program (NPBP) has been endorsed by the Potato IAC and approved by the HAL Board. Endorsement of levy funds was dependent on Tony Slater from the Department of Primary Industries (DPIV) securing funding from commercial partners at the required level of investment over a five year period. This has been exceeded and illustrates the enthusiastic support of potato growers for an Australian programme. Contracts are in an advanced phase of negotiation.

Communications

Coordinated by Toni Davies, Communications Coordinator (AUSVEG), the communications program has been embraced by industry. The *Potatoes Australia* magazine and the website are supported by all industry participants, including growers, researchers and suppliers. The establishment of a national potato database will further strengthen industry awareness and networking opportunities.

Acknowledgements

Since I started in February I have been supported by the energy and enthusiasm of the participants and Chair of the Fresh and Processed Potato IAC. The R&D process has benefited by this industry input. My thanks also to the AUSVEG team for their passion and commitment to the Australian potato industry.

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HAL potato industry financial report

Potato Investment Summary

Year Ended 30 June 2007	Unprocessed Potato	Value Added Potato	Combined 2006/2007
Funds available 1 July 2006	445,743	834,944	1,280,687
INCOME			
Levies Received	215,540	784,380	999,920
Commonwealth Contributions	439,892	474,024	913,916
Other Income	28,577	62,826	91,403
Total Income	**684,009**	**1,321,230**	**2,005,239**
Budget	446,610	1,600,450	2,047,060
Variance to Budget	237,399	-279,220	-41,821
PROGRAM INVESTMENT			
Levy Programs	774,322	834,402	1,608,724
Service Delivery Programs by HAL	105,463	113,646	219,109
Across Industry Contribution	8,982	9,679	18,661
Levy Collection Costs	16,024	41,206	57,230
Total Investment	**904,791**	**998,933**	**1,903,724**
Budget	259,729	1,735,148	1,994,877
Variance to Budget	-645,062	736,215	91,153
Annual Surplus/Deficit	-220,782	322,297	101,515
Funds available 30 June 2007	**224,961**	**1,157,241**	**1,382,202**

CEO's message

Partnership and collaboration has been the foundation stone of the Potato Industry Research and Development Program involving growers, industry organisations, government, service providers and international research groups.

Investment in R&D from the National Potato Levy is guided by a process that is administered by a strong partnership between Horticulture Australia (HAL) and AUSVEG. This partnership brings together the goals of the Australian Government on behalf of tax payers with potato growers across Australia.

The Investment in R&D is guided by two advisory groups, the Fresh Potato Industry IAC and the Processed Potato IAC. These dedicated people provide recommendations to HAL on industry priorities for the annual strategic plan and where the levy should be invested.

The Processed Potato Research and Development Program (PPR&D) was independently reviewed this financial year to ensure the outcomes were meeting with expectations. The Processed Potato Industry and the Tasmanian Institute of Agricultural Research (TIAR), who coordinate the program, project providers and collaborators must all be congratulated for their outstanding achievements. This R&D program has set the bench mark for other R&D investments in the vegetable industry.

AUSVEG has been contracted by HAL as a service provider to deliver some national projects.

AUSVEG conducts a comprehensive communication plan which involves producing *Potatoes Australia* magazine, the *Review*, the grower portal on www.ausveg.com.au and the Australian Vegetable Industry Conference.

The fresh potato market development project has gone from strength to strength. The literature review found that the potato is perceived to be a basic staple that is highly universal with the ability to be applied to any meal. Studies have indicated that the fresh potato nutritional message lacks focus, authority or connectivity. Consumers want to know more about: varieties, recipe ideas, health benefits, specific meals for occasions, quick and easy, wider choices. The research has revealed a great opportunity to educate consumers.

The PCN trade protocol negotiations are also progressing well. Categorising this process has seen strong collaboration between industry, state and federal government regulators. Harmonising the PCN protocols is of paramount importance and all industry sectors must work collaboratively to this end.

I look forward to 2008 the United Nations International Year of the Potato, seeing the next phase of the PPR&D program develop and the fresh potato taking a stand as the new 'super' food for Australians.

John Roach
Chief Executive Officer
AUSVEG Ltd

VegVision 2020 project work highlights potatoes

Potatoes are the major vegetable crop in terms of area sown, value of production and volume of consumption, according to a survey of vegetable growers undertaken by the Australian Bureau of Agricultural and Resource Economics (ABARE).

Commissioned by the Australian Vegetable Industry Development Group (AVIDG), the ABARE survey is one of four projects initiatied during the last financial year as part of VegVision 2020, the strategic plan for the vegetable industry.

The survey, which commenced in April 2007, interviewed 266 vegetable growers across Australia and has provided data which can be used as a benchmark to identify the status and profitability of the vegetable industry around the country.

The report also indicated:

- Around 62 per cent of vegetable growers intend to be in the industry in the next five years and some 32 per cent expect to expand the area of vegetable crops
- Growers rated pest and disease management as their highest priority and more than two thirds of growers had taken a chemical course and indicated they were making an effort to reduce chemical use
- Around three quarters of growers rated their relationship with their main buyer as good or excellent, with more than half of growers selling the majority of their produce to the fresh vegetable market – usually their local wholesale market in their capital city

"This information is considered crucial for the implementation of VegVision 2020, the industry's own strategic plan for sustainable future growth, and for determining the right mix of industry programs that will ultimately improve the long term viability of the vegetable growing industry," AVIDG Deputy Chair, Wendy Erhart said.

VegVision 2020 aims 'to double the 2006 value of fresh, processed and packaged vegetables in real terms by stimulating and meeting consumer preference for Australian products in domestic and global markets'.

Also instigated under VegVision 2020 is an export network which has been developed to better understand Australia's key markets. The network is made up of seven of Australia's larger vegetable exporters and will initially focus on China to understand more about its potential as both a competitor and a future market for Australian vegetables. If successful, this approach could be used as a blueprint for other potential export markets in the future.

A leadership and industry structures project is now also underway and will involve opportunities for the industry to participate in discussions to help shape the future organisational arrangements that are best placed to drive the strategic plan forward when AVIDG wraps up in June 2008. A number of grower meetings are expected to be held around the country in May to discuss the industry's future structure.

A People Development Coordinator has also been appointed through a grant to AUSVEG. Funded until June 2008, the role will enhance human resource capacity across the vegetable industry supply chain by reviewing existing business skills and training programs before establishing a People Development Investment Plan for the whole vegetable supply chain.

VegVision 2020, was launched in September 2006 by the Minister for Agriculture, Fisheries and Forestry, Peter McGauran after extensive consultation with industry.

Chair of the group, Tasmanian vegetable grower Richard Bovill, said the plan was developed by growers, processors, wholesalers and retailers, and has drawn on the successes and challenges faced by industry.

"However, there are problems within the industry that need to be addressed if the whole Australian vegetable supply chain is to prosper into the future," he said.

VegVision 2020 and the ABARE report are available to be downloaded from www.avidgroup.net.au. The ABARE report can also be found at www.abareconomics.com.

AVIDG
Australian Vegetable Industry Development Group

The National Potato Levy - how it works

The Australian Government matches industry investment for Research and Development (R&D) on a dollar for dollar basis through Horticulture Australia Limited (HAL). The power of critical mass enables investment in R&D that would otherwise be beyond the capabilities of individual growers.

How is the levy calculated?

The potato levy of 50 cents per tonne is paid at the first point of sale by all potato producers. This includes producers of seed, fresh and processed potatoes whether or not they are destined for the domestic or export markets. The potato industry is unique among HAL members in that it is the only industry where processing companies pay the same levy as growers.

How is the levy collected?

The levy collection point is primarily the wholesale market or processing company. If a direct sale is involved, the levy is collected through the retailer. The levy is applicable to fresh and processed potatoes.

Once collected, the levy is forwarded to the Levies Revenue Service (LRS), an Australian Government section under Department of Agriculture, Food and Fisheries responsible for collecting all agricultural levies. The LRS forwards the money to HAL, which coordinates, invests and manages R&D on behalf of the Australian Government and potato growers.

Who are the decision makers?

HAL is responsible for managing industry funds and commonwealth matched funds, but it is the industry's responsibility to recommend how funds should be allocated.

Strategic planning is vital to the potato industries future direction and the levy is this investment in the industries future. Good planning underpins the investment to ensure maximum value is achieved for dollars spent and that levy monies are spent on relevant industry issues.

Both fresh and processed potato sectors are currently reviewing their industry strategic plans. The review will be completed by December 2006 and the resulting plan used to guide investment of the potato levy R&D up to 2010. Whilst the strategic plans are guides, there is still flexibility to support R&D for any unexpected issues that may occur.

The Industry Advisory Committee (IAC) is a subcommitee of HAL. It meets annually in September to identify specific areas of new R&D to be funded in the following financial year. Projects are then recommended to HAL for funding. IAC members are often called upon to be part of project steering committees to provide advice during the project to ensure it continues to meet industry needs.

The R&D program supports projects ranging from issues such as disease, weed management and pest control to efficient communication in the potato industry to provide information on project outcomes.

Potato R&D

Industry Advisory Committees (IAC) - The grower's voice

Potato growers are represented on both the Fresh and Processed IACs and are actively involved in recommending where levy funds are spent.

The IACs are subcommittees of HAL. They consist of growers, processing company representatives, Horticulture Australia (HAL) Industry Manager and an independent Chairperson. Meeting several times per year, the IACs recommend the financial and budgetary expenditure, strategic direction for HAL investment of levy funds and provide industry input into future R&D plans.

Members of the IACs have a wealth of experience and knowledge of the Australian potato industry, but this year they requested guest speakers be invited to update and inform them of any new developments or changes happening in their area of expertise. Gathering information from external sources has proven to be an effective way for IAC members to make informed, correct recommendations in line with industry priorities.

IAC reports from the Chair

Fresh IAC:

The IAC has had three major initiatives during this year. These are: continuing improved communications, pursuing relevant on-farm research for production issues and focusing on marketing and consumer research which includes both the Processed IAC and international collaborations.

The communications initiative has been well supported by commercial response and has achieved a significant cost recovery for magazine printing and distribution costs. On-farm research continues with joint investments with the Processed IAC for common production issues.

The main focus for the Fresh IAC has been the management of the Market Development project. Previous research had indicated that potato consumption was falling and identified a need to actively promote the benefits and dispel nutrition misconceptions. The result has been the development of a potato strategic marketing plan, with the collation of existing data from global sources to inform the outcomes.

Processed IAC:

The Processed Potato Research & Development (PPR&D) program has been in place since 2004, and is a concerted initiative to coordinate research to address specific issues that impact on production returns. The overall program structure enhances the coordination of national potato research and prevents duplication.

As a result of a study tour conducted during the year, international collaboration opportunities have been cemented between Australia and the global potato research network, including South Africa, United Kingdom, Canada and New Zealand. This will allow for efficient utilisation of expertise and resources on a global scale, as there are identified 'areas of excellence' in production issues within individual research institutions. Initial engagement with the global potato research community has been strongly encouraged to leverage the levy investment opportunities.

The IAC has commissioned a scoping project to investigate the structure and viability of a second phase of PPR&D, to commence in mid 2009. This is planned to formalise the research relationships of our global partners. It is pleasing to note that the Processed IAC is well positioned to take a leading role.

John Gallagher, IAC Chairman

Potato R&D

Your Fresh IAC Members

John Gallagher Chair
Des Jennings Grower, VIC
David Anderson Grower, WA
Michael Jess Grower, QLD
Neville Beaumont Grower, NSW
Kevin Clayton-Greene Grower, TAS
Clinton Zerella Grower, SA

Your Processed IAC Members

John Gallagher Chair
Frank Rovers Grower, VIC
Ken Labbett Grower, VIC
David Antrobus McCain Foods, VIC
Chris Russell Simplot, TAS
David Addison Grower, TAS
John Doyle Grower, NSW
Allan Smith Arnott's Snackfoods, QLD

Marketing development to educate and inform

The Australian Fresh Potato Industry Strategic Plan 2006-2011 outlined several key initiatives designed to enhance profitability and sustainability. On the top of the pile was the strategic directive to improve consumer demand for Australian fresh potatoes through marketing and promotion.

Matt Wickham

The fresh potato marketing development project has made significant progress since the employment of Matthew Wickham under the market development project. In April this year focus has shifted from the initial investigative analysis to the production of tangible informative material that emphasises the value of potatoes. This significant change has come after a thorough examination of available research and overseas potato marketing organisations.

The current collection of research provides a significant pool of knowledge and direction for future marketing and promotion endeavours. It provides insight into consumer thought and perceptions towards fresh potatoes. It supports marketing and promotion to provide a voice for the industry, lift the profile of the potato and act against growing opposition. Furthermore, investigation of similar overseas potato marketing operations has added additional support and credibility to the project and its objectives.

Matt has toured potato growing regions across Australia and spoken to growers about marketing and other pertinent issues concerning potatoes. Visits to Western Australia, South Australia, Tasmania and Victoria have provided valuable first-hand feedback on grower opinions on where the industry is at and where it would like to be in the future.

"It is important that the growers and I see the industry as a whole as we fight against increasing and aggressively promoted competition," Matt said.

Matt has already outlined a plan for the next six months which includes development of an informative website, development of a nutritional report and educational kits to highlight the benefits of potatoes. These activities will be initiated while the Marketing Communication Plan project outcome takes shape.

Consumer knowledge of potatoes is poor. The industry has an ill defined image with consumers. Changing culinary and dietary habits are impacting on consumption. Cheap unhealthy imported food sells well. The marketing development project looks to address these issues and plan actions that will drive demand for fresh potatoes. Matt Wickham said that the potato needs to conjure up an image within consumers that is fun and exciting, convenient, healthy, tasty and versatile. It should also communicate the potato's amazing popularity with Australians.

Effective marketing and promotion will directly result in strengthening the position and longevity of the Australian Fresh Potato Industry.

PT06022

The Bottom Line

- Matt Wickham was employed in April 2007
- An initial investigative analysis to the production of tangible informative material that emphasises the value of potatoes has been conducted
- A short-term development plan has been outlined, components of which include development of an informative website, development of a nutritional report and educational kits

Potato R&D

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

Field trial data to help the potato grower

Potato growers throughout Australia now have a comprehensive collection of data to compare themselves to and look for possible improvements on their practices.

Chris Russell, Senior R&D Agronomist with Simplot Australia Pty Ltd in conjunction with numerous agronomic service providers, has spent the past four growing seasons collecting field data in different regions of Tasmania for collation into a detailed report.

The report examines the critical factors for successful crops – irrigation, plant population, soil nutrient levels, rotation periods and planting dates.

Chris said the report would allow farmers to compare their own results with the average for the top five producing crops in each season.

He said it was difficult to give a sweeping statement of the results, rather individual growers should compare their situation with what produced the best results locally and elsewhere, as recorded in the report.

"They can then make any fertiliser adjustments and compare their irrigation and so on to what produced the best results," he said.

Chris said the report provided many suggestions and approaches for farmers depending on their individual circumstances. However he recommended a cautious approach to making changes.

"Making major changes to an already successful approach can be a big risk," he said.

"The best idea is to trial new ideas on a small area before extending to larger areas."

In undertaking the trials, which looked mainly at Russet Burbanks, readings were taken on soil and air temperatures, soil moisture level, and the types of fertilisers applied and amounts used. Every two weeks the insect and disease presence was also recorded.

Conducting field trials can be a tricky business, as they are open to the vagaries of the weather. Chris said in the four years of the trial "we had a bit of everything". In the second year severe winds caused major damage. The following January there was very heavy rain, and the following year there was no rain at all.

So to get some consistent results the data was "seasonalised" so as to compensate for the extremes in the weather.

The project has now finished, and the team has delivered final presentations throughout the major potato growing regions of Tasmania.

However, while the trials are completed there is still further analysis to do.

"We collected a huge amount of data which we are still sifting through to identify any other findings," Chris said.

PT05027

The Bottom Line

- Field data on successful crops, mainly Russet Burbanks, is now available for Tasmanian growers to compare with their own crops
- Data is available on irrigation, plant population, soil nutrient levels, rotation periods and planting dates

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

New crisping potato to challenge the Atlantic

A new potato crisping variety is set to give the popular Atlantic a run for its money.

For years, Atlantic has been the most common crisping potato but recent trial results have identified a new variety with superior characteristics.

Results from trials harvested last year, and in January, found the new variety, when compared to the Atlantic potato, was higher in solids; had less bruising; was more uniform in size; more resistant to cold sweetening and, from a grower's perspective, was the only variety that could be successfully grown for winter production.

The evaluation trials, previously managed by Smith's Snackfood Company's Agronomy Manager, Kan Moorthy and now Peter Philp, are based in Queensland at Bundaberg and Gatton as well as Robinvale and Thorpdale in Victoria.

While, due to confidentiality reasons, Smith's Snackfood cannot divulge the potato varieties, Mr Philp said "in all key performance areas, the company's proprietary variety was performing well in the trials and showing promising results indicating it should exceed the Atlantic".

"In all the trials to date, the variety has a marketable yield similar to Atlantic but has better figures for solids and bruising," Mr Philp said.

"The uniformity of tubers are very even compared to Atlantic which gives an advantage for processing in conversion and also growers are getting the full bonus for size.

"The frying results produced a light coloured chip with white flesh."

Mr Philp said the variety matured a week later than the Atlantic, but could be used for the main season's crop.

He said one of the trials' greatest challenges was the changing seasons.

"Every year, no matter where we are growing, we have different environmental conditions to contend with compared to the previous year," he said.

Mr Philp said it would be about five years before the company's proprietary variety, if it passed all the quality tests, would be released for commercial use.

The next phases of the project are long and costly and involve bulk growing testing at Smith's Snackfood's processing plant and stringent qualification trials.

Participating growers harvesting potatoes for trialling.

PT05007

The Bottom Line

- A new crisping variety is showing signs of performing better than the Atlantic variety
- While yields are similar, the new variety performs better in solids and bruising categories
- More trials are to be conducted and it will be at least five years before the variety can be released for commercial use

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

Economic review 2007

Despite the drought and soaring petrol prices, Australia's economy had a good year. AUSVEG Economic Policy and Research Manager, Ian James, takes a look at how the economy performed in 2007 and the implications it has for growers.

Drought aside, 2007 has been a sensational year for the Australian economy. After 15 years of continuous expansion economic growth accelerated. Underpinning this growth was a strong world economy, boosted by a stunning performance in China and other Asian nations, despite a lukewarm US economy. Demand for Australian resources boomed and unemployment fell to record lows. Western Australia and Queensland once again outperformed due to their strong resources base but economic growth accelerated in other States as the benefits of the resources boom flowed through to manufacturing and service industries. The problem for economic management was not to engineer growth but to manage it.

As in past resources booms Australia was caught with its pants down. Infrastructure was stretched to the limit despite the creation of extra capacity from investment undertaken in 2005 and 2006. More noticeable was the glaring lack of labour particularly skilled labour. The anecdotal stories of large wage increases being paid to workers in the mining and infrastructure construction areas were economic reality. Nonetheless, unlike in the resources boom of the early 1980's the feared wages breakout did not occur. This was largely due to the labour market reforms which were introduced by the Hawke/Keating Government and reinforced by the Howard Government.

Monetary policy was concentrated on keeping inflation in check. The Reserve Bank increased interest rates in a vain attempt to reign in spending. Consumers largely ignored the warning as they continued rampaging through retail stores. Property prices accelerated once again as home owners upgraded, and investors piled back into real estate despite little economic rationale for their decision other than further speculative capital gains. And, to top all this off, superannuation funds were deluged with money as Australians took up new generous taxation concessions. But there were some hidden gremlins. Households achieved all this by going further into debt and interest payments as a proportion of income reached record levels. And not all Australians benefited. First home buyers found themselves increasingly locked out of the housing market and mortgage stress developed on the urban fringes.

Despite the boom in the global economy there were great concerns for the stability of world financial markets. The problem in lending for mortgages in the USA to less than credit worthy customers had global consequences because the risk attached to these loans had been transferred to world financial institutions. Central banks including Australia's Reserve Bank were periodically in the money markets to prevent a credit meltdown. On at least two occasions it was a close call. Of equal concern was the continuing acceleration in oil prices which raced to record levels.

While all this was going on the agriculture sector continued to battle with drought. The drought limited the ability of farmers to take advantage of strong export price rises especially in grains and dairy. Input costs accelerated with fuel, chemical and fertilizer costs all higher. The price of hay and other forage crops shot through the roof. As if to conspire against the rural sector, the rapidly appreciating Australian dollar creamed off the profits that were available on world markets for those farmers left with some product to sell.

While not a fantastic year for potato growers the problems in our industry were minor compared to the rest of agriculture. Nonetheless potato growers will be impacted by the long term consequences of climate change and the policy reactions that are and will continue to be put in place.

Make no mistake, the economics of farming in Australia has changed dramatically and the agriculture sector is facing major structural change. Economic forecasters, confidently expecting a bounce back after the devastating drought last year, have gone back to their calculators. After some promising autumn and winter rains, the failure of spring rain in many areas is having a devastating impact on the rural sector. The dry conditions are being exacerbated by record daytime temperatures of as much as two per cent above the norm throughout much of rural Australia. Livestock farmers are offloading stock and the prices of beef and lamb have been crunched. The forecast for the wheat crop has been halved from the June estimate. With stocks of hay at record lows after last year's drought the only saving grace is that grain growers may turn their failed crops into hay. But on present indications, by winter 2008 hay will be almost unprocurable.

For irrigators, especially those in the Murray-Darling Basin, the situation is catastrophic. Water is the new liquid gold. In economic circles there are questions being raised as to the sustainability of existing agriculture industries. The potato and vegetable industry is better placed than other agricultural industries in this debate due to its geographical location and the better returns that can be had per megalitre of water used. Water is critical and 90 per cent of potato and vegetable farms are irrigated. AUSVEG is fielding a number of queries from farmers seeking to switch from existing agriculture activities and into vegetables. So, in the longer term the impact on supply and hence price could be significant.

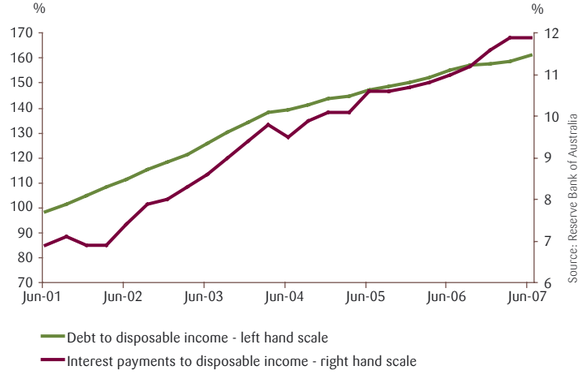
On the broader economic front looking, forward to 2008, the big risk to the Australian economy is from overseas. The fallout from the USA mortgage loan crises is yet to run its course and at some stage the accelerating price of resource based inputs especially oil must slow world growth. But most economists still believe that there is plenty of steam left in world demand for Australian resources. On the domestic scene, inflationary pressures are likely to deliver further interest rate rises and some overstretched households may have difficulty in holding on to their property. But overall most of the economic analysis suggests that this is unlikely to pose a systemic risk and that the pain will be confined to individual households.

Hang on to your hat. While prosperity is likely to underpin 2008 it could be a wild ride.

Consumers spend freely in 2007

Source: Australian Bureau of Statistics - Retail Trade Cat. No. 8501.0

Interest rates pressure households



Source: Reserve Bank of Australia

Management strategy for elimination of viruses from certified seed potato stocks in Tasmania

Research looks at new ways to stop the spread of PVS and PVX in seed potato crops.

Research for Horticulture Australia (HAL) reveals that in recent years Potato Virus S (PVS) and Potato Virus X (PVX) have crept into certified seed potato stocks in Tasmania.

"About five years ago we realised that PVS in particular was reasonably prevalent in our crops and so by testing every year, it's allowed us to determine whether the control measures are working or whether the viruses are still increasing in the seed potato crops," Dr Frank Hay, Research Leader Vegetable Group, Tasmanian Institute of Agricultural Research (TIAR), University of Tasmania said.

One of the difficulties in managing both PVS and PVX in seed potato crops is they don't show much in the way of symptoms in the field and can be easily missed during the certification procedure.

"If the industry wants to try and eradicate these viruses then they will probably need to institute laboratory testing for them," Frank said.

"But it's quite an expensive process and it all adds to the cost of producing the seed potato, and unfortunately that then gets passed on to the grower," he added.

"It's all a matter of the industry deciding whether they consider these viruses to be a significant enough problem that they justify the cost of increased testing," he said.

As well as assessing the extent of infection of PVS and PVX in the seed certification scheme, researchers looked at strategies to help growers manage the spread of the viruses, in particular by using chemical disinfectants on the cut surface of the tuber during seed cutting.

"The growers will cut their seeds so they get more than one seed piece from the tuber, to bulk them up. During this process these viruses can be transmitted from infected to healthy tubers," he said.

"It's often hard for growers to disinfect their cutting implements between each tuber or between groups of tubers, especially if it's a large machine cutting operation, it's impossible to sterilise the cutting equipment during each seed lot," Frank said.

"We're trying to investigate whether once the seed is cut we can treat it with a disinfectant that will kill any virus on the cut surface and prevent transmission without [damaging] the plant," he said.

Frank reported initial results showed promise and that research into disinfectants will continue this year.

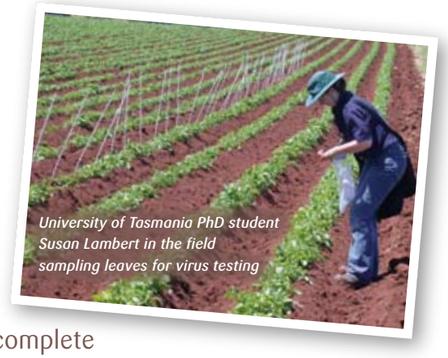
PT03069

The Bottom Line

- Potato Virus S (PVS) and Potato Virus X (PVX) have been identified in Tasmanian certified seed potato stock
- PVS and PVX show few symptoms in the field and can be easily missed during the certification process
- Research into management strategies is underway, particularly into using chemical disinfectants during seed cutting

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

Research refines PVS and PVX disease control strategies



University of Tasmania PhD student Susan Lambert in the field sampling leaves for virus testing

Although both Potato Virus S (PVS) and Potato Virus X (PVX) generally cause less than ten per cent yield loss when there's complete infection in the field, Dr Frank Hay, Research Leader Vegetable Group, Tasmanian Institute of Agricultural Research (TIAR), University of Tasmania said their presence may actually be preventing growers from reaching the yield potential that they require.

"Work we've done in previous projects suggests that in the variety Russet Burbank, for example, you can get about a five tonne per hectare penalty when there's 100 per cent infection in the field," Frank said.

"In this day and age when growers are making their profits off the last little bit of production that's quite significant," he said.

Building on earlier projects, researchers were able to gain a better understanding of factors that contribute to the spread of the virus and possible control measures.

For example, investigation into the spread of PVS and PVX through plant to plant contact confirmed both viruses are mechanically transmitted.

"If you get sap from an infected plant and rub it on a healthy plant you'll get transfer of the virus through wounds," he said.

Frank explained growers can help reduce the spread of PVS and PVX by restricting the movement of machinery such as tractors and irrigators through the crops, for example by aerial spraying or by providing clear laneways for irrigators to move.

Controlling weeds and improving hygiene through the use of easy-to-clean plastic bins and by developing in-field wash down procedures for machinery can also make a difference.

"Growers should isolate early generation crops from later generation crops both physically in the field and during grading and cutting," Frank said.

During cutting operations, growers can also limit virus transmission by disinfesting equipment.

"Both PVS and PVX have the potential to remain infectious on surfaces for several days," he said.

Frank said that another key factor in managing PVS and PVX is through strict adherence to the National Standard for Certification of Seed Potato. In Tasmania routine laboratory testing has been carried out to help identify infections early.

"Highly infected crops can then be removed from the seed scheme," he said.

Information gained from these trials and ongoing research will be used to further refine management strategies for the control of these viruses.

Dr Frank Hay

PT05011

The Bottom Line

- Potato Virus S (PVS) and Potato Virus X (PVX) is affecting Tasmanian growers' yield potential
- Research into management strategies is building on work conducted in previous projects
- Controlling machinery movement through the crops, weeds and improving infield hygiene practises can reduce spread of the diseases

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

Virus survey a boost for seed supply

Seed potato buyers and sellers are benefiting from a project which assessed the plant virus threat to some of Australia's leading seed growing areas and provided practical solutions for dealing with it.

A well grown crop of Coliban certified seed potatoes

The project involved leaf sampling of 900 seed potato plots throughout Victoria and in South Australia during the 2005/2006 and 2006/2007 seasons. It was conducted along similar lines to recent virus surveys in Western Australia and Tasmania. More than 65,000 leaves were collected and tested for five viruses.

The Victorian Certified Seed Potato Authority (ViCSPA), which provides professional seed certification and quality assurance services in Victoria, NSW, South Australia and Tasmania, ran the project.

Project Leader and Manager of ViCSPA, Keith Blackmore, said the testing revealed that, apart from a few exceptions, the overall health of the seed plots was good.

"We found no Potato Virus X (PVX) despite its detection in other parts of Australia and only low levels of the viruses considered mainly responsible for significant crop losses - Potato Leaf Roll Virus (PLRV), Potato Virus Y (PVY) and Tomato Spotted Wilt Virus (TSWV)," he said.

"Potato Virus S (PVS) was found to be widespread throughout the districts," he said.

Keith said although the overall health findings were pleasing the surveys did identify infected lines that needed to be withdrawn from certification.

"The surveys also identified a need to improve management practices to reduce the spread of PVS," he said.

"PVS is not known to have a significant yield effect but it can cause problems when combined with other viruses."

The project enabled growers to replace seed infected with serious viruses and provided them with timely advice on how to improve the management of early generation seed plots. ViCSPA will also use the survey results to develop future policies for virus monitoring of growers stocks.

A team of ViCSPA certification officers collected the thousands of survey assisted by dozens of growers. Testing was carried out by researchers at the Victorian Department of Primary Industries Crop Health Services laboratory at Knoxfield.

Laurie Shaw, one of the growers who participated in the project, said the testing program provided growers with a favorable benchmark of the disease status of their seed stocks.

"By eliminating seed shown to be virus-infected it will provide us with economic benefits," Laurie said.

Keith said the replacement of infected seed would result in fewer certification rejections and more consistent supply of seed potatoes for commercial growers next season.

"Seed certification is the foundation on which the future of the potato industry rests and projects such as this help to ensure that foundation remains sound," he said.

PT05010

The Bottom Line

- An assessment of potato plant viruses in South Australian and Victorian crops has been carried out
- Potato Virus S (PVS) was found to be widespread in crops
- Low levels of Potato Leaf Roll Virus (PLRV), Potato Virus Y (PVY) and Tomato Spotted Wilt Virus (TSWV) were found
- Potato Virus X (PVX) was not found

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

National PCN Plan for industry under way

With heightened concern in the industry regarding the potentially disastrous consequences of Potato Cyst Nematode (PCN), work is underway to manage the threat. Project leader, Laura Bowles, updates the progress.

The project to put together a national PCN plan was instigated by the potato growing members of the board of AUSVEG. The need for a national plan has been paramount for the potato industry, but past attempts had failed for various reasons.

This time the project will see a completed document that will become a standard for the national industry.

The beginning of the project saw universal agreement amongst the invited members on the Working Group that now was the time to get something together to deal with PCN with a national focus. The meeting was based around identifying what needed to be done in order to get a national plan together. Various projects were identified, which include an investigation into the way PCN outbreaks would be handled interstate, and the main one being a risk management plan – the document that the plan will be based around. The existing 'PCN technical document' that was developed by the National Technical Working group was designated to also be used as a base document that scientific-based arguments for certain parts of the management plan can be argued against.

Despite a feeling of negativity from the broader industry, the Management Plan Working Group went on to meet a second time, with the agreement from all state representatives that a recommendation of under grader sampling should be taken out to the broader industry. A document investigating the sampling methods was commissioned, and the document was deemed feasible by all on the Working Group, with only a few amendments suggested. The actual implementation of the sampling caused a halt in the industry however, with the question about who is to fund the project still unanswered.

At the third meeting, sub-groups began work on the last few documents required before the management plan can begin to form. The groups will bring together the difficult sections of the plan and provide reference documents based on science and research.

The project will continue into 2008, with a draft plan expected to go out to the broader industry mid-year for comment.

PT06018

The Bottom Line

- A national plan to deal with PCN is being developed
- Research has been conducted into how PCN outbreaks are handled by the states and a risk management plan is being formulated
- A draft plan is expected to be available for comment in mid-2008

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

Arnotts Crisping Potato Variety Evaluation 2006-07

New potato varieties show promise for the crisping industry

Potato varieties currently being trialled by Arnotts Snackfoods are showing encouraging signs they can be stored for longer periods, creating potential to reduce losses in the processed potato industry.

"The biggest thing for us at the moment is that some material is showing promise for storage capacity," Allan Smith, National Agronomy Manager for Arnotts Snackfoods, said.

"We can see how that trades off against yield or other performers."

While analysing the storage capability of new varieties isn't the main focus of the project, it is an important factor in reducing losses for the processing industry which due to logistics within the supply chain, is forced to rely on potato storage.

The project, which is the latest stage in ongoing trials to eliminate problems encountered in current processing varieties, has involved assessing cultivars for performance in four key areas for the competitive snack food industry:

- improved yield
- resistance to disease
- the tendency of the variety to convert starch into sugars in processing
- increased solids

New varieties are developed and evaluated for factors that will improve competitiveness, including issues such as cost efficiencies.

"One of the best ways to do that is by improving yield," Allan said.

Other methods include using varieties that are less susceptible to diseases and variations in the environment which creates improved agronomic and processing efficiencies, reducing the risk to the processor and the grower.

"There are a number of traits in a potato that can have a significant impact in the way a factory converts the potato into chips such as the level of solids in the potato, and the amount of product waste due to shape, blemishes and disease," Allan said.

While yield drives cost efficiencies, which is the biggest leverage a grower has to improve return on a potato crop, Allan indicated the ability of potatoes to resist turning starch to sugar in cold environments is a key opportunity for the Australian growing industry.

Allan indicated the program has become more focused and the trial work more sophisticated in recent years, with the data collected by the evaluation program a valuable tool for potato breeders.

Work is expected to continue until late 2007.

PT06010

The Bottom Line

- Trialled varieties are showing possible storage benefits
- Current trials are yet to be concluded
- Information gathered is being fed back to potato breeders

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

Rotation trials shed light on soil diseases

Rotation trials have provided researchers with many insights into the world of soil-borne pathogens, helping to unravel the key soil-borne diseases of potato crops.

A project finished in 2004, *'Understanding the implications of pastures on the management of soil-borne diseases'*, looked at the impact of a one, two or three year pasture phases involving different pasture and fodder species, such as white clover, perennial ryegrass and fodder rape, on the major potato diseases.

Medium to long term pastures are a feature in major potato production areas in Australia.

A particular focus of the project was the fungus Rhizoctonia solani, the cause of stem canker and black scurf, which is able to grow and survive on the roots of most pasture species and rotation crops, in the absence of potato plants.

It was important to work out whether Rhizoctonia would thrive on root systems of some species over others, according to Victorian Department of Primary Industries' Researcher and Project Leader, Dolf de Boer.

Dolf said knowing the plant species that were less likely to host Rhizoctonia type fungus had important implications for how growers managed the pasture before sowing potatoes.

In the trials, there was a trend towards clover and fodder Brassica supporting more Rhizoctonia than grass pasture. However, in the short time these trials the impact of these trends on Rhizoctonia disease in potatoes after pasture was not clear cut, Dolf said.

"The Rhizoctonia story is complicated by the presence of different 'strains' called anastomosis groups such as AG-2 and AG-3," he said.

"Each has preferred hosts, although they may also be found in 'non-host' crops."

"The AG-3 strain prefers potatoes, whereas the AG-2 strain prefers the fodder Brassica and legumes and doesn't readily damage potatoes. Without the recently developed rapid DNA diagnostic tests, the relative abundance of the AG-3 and AG-2 strains could not be determined easily," Dolf said.

"Our research has shown that the AG-3 strain can survive on the root systems of clover and fodder Brassica. If it turns out that AG-3 thrives better in the fodder species than in grasses then managing the pasture content may reduce populations of the potato strain of Rhizoctonia," he said.

This work is continued in Sub Program Four of the Potato Processing Research and Development (PPR&D) program, Optimal Crop Rotations for the control of potato soil-borne diseases and has the advantage of new DNA-based tools for monitoring populations of the key potato pathogens, including strains, throughout the rotation.

PT04001

The Bottom Line

- Research has been undertaken into pasture effects on potato diseases
- Effects on Rhizoctonia was a major focus of the work
- Work is being continued in the PPR&D program

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

PCN-free status set to open export doors

Western Australian potato growers may soon have access to previously restricted export markets if researchers from the Department of Agriculture and Food, Western Australia succeed in proving the State to be completely free of Potato Cyst Nematode (PCN).

"It will definitely be great for export if we can prove area freedom", said Dr Sarah Collins, Research Officer. "PCN has such a huge financial impact internationally, and particularly for seed growers, being able to produce seed that is PCN-free will be incredibly valuable."

Under the project, Sarah has been issued the task of collecting empirical evidence to support the claim that Western Australia is PCN-free. If her statewide survey is successful, WA will become the first territory internationally to scientifically prove and claim the status of PCN area freedom.

PCN has not been detected in Western Australia since the period between 1986 and 1989, when the disease was discovered on six properties within the Perth metropolitan area. Following a period of quarantine, and the introduction of testing and monitoring protocols, the disease appears to have been eradicated.

"At the time they did such a good job of sanitising and placing restrictions within the exclusion zones of those areas, that PCN has never been detected since," she said.

Yet, despite the lack of recurrent outbreaks over the last two decades, growers are still required to conduct expensive testing and monitoring of their crops, especially if they seek to sell product overseas.

For the last two years, Sarah has been collecting soil samples from each potato growing area in the state.

She says growers in WA have been proactive in keeping the nematode at bay by employing good growing practices.

"In general, WA growers use PCN-resistant potato varieties, regularly rotate their crops, and keep an eye on what is happening in their paddocks," she said.

Once sampling is complete, she will embark on an extensive soil analysis using a new molecular test developed to detect very low levels of PCN in the soil. Due to bans on the transport of PCN-infected material into WA, Sarah has been developing the test using an alternative pathogen – cereal cyst nematode (CCN).

"CCN has the same growing characteristics as PCN, and we have developed genetic markers for CCN, which allow us to identify its presence. Once the test is up and running, we'll take it to New Zealand, where we can test its effectiveness on PCN."

PT04004

The Bottom Line

- Project is underway to prove WA is free of PCN
- A new molecular test has been developed to test soil for very low levels of PCN
- If successful, new export markets will become available to WA's potato industry

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

Drought no obstacle to fresh market results

A Victorian project aimed at identifying new potato varieties for the future fresh market in Australia has achieved positive results again this year despite some extra hurdles caused by drought.

The project has involved a series of assessment trials and testing of potential new varieties selected each year from the Victorian based National Potato Breeding Program since 2003.

Leader of the project team, Keith Blackmore, said water shortages reduced yields and tuber numbers during the 2006/2007 trials. As a result the assessment team was unable to recommend any new varieties for release this year. However the trials and subsequent tests did identify 10 cultivars considered worthy of further assessment.

Keith said though dry conditions limited crop emergence and yield, several new cultivars performed well under stress and out-yielded the standard variety Sebago and Coliban lines planted for comparison. A G3 selection which produced good yields and attractive tubers, and proved suitable for boiling, was among the most impressive cultivars recommended for further evaluation.

The 2006/2007 trials were held near Thorpdale in southern Victoria, the area where all the project trials have been held since 2003. As in past years growers played a key role making land available for trial plots, helping out with plantings and later with the assessment of cultivars during a barbecue lunch at harvest in March this year.

Des Jennings, a seed grower who helped instigate the project and has been actively involved ever since, said it has provided a unique opportunity for growers to participate in the assessment process and to compare the performance of new varieties first hand.

Keith, who has led the project since its inception, is the Manager of the Victorian Certified Seed Potato Authority (ViCSPA). He said the success achieved under difficult conditions was a tribute to the work of Laura Bowles of Ag Challenge Consulting, who played a key role in the research.

Keith said the 10 cultivars that have shown potential would be included in further of trials this coming season along with another selection of new cultivars from the national breeding program.

"As a result of changes to the breeding program individual companies and industry groups will soon become responsible for their own testing regimes for new varieties," he said.

"This evaluation project may provide one of the last opportunities for industry interests to tender for varieties that have been trialed for them."

PT06024

The Bottom Line

- No new varities have been recommended for release, but several have shown promising results
- A G3 variety suitable for boiling has shown good yields under stress and produced attractive tubers
- Water shortages have impacted trial yields

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

VEGETABLE INDUSTRY AWARDS 2007

vegetable industry CONFERENCE 2007

Keynote presenter, Woolworths CEO Michael Luscombe

Minister for Agriculture, Fisheries and Forestry, Peter McGauran, at the Gala Dinner

The 2007 AUSVEG Awards Gala Dinner

Potatoes clean up at Vegetable Conference

At this year's Vegetable Industry Conference, potatoes were a hit. AUSVEG Communications Coordinator Toni Davies explains.

Potatoes featured prominently at the Australian Vegetable Industry Conference held at the Sydney Entertainment Centre in May, 2007 as part of the 'Vegetables Claim Centre Plate' campaign.

The conference was a resounding success with 500 members of the vegetable and potato industry attending sessions with key note speakers such as Michael Luscombe, CEO, Woolworths, David Palmer, Managing Director, MLA, Professor Peter Cullen, Commissioner, National Water Commission, Nick Rodd, Director, Menu Management, McDonalds Australia and Robert Belcher, Chair, Sustainable Agricultural Communities Australia.

The main plenary sessions were well supported by potato and vegetable streams where speakers presented on a diverse range of topics relating to their specific expertise. The potato streams were extremely well attended with several international speakers and leaders from the Australian potato industry making the journey to Sydney. Conference delegates were updated and informed on PCN, potato breeding, global challenges and successful marketing strategies – all vital ingredients to growers' success and livelihoods.

The fresh potato industry invited Glenda Gourley from Horticulture New Zealand to discuss the strategies that have been implemented in the New Zealand domestic market primarily at point of sale. The work undertaken by Horticulture NZ and Glenda has also been instrumental for AUSVEG, Marketing/Communications Executive, Matt Wickham in the development of an action plan to advance the Australian fresh potato industry. Matt conducted a marketing analysis on the fresh potato industry within Australia and presented his findings at the conference.

Finlay Dale from Scottish Crop Research Institute was a guest of the processed potato industry. Finlay who specialises in genetics and potato breeding also provided a wealth of information on PCN and the control and management of the disease being undertaken in the United Kingdom.

A highlight of the potato streams was a presentation on the 'effects of agribusiness on the potato industry' by Peter Jacobs, Head of Agribusiness, ANZ Regional and Rural Division. Peter provided some interesting facts and advice for potato growers in an informative, concise, yet realistic manner. Peter's presentation generated much interest and he has since conducted many such talks to various groups within the Australian potato industry.

While planning topics for the potato streams, it was felt that delegates would benefit from cross industry know-how on a topic of interest to growers. AUSVEG were fortunate to feature Dr Rob Bramley, Principal Research Scientist, Precision Viticulture, CSIRO Land and Water, to speak on precision agriculture. Rob who has undertaken work in the areas of chemistry and fertility of soil phosphorous and the impact of rural land on water quality, spoke on precision agriculture and its effect on the Australian potato industry, a system that will play a major role in the future of Australian agriculture.

Courtesy of Bayer CropScience, great supporters of the Australian Vegetable Industry Conference was Dr Eric Allen, Director, Cambridge University Farms to speak on 'opportunities and challenges for the Australian potato industry in a changing global market'. AUSVEG was delighted to have a presenter with Eric's vast experience speak to delegates. Our sincere thanks to Bayer CropScience for their contribution.

The Potato Processing Industry Advisory Committee sponsored a trade display highlighting the projects operating in the Potato Processing Research and Development program (PPR&D) taking place in Australia as part of a five year project. Various project leaders and researchers involved in the program spoke at the conference and demonstrated to delegates the importance of their ongoing research and development work which is partially funded by growers via National Potato Levy funds.

Dr Nigel Crump, Potato Pathologist, Department of Primary Industries, Victoria (DPIV), spoke on R&D tackling diseases in the field and in conjunction with Laura Bowles, Executive Officer; Victorian Potato Growers Council, presented an update on PCN and the current PCN projects Management Plan Group issues.

The National Breeding Program, Manager, Tony Slater, outlined the future of the program and its direction in relation to the Australian potato industry for which it has been customarily designed for. Latest molecular techniques to quantify potato pathogens in the soil and enhancing resistance to common scab within commercial cultivars were presented by Robin Harding, SARDI and Calum Wilson, Associate Professor, TIAR.

After two days of industry talk and information delegates were invited to relax and enjoy themselves at the Vegetable Industry Awards 2007 where five of the industry's best individuals were honoured.

The Honourable Minister for Agriculture, Fisheries and Forestries, Peter McGauran MP, attended the awards dinner to recognise the efforts of growers, researchers and members of industry that have excelled in their field.

A potato grower from South Gippsland, Victoria, Michael Mancarella was a finalist in the Young Grower of the year award. Michael, who joined his parents' enterprise in 1991, has developed a keen knowledge of the potato industry. He sought to value-add his potatoes in 1993 by packaging brushed potatoes into a selection of plastic bag and cardboard carton weight ranges. This resulted in a more secure and reliable product for the markets.

Michael has also been involved in various research projects in conjunction with the Department of Primary Industries, Victoria conducting field trials in Thorpdale, Victoria.

The next Australia Vegetable Industry Conference will be held in 2009 in Melbourne.

PT05010

The Bottom Line

- The Australian Vegetable Industry Conference,held in Sydney in May 2007, was well attended and supported by the potato industry
- Guest speakers included Woolworths CEO Michael Luscombe, Professor Peter Cullen, Commissioner, National Water Commission and Nick Rood, Director Menu Management, McDonalds Australia
- Potato research lectures were well supported by industry

Potato R&D

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

National Potato Breeding Program

Over the last year the National Potato Breeding Program has been actively developing and screening new potato selections suitable for Australian conditions and markets.

Since 2003 the program has been operating under separate but similar business models for the fresh and processing sectors of the Australian potato industry. The fresh program has had guidance from an industry committee to ensure that industry interests are represented, and material from the program has been evaluated by fresh industry trials before the evaluating group recommends cultivars for commercialisation. The processing program has been separated into a number of programs representing the commercial interests within the sector. Each of these programs has had guidance from interested companies, and material from the program has been evaluated by the interested company against its production, processing and market criteria.

The growing season saw 13 replicated trials at Toolangi, as well as the G2 selection plots, the G1 field seedlings and the Go glasshouse seedlings. The material that progresses through the trials is evaluated against criteria provided by the industry representatives. The selections are screened for plant structure and maturity, tuber size, shape, evenness and any internal defects, postharvest cooking qualities, specific gravity, dormancy, bruising, greening and disease susceptibility. Advanced selections are then provided to the relevant industry for evaluation.

Despite the short timeframe of this program, the industry evaluation trials have seen the progression of a number of selections towards commercialisation. Expressions of interest have been received for material in both sectors and the industry will see a number of new cultivars in the near future that could replace some of the main cultivars in the Australian market.

New Investment Model

Over the last year the results of the various reviews conducted by Horticulture Australia (HAL) saw the development of a new investment model for the National Potato Breeding Program. The investment model proposed that commercial investment be sought for the development of commercial cultivars. If a minimum level of commercial support was found then HAL would continue to support a scientific program to develop potato material with traits that are important for the future of the Australian industry.

The required investment was pledged from various industry sources and HAL have approved the funding of the commercial "Cultivar Improvement" program, and the second program "Strategic Trait Development" to develop parents with desired traits in potatoes that are adapted to Australian conditions.

The program to develop traits in potatoes that are adapted to Australian conditions will look to develop material that will benefit all the programs in the future. The aims of this program have a longer outlook. This program will be looking at cultivars that have disease resistance, produce healthier potatoes and yet perform with reduced natural resources.

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Potato R&D

Allan Smith, President of the Potato Processor's Association of Australia

The Potato Processor's Association Australia

The Potato Processor's Association (PPAA) reflects the somewhat unique position of processed potatoes compared to most other vegetables. PPAA President Allan Smith explains.

Potato processors have a large, longstanding role and investment in the processed potato supply chain. As such they rely on development of the processing potato supply chain for ongoing industry viability.

PPAA primarily aims to provide a united voice on issues of common concern in the processing of potatoes. It has been involved in a range of issues over the past 15 years including potato research, R&D levy management, food health and potato pest and disease management.

It is hard to escape the debilitating effects of the ongoing drought on agricultural supply chains across Australia. Although PPAA is acutely aware of the impact on potato growers there have also been some other activities over the last 12 months to note.

With AUSVEG, the PPAA provides a peak industry body representation to government and relevant bodies such as HAL. Recently the PPAA and AUSVEG signed a memorandum of understanding which formalises the relationship between the two organisations. Although not legally binding it does provide a platform for ongoing cooperation and coordination on issues of benefit to the entire industry.

To date the benefits have been expressed in PPAA involvement and contribution to the potato group and the PCN management working group.

David Antrobus and I were grateful to have been able to attend a meeting of the PCN Working Group. Although it is has been a long and difficult road to get to where we are now and challenges remain, it is pleasing to see progress.

Given the investment by processors to the national R&D levy, the PPAA is directly involved in providing advice on the expenditure of the levy through its representation on the IAC. It has played a major part in developing the PPR&D program, launched in 2003. Planning is now well underway for the next stage of the program and the PPAA is actively involved in the process which should capitalize on the achievements of the current program and take the Australian potato R&D to a new level.

The relationship with AUSVEG also provides an opportunity to drive other issues of benefit to the industry. One of these is the raising of the consumer perception of potatoes in general. Although this has been an issue for the table market for some time, there may be an opportunity to build a whole of industry approach and include processed potatoes in a wider industry push to consumers.

PPAA
Potato Processing Association Australia

Planning for a global future

Potato Industry Strategic Plans 2006 - 2011

As the Australian potato industry moves into a period of intense global competition, rising costs and declining world prices, a strategic plan is imperative in the investment of levy funds and leadership focus. AUSVEG Communications Coordinator Toni Davies explains how the plan establishes clear goals and aims to achieve them.

Members of the Australian potato industry met in October 2006 to workshop and develop a strategy to take the Australian potato industry forward until 2011.

The participants included stakeholders, growers, researchers, processors, chemical company representatives, supply chain operators and retailers. This broad ranging group provided input essential in developing a plan which would provide sustainable change with a commercial focus for the industry.

The development of an industry strategic plan is essential for the fresh and processed sectors of the Australian potato industry. With both sectors requiring different strategic outcomes two plans were devised to ensure all facets of the industry were catered for.

A four step process was used to establish the strategic imperatives needed to achieve the 2011 vision. The plan was developed in conjunction with the overarching national vegetable industry plan, VegVision 2020, being implemented by the Australian Vegetable Industry Development Group (AVIDG) which has an entire vegetable industry focus.

General consensus was that to achieve enhanced profitability and sustainability, increased value of category and to deliver quality potato products for the Australian potato industry by 2015 the strategic imperatives required would be to;

- Improve consumer awareness for Australian fresh/ processed potatoes
- Improve industry competitiveness
- Improve industry communication and information systems
- Improve leadership and management capability

These strategies have been built over a three stage timeframe.

- Short Term – action and project plans set with one to three year outcomes for ease of management and clarity of action
- Mid-ground – Implement strategies within a five year period
- Far Horizon – Industry vision set at 2015

Issues of concern to the fresh potato industry have resulted in inconsistent activity in the areas of promotion and marketing. Current domestic consumption is in decline with an estimate of 63 kilograms per person, per annum.

Therefore, a major focus for the fresh industry is to improve consumer knowledge and understanding of the product, develop value added products and to explore export opportunities, basically to get people eating more spuds!

These issues have been considered during the development of the strategy and in addition the fresh industry has taken a step forward in addressing their needs through the employment of Matt Wickham under the market development project.

The processing sector of the potato industry has a different focus from that of fresh, as their marketing function is predominately driven by processing companies. Processed potatoes are Australia's number one vegetable crop, accounting for approximately 20 per cent of total production.

The processing industry operates in a competitive global marketplace and in order to remain viable in the long term, it must monitor and keep abreast of other global markets. The industry is a high cost producer (by global standards) selling to a low cost, high value, demanding consumer.

The larger Australian supermarkets are moving upwards of 30 per cent to private label products which are primarily sourced from imported products. This, teamed with the fact that consumers are buying based on price rather than locally grown product generates the need for the processing potato industry to be prepared to meet these challenges head on.

Leadership and succession is a major focus for the industry going forward. Industry perceptions are that the Australian potato industry lacks cohesion, a profile and a 'single voice'. The industry is fragmented, with a number of organisations representing industry at national and state levels. The fragmentation results in the duplication of work and inefficient use of valuable resources.

The Australian potato industry is a small player in the global scheme of things, therefore industry leaders, and those with the expertise and skills to take the industry forward need to provide a united front.

Due to an ageing population, another key issue facing the industry is farm succession. Figures indicate that many growers will want to 'hand over' the farm to the next generation, but there is unwillingness for them to pursue farming as a career.

These factors and other issues, combine to confront an industry, who whilst aware they need to perform in a changing world, also needs to remain strong and viable to secure the future of the Australian potato industry.

Planning is essential to this success and the Australian Fresh/Processed Strategic Plan is a decisive step forward. The communication function is a vital tool to the success of this plan and a united, whole of industry focus will ensure the vision and outcomes are achieved. The strategic plans are available in detail on www.ausveg.com.au

Seed Potato Advisory Group Update

The Seed Potato Advisory Group is tasked with developing and maintaining a relevant set of National Standards for Certification of Seed Potatoes for the benefit of the Australian potato industry. The group meets annually to review the National Standards to ensure that they continue to meet industry needs. Any proposed changes to the standards are presented to industry before being recommended to AUSVEG the peak industry body for incorporation into the National Standards. The group also benchmarks the Australian National Standard against other schemes around the world to ensure that the seed potato industry remains at the forefront of world standards and that any technological advances are, where appropriate, incorporated into the scheme.

The Seed Potato Advisory Group will meet again on the 27th November in Tasmania. The outcomes from that meeting will be reported in the next edition of *Potatoes Australia*.

The following changes to the National Standards were recommended at the last meeting:

1. The following clause should be added to the National Standards, "At the desecration of the certification officer tubers may be cut open to inspect for internal defects."
2. A full list of potato diseases, pests and defects is to be included in the National Standard (published in *Eyes on Potatoes* Vol 26 December 2005)
3. A standard operation protocol for in field leaf virus sampling is to be included in the standards
4. National variety collection is to be regularly virus tested to ensure its health status.

For more information on the National Standards for the Certification of Seed Potatoes please contact Dr Iain Kirkwood tel 03 6427 2348 or e-mail Iain.Kirkwood@dpiw.tas.gov.au.

The following table details the areas of each potato variety that passed certification in Australia between 1 July 2006 and 30 June 2007.

Variety	Area in hectares that passed certification
Atlantic	547.74
Bintje	1.89
Bismark	2.81
Bison	6
Bliss	0.41
Brownell	0.56
Catani (86-34-4)	4.5
Coliban	299.82
Crystal	0.3
Delaware	29.5
Denali	4.1
Desiree	98.84
Dutch Cream	1.23
Exton	19.1
Granola	4.62
Kennebec	50.505
Kennebec (line 2)	6.3
King Edward	1.36
Kipfler	2.61
Knox	2.8
Lady Crystal	0.4
Lady Rosetta	2
Lustre (92-19-10)	13.4
Nicola	19.57
Nooksack	6.6
Onka	7.8
Otway red	2.1

Variety	Area in hectares that passed certification
Pike	34.9
Pink Eye	10.69
Pink Fir Apple	0.29
Pontiac	11
Purple Congo	1.29
Ranger Russet	66.18
Red Norland	0.2
Red la Soda	1.3
Ruby Lou	14.8
Russet Burbank	565.29
Sebago	23.6
Sebago (New Brunswick)	21.3
Sebago (line D)	115.7
Seqouia	19.15
Shepody	82.07
Simcoe	15.5
Snowgem	1.5
Spunta	19.27
Tasman	0.69
Trent	24.5
Umatilla	39.5
Up-to-date	1.29
Wilwash	26.2
Wontscab	7
Yellow King	0.8
PVR Varieties Total	**689.6**
Total	**2929.875**

Communications Update

Communications are an important factor of any industry and the 2006/07 year has seen many changes and enhancements to the communication function within the Australian potato industry. AUSVEG Communications Coordinator Toni Davies updates the progress.

Initially the 'spud team' at AUSVEG consisted of Communications Coordinator, Toni Davies but with the advent of a new magazine and an increased workload, Simon Adams was employed as part-time as Editor of *Potatoes Australia*. A project undertaken by the Fresh Industry Advisory Committee introduced Matthew Wickham in a market development capacity and hence, the 'spud team' was complete!

These projects are funded by HAL using potato levy and matched funds from the Australian Government.

A designated point of contact for potato communications, publications, education and health promotion has allowed communication activities and issues to be managed quickly and professionally.

To enable research and development (R&D) results to flow into actions at farm gate, effective methods of communication to growers must be established to ensure success. Effective tools in communicating potato R&D outcomes are the potato publications, *Potatoes Australia* and the annual *Potatoes Australia Review*.

Potatoes Australia was introduced in October 2006, replacing *Eyes on Potatoes*. The magazine and its fresh new design has been well received by growers and industry, and continues to improve as it evolves.

In October 2006 members from the Australian Potato Industry met to develop new strategic plans for both the fresh and processed sectors of the industry, through a series of workshops. The outcomes from the plans have been included in the existing SOCOM, Potato Industry Communication Plan (January 2006).

The strategic plans were developed to align with the VegVision 2020, the overarching strategic plan for the Australian vegetable industry managed by the Australian Vegetable Industry Development Group (AVIDG). The execution of the Potato Industry Communication Plan is ongoing, and progress is monitored regularly to ensure the methods used to convey information within the industry is compliant as the industry moves forward.

AUSVEG has introduced two branding strategies. A National Potato Levy funded logo which was introduced in August 2006. The easily identifiable logo indicates to growers where their levy funds are being spent. The R&D logo has been well received and is now seen accompanying all R&D funded by the levy.

The Potato Processing Research & Development Program (PPR&D) also has a new logo. Work continues on the overall PPR&D branding strategy with the objective being to establish an easily identifiable research program for all national and international partnerships.

The potato section of the AUSVEG website has undergone some major changes including new sections and the benefit of all projects loaded. The site has also experienced an increase in registrations to the grower portal due to the promotion of the resource that has taken place throughout the year.

Liaison continues with the PPR&D Program Coordinator and Sub Project Leaders on the five projects currently operating. Information from Technical Committee meetings, project updates and outcomes are conveyed to growers via the magazine or website.

A range of promotional banners and posters for the potato R&D program were made for the project leaders to use whilst presenting at conferences in Canada, New Zealand, United States of America and for the Australian Vegetable Industry Conference held in Sydney. As outcomes and developments from the projects arise promotional material will be reviewed and updated accordingly.

With 2008 being the *International Year of the Potato* it is envisaged that the communication function will be the vital connection between growers, industry, researchers and related agencies.

Potato R&D

PPR&D Program Update

What the PPR&D program is all about

Australia's potato processing sector is mid-way into a major $14 million research program, the Potato Processing R&D Program, that aims to lift the global competitiveness of the country's industry.

The Processing Potato Research and Development (PPR&D) Program is a five year initiative (2004 to 2009) of the Processing Potato Industry Advisory Committee (PPIAC) in collaboration with several different national and international research institutes. It was developed in order to expand the resources available to tackle industry issues. The programs aims to focus grower levy and state and international funding towards tackling four of the most financially damaging potato diseases facing the Australian industry today. Common scab, powdery scab, Rhizoctonia and Tomato Spotted Wilt Virus (TSWV) collectively cause up to $50m worth of crop losses or rejections each year. The program aims to increase our understanding of these diseases in order to develop practical integrated control strategies to limit their impact on the potato industry.

Currently there are five research centres collaborating on the program. The Tasmanian Institute of Agricultural research is the coordinating agency and manages the crop rotations, enhanced common scab resistance, and TSWV marker development, sub-programs. The Department of Primary Industries Victoria (DPIVIC) manages the soil amendments and disease resistance sub-programs. The South Australian Research and Development Institute (SARDI) manages the diagnostics sub-program. Crop and Food New Zealand works on the powdery scab control sub-program and Agriculture and Agri-food Canada works on the common scab management program. The program leaders have recently visited the UK and aim to develop several further collaborative sub-programs with research centres there (coordinated centrally through the British Potato Council).

The program also aims to maintain and increase the research resources available to the potato industry by encouraging graduates to continue their research careers in agriculture by registering for PhD and honours studentships as part of the program. To this end the program is currently supporting a number of PhD and post doctoral positions.

The following five updates detail the progress over the past 12 months in each of the main PPR&D sub-programs.

DNA probe tests - Development of DNA probe tests firstly as a research tool to rapidly detect and quantify pathogens and eventually as a tool to help growers assess their disease risks.

Resistance screening - To consolidate and develop disease screening protocols to enhance the development of disease resistance in the Australian potato breeding program.

Soil amendments - To understand how organic and inorganic amendments affect soil health and disease severity and show their practical use in potato production.

Crop rotations - To improve the industry's understanding of how commonly used crop rotations affect disease survival and incidence.

Enhancing resistance - To investigate new ways to enhance resistance to common scab through somatic cell selection and selection of lines with resistance to tomato spotted wilt virus through developing genetic markers for resistance genes.

The program is jointly funded by the Australian Government through Horticulture Australia Limited and the National Potato Levy, with major contributions from the Tasmanian Institute of Agricultural Research, South Australian Research and Development Institute, Victorian Department of Primary Industries, New Zealand Crop and Food Research Institute and Agriculture and Agrifood Canada.

For more information, visit the potato levy payers' only section at www.ausveg.com.au and search under 'PPR&D' or PT04016.

Dr Kathy Ophel-Keller

Developing DNA tests to measure pathogens in soil and seed

The overall aim of this program has been to develop DNA-based tests which can measure disease-causing organisms (known as pathogens) in soil and seed, both as a tool to help researchers but ultimately as a means for growers to determine risk of pathogens when planting a crop.

Tests have now been developed for the pathogens which cause powdery scab, common scab, *Meloidogyne fallax*, and five different groups of Rhizoctonia.

These tests have been shown to very sensitively measure pathogens in soil. For example, the DNA assay can quantify *M. fallax* with a detection limit of two eggs/g soil.

Recently we have shown that the tests can also be used effectively to measure pathogens on tubers. Results to date demonstrate that pathogen levels as measured by DNA are higher than those observed by visual assessment. If DNA tests are going to be used to assess pathogens on tubers, we will need to determine achievable thresholds.

Much of the work until now has been focused on developing the tests, ensuring that they detect the pathogens and not other organisms which inhabit soil. We have also been looking at the relationship between pathogen DNA levels in soil and the development of disease. This is to determine what the DNA levels mean- much of this work has been done in glasshouse bioassays under controlled conditions so that we can get a 'ballpark' idea of what are the DNA levels which cause disease. Now we are testing these thresholds in the field.

These assays are powerful research tools because it is very difficult to measure and identify plant pathogens in soil by conventional means such as microscopy or by plating out samples in the laboratory. So the DNA tests have proved useful already to researchers within the PPR&D and other HAL funded projects to monitor the impact of management e.g. rotations, amendments on populations of the pathogens.

We are also trying to develop sampling strategies to make sure we can get a representative sample of the paddock, or part of the paddock being assessed. Information on pathogen distribution from intensive field sampling shows that pathogen distribution in soil is highly variable. However, we can recommend a sampling strategy which will give an overall average of the area sampled

This project is a collaboration between scientists at SARDI, DPI Victoria and New Zealand Crop and Food Research.

Associated student projects

Cathy Todd

Understanding Rhizoctonia Disease on Processing Potatoes

The fungus *Rhizoctonia solani* is pathogenic to potato crops world-wide. Sampling of 2006/07 crops supported previous findings that different anastomosis groups (AGs) of *R. solani*, AG-2-1, AG-2-2 and AG-3, are present in the South East of South Australia, Kangaroo Island and Tasmania, on diseased potato plants. Pathogenicity tests showed that black scurf is commonly caused by AG-3, however all the AGs have been associated with necrosis of stems, stolons and roots. AG-4, isolated from cauliflower, was also found to cause necrosis on stems, stolons and roots.

A rapid method to test pathogenicity was developed, which allowed testing of multiple isolates. This showed that there is variation in pathogenicity between isolates from the same AG. We are now investigating if this pathogenic variation could be associated with DNA variation.

The ability of different fungicides to inhibit fungal growth of isolates in vitro was previously tested. This has been followed up by a pot trial, using representative isolates of field AGs, to test control of disease symptoms by fungicides. Amistar, Maxim and Rizolex, applied as the supplier recommended, were compared. Although all reduced black scurf (caused by AG-3), variable control of necrosis symptoms (caused by AG-2-1 and AG-3) was observed. A trial is underway to investigate if the method of fungicide application (seed vs. soil) impacts on its ability to control disease.

In 2007, results have been presented at the Australasian Plant Society Conference and a recent workshop on Rhizoctonia. Future work includes investigating if plant micronutrient (zinc and silicon) status can influence tolerance to Rhizoctonia disease.

This is a PhD project (Cathy Todd, Adelaide University), supervised by Eileen Scott (Adelaide University), Trevor Wicks and Kathy Ophel-Keller (SARDI).

Tony Slater

Screening for Disease Resistance

The Processing Potato R&D sub-project – Disease Resistance Screening has been working to identify the level of resistance of a wide range of cultivars to diseases such as Common scab, Powdery scab and Tomato spotted wilt virus. This will provide information to growers on the levels of disease resistance to aid in the selection of cultivars to grow.

Common scab and Powdery scab

Trials have been conducted over two seasons at field sites in Frankston and Knoxfield. These trials will determine the level of resistance to Common scab and Powdery scab for over 200 commercial cultivars and parental lines used in the National Potato Breeding Program.

Seed tubers of these cultivars were planted in the field with inoculum of Common scab and Powdery scab. They were grown in conditions conducive to the disease developing and at harvest were collected and washed for inspection in the laboratory for the diseases.

Tubers were assessed using an international scoring system for incidence and severity of the symptoms. We are currently comparing our results with the results obtained in trials in the UK to see where the results are comparable.

Tomato spotted wilt virus

A glasshouse grafting trial is being developed to screen for resistance to Tomato spotted wilt virus. The grafting method has taken longer than expected to develop, as it only works for a limited period of the year in the glasshouse when a virulent source of inoculum is available. Approximately 40 per cent of the parent collection has been challenged, although the cultivars that have shown no reaction need to be reassessed to ensure that they are resistant or if the challenge was not effective.

The results of these trials and the level of resistance for these diseases of the commercial cultivars will be published as soon as they are available.

Dr Nigel Crump

Soil Amendments for the control of potato diseases

The progress of Subprogram Three is perhaps best described by the words from the country music of Slim Dusty's song "*Looking forward, looking back*"

Subprogram Three

– Looking forward, looking back.

Looking forward, looking back
I've come a long way down the track
Got a long way left to go
Making songs, from what I know

We are a *long way down the track* to developing practical disease management strategies for the major soilborne diseases common scab, powdery scab, Rhizoctonia and Verticillium wilt. Some of our research has shown that we still have *got a long way left to go*, with the research producing more questions than answers. However, each new finding furthers our knowledge and understanding of the pathogens and the development of diseases allowing us to make "management strategies" from what we know.

Subprogram three involves international collaboration with world leading research groups in Canada (Dr George Lazarovits) and more recently Crop and Food New Zealand (Dr Richard Falloon). This collaboration adds significant value to the achievements of this subprogram.

Over the last 12 months the subprogram has had several significant achievements and outcomes for the Australian processing industry. The subprogram has:

- Provided data to support Crop Care with the registration of Shirlan™ for powdery scab management.
- Improved the understanding of the effect that various calcium based products such as lime, gypsum and others, have on the development of common scab symptoms on potato tubers. We are now looking at which products can be used to provide calcium for potatoes but increase the risk of common scab.
- Identified potential soil amendments for the control of common scab and powdery scab. Further research is still required before any treatments can be recommended.
- Identified soil nutrients associated with high or low powdery and or common scab. Efforts are now focusing on how some of these soil nutrients can be manipulated to suppress disease of potatoes.
- Developed molecular tools that can detect Verticillium and Streptomyces spp. inoculum at very low levels from soil in a quantitative manner.
- Initiated long-term crop rotation have been started that will give answers as to what rotation corps can be used to manage disease incidence of common scab and Verticillium. This includes the use of green manures as soil amendments
- Attended and participated in international conferences including the International Common Scab Conference, European Powdery Scab Workshop and the Australasian Plant Pathology Conference.

Dr Leigh Sparrow

Optimal Crop Rotations for the control of Soil Borne Disease

Research currently underway into Tasmanian and Victorian potato growing practices has found many growers may benefit from more closely monitoring soil moisture levels.

The research, being conducted by Dr Leigh Sparrow of the Tasmanian Institute of Agricultural Research (TIAR) surveyed 74 Tasmanian potato growers (about 20 per cent of Tasmanian growers) and 30 growers from Ballarat, Victoria, via telephone to benchmark industry practices, especially those that relate to soil-borne disease management.

These practices included seed treatment, fungicide, tillage, and irrigation management, and rotations. Results from Victoria are still being assessed, but in Tasmania the survey results confirm that the Tasmanian processing potato industry is characterised by many small growers, two-thirds of whom are aged over 40 years, farming land that they own.

Pasture, cereals and grass green manure are common crops either immediately before or after potatoes. Approximately 80 per cent of Tasmanian growers included two or more years of pasture in their rotation.

A large proportion of growers said that they employed no specific long-term soil-borne disease management, but over half applied fungicide at planting (mainly for Rhizoctonia control), and about a third used irrigation to manage both powdery and common scabs. However, about a third of growers also said that they assessed soil moisture only by visual means.

A trial has been established in a six ha paddock at Forthside Research and Demonstration Station in North West Tasmania to assess the cumulative effects of green manure crops on profitability and sustainability of contemporary farming systems in this region.

Following results from the grower survey which showed that about 25 per cent of Tasmanian potato farmers include some sort of green manure in their rotation, a trial has been established at Forthside to assess the cumulative effects of green manure crops on profitability and sustainability of contemporary farming systems in the region.

Green manures are valued because they are thought to provide organic matter, capture unused fertiliser nutrients, prevent soil erosion, provide for grazing, and may offer a break for soil-borne plant diseases. While some of these benefits have been quantified in the short term (one green manure crop), benefits like organic matter addition and disease control are best assessed over longer periods. Long term work of this kind has not been done anywhere in the world.

Test strips established in commercial crops in three states (South Australia, Victoria and Tasmania) have been re-sampled to see how pathogen levels have changed and whether changes can be explained by the type of crops which have been grown at the sites.

Soil samples taken in winter 2006 showed a consistent increase in *Spongospora* (which causes powdery scab) DNA concentrations, due to the wet spring in the 2005/2006 season. Spongospora DNA remained at high concentrations when sampled again in winter 2007. There was little change in the DNA concentrations of either *Streptomyces* (which causes common scab) or *Rhizoctonia*.

Trial results are currently being evaluated, with additional trials to be conducted throughout 2008.

This project is collaboration between scientists at TIAR, DPI Victoria, SARDI, and New Zealand Crop and Food Research.

Associate Professor Calum Wilson

Common scab

Enhancing resistance to common scab by somaclonal selection and to tomato spotted wilt virus (TSWV) through marker development.

The aims of this subprogram are:

- To further develop and commercialise common scab resistant clones of commercial potato cultivars through innovative cell selection procedures
- To develop potato gene markers associated with resistance to TSWV to assist the Australian breeding program

Common Scab Resistance studies

We have successfully obtained over 700 clones of five commercial cultivars via cell selection techniques. Screening of these clones has revealed a sizeable proportion with increased resistance to common scab disease including some exhibiting extreme resistance. Agronomy and processing/cooking trials over the last season (focusing on the clones derived from Russet Burbank) have identified several dozen of these disease resistant clones with yield and quality performance at least as good as the parent Russet Burbank clone. We have started negotiating a commercialisation process to enable the best lines to be released.

TSWV gene markers

There are differences amongst potato cultivars in their susceptibility to TSWV. The most notable resistance factor is a restriction of virus infection in tubers. We aim to develop genetic markers that will help the breeding program rapidly screen for this resistance trait. Seed collected from the first of last years crosses; Coliban (resistant) x Atlantic (susceptible) have been germinated and cultured for glasshouse disease testing. Screening of the seedlings for resistance are underway. This will be followed by analysis of the DNA from each seedling where we will look for "chunks" of DNA associated with resistance expression.

The outcomes from SP5 have been communicated through many media over the past year including field days, industry and scientific publications and conferences.

Associated student projects

Peter Molesworth

Chemical synthesis of thaxtomin A (PhD project)

PhD student, Peter Molesworth, is continuing efforts to chemically synthesise thaxtomin A (txA). He has developed novel synthesis strategies to obtain the basic chemical core of the two sub-components of the molecule and is currently close to preparing the first chemically synthesised thaxtomin D (the initial target molecule due to slightly simpler structure) which will be followed by txA.

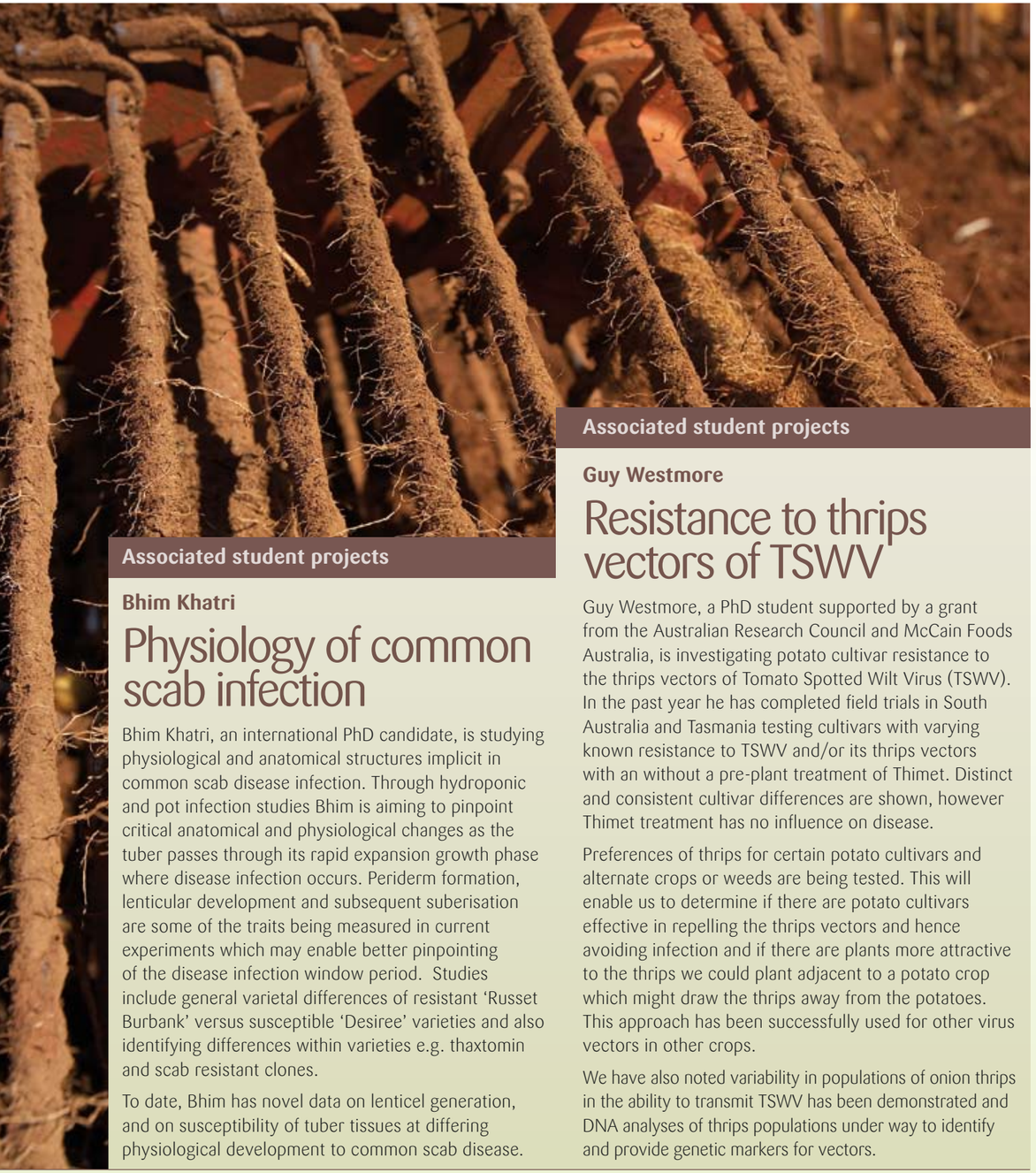
In the course of this study we have produced, and are targeting further production of thaxtomin and auxin analogues for biological testing for toxicity and the ability to induced disease resistance. We aim to develop a better understanding of the molecular characteristics of both disease induction and disease prevention (through induced resistance).

Hannah Thompson

Auxin induced resistance to common scab disease:

Honours student, Hannah Thompson, has worked on auxin induced resistance to common scab disease. Her studies focused on effect of cultivar and auxin rate on resistance to the disease and pathogen toxin. She confirmed the ability of auxin treatments in scab resistant and susceptible cultivars to radically decrease the tubers sensitivity to the toxin thaxtomin.

Further studies assessing possible additional mechanisms of action of auxins in disease control are under way. A journal article on this work is currently under preparation.



Associated student projects

Bhim Khatri

Physiology of common scab infection

Bhim Khatri, an international PhD candidate, is studying physiological and anatomical structures implicit in common scab disease infection. Through hydroponic and pot infection studies Bhim is aiming to pinpoint critical anatomical and physiological changes as the tuber passes through its rapid expansion growth phase where disease infection occurs. Periderm formation, lenticular development and subsequent suberisation are some of the traits being measured in current experiments which may enable better pinpointing of the disease infection window period. Studies include general varietal differences of resistant 'Russet Burbank' versus susceptible 'Desiree' varieties and also identifying differences within varieties e.g. thaxtomin and scab resistant clones.

To date, Bhim has novel data on lenticel generation, and on susceptibility of tuber tissues at differing physiological development to common scab disease.

Associated student projects

Guy Westmore

Resistance to thrips vectors of TSWV

Guy Westmore, a PhD student supported by a grant from the Australian Research Council and McCain Foods Australia, is investigating potato cultivar resistance to the thrips vectors of Tomato Spotted Wilt Virus (TSWV). In the past year he has completed field trials in South Australia and Tasmania testing cultivars with varying known resistance to TSWV and/or its thrips vectors with an without a pre-plant treatment of Thimet. Distinct and consistent cultivar differences are shown, however Thimet treatment has no influence on disease.

Preferences of thrips for certain potato cultivars and alternate crops or weeds are being tested. This will enable us to determine if there are potato cultivars effective in repelling the thrips vectors and hence avoiding infection and if there are plants more attractive to the thrips we could plant adjacent to a potato crop which might draw the thrips away from the potatoes. This approach has been successfully used for other virus vectors in other crops.

We have also noted variability in populations of onion thrips in the ability to transmit TSWV has been demonstrated and DNA analyses of thrips populations under way to identify and provide genetic markers for vectors.

Potato R&D

Across Industry Program

Included with the *Potatoes Australia Review* is the Across Industry Program report, covering 2006/2007, providing a snapshot of projects funded for the benefit of the wider horticulture industry.

The projects, commissioned by Horticulture Australia, are targeted at issues that are difficult for individual industries to resolve on their own.

The projects aim to:

1. Enhance the efficiency, transparency, responsiveness and integrity of the supply chain for the total industry to provide clear market signals
2. Maximise the health benefits of horticulture products in the eyes of consumers, influencers and Government
3. Position horticulture to compete in a globalised environment
4. Achieve long term viability and sustainability for Australian horticulture

Included in the report are summaries of work undertaken on a range of issues, including minor use permits, pesticide regulation, the Horticultural Code of Conduct, Industry development and data requirements.

In addition, the report also covers the latest work on the following:

Australian horticulture industry needs to ensure that produce does not exceed **Maximum Residue Limits** (MRLs), particularly as a number of our export destinations are increasing their level of residue scrutiny. MRLs also have the potential to negatively impact Australian horticulture exports where Australian MRLs exceed importing countries' standards.

There is an urgent need to address **climate change** and its impact on Australian horticulture by identifying industries and regions most at risk and developing adaptation strategies for them.

Climate variability (particularly temperature variability from season to season and year to year) continues to challenge managers of horticultural supply and demand chains and there is a need to develop and disseminate industry-specific climate information.

The **Horticulture Water Initiative** (HWI) was established in 2003 to respond to water issues on behalf of the horticulture industry. The last four years have seen significant reforms in the water sector, and the drought has particularly focused the industry on the critical relevance of water to its viability.

The importance of **water** on the national agenda has also been evidenced through the establishment of the National Water Commission to oversee the implementation of the National Water Initiative and the launch of the Prime Minister's National Water Plan.

Australian Government Priorities for Rural Research and Development

As part of the Australian Government's commitment to rural research and development, horticulture industries can access matching Commonwealth funding through HAL for all research and development activities.

All R&D programs managed through HAL are driven by the strategic direction of horticulture industries and address the Australian Government's Priorities for Rural Research and Development. These Government priorities and a breakdown of the number of projects and the value of projects that address each priority are available in HAL's annual report. This can be accessed at www.horticulture.com.au.

For more information contact:

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Processed Potato Levy Program 2006-07

Project Number	Title	Start Project	Project Completion	Organisation	Contact
HG03070	Development and implementation of industry biosecurity plans	03-Sep-04	01-Jun-07	Plant Health Australia	Rodney Turner 02 6260 4322
MT06026	Development of Industry Strategic Plans for the Onion, Fresh Potato and Processing Potato Industries	31-Aug-06	30-Jun-07	Strategic Business Development Pty Ltd	Russell Cummings 0414 929 585
MT06040	Australian Vegetable Industry Conference, Sydney, May 2007	1-Mar-07	30-Jul-07	AUSVEG Ltd	Lisa Maguire 03 9544 8098
PT01041	Crop management tools for the french fry industry in the south east of South Australia	21-Dec-01	31-Mar-06	South Australia Research & Development Institute (SARDI)	Robert Peake 08 8389 8800
PT02032	Processing potato study tour to North America, July 2002	01-Jul-02	01-Sep-02	Tasmanian Farmers & Graziers Association	Stephen Welsh 0400 006 095
PT04001	Understanding the implications of pastures on the management of soil-borne diseases of seed potatoes	22-Apr-05	30-Jun-07	Victorian Department of Primary Industries (VICDPI)	Dolf de Boer 03 9210 9222
PT04002	Supplying information on demand via the Potato Internet Service	01-Oct-04	30-Jun-07	SA Farmers Federation	Leigh Walters 08 8232 5555
PT04004	PCN 'Area Freedom' for WA: Evaluation of the current status of Potato Cyst Nematode *(Globodera rostochiensis)* in WA	01-Jul-04	31-Dec-08	Department of Agriculture & Food Western Australia	Vivien Vanstone 0418 810 711
PT04016	Potato processor R&D program	01-Nov-04	15-Sep-09	University of Tasmania	Iain Kirkwood 03 6421 7698
PT05005	Refreshment and Maintenance of the Public Variety In-vitro Collection for Australia	01-Aug-05	31-May-10	Victorian Certified Seed Potato Authority Inc	Keith Blackmore 03 5962 9043
PT05011	Managing viruses in Tasmania seed potato stocks	01-Jul-05	01-Dec-06	University of Tasmania	Frank Hay 03 6430 4907
PT05014	Evaluation trials for crisping potato varieties with collaborator 2	01-Aug-05	31-Jul-06	Arnotts Snackfoods	Allan Smith 07 3243 5668
PT05018	Evaluation of french fry potato cultivars and lines with collaborator 1	30-Sep-05	31-Aug-06	McCain Foods (Aust) Pty Ltd	David Ryan 03 5338 0254
PT05027	A potato crop management service to promote new technology in Tasmania	01-Sep-05	01-Dec-08	Simplot Australia Pty Ltd	Chris Russell 03 6422 6500
PT05031	Managing and Implementing the National Potato Industry Communication Strategy	26-Jun-06	01-Jul-08	AUSVEG Ltd	Lisa Maguire 03 9544 8098
PT05034	Publication and distribution of '*Eyes on Potatoes*' and '*Potatoes Australia*'	28-Jun-06	01-Jul-08	AUSVEG Ltd	Lisa Maguire 03 9544 8098
PT06010	Arnotts Crisping Potato Variety Evaluation 2006-07	01-Jul-06	31-Aug-07	Arnotts Snackfoods	Allan Smith 07 3243 5668
PT06037	International Levy Board Project Cooperation Meeting, Cape Town - March 2007	05-Mar-07	30-Jun-07	University of Tasmania	Iain Kirkwood 03 6421 7698
PV06900	Partnership/Industry Consultation 2006/07	01-Jul-06	30-Jun-07	Potato Processors Association Australia	Allan Smith 07 3243 5668
PT04010	Late Blight management	1/1/05	31/7/06	Victorian Department of Primary Industries (VICDPI)	Jacky Edwards 03 9210 9222
PT05007	Evaluation trials of crisping potatoes with collaborator 1	1/7/05	31/7/06	Smith`s Snackfood Company	Kan Moorthy 03 9238 3015

Fresh Potato Levy Program 2006-07

Project Number	Title	Start Project	Project Completion	Organisation	Contact
HG03070	Development and implementation of industry biosecurity plans	3-Sep-04	1-Jun-07	Plant Health Australia	Rodney Turner 02 6260 4322
HG04006	Assessment of the national fruit and vegetable consumption campaign	15-Apr-05	25-Nov-05	RETAILworks Pty Ltd	Martin Kneebone 03 9852 8733
MT06026	Development of Industry Strategic Plans for the Onion, Fresh Potato and Processing Potato Industries	31-Aug-06	30-Jun-07	Strategic Business Development Pty Ltd	Russell Cummings 0414 929 585
MT06032	Enhanced Biosecurity risk analysis tools	1-Dec-06	7-Mar-10	CRC For National Plant Biosecurity	David Cook 02 6246 4093
MT06040	Australian Vegetable Industry Conference, Sydney, May 2007	1-Mar-07	30-Jul-07	AUSVEG Ltd	Lisa Maguire 03 9544 8098
PT00001	Implementing the Potato Industry's communication plan	1-Dec-00	31-Mar-06	SA Farmers Federation	Leigh Walters 08 8232 5555
PT01041	Crop management tools for the french fry industry in the south east of South Australia	21-Dec-01	31-Mar-06	South Australia Research & Development Institute (SARDI)	Robert Peake 08 8389 8800
PT04001	Understanding the implications of pastures on the management of soil-borne diseases of seed potatoes	22-Apr-05	30-Jun-07	Victorian Department of Primary Industries (VICDPI)	Dolf de Boer 03 9210 9222
PT04002	Supplying information on demand via the Potato Internet Service	1-Oct-04	30-Jun-07	SA Farmers Federation	Leigh Walters 08 8232 5555
PT05005	Refreshment and Maintenance of the Public Variety In-vitro Collection for Australia	1-Aug-05	30-Jun-10	Victorian Certified Seed Potato Authority Inc	Keith Blackmore 03 5962 9043
PT05017	Variety development for the fresh potato market in Western Australia 2005-06	1-Jul-05	2-Oct-06	Department of Agriculture & Food Western Australia	Peter Dawson 08 9841 2707
PT05030	Workshops for evaluation of horticultural annual crops	1-Jan-06	31-Mar-06	Agricultural Supply Chain Services Pty Ltd	Jeff Peterson 02 9489 7949
PT05032	Potato Industry Communcations - Meeting and Consultancy Expenses	18-Apr-06	31-Aug-06	Coutts J & R Pty Ltd	Jeff Coutts 07 4630 1297
PT05033	Potato varietal evaluation and agronomy UK study tour	16-Jun-06	31-Jul-06	Agricultural Supply Chain Services Pty Ltd	Jeff Peterson 02 9489 7949
PT06001	Evaluation of processing potato cultivars and lines for Simplot in Tasmania	1-Sep-06	14-Sep-07	University of Tasmania	Philip Brown 03 6226 2716
PT06003	Variety development for the fresh potato market in WA 2006/08	1-Jul-06	30-Sep-08	Department of Agriculture & Food Western Australia	Peter Dawson 08 9841 2707
PT06011	Increasing G1 potato seed yields	20-Nov-06	30-Jun-09	University of Tasmania	Philip Brown 03 6226 2716
PT06014	Reducing the impact of Black Dot on Fresh Market Potatoes	7-Aug-06	30-Sep-09	South Australia Research & Development Institute (SARDI)	Barbara Hall 08 8303 9562
PT06022	Market development for the fresh potato industry	4-Jan-07	30-Sep-08	AUSVEG Ltd	Lisa Maguire 03 9544 8098
PT06030	Certified Seed Potatoes - Certification Officers Training Workshop	1-Aug-06	1-Mar-07	Victorian Certified Seed Potato Authority Inc	Keith Blackmore 03 5962 9043
PT06031	Breeding potatoes for improved quality and efficiency	1-Jul-06	30-Jun-07	Victorian Department of Primary Industries (VICDPI)	Tony Slater 0408 656 021
PT06037	International Levy Board Project Cooperation Meeting, Cape Town - March 2007	5-Mar-07	30-Jun-07	University of Tasmania	Iain Kirkwood 03 6421 7698
PT06040	Canadian Study Tour - Certified Seed Production - Training of Certification officers and Industry Trends, June 2007	9-Jun-07	31-Aug-07	Victorian Certified Seed Potato Authority Inc	Keith Blackmore 03 5962 9043
PT06041	Virus Monitoring of ViCSPA Seed Plots 2	10-Apr-07	30-Sep-07	Victorian Certified Seed Potato Authority Inc	Keith Blackmore 03 5962 9043
PT06044	Improving management of Potato Virus S through a better understanding of mechanisms of virus transmission.	1-May-07	30-Jun-09	University of Tasmania	Susan Lambert 03 6244 5807
PT06046	Supporting bulk bin exports of Western Australian seed potatoes to Mauritius	8-Jun-07	30-Aug-08	Western Potatoes Ltd	Ray Wilson 08 9284 6266
PU06900	Partnership Agreement 2006/07	1-Jul-06	30-Jun-07	AUSVEG Ltd	Lisa Maguire 03 9544 8098
PT04010	Late Blight management	1/1/05	31/7/06	Victorian Department of Primary Industries (VICDPI)	Jacky Edwards 03 9210 9222
PT05010	Virus Monitoring of Victorian Certified Seed Potato Authority Inc (ViCSPA) Seed Plots	1/10/05	17/10/06	Victorian Certified Seed Potato Authority Inc	Keith Blackmore 03 5962 9043
PT06024	Fresh Potato State Variety Evaluations - Victoria	1/11/06	31/5/07	Victorian Certified Seed Potato Authority Inc	Keith Blackmore 03 5962 9043
PT06045	WA seed potato industry study tour to Holland and Scotland, September 2007	18/5/07	1/12/07	Department of Agriculture & Food Western Australia	Paul Mattingley 08 9368 3767
PT06047	Improving the visual quality of WA ware potatoes to meet consumer needs	8/6/07	30/8/10	Western Potatoes Ltd	Ray Wilson 08 9284 6266

Across Industry Program 2006-07

The potato industry contributes funding towards an across industry program that addresses issues affecting all of horticulture. Details of the current program are listed below. A full report of the program can be found at **www.horticulture.com.au/industry/acrossindustry.asp**.

Project Number	Title	Start Project	Project Completion	Organisation	Contact	
Outcome 1:	**Enhance the efficiency, transparency, responsiveness and integrity of the supply chain for the total industry to provide clear market signals**					
AH04006	Horticulture gene technology communication	2004/05	2006/07	Agrifood Awareness Australia Limited	Paula Fitzgerald	02 6273 9535
AH04007	Pesticide regulation coordinator	2004/05	2009/10	AKC Consulting Pty Ltd	Kevin Bodnaruk	02 9688 0444
AH04009	Coordination of minor use permits for horticulture	2004/05	2007/08	AgAware Consulting Pty Ltd	Peter Dal Santo	03 5439 5916
AH05018	Review of successful consumer satisfaction projects	2005/06	2006/07	Horticulture Australia Limited	Sarah Pennell	02 8295 2300
AH05019	Levies on imported products	2005/06	2006/07	Horticulture Australia Limited	Richard Bennett	03 5825 3753
AH06004	Horticulture Code of Conduct – industry support package	2006/07	2006/07	Horticulture Australia Council	Kris Newton	02 6273 9600
AH06007	Primary production and processing standards	2006/07	2007/08	Horticulture Australia Limited	Richard Bennett	03 5825 3753
AH06012	Evaluation strategies for varieties derived from Australian breeding projects or imported varieties	2006/07	2006/07	Horticulture Australia Limited	Marian Sheehan	02 8295 2300
AH06013	Horticulture for the consumer CRC – business plan	2006/07	2006/07	Australian Institute for Commercialisation Ltd	John Kapeleris	1300 364 739
AH06104	Review of project AHO4009 "coordination of minor use permits for horticulture"	2006/07	2006/07	Horticulture Australia Limited	Peter Scholefield	08 8373 2488
Outcome 2:	**Maximise the health benefits of horticultural products in the eyes of consumers, influencers and government**					
AH06008	Human nutrition needs for horticultural industries allocation	2006/07	2006/07	Horticulture Australia Limited	Sarah Pennell	02 8295 2300
AH06010	Promoting the health advantages of F&V to increase their consumption - Phase 2	2006/07	2006/07	Horticulture Australia Limited	Chris Rowley	02 8901 0329
Outcome 3:	**Position horticulture to compete in a globalised environment**					
AH05003	Coordination of market access for horticulture products	2005/06	2006/07	Stephen Winter & Associates Pty Ltd	Stephen Winter	03 9832 0787
AH05024	Fruit fly workshop	2005/06	2006/07	Horticulture Australia Limited	Brad Wells	02 8295 2300
AH05034	Market access support program	2005/06	2006/07	Horticulture Australia Limited	Kim James	08 6389 1407
AH06006	Establishment of a pesticide residue task force	2006/07	2006/07	Horticulture Australia Limited	Brad Wells	02 8295 2300
AH06014	Codex attendance 06/07	2006/07	2006/07	Horticulture Australia Limited	Richard Bennett	03 5825 3753
Outcome 4:	**Achieve long-term viability and sustainability for Australian horticulture**					
AH05010	RD&E Capability in Horticulture	2005/06	2006/07	Scholefield Robinson Horticultural Services Pty Ltd	Charles Drew	0407 978 689
AH06003	Horticulture for Tomorrow – Phase II	2006/07	2006/07	Horticulture Australia Limited	Alison Turnbull	02 8295 2300
AH06002	IMC Horticulture industry strategic plan contribution	2006/07	2006/07	Horticulture Australia Limited	John Webster	02 8295 2300
AH06009	Horticulture Water Initiative Phase 3	2006/07	2006/07	RMCG	Anne-Maree Boland	1300 306 043
AH06011	Industry development review	2006/07	2006/07	Richard de Vos	Richard de Vos	02 9973 4507
AH06015	Cooperative venture for capacity building (CVCB) membership fees	2006/07	2007/08	Horticulture Australia Limited	Richard Stephens	02 8295 2300
AH06016	Human capability – building strategy benchmarking horticulture's labour and skills needs	2006/07	2006/07	Horticulture Australia Council	Kris Newton	02 6273 9600
AH06019	Australian horticulture's response to climate change and climate variability	2006/07	2006/07	Horticulture Australia Limited	Alison Turnbull	02 8295 2300
AH06100	Horticulture data audit	2006/07	2006/07	AEC Group Limited	Ashley Page	07 3831 0577
AH06101	Horticulture data audit associated costs	2006/07	2006/07	Horticulture Australia Limited	Andrew Collins	02 8295 2300
AUSHORT						
AH01015	Key genes for horticultural markets	2001/02	2006/07	CSIRO Plant Industry	Steve Swain	03 5051 3159
AH03002	Area wide management of fruit fly – Central Burnett	2003/04	2006/07	QLD Department of Primary Industries & Fisheries	Annice Lloyd	07 3896 9366

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