

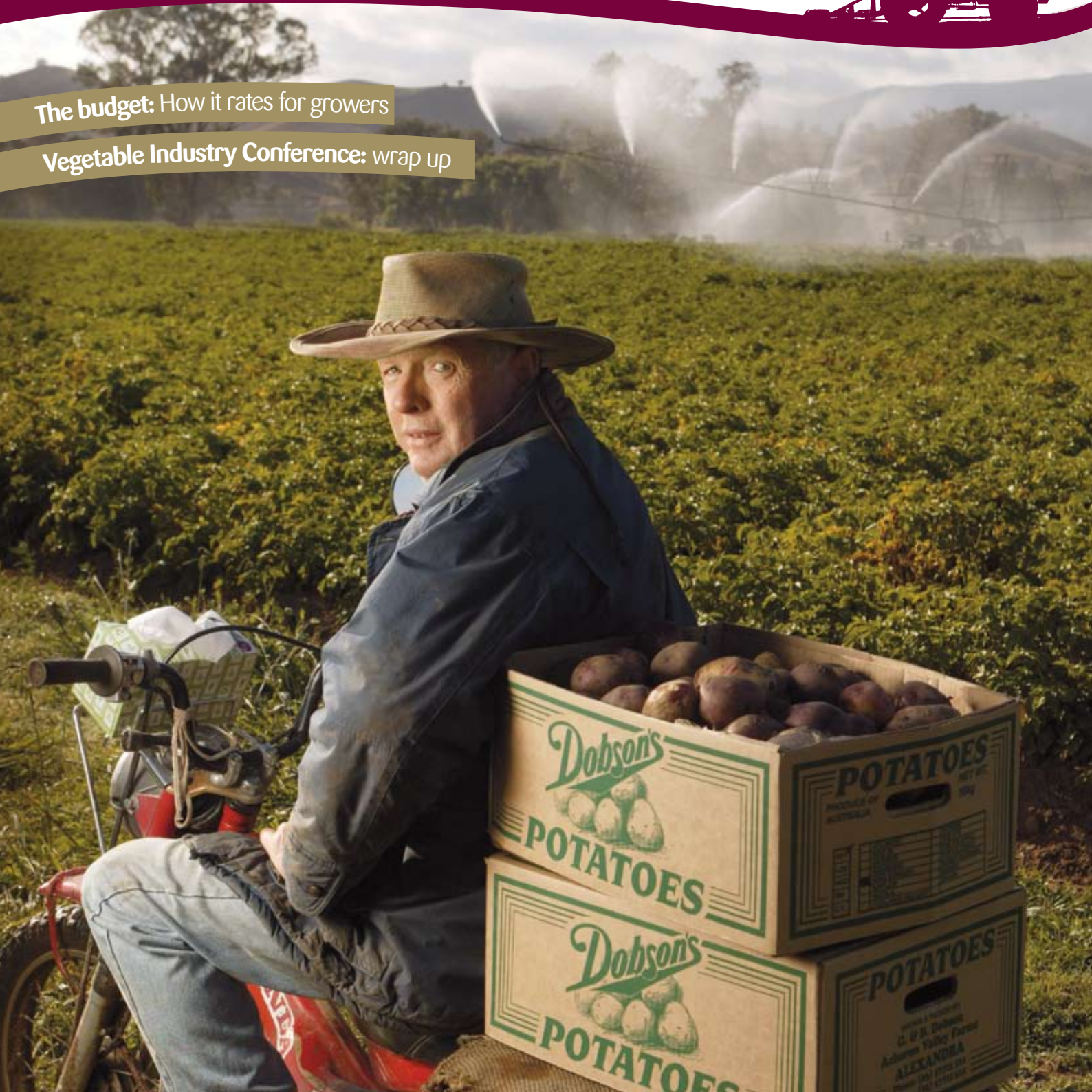
potatoes australia

Informing and connecting
Australia's Potato Industry
June 2007



The budget: How it rates for growers

Vegetable Industry Conference: wrap up



KNOWN FAR AND WIDE FOR HIS EYES

Graham Ramsay, Carrington Farms
Bundaberg – QLD.



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AUSVEG Ltd is proud to be an Australian Grown campaign partner



Australian Grown Campaign launched



Following its preview at the Vegetable Industry Awards Gala Dinner, the Minister for Agriculture, Fisheries and Forestry, Peter McGauran officially launched the Australian Grown Campaign at the Sydney Opera House on June 1, 2007.

Drawing on the iconic green and gold logo, which is recognised by 98 per cent of Australian consumers, the campaign will encourage more local food products to carry the famous trademark.

"Our farmers will benefit significantly from consumers being able to quickly spot Australian grown products when walking along supermarket aisles. Research conducted in a Victorian supermarket last year clearly shows that shoppers are keen to buy Australian made products," Peter said.

Australian Grown Campaign Chief Executive Ian Harrison said more than 1,200 licensees already use the Australian Made logo on almost 10,000 products sold in more than 30 countries.

"This new campaign will greatly increase the prominence of Australian branded food products around the world and help them compete in a global market."

"It's a big win for growers," AUSVEG chairman, Michael Badcock said.

"We greatly appreciate Minister McGauran's support for the

vegetable industry through the campaign and will continue to work with the government to get all imported ingredients labelled," he said.

"Australian Made is a fantastic campaign that will provide terrific support for potatoes and remind Australians to support our vital industry," said Matt Wickham, AUSVEG's Marketing and Communications Executive.

To become a licensee, a business must register all products following the steps below:

- complete an application form, listing the products on which the logo will be used
- sign a statutory declaration that products registered comply with criteria for using the logo
- pay an annual licence fee

Further information can be sourced at:

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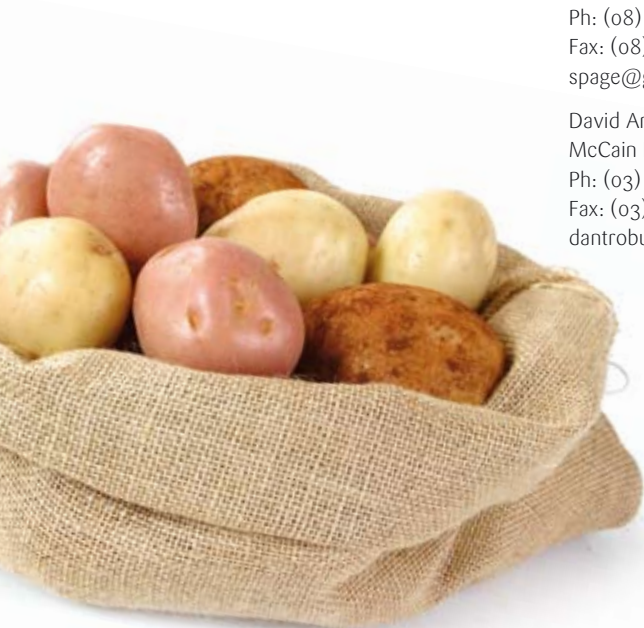
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AUSVEG Potato Group Chairman's message

As reported in the last issue, Potato Cyst Nematode (PCN) is still causing the industry lost revenue. The working group with project leader Laura Bowles is gaining ground rapidly with science still the focal point in drafting national protocols. Currently there is a lot of goodwill on the table by all members of the group and it is extremely important for this to continue for a successful outcome.

The appointment of Matt Wickham by the fresh potato group to head the R&D for marketing and promotion is a quantum leap forward for the industry. In the past R&D has been around producing better quality potatoes. Now the industry has reached a level where we need to investigate what makes consumers tick and what will lead to all Australians consuming more potatoes. To shift servings between fresh and processing potatoes is not the answer. Making sure all Australians actually increase potato consumption (in kilograms per annum) is where the game is.

The "vegetables claim centre plate" National Vegetable Conference has been an outstanding success. Focused and highly skilled national and international keynote speakers delivered a variety of important messages. Healthy eating, marketing and getting involved with your industry organisations are some of the take home messages. During the gala dinner on Thursday night, the Minister for Agriculture Fisheries and Forestry, The Honourable Peter McGauran and AUSVEG gave us a sneak preview of the Australian Grown campaign, which was launched the next day. Our thanks to the Minister for his support. A new and fresh approach to engaging consumers and putting our trademark on all our work will be a winner.

To the AUSVEG Chairman Michael Badcock, CEO John Roach, the organising committee and all the AUSVEG staff well done on the "vegetables claim centre plate". The trade exhibit was first class. The whole conference went off without a hitch. Well done to all. Don't forget to tell the world to eat more spuds.



David Anderson
AUSVEG Potato Group Chairman

Editor's message

June already! Last issue seems so far away, with the budget handed down, the new Horticultural Code of Conduct commenced and the National Vegetable Conference just successfully concluded.

It was great to meet so many industry members at the conference and get some feedback on how you're finding the magazine and what's happening in your neck of the woods. For those unable to attend the conference, this issue features some of the highlights of the conference, including coverage of some of the major speakers, including Peter Jacobs, from ANZ Rural Banking and Dr Rob Bramley from the CSIRO.

Hot on the heels of the conference, Minister McGauran launched the new Australian Grown campaign, after presenting them and a sneak preview of the television ad promoting the logos to the industry at the National Vegetable Industry and Gala Awards Dinner.

AUSVEG's Economic Policy and Research Manager, Ian James gives us his take on the Murray Darling Basin standoff and his feedback on the Federal budget's high points and low points for growers.

With wide coverage in the media, we take a look at how the Horticultural Code of Conduct is affecting growers since it came into force in mid-May and check in with Matt Wickham on his progress in assessing and developing a marketing strategy for the fresh potato industry.

In the coming months, we'll be providing regular updates on developments with both the Murray Darling Basin and the Horticultural Code of Conduct's effect on the industry. Please feel free to get in touch and let me know how recent developments have affected your business.



Simon Adams
Editor
AUSVEG

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PROFILE Geoff Dobson



Geoff Dobson is a man who values quality. And just as well, because it is this principle that has guided his business for the last three decades. Youna Angevin-Castro finds out more.

Based in Alexandra, in Victoria's Acheron Valley, north east of Melbourne, Geoff and his wife Bronwyn grow up to 16 gourmet potato varieties, including Purple Congo, Toolangi Delight, Dutch Cream and Kipflers, on a 30 acre plot on their property. Geoff comes from a long line of potato growers - "our family moved out of Ireland and Scotland during the potato famine" - and he has continued the family tradition, with a slight twist.

"We started out 32 years ago contract growing for APD snack foods," said Geoff, "and we maintained a relationship with them for over 20 years."

However, it was an ongoing relationship with the Toolangi research farm that would change the nature of Geoff's business.

"We had close connections with the Toolangi research farm, and had the opportunity to trial a new variety - the yellow-fleshed Patrone. Yellow-fleshed potatoes were virtually unheard of in Australia at the time, but they were immensely popular in Europe."

Two or three years after the initial trials, Geoff came across an article in Epicure; a feature section of Melbourne's The Age newspaper. Written by Rita Erlich, renowned restaurant critic, journalist and co-editor of *The AGE Good Food Guide*, the article was highly critical of the quality and presentation of local potatoes, and lamented the lack of varieties available to Australian diners.

"I remember reading the article and thinking that someone in the industry with more knowledge than me would respond. However weeks went by and nobody wrote in, so I decided to call her."

Explaining to Rita that there were alternatives to 'washed' and 'brushed' varieties, he sent her some of his Patrones to trial.

"She was delighted by my offerings, and quickly contacted me, explaining that she knew some restaurants who would be very interested in my produce."

Rita gave Geoff a total of 12 contacts - six restaurant owners and six greengrocers - and before long he had approached each one of them with his potatoes. He did not get a single knock-back, and business grew from there.

Direct delivery to his customers has been a critical element to Geoff's business. Due to limited quantities, particularly in the beginning, it was not feasible to place his produce at the markets. This has allowed him the unique opportunity to liaise directly with his customers, as well as set his own prices.

"We decided early on that we would fix our prices, as well as apply a substantial premium," said Geoff. "In our first year, we fixed the price at 40 cents per kilo, which at the time was almost 10 times the amount we could get for potatoes on the bulk market. However, the restaurant owners were unfazed, as they were paying up to 60 cents for standard varieties from the markets anyway.

"Ever since, we have chosen to fix our prices every year, and we have found that the higher you put the prices, the fewer problems you have, providing the quality is there."

One of Geoff's more notable customers is celebrated Australian chef Stephanie Alexander, who, over the years, has provided him with much useful advice.

"Stephanie Alexander always said to me, 'Never undersell yourself. If you have something worth it, put a good value on it'. This is something we have always kept in mind when making business decisions. This year we reluctantly raised our prices by almost 25 per cent. However we knew we had a premium product, and that it was worth it. And our customers seem to agree."

Geoff believes that excellent quality is paramount to his business - both in the quality of the produce, and the quality of presentation.

"One thing that bothers me is that the general presentation of potatoes is often terrible. It's common to find potatoes on the market that are damaged, either through greening, minor cracks, cuts or bruising. There is often little care at the production stage, followed by a lack of damage control by the retailers and a complete lack of presentation."

Geoff, in partnership with Bronwyn, overcomes this by strictly managing all aspects of his business, from production, through to packaging, distribution and point of sale presentation. His close

relationship with the hospitality industry led to one of his most innovative ideas - packing his potatoes in branded carton boxes.

"One of the problems often encountered by hotel and restaurant kitchens is a lack of space in the cool room. Bags can be cumbersome and difficult to store, so we came up with the idea of packing our potatoes in cartons which could be stacked."

Dobson's became one of the first producers in the country to pack potatoes in boxes, and despite initial criticisms, today their elegantly branded boxes can be found in around 40 restaurants and 40 greengrocers around Melbourne.

"Not only do the boxes make storage easier, they also prevent greening and general damage to the potato in transport, so the quality on delivery is maintained."

When it comes to marketing, Geoff is often baffled by the industry's general ambivalence. He sees marketing as major factor contributing to his success, and would happily support the introduction of an industry marketing levy.

"I recognise the value of research; however I'm amazed at industry's fixation with breeding programs to produce new varieties, and higher yields. In my opinion we have more than enough varieties, and if growers cared more about the quality and presentation of their product, they would probably get more money for it."

Geoff admits that it took 20 years to build the business, and that the market he services is not open to everyone. He and Bronwyn were recently recognised for their contribution to the food and wine industry by being inducted as Legends of the Melbourne Food and Wine Festival.

"We built our business on reputation and word of mouth, and you've got to be dedicated and bloody stubborn to succeed that way. But it has opened many doors for us, and our business has grown steadily over the years, which is, at the end of the day, quite satisfying."

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New Executive Officer for Seed Potatoes Victoria



Adie Kriesl has commenced as the new Executive Officer of Seed Potatoes Victoria, taking over from Laura Bowles, who stepped down from the role in March this year.

Adie's role involves keeping growers up to date with industry developments and requirements and acting as a liaison between seed potato growers, their customers and various state and federal organisations.

One area Adie is keen to improve is the communication between industry stakeholders.

"The various organisations are not necessarily unified, creating a fragmented frame work that I think needs to be improved," she said.

"I would be hoping to improve the communication locally and between the states with an aim to developing a more coordinated approach to seed potato supply around Australia on such issues as managing standards," she said.

Seed Potatoes Victoria (SPV) also supplies the Seed Buyer's

Directory, an annual publication listing all Victorian seed growers' contact details which is freely available to anyone in the industry.

Adie sees marketing as a major ongoing challenge, highlighting the continual need to promote an awareness of Victorian seed growers' product quality both nationally and internationally.

"We are proactively establishing processes such as the recent Bacterial wilt test to improve the marketability of our seed potatoes interstate and overseas," she said.

"Our testing processes are often beyond the requirements of the Certified Seed Scheme".

Adie has a background in administrative services, providing an outsource service in book-keeping, secretarial support and other logistic functions for various companies, in the process developing strong contacts within a wide array of government departments, both state and federal.

Seed Potatoes Victoria Inc is a not for profit organisation which was established in 2000 and is funded by member levies. Committee delegates represent the various grower groups of Victoria. The committee meets every two months to discuss and action issues pertinent to its members. SPV works in partnership with ViCSPA to manage the certified seed scheme and to develop and encourage the uptake of new varieties. Adie can be contacted on 0409 510 089.

NEWS



Healthy Soil Workshops underway

Healthy Soil Awareness workshops held recently in Werribee, Dareton and Virginia have given growers valuable information on various soil testing techniques and how to read the information, according to AUSVEG's Environmental Manager, Helena Whitman.

"The Awareness workshops are designed to give growers the confidence to carry out their own simple testing on their farm and then to call in the experts if they are needed", Helena said.

The workshops are designed to complement the recently released Soil Interpretation Ute Guide, a pictorial reference of the different soil types in each vegetable growing region nationally, available free of charge to all levy-paying growers*.

Further workshops are planned, and Helena has indicated if sufficient interest is registered, a workshop can be scheduled for a specific locale.

"The workshops are tailored to the area in which they are conducted with local experts adding to information," she said.

"If a group of potato growers in a region would like to organise a day, we would be happy to fit this in. The information on the day would specifically address the soil conditions in the region for potato growing."

*refers to the national vegetable, potato and onion levies

PCN Update

The second meeting of the PCN National Management Plan working group went ahead on the 23rd May. There was input from some new faces, including Anna Duthrie from Biosecurity Australia (Potato export issues) and Iain Kirkwood from the Department of Primary Industries, Tasmania.

Issues have been identified for further research before any recommendations can be made. Further information will be needed on standardised sampling techniques, questions about the best way to start a national surveillance program with under grader sampling and outbreak action plans for growers and industry.

All members of the group were again extremely positive that small steps will be the key to ensuring that PCN is not going to be brushed aside again. Communication will be a big part of the next step of the plan, along with identifying some key research projects that will need to be introduced to the industry in order to answer some of the questions around PCN, and the methods that are currently being used to contain and control the spread.

The next meeting is scheduled to be held in late July and will likely have recommendations on an Outbreak action plan, a general hygiene plan for all potato growers and a draft of a document that will standardise movement of machinery, materials, bags, bins and associated equipment.

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'Postharvest at Work' in 2007

The Australasian Postharvest Conference will be held from the 10-12 September, 2007 at the Crowne Plaza Hotel at Terrigal on the NSW Central Coast.

With a theme of 'Postharvest at Work', the 2007 conference program will feature a new 'Industry Day' on the 11 September, bringing together industry and researchers to focus on the latest advances in postharvest technology and new opportunities for fresh produce management and marketing.

The Industry Day will focus on is developments in "sensory analysis" - identifying consumer perceptions of fresh produce characteristics with other themes to include biotechnology, packaging, shelf-life extension, shipping technology and market access.

The scientific program for the conference technical days will include recent research results in theme areas of functional foods, fresh cuts, modified atmospheres, quarantine treatments, quality, molecular studies, non-destructive assessment, pre-harvest effects on postharvest quality and pathology.

For further information on the 2007 Postharvest at Work Conference go to www.APHC2007.com.au



The Vegetable Industry Conference included for the first time speakers focusing on the potato industry. Here's a snapshot of what some of them had to say.



Glenda Gourley

Food and Education
Consultant
Horticulture New Zealand

Glenda has been involved in the development and implementation of a variety of potato marketing strategies. Her presentation, centred around the marketing efforts to improve potato consumption in New Zealand, is currently funded by a marketing levy.

Through their research, Horticulture New Zealand have identified the following key target markets for promoting potatoes:

Classic providers (25% of market) 72% of them will be cooking potatoes everyday! This group particularly wants new ideas - especially oven recipes so they can get on with other things while they cook.

Experimental indulgers (13% of market) they love to follow recipes used by chefs, and tend to influence others to eat potatoes. They have increased the number of meals using fresh potatoes in the past 12 months. They buy in the smallest quantities and prefer smaller sized potatoes.

Health Concerned Cooks (16% of market) love recipes with lots of other vegetables and without the addition of fat and salt. This group tends to be quite polarised - those that know potatoes are good for them and those that have become confused. Misconceptions regarding potatoes are rife! This group has the highest spend on fruit and vegetables, don't use sachets and jars when cooking, is most influenced by Asian cooking.

Fun pragmatic parents (16% of market) They are the most frequent eaters and purchasers of processed potatoes. And they have average consumption of fresh potatoes. But because their family size is large they are heavy purchasers of fresh potatoes.

Quick Solution seekers (14% of market) haven't changed their consumption levels of potatoes in the past 12 months. They are the most frequent eaters and purchasers of processed potatoes. And they have average consumption of fresh potatoes. But because their family size is large they are heavy purchasers of fresh potatoes. They like gourmet sized potatoes for kids and they are most likely to use sachets and jars.

Glenda utilises a marketing mix of proactive public relations targeting health writers and food publications, information kits/ fact sheets to promote the benefits of potatoes.

Glenda highlighted the need to promote the versatility of potatoes to inspire consumption by getting consumers to talk about their favourite way of eating and encouraging consumers to try new methods of cooking. The research undertaken indicated many people were keen to discover new recipes for cooking potatoes.

processing potato diseases such as Common scab, Powdery scab and Tomato spotted wilt virus while fresh potato skin diseases such as Black dot and Silver scurf have been flagged for investigation.

The shorter-term commercial breeding programs will be in partnership with commercial enterprises, and will be privately funded. The priorities for these programs will be determined by the commercial partners and will include developing better performing french fries and crisping varieties for processed potatoes and improved quality varieties for fresh potatoes.

To date, discussions have been held with a number of commercial organisations, with programs and goals already identified for implementation. If other companies are interested in being apart of the program please contact Tony Slater - ph: 03 9210 9222, or tony.slater@dpi.vic.gov.au.

Tony Slater

Victorian Department of Primary Industries
The Future National Potato Breeding Program

The new program, which is due to start in July, will be focused into two areas; a pre-breeding phase and commercial breeding programs.

The long-term pre-breeding program will be concerned with developing disease resistant potato varieties that can be used as parents in the commercial programs. The program will be targeting

Peter Jacobs

Head of Agribusiness
ANZ Regional and Rural Banking

Growers need to see themselves as being in two businesses - farming and wealth management.

Wealth management involves improved financial literacy skills and a management interest in both optimising farm performance and optimising farm capital performance, which may mean increased focus on off-farm investment opportunity as well as on-farm.

- The potato industry to date has proven to be an attractive business sector but will need to gain increased efficiency to match import, competition and processor's requirements.

- Drought and water are causing new risks to emerge, but water trading does provide opportunities for growers to manage this risk.
- High land values are a two edged sword in that it creates asset wealth for the operator but may curtail expansion opportunities.
- Farmers can make additional returns from horticulture if they understand that they are in the wealth management game as well as in the farming game.

What should potato growers be focusing on and doing in the future?

There are 3 things that growers should be doing

1. Farm better - improve efficiency
2. Get more farm - expansion will allow economies of scale to reduce base operating costs
3. Use the farm to invest in other sectors

Growers are focussed on the first 2 but possibly have under performed in regard to the 3rd opportunity.

Dr Rob Bramley

Principal Research Scientist
Precision Viticulture, CSIRO

Precision agriculture (PA) involves the collection of data describing the performance of the production system (eg yield, quality) and its inherent characteristics (eg soil properties) at high spatial resolution, and the subsequent use of this data to assist with targeting management (application of inputs and/or collection of outputs) in both space and time.

The objective of PA is to gain increased control over inherently variable production systems such that any given management decision has an increased chance of delivering the desired or expected outcomes compared to conventional whole-of-paddock approaches to management.

Most of the focus in broadacre agriculture is on the variable rate application (VRA) of inputs (eg fertilizers) which may well be a legitimate focus for potato growers.

Selective harvesting is the split picking of fruit at harvest according to different yield and/or quality criteria (ie. Picking the larger sized potatoes) in order to exploit the observed variation may also represent an opportunity for potato growers.

He also noted Bernd Kleinlagel (Advanced Technology Agriculture) is developing a potato yield monitor which has conducted preliminary testing with Parilla Premium Potatoes.





FOOD FOR THOUGHT

HIGHLIGHTS • 2007 NATIONAL VEGETABLE CONFERENCE HIGHLIGHTS • 2007 NATIONAL VEGETABLE CONFERENCE HIGH



The tradeshow drew a diverse crowd



Keynote presenter, Woolworths CEO Michael Luscombe



Presenter, Nick Rodd, Director Menu Management, McDonalds Australia



Organic Crop Protectants' vegetable sculptor was a hit with the trade show crowd



Delegates caught up in a mexican wave at the Wednesday presentations



Minister for Agriculture, Fisheries and Forestry, Peter McGauran, at the gala dinner





Vegetable industry's champions take centre stage in Sydney

Five of the Australian vegetable industry's best individuals were recognised as the winners of the industry's top awards in Sydney last week at The AUSVEG Awards Gala Dinner.

The awards dinner recognised the efforts of the award finalists and announced the winners of the NAB Agribusiness Grower of the Year, Young Grower of the Year, Researcher of the Year, Brisbane Produce Markets Innovative Marketing Award and the AUSVEG Chairman's Award.

The Honourable Minister for Agriculture, Fisheries and Forestry, Peter McGauran MP, attended the gala dinner as special guest and was joined by over 350 industry guests on the night to toast this year's award finalists and winners.

AUSVEG Chairman, Michael Badcock said that he congratulates the award's finalists and winners for their outstanding achievement within the industry.

"Professional industries recognise their best people and that's what the Australian Vegetable Industry Awards are all about.

"On behalf of the Australian vegetable industry I whole heartedly congratulate every winner and finalist for their commitment to excellence within our industry."

Winners of the 2007 AUSVEG Vegetable Industry Awards:

- NAB Agribusiness Grower of the Year
Dino Musolino, South Australian vegetable grower.
- Young Grower of the Year
Danny Trandos, Western Australian vegetable grower
- Researcher of the Year
Dennis Phillips, Department of Agriculture WA
- Brisbane Produce Market Innovative Marketing Award
John Said, Victorian vegetable grower
- AUSVEG Chairman's Award
Ian Young, Tasmanian vegetable grower

Potato Finalist - Michael Mancarella

A potato grower from South Gippsland, Michael Mancarella joined his parent's enterprise in 1991. He has developed a keen knowledge of the potato industry, building relationships with both growers and wholesalers.

Michael 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 research projects to develop superior varieties for the industry. He has worked in conjunction with the Department of Primary Industries and other wholesalers to conduct field trials in Thorpdale, Victoria.



Dr Conall O'Connell and
AUSVEG Chairman Mike Badcock
at the Potato Biosecurity
Plan launch.

Putting potato pests on notice

Plans to protect Australia's potato industry from establishment of exotic plant pests and diseases were unveiled at the National Vegetable Conference in Sydney by the Secretary of the Department of Agriculture, Fisheries and Forestry, Dr Conall O'Connell.

The National Industry Biosecurity Plans (IBPs) for the potato, vegetable and onion industries present the first nationally coordinated and consistent approaches to managing and reducing the risk of plant pest incursions.

"The IBPs are a vital tool for Australia's vegetable, potato and onion industries in the fight against pests and diseases which pose a constant threat to sustainability, profitability and viability. They provide us with a blueprint for taking the next steps to reduce the risk of incursions, improve pest and disease diagnosis and to develop contingency plans to deal with any outbreaks," said AUSVEG Chairman, Mr Mike Badcock.

"An outbreak could be devastating for these valuable and growing industries, for local communities and for Australia's economy. Pests have the potential to affect production, causing financial losses to industry and negative impacts on regional economies. They also threaten markets currently valued at over AUD\$1.5 billion, as well as the environment."

Plant Health Australia (PHA) led the development of the IBPs in partnership with AUSVEG, Onions Australia, the Australian Government and the state and territory governments.

PHA Chairman, Mr Andrew Inglis AM, said "PHA is delighted with what has been achieved with the development of these plans. Together they contribute to world class biosecurity arrangements for managing and minimising risks, and responding effectively to any exotic pest threats across our plant industries."

The development of the IBPs involved identifying the pests that affect the vegetable, potato and onion industry worldwide, and prioritising them according to their risk to Australian producers.

The risks posed by pests and diseases such as Bacterial Ring rot (*Clavibacter michiganensis* subsp. *sepedonicus*) for potatoes were analysed, and measures identified to reduce the chance of any pests reaching Australia's borders. Strategies were also identified to minimise the threat posed by these pests in the event that they reach our borders.

Water Workshop examines Murray-Darling

A water workshop was convened in mid-May to determine a collective horticulture industry approach to dealing with potential extreme water shortages in the 2007/2008 season in the Darling basin. Most peak horticulture bodies were represented. AUSVEG was represented by its Economic Policy and Research Manager, Ian James.

Conditions in the Murray-Darling Basin

Presentations were given on conditions in the Basin and initiatives already undertaken on behalf of horticulture. Background papers were provided on water allocation outlooks for NSW, Victoria and South Australia. Despite recent rains the situation is grim. April represented the 11th consecutive month of record low inflows into the Murray River, 40 gigalitres, compared with the previous record low of 58 gigalitres in 1923. There has been no flow in the Darling River at Wilcannia since September 2006. The Hume Dam is at 6 per cent of capacity and the Dartmouth at 10 per cent. Without drought breaking rains and significant inflows into the Murray there will only be enough water to meet critical town water supply and some minimal industry water needs. The whole economic/environmental complex in the Basin is in danger of collapse.

Workshop Discussion and Key Outcomes

A workshop then followed on potential ways to deal with extreme conditions. Discussion centred around three key areas:

- **Information Requirements** - Timely information on the water situation is a critical input for grower decision making. Weekly announcements are required on the water allocation situation. Two critical periods were identified for growers, July-November and post November. Growers require consistency in allocation policy decisions between the states and in announcements.
- **Exceptional Circumstances** - There was consensus that the current exceptional circumstances provisions package cannot be accessed by most growers. After discussion it was resolved that in the short term a horticulture taskforce would present the Government with required changes especially in relation to interest rate subsidies and relaxation of threshold and off-farm income criteria. In the longer term it was resolved that there is a need to develop new exceptional circumstance provisions targeted with horticulture in mind.
- **Water Allocation Criteria** - This area was the most contentious among participants. An argument was put forward that preference in allocation of water be given to tree crops to maintain tree survival and then trade excess water. AUSVEG opposed this position arguing that this placed government bureaucrats in the position of making arbitrary decisions as to which areas of horticulture they deemed worthy. In a worse case scenario vegetable growers would be left with no water. It was argued that if the crunch came it was better to let the market decide on who got the limited water supply. The workshop did not come to an agreed position on this issue.

It was resolved that the messages from this discussion be presented to a subsequent industry forum and conveyed to Government.

Fresh Potato Marketing

In the first of what will be a regular feature, Matt Wickham gives an update on his marketing work for the fresh potato industry.

Since starting at AUSVEG in March, I have been reviewing relevant research that has already been conducted in Australia for the industry and have also had the opportunity to get out and visit a few growers, accelerating my understanding of potato production and its needs.

Research into promoting fresh potatoes as well as consumer attitudes and behaviour has given me a great head start and valuable feedback into possible areas of focus. Initial investigation into overseas marketing plans and initiatives for domestic industries indicates there are a large number of marketing opportunities for our industry to adopt moving forward.

Speaking of moving forward, thank you to the producers in South Australia, Tasmania and Victoria that have taken the time to tour me around their facilities, it is greatly appreciated. I'm in the process of scheduling trips to the remaining states over the next month or two to get some insight into issues facing the industry, both nationally and locally.

I'm keen to get as much information as possible, so if there are any fresh potato growers who're happy for me to visit them on my tour, please drop me a line and I'll try to arrange it. The more farms I see, and different opinions I gather, the better.

With the research and information collected, I'll be generating some initial recommendations on the future direction of marketing for fresh potatoes. This might involve filling possible

gaps in the current collection of research and investigation of similar overseas and domestic marketing endeavors, but will ultimately lead to a marketing communication and promotional plan for the industry.

I am determined to be open to the industry about my work and progress. Potatoes Australia is a great medium to help me communicate ongoing projects or developments, however please do not hesitate to provide any feedback or suggestions you may have. I am here to support the whole industry.

I would like to quickly thank all those I got a chance to speak to at the Vegetable Industry Conference in Sydney, it was great to meet you and thanks for your time. And thanks to those who were patient enough to listen to my presentation - I tend to rattle on a wee bit; I guess it's a marketing thing!

My ultimate goal is to drive consumer demand for fresh potatoes to the benefit of the entire fresh potato industry. With support from growers and key members of the supply chain there is no doubt in my mind that growth in this area is highly achievable. This will directly result in strengthening the position of the Australian fresh potato industry.

Matt Wickham can be reached in the AUSVEG Melbourne office and via email matt.wickham@ausveg.com.au.

The Bottom Line

- Research has commenced into overseas marketing techniques
- Preliminary information gathering trips to Tasmania, Victoria and South Australia have been conducted
- Areas for further research and initial marketing direction are currently being determined



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The budget at a glance:

- \$205.4 million over the next four years to continue the Government's Agriculture - Advancing Australia (AAA) policy package;
 - \$75.7 million over four years for the National Food Industry Strategy;
 - \$112.1 million over three years to 2010-11 for landcare activities;
 - \$50.0 million for a new environmental stewardship programme (jointly delivered with the Department of the Environment and Water Resources);
 - \$1.975 billion over five years for natural resource management (jointly delivered with the Department of the Environment and Water Resources);
 - \$10.3 million to eradicate the Red Imported Fire Ant;
 - \$12.7 million to strengthen Australia's quarantine risk assessments.
- Minister for Agriculture, Fisheries and Forestry, Peter McGauran said that the AAA package had been highly successful to date and all of its programmes would continue with permanent funding. Improvements to the package include:
- A doubling of support - to \$40 million over four years - for the Advancing Agricultural Industries Programme (previously known as Industry Partnerships) to assist industries identify emerging trends and instigate industry-led actions to capitalise on opportunities and respond to emerging risks;
 - The new FarmBis to be delivered nationally to make sure producers across Australia have equal and consistent access to training and education opportunities;
 - Easier access to FarmHelp support for families in severe financial hardship by allowing previous recipients a second chance to obtain advice and training and/or a re-establishment grant. The re-establishment grant is also to be increased by 50 per cent to \$75,000. The maximum asset limit for obtaining the full grant will also be raised for those producers who choose to leave agriculture.



Budget delivers the goods

by Ian James **AUSVEG Economic Policy and Research Manager**

With Canberra awash with tax revenue on the back of the mining boom, the Federal Budget had something for just about everyone. Leading into the budget, economists feared that the combination of an election year and oodles of cash might tempt the Government to spend up big in an economy already stretched to the limit. However, this budget is cleverly designed with a balanced approach between political necessity and economic reality. The Treasurer has delivered a fiscally responsible budget that limits the impact of initiatives on already pressured resources. There are some

visionary aspects of this budget to assist in the sustaining of a strong economy. Tax cuts are well targeted to provide an incentive for increased labour force participation and the emphasis on skills training and education is welcomed.

The budget has delivered on some of our wish list with increased funding for road and rail, the farm business management program and re-establishment grants for farmers who wish to exit the industry, subject to asset and income tests.

The big issue of water and climate change was not addressed in the budget but given the reserve of cash still available to the Government we can expect the announcement of some big initiatives later in the year with spending deferred beyond 2007.

How the Vegetable Industry rated the Federal Budget

Prior to the announcement of the budget, a 'wishlist' was created for the industry. Here's how the Government scored.

- Maintenance of a fiscally responsible budget that doesn't fuel inflation and add pressure to already strained resources.
- Spending initiatives undertaken should concentrate on relieving bottlenecks and be focused on long term infrastructure projects.
- Proceed with water initiatives to secure the long term viability of vegetable production and increased funding to improve dilapidated road and rail networks. *Despite it being a hot topic, there was little announced in budgetary initiatives for water. The increased spending on road infrastructure (which is always welcome) is a continuation of existing projects, as is the rail freight line between Melbourne and Brisbane.*
- Policies to tackle the shortage of labour in rural areas including increased funding for skills training. *Although the government has increased funding for its Agriculture - Advancing Australia package, including provision for existing agricultural workers to improve their skills, there is little that has been done to entice new workers to rural communities.*
- A review of agriculture education to encourage more young people into agriculture. *Similarly, although there has been additional funding to agricultural courses, more could be done in the form of scholarships and subsidies for rural students, as consolidation of agricultural colleges has led to many potential students having to relocate in order to undertake study.*
- Further support for research and development and measures to retain and provide a long term career structure for researchers in the industry. *Industry funding is gradually being eroded and becoming more short term, which makes it harder to retain researchers with expertise in diseases and horticultural techniques. To date, the government has not addressed this issue.*

- Funding to enable more stringent testing of imported vegetables to prevent the outbreak of exotic pest incursions into Australia. *AUSVEG would like to see more resources for AQIS, which would translate into more rigorous testing on imported vegetables brought into Australia.*
- Further initiatives on rural health including the provision of a range of para-medical services to help combat depression and social isolation. *Although extra doctors have been allocated to rural areas in recent years, more needs to be done on the resourcing front for growers however the government's listing of psychologists as a medicare rebate is an excellent step in the right direction.*
- Significant funding from the health budget directed towards everyday healthy food intake, (such as vegetables), to support initiatives in tackling Australia's obesity crisis. *The government needs to put its money where everyone's mouth should be to tackle obesity, with a prime opportunity presenting itself in marketing vegetables and potatoes in particular, as the healthy alternative.*

In addition to the wishlist:

- National FarmBis. *Although not on the wishlist, National FarmBis is a welcome shot in the arm to aid in the improvement of rural training and education.*
- Further enhancement of the Agriculture - Advancing Australia (AAA) funding initiative. *Mr McGauran has affirmed his commitment to the AAA package by confirming all of its programmes would continue with permanent funding.*
- Responsible tax cuts.

Analysis provided by AUSVEG.



Mandatory Horticultural Code of Conduct



Launched by Minister for Agriculture, Fisheries and Forestry, Peter McGauran, the new mandatory Horticulture Code of Conduct, has reverberated around the industry, with many still unsure exactly where their responsibilities lie and ultimately, how the code will affect them. The code's aim is to improve the transparency and clarity of transactions between growers and wholesalers of fresh fruit and vegetables.

Under the code, an independent assessment of transactions and low cost mediation of disputes can be provided. The code was developed to address the lack of commercial transparency identified in grower/wholesaler transactions after growers and wholesalers failed to agree on voluntary arrangements for transparency.

It is hoped the code will benefit growers and wholesalers by improving business practices in the fruit and vegetable wholesale sector, enabling growers to also benefit from better information about how wholesalers buy and sell their produce.

The key requirements of the code

The key requirements are that:

- wholesalers publish their preferred 'terms of trade'
- growers and wholesalers use written agreements
- wholesalers are clearly identified as either agents or merchants
- wholesalers provide written transaction information to growers
- independent assessment is available on transactions
- low cost mediation is available if disputes arise.

Application of the code

The code covers all transactions between growers and wholesalers of fresh fruit and vegetables in Australia. A wholesaler is either:

- a merchant, who buys a grower's produce for resale, or
- an agent, who sells produce on a grower's behalf for a commission or fee.

The code does not cover retailers, processors or exporters who buy a grower's produce because these transactions are more likely to be conducted under clear and transparent terms. The code does not affect any existing written contracts between growers and wholesalers entered into before **15 December 2006**.

Written transaction information

A wholesaler must provide a grower with a written report containing basic information about the purchase of the grower's produce, under a merchant transaction, or the sale of the grower's produce, under an agent transaction.

When acting as an agent the wholesaler must report on times and dates of delivery of produce, dates of sales, type and quantity of produce, prices received, amounts deducted by the wholesaler and details of produce not sold. When acting as a merchant the wholesaler must report on dates and times of delivery and purchase, quality and quantity of produce and prices paid.

A wholesaler must provide the grower with the report within a set period agreed by the grower and the wholesaler in the written agreement. The report can be for a single delivery or for a period of time as agreed.

Requirements for rejection of produce

If a wholesaler decides to reject a grower's produce, he or she is required to contact the grower immediately and provide written notification of the rejection and the consequences of the rejection. A wholesaler can only reject produce for reasons outlined in a written agreement.

Resolving disputes

Growers and wholesalers can use any type of dispute resolution procedures they choose. However, if either a grower or wholesaler wishes to use the code's dispute resolution process then the other trading party must comply. In the first instance, the code calls for the two parties to attempt to resolve the dispute themselves and, if that fails, to participate in mediation. A mediation advisor will provide low cost mediation services under the code.

Information supplied by the Department of Agriculture, Fisheries and Forestry

For more information, please visit the:

Department of Agriculture, Fisheries and Forestry website at www.daff.gov.au/hortcode.

Australian Competition and Consumer Commission website at www.accc.gov.au/industry_codes

or call the ACCC Infocentre on **1300 302 502**.

www.hortcodema.com.au.

Further information about the Horticulture Mediation Adviser can be obtained by ringing 1800 206 385, or from the Department of Agriculture, Fisheries, and Forestry's website at: www.daff.gov.au/hortcode

On May 14, 2007, the long awaited and much publicised mandatory Horticultural Code of Conduct took effect. Many predictions had been made by groups as to how the code will affect growers, but it has become clear there are a wide range of opinions on the effectiveness of the code, however, most agree it will take time to fully assess issues likely to impact growers.

Initial anecdotal evidence suggests some growers are being pressured into signing non-compliant contracts but there have been few reported instances of abuse. How has the code affected you?

"Everybody will be better off through easy to prepare contracts which define terms of trade between wholesalers and growers,"
- *Growcom Chief Advocate, Mark Panitz*

Although the statutory marketing authority in WA is exempt, I believe it should be one in, all in. The horticultural produce agreement growers are being asked to sign is the minimum terms of trade. Many proactive market agents have significantly better relationships with growers which leads to better terms of trade in some instances. I recommend people embrace the spirit of the code. It will lead to a stronger, more robust business arrangement with intermediaries and growers,"
- *David Anderson, WA Potato Growers Association*

While the code offers a range of benefits to the industry, these are likely to be overshadowed by the small number of inflexible provisions which make it illegal for a grower and wholesaler to enter into a range of contractual arrangements which give them greater cost efficiencies

- *Andrew Young, Chief Executive Officer, Brisbane Markets Limited*

"I strongly urge all in the horticulture industry to work cooperatively under the new code, which is designed to strengthen existing trading relationships between growers and wholesalers,"

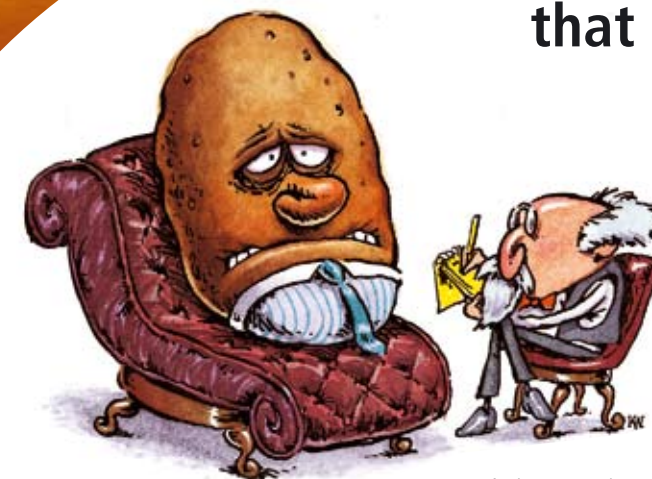
- *Minister for Agriculture, Fisheries and Forestry, Peter McGauran*

"The ACCC is investigating allegations some traders are insisting growers enter a non compliant horticulture produce agreement. Traders who induce growers into entering into such contracts also risk engaging in misleading or deceptive conduct if they wrongly give the impression to growers that they will not enjoy the benefits delivered by the code,"

- *ACCC Chairman, Mr Graeme Samuel*

How are you affected by the code? Are there any questions you want answered? Get in touch via simon.adams@ausveg.com.au or 03 9544 8098.

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Bruce Fry (far right) on the packing line.

30-year commitment yields tonnes of respect:

Bruce Fry retires

Careers can be measured in many ways; perhaps the most telling is the farewell. Bruce Fry had 110 growers, researchers, industry identities and staff farewell him at the end of his 30-year career at the Victorian Department of Primary Industries. It must have been some career!

Bruce Fry was born and bred in potato country around Gellibrand in Southern Victoria. He completed a Diploma in Agricultural Science at Dookie Agricultural College in the early '70s and worked for three years on a seed potato farm at Beech Forest, again in Southern Victoria.

Perfectly groomed, Bruce started work with the Victorian Department of Primary Industries (the Department) in 1978. His first role was with the Seed Potato Scheme – now ViCSPA – providing seed to growers across Victoria.

From this start, Bruce's career evolved into a series of diverse roles including extension, regulation, quality assurance, training and research. Bruce says he was fortunate to have such broad ranging career, saying it would be difficult to do the same now with more defined career paths.

Through his career Bruce worked with Plant Standards, Competitive Quality Potatoes, Water for Growth in Ballarat, a range of breeders and researchers, and most recently Veg Cheque. His work has taken him to Queensland, New South Wales, South Australia, Western Australia and the Philippines.

Bruce cites providing technical support for potato sales into the Philippines as one of his career highlights, but says the people he has worked with (the growers, the researchers, the processors and staff) remain the most important to him.

The respect Bruce has for his colleagues is returned in full. Keith Blackmore, from ViCSPA, was on the panel that interviewed Bruce in 1978. Keith remembers the interview clearly.

'Bruce handled himself coolly and with honesty in the interview, which is how he approached his work. He has been a loyal servant to the industry and has earned the respect of those he has worked with.' Keith said.

During his 30-year career, Bruce says he has seen many changes.

'When I first started we had eight varieties to choose from; now we have 80. There was also only one potato industry, but now we have four: the seed industry, the French fry industry, the crisping industry and the fresh industry.' Bruce said.

Although Bruce retired on 2 March, he is not totally lost from the potato industry. He will be working part-time with the Otway seed growers for six months of the year, but this might be all he has time for. He still needs to manage his beef farm with his wife, Cecelia, a Primary School Teacher of 39 years; provide secretariat support for the Pirron Yallock Landcare Group; preside over the Colac Sportsman's Club; and train for his cycling and sailing expeditions.

Retirement has never been so busy!

CEO's message

The Australian Vegetable Industry Conference and Gala Awards Dinner were outstanding successes bringing diverse sectors of the vegetable industry together to debate the big issues and celebrate achievements.

And debate we did. Topics such as difficulties in dealing with suppliers, changing attitudes of consumers, the need for the industry to act as one, vegetable marketing, water shortages and agriculture investment schemes caused enthusiastic discussion.

A big thank you to all the sponsors, partners, trade show exhibitors, speakers and attendees with a special mention (and congratulations) to all the award winners. Conference registrations were much higher than expected considering the difficulties that many growers faced from the drought.

There were many highlights, including the National Potato Industry Biosecurity Plan launched by Conall O'Connell, Secretary Department of Agriculture Fisheries and Forestry at the official opening of the conference. The plan identifies biosecurity risks to the potato industry and develops strategies to minimise their impact. A copy of the plan is available on the AUSVEG website.

At the conference dinner, Peter McGauran, Minister for Agriculture, Fisheries and Forestry unveiled the new Australian Grown logo. AUSVEG is a campaign partner of the logo and it was welcomed enthusiastically by our industry. The clear labelling of produce as Australian has been a long battle for our industry and I am pleased to say it has been very rewarding to see it come to fruition.

In other news, the National Potato Cyst Nematode (PCN) Working Group met for the second time on the 23 May to consider the progress of the work plan it developed earlier this year. You will recall that the purpose of this working group was to develop and implement national protocols for the containment and movement of potatoes from PCN affected areas across Australia. The working group consists of industry representatives, state and federal government regulators, Plant Health Australia and HAL. The next meeting is mid July when a draft of the plan will be considered prior to wider industry and government consultation.

In the area of chemicals of security concern a national workshop of participants representing the industry working group, technical working group and government working groups was held in late May. The consensus from this workshop was that the most appropriate forms of control are likely to be those that blend with current industry systems already in place. These present systems such as ChemCert and AgSafe, to be relevant, will need to ensure industry wide coverage and deliver on the chemicals of security concern protocols. The resounding message from the workshop for industry and regulators alike is that preemptive intelligence is extremely important in negating any illegal activity. Workshop participants were in strong agreement that serious resources for comprehensive education and awareness were critical for a successful outcome.

Direction of where AUSVEG is heading, led by the Board and Chairman Michael Badcock, has been very clear. The message to management has been to get on with the job regardless of some of the tough and less popular decisions that have been needed. The industry cannot afford any slackening off if it is to best position itself in the coming 12 months.

In 2006, Minister McGauran announced the year of horticulture. The United Nations went one better; they claimed 2008 as the year of the potato, aimed at third world and developing countries for a healthy food source. And with the work we are doing with the so called humble potato- watch this space as it becomes the sexy spud!



John Roach
Chief Executive Officer
AUSVEG



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Vegvision 2020

A Strategic Plan for the Australian Vegetable Industry

The Australian vegetable industry is being encouraged to support a range of new industry initiatives being established as part of the roll out of the industry's strategic plan, Vegvision 2020.

The Vegvision 2020 plan is being driven by the industry through the Australian Vegetable Industry Group (AVIDG) which is made up of representatives of all sectors along the supply chain.

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

"The most successful businesses within the vegetable industry are developing and maintaining the right skills. They seek and maintain good relationships with their customers and understand their ever changing needs. These businesses have developed networks and relationships which allow them to function and grow. The common thread for these businesses is both energy and commitment," he said.

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

Richard highlighted increasing consumer demand for Australian vegetables on both an international and domestic level, targeted skills development, better information for benchmarking, and working with industry organisations to improve leadership and structure as areas requiring industry focus..

The AVIDG is charged with the job of engaging with the Australian vegetable industry supply chain to drive the strategic plan through investing in selected Foundation Projects and then encouraging industry to manage them longer term.

Already four projects have been commissioned.

An Export network 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.

In a second project, a survey being undertaken by the Australian Bureau of Agriculture and Resource Economics (ABARE) in April this year will provide some benchmark data about the status and profitability of the vegetable industry around the country. Growers can have a say in the future policy directions of their industry by participating in the ABARE grower survey.

A leadership and industry structures project is now 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 the 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.

The AVIDG has also approved funding for the appointment of a People Development Coordinator through a grant to AUSVEG.

The role of the Coordinator is to enhance human resource capacity across the vegetable industry supply chain. The Coordinator will review existing business skills and training programs and put together a People Development Investment Plan for the whole vegetable supply chain. This position will be funded by the grant until June 2008.

Read or download Vegvision 2020 at www.avidgroup.net.au

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Russet growers to get boost from manual



South Australian growers have been taking in research into ways to improve crops for the local french fry industry. Katie Fisher checks in on the progress.

A new grower-friendly manual which identifies crop management tools to improve harvest quality and yields is being developed by the Department of Primary Industries and Resources SA (PIRSA).

The manual, entitled *Management Planning Tools*, is the result of a three-year project based on the french fry industry in the South East of South Australia which identified and evaluated the main crop management tools currently used by growers.

Crop management concepts that were identified as areas of focus included crop nutrients, best management practice(s), nutrient management planning and budgeting, pests, diseases and irrigation.

Project Leader Bob Peake from PIRSA, said the 'tools' would ultimately improve quality, yields and production efficiencies of Russet Burbank crops.

"The project was able to identify crop management tools that would increase yields, improve the quality of product from the paddock that is in the optimum size and weight range with reduced numbers of 'smalls'," Bob said.

In 1990, the potato processing industry in the South East of South Australia underwent an expansion phase. To support this expansion phase, the development and application in the field of a crop monitoring service with up-to-date technical information was built.

As a result, a comprehensive database detailing historical agronomic and crop management information was formed that could continually be updated by growers and industry.

Bob said the project evaluated this database to determine its contents and trends and then referred concepts to the project management team for consideration.

The project management team, which comprised of growers with many years of practical and technical experience as well as industry staff, was formed to manage the project, provide feedback on concepts from the database analysis and assist in evaluating crop management tools.

Bob said a key success to the project was the enthusiasm from industry and growers in exploring what outcomes may be achieved through analysis of the database.

The database information was used to develop a crop management tool which would improve growers' production planning.

"Basically, the information gathered in the 1990s built on the experiences and management practices of growers and industry,

and subsequently a checklist system for paddock recording was developed that provided the opportunity for growers to actively recover and manage their experiences," he said.

"The project summary for the detailed database analysis found that, in general, the existing crop management strategies were sound," Bob said

"Therefore we focused on monitoring and improving the small incremental steps of crop management rather than endorsing large changes to management systems," he said.

"In fact, the concepts derived from our analytical work demonstrated that the South East potato growers were managing their systems on a comparable basis to others on a global scale."

The project's analysis of the historical database identified nitrogen application rate determination, budgeting and general management as key concepts in increasing crop production.

Bob said crop management tools were produced as a 'checklist' with measurement-recording pages and compiled in a folder format.

"Growers and key industry personnel were contacted and asked to identify their concerns, knowledge and experiences regarding the application of crop monitoring tools," Bob said.

The *Management Planning Tools* manual will be available in an easy to use folder with pages inserted in plastic envelopes. Bob said the focus was to produce a manual that was grower and staff friendly, portable, with worksheets that were suitable for field use, relatively time efficient to use and affordable.

Sections within the manual include: Crop Nutrient Management; Best Management Practice; Nutrient Management Planning and Budgeting; Pest Management; Disease Management; Irrigation Management and a Paddock Worksheet.

The *Management Planning Tools* manual is expected to be available to growers later this year.

The Bottom Line

- Research has been undertaken into improving crop management practices for crops supplying the french fry industry in South Australia
- Practices have been identified which are expected to improve Russet Burbank crop yields and quality
- A grower-friendly manual summarising the information will likely be released later in 2007



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Common scab versus “The World”

The first international Common scab conference was held in Guelph Canada 5-6 March 2007. The conference was attended by around 150 delegates made up of growers, advisers and researchers. The researchers were from around the world including Scotland, South Africa, US, Australia and Canada. Representing Australia was Calum Wilson (Tasmania), Leigh Sparrow (Tasmania) and Nigel Crump (Victoria).

The common message of the international presenters was that Common scab is increasing and the disease appears to be getting worse. It was apparent that Common scab is a worldwide problem and not unique to a particular country or production system. Despite the -30°C temperature outside the conference venue, there were plenty of hot topics presented. They included:

- Fumigation with chloropicrin (soil fumigant) to control Common scab
- Reducing Common scab incidence with Rape seed meal
- Biological and cultural approaches for management of Common scab
- Soil nutrients influence on Common scab
- Distribution of scab causing *Streptomyces* species in potato growing regions in the Unites States
- Genetic resistance to Common scab
- Common scab pathogen ecology and disease management

There was also a display of the susceptibility/tolerance of potato varieties that had been grown in scabby field (Fig 1).

Outcomes for Australia

The conference was a good opportunity for the Australian attendees to build or renew links with other programs and researchers from around the world. Particular highlights included;

- The work of genetic resistance presented by David Douches (Potato breeder Michigan State University) emphasised the need to improve potato varieties tolerance to the disease. Several potato varieties bred in the MSU program that have high tolerance to Common scab have been identified for their suitability to Australian production. We are now working

through the importation of these cultivars into Australia through the Australian potato breeding program led by Tony Slater, DPI Victoria.

- The conference highlighted that the soil fumigant metham sodium, while good on Verticillium wilt, was not effective in reducing Common scab. Research done by Doug Rouse (University of Wisconsin, Madison) showed that the soil fumigant chloropicrin was an effective alternative. This fumigant was shanked into beds to reduce costs while providing effective control of Common scab.
- Research done in South Africa by Reinette Gouws was showing the effect of green manures (sorghum or dried cabbage residue) significantly reduced Common scab. Similarly the research done by Robert Larkin (USDA) showed that 2 year and 3 years rotation with canola and rapeseed as rotation crops significantly reduced Common scab relative to continuous cropping or other rotation crops. In comparison, soybean, green bean and red clover as rotation crops increased disease problems. Replacing ryegrass for clover as an under seeded crop with barley also substantially reduced Common scab. On farm trials of Brassica green manure crops, Indian mustard (but not yellow) also reduced Common scab and powdery scab. Similar trials using green manures are underway in Australia, as part of the PPR&D program, looking at the impact of green manures on Common scab and Verticillium wilt.
- The group led by George Lazarovits (Agrifood and Agriculture Canada) are investigating soil nutrients that may contribute to Common scab. A survey of soils in Prince Edward Island and Ontario has shown that high pH levels and high concentrations of K and Na contribute to scab, but may be soil specific. Soils with high levels of Mn, adequate N for crop growth, and balanced K:Mg ratios were commonly associated with no or low Common scab levels. The PPR&D team are collaborating with Dr Lazarovits in this area, and we are already seeing similar results here in Australian surveys. Research is continuing, both in Canada and Australia, exploiting ways to manipulate soil nutrients to suppress disease.

Overall, the conference was a good summary of what is happening with Common scab research and experiences from around the world. While there was no one silver bullet to overcome Common scab the efforts from around the world offer some promise in the development of an integrated approach to combating this disease. Furthermore, it was sobering to see that the Australian research is world leading and aligned with other groups around the world.



Figure 1. Display of susceptibility/tolerance of potato varieties grown in scabby field

Two new young minds to take on two old problems

Two new students have joined the DPI Victoria potato pathology group at Knoxfield. They are Peter Carmicheal and Anthony Sharpe both of whom are doing their honours thesis with Melbourne University supervised by Associate Professor Paul Taylor and Dr Nigel Crump.

Peter's project is developing a better understanding the fungus *Colletotrichum coccodes* that causes Black dot of potato. Increasingly, the pathology group at Knoxfield, have been finding this fungus in potato plants that are wilting and showing signs of early dying which is generally associated with Verticillium wilt.

In the US and Canada foliage of affected potato plants show lesions similar to that of target spot, in fact, target spot and *Colletotrichum* lesions have been confused and mis-identified. There are no reports of foliage lesions on potato plants caused by *Colletotrichum* in Australia. Peter's project will investigate if there are different types of the fungus involved in causing the wilt symptoms and the typical Black dot symptoms on tubers. His research will establish if *Colletotrichum* is capable of causing target-spot like symptoms on foliage here in Australia.

Anthony Sharpe is working on the Fusarium species associated with dry rot of potatoes. His research will look at the different species that cause dry rot and also will confirm the presence of TBZ fungicide resistance in Fusarium species in Australia. Fusarium developing TBZ resistance has been reported in several countries including Canada, US and UK. Preliminary research conducted in Australia has identified that TBZ resistance also occurs in Australia.

PPR&D Researchers



Potato research leader almost chose another path:

Calum Wilson is at the forefront of an ongoing war in Tasmania. He is the leader of a group involved in wide-ranging research into plant diseases including those affecting potato, other vegetables, pyrethrum and hops. He also heads one of the sub programs in the Processing Potato R&D Program focussed on enhancing resistance to Common scab disease and development of gene markers for resistance to tomato spotted wilt virus (TSWV).

Calum, 42, is Associate Professor in Plant Pathology at the University of Tasmania. He says a lifelong interest in growing things and finding out how things worked have led him to his present position. He recalls ruining many a toy with his childhood experiments and says he suspected from an early age that his future would somehow involve horticultural science.

But his career almost took a different turn in the late 1980s when he graduated from university in New Zealand. Calum had completed an honours degree in plant pathology and masters degree in microbiology and genetics at Canterbury University. "I wasn't planning to leave New Zealand and I seriously contemplated accepting a position in medical research and genetics," he said.

It took a scholarship offer from Australia to change Calum's mind. "I couldn't resist the lure of sunshine and plant pathology," he said.

He accepted the scholarship with the University of Western Australia where he completed a PhD in potato virology before joining the Tasmanian State Department of Agriculture (TIAR) as a plant pathologist.

In 1994 Calum accepted a teaching/research position at the University of Tasmania, training agricultural science students and future plant pathologists. This time also saw the formation of the Tasmanian Institute of Agricultural Research (TIAR), a joint venture between the University of Tasmania and the Tasmanian Government with Calum becoming its first seconde. For more than a decade since he has been a prime mover in a team which has grown plant pathology to one of TIAR's major research strengths.



Calum Wilson

Calum enjoys his work environment and says it allows a great balance between basic and applied research and teaching. "It enables me to interact with industry, students and scientific colleagues while working for tangible outcomes in the 'real world,'" he said.

Years of painstaking study by the research group Calum leads is starting to pay off in the campaign to control Common scab disease. "We now have some highly disease-resistant clones of Russet Burbank and other varieties, with as good agronomic and processing characteristics as the original cultivar," he said. "We are hopeful they will be ready for commercial release within the next few years."

Calum said his group is also focussing on the severe disease that TSWV induces in potatoes. "We have learned a lot about this disease, its major vectors, and host susceptibility, but progressing this toward effective control in potatoes will be a major challenge," he said. "We have had great success in development of a control package for TSWV in the Tasmanian lettuce industry, however the dynamics of the disease in potato are quite different and these control options are not transferable."

SPOTLIGHT ON:

Potato Ring rot

(*Corynebacterium sepedonicum*)



Ring rot of potato is caused by the bacterium *Corynebacterium sepedonicum* (previously known as *Clavibacter michiganensis* subsp. *sepedonicus*) and is one of the most serious potato diseases in Asia, North America, and central and northern European countries.

The bacterium is confined mainly to cooler potato growing regions due to its optimum growth temperature of 21-23°C. Ring rot of potato does not currently occur in Australia.

Potential impact

Ring rot causes early death of plants, rotting of progeny tubers and extensive yield reduction. A high level of infection can cause total crop loss. Economic impact usually results from a loss of certification, as discovery of one diseased potato plant in a seed potato crop can result in that field being rejected for certified seed. Losses also occur due to requirements for disinfection of equipment and stores

How does it thrive?

In the field the bacterium survives through winter in volunteer tubers and in dead potato material. The bacterium can sometimes be detected in stems of potato plants within 3 to 4 weeks after planting infected seed.

Bacteria can survive for 2 to 5 years in dried slime on the surfaces of crates, bins, sacks and machinery, even if exposed to temperatures well below freezing.

The disease is spread to seed tubers by mechanical planters, elevators, dressers and other handling machinery. Ring rot is therefore a greater problem in potato growing countries that are highly mechanised.

Symptoms

Ring rot causes yellowing of the lower leaves on one or more stems. Slight wilting and a rolling of leaflets may be seen after flowering. This is followed by a progressive wilt and eventual death of the stem. When a wilted stem is cut at the base a creamy fluid is visible.

The infection spreads into the tubers by way of the stolons causing a yellowish cheesy odourless rot of the vascular ring. A good diagnostic symptom of the disease is the separation of tissues from the vascular ring when a tuber is squeezed.

Information supplied by Information Services,
Agriculture Western Australia.

Information prepared by Chris Stansbury, Simon McKirdy, Alison Mackie and Greg Power, Hortguard™ Initiative AGWEST

Chips a look at what's new in potato information and technology



FEATURE – WHAT ARE POTATOES USED FOR?

Chips is usually focused on the production of potatoes, with emphasis on crop management, potato cultivars, and pests and diseases, although a few selected articles about the nutritive value and processing of potatoes are usually summarised in each issue. In this feature article, several scientific papers investigating the end-use of potatoes are highlighted. The uses for potato are varied, and include making plates and chip containers from potato starch, as outlined in the 6th issue of Chips, nearly 7 years ago.

Potatoes are firstly thought of as food, with everyone having their preference for boiled, mashed, baked, roasted, French fries or potato crisps. But did you think of potatoes being used for strawberry sauce? In the first article (0733-034), the research found that sauce thickened with potato starch required less xanthan gum and was more stable on storage than oat starch.

And what about animal food? The second article (0733-035) investigated the fermentation of potato pulp material with two inoculants, *Rhizopus oryzae* and *Amylomyces rouxii*, at three temperatures, 4, 12 and 25°C. The fermentation quality, starch and sugar concentrations of the silages were investigated after 7, 24 and 40 days. It was found that storage temperature and duration were more important determinants of fermentation than the fungal inoculants.

The third article (0733-013) describes a very topical use of potatoes – that of producing “bio-fuel”. This German study described European Union bonuses for the regular supply of biogas for electricity production and considered the use of potatoes and potato waste for this purpose. Using German data, costs and biogas yields from potatoes with high and medium starch contents, potato skins and potato pulp were estimated. It was considered that potato cultivation just for biogas production was not financially feasible. However, using potato waste that was not contaminated with soil or stones could be financially viable.

0733-034 Rheological and sensory properties of dessert sauces thickened by starch-xanthan gum combinations. *Journal of Food Engineering* (2007) 79 (4).

0733-035 The use of fungal inoculants in the ensiling of potato pulp: effect of temperature and duration of storage on silage fermentation characteristics. *Asian-Australasian Journal of Animal Sciences* (2007) 20 (2).

0733-013 Power supply from biogas. How economic is the fermentation of potatoes and potato waste? *Stromerzeugung aus Biogas, Kartoffelbau* (2006) No. 6: 288-291.

POPULAR ARTICLES

www.spudman.com

APRIL 2007

“Acreage reductions: PEI moves toward permanent acreage cap or buydown program” p.13

Canadian potato growers on Prince Edward Island received \$200 for each acre that was taken out of production in 2005 (total 9500 acres) and 2006 (8500 acres). This was funded solely by grower assessments, and was very successful, with prices for a 10-pound bag of PEI potatoes tripling in those 2 years. To create a long-term programme for price stabilisation, the PEI Potato Board is looking at setting a permanent cap at 106,000 acres or continuing the buydown to 96,000 acres. Although 82% of growers are happy with some sort of management programme, processors have opposed the plan because it has increased the price of potatoes.

“Watering down disease: pre-season maintenance can reduce disease potential” p.16

Good maintenance of irrigation systems is very important for quality potato production. While regular maintenance can help reduce pumping costs, one of the biggest benefits may be reduction in disease potential with fewer chronically wet or dry spots. Encouraging uniform, continuous plant growth will reduce stress and the likelihood of potato early dying, early blight and Black dot diseases. Avoiding waterlogged soils can reduce pink rot or water rot disease, while Common scab is minimised by preventing soils from being too dry during tuber set and early bulking. Mid-season breakdowns can be very costly, so preventative maintenance is very important. General maintenance includes checking tyre condition and pressure and gear box lubrication. Pumping efficiency is another important area, with worn pumps costing more to operate. Energy efficiency can drop from 85% in a new pump to 50-60%, and a survey of several hundred pumps in the Idaho basin showed that average efficiency was 64%. Compared with a pump operating at 80% efficiency, this could mean extra costs of \$700-\$1500/year. Nozzle wear is an area which can lead to reduced system pressure. A brass nozzle can be tested by inserting a drill bit of the correct size into the nozzle. If the spray around the drill bit extends more than 15 feet, nozzle wear is about 10%. The cost of new nozzles can usually be recovered in less than a year. Studies have shown that the incidence of worn nozzles on farms is very high, being over 50%. One study indicated that lateral discharge ranged from 99-146%, resulting in 19% extra water being pumped due to leaks and worn nozzles. The useful life of pressure regulators is about 10-14,000 hours (5-7 years). Another area of waste is surface run-off, which tends to collect in pivot tracks and create “hot-spots” for disease. Water application patterns can affect soil crusting and run-off, so attention to the types of nozzles used and the system design are important.

“The Guenther Report: Organic potatoes in California” p. 32

Certified organic potato production in California is more than the plantings of all other states combined. In 2005 organic potatoes (3431 acres) made up 8% of the total Californian potato acreage. There were only 260 acres of organic potatoes in Idaho, the largest potato-producing state in the USA. While production of other organic crops has expanded rapidly in the USA, organic potato production has been relatively stable, with a peak in 2001.

Potato Country

FEBRUARY 2007

“Optimising tuber size distribution and crop value by managing stem numbers” p.6

Recent research has shown that the physiological age of seed tubers can affect crop productivity. Physiological age is affected by time from vine kill to planting and storage temperature. Tuber respiration increases with temperature and this accelerates ageing. Physiological age can be estimated by the number of degree-days since vine kill. This is calculated by subtracting 4°C from the average tuber temperature on a particular day and then adding these values up every day. Stem numbers per seed piece increase with degree-days, and this will in turn affect tuber set and tuber size, total yield and gross returns. Because these relationships are quite well defined, growers can manipulate tuber physiological age to produce crops with defined properties for specific markets.

“Moving to a branded potato market environment” p. 14

The opening line of this article is “Future success in the potato industry is likely to require a switch from commodity marketing to branded product marketing”. In commodity marketing the primary decision is what to produce and how much resource to invest in the production process. The only remaining decision is the timing of the sale, which may affect product prices. With branded marketing, the producer owns the brand and therefore controls the price. The main decision is what marketing is needed to distinguish the brand. Potatoes are evolving towards being branded products, due to food safety issues, supermarket just-in-time delivery policies and consumer demand for differentiated products. Serious brand marketing requires significant investment in market research and this may be better achieved by groups of growers rather than as individuals. One area where financial rewards may be great is in variety marketing: there are significant benefits in marketing a proprietary variety. Potato seed breeders may be better to focus their marketing efforts on potato consumers rather than potato growers, particularly to educate consumers on the proper use of different potato varieties.

“Early season decisions: make them carefully” p. 26

The key point from this article is that early season decisions may have a greater impact on potato crop productivity and value than decisions made at any other time of the season. The first decision is the selection of seed. Always buy certified seed and carefully consider the seed lots that are available. Often it is a good idea to buy from more than one source to minimise risk. The nutritional conditions under which the seed was grown are important. Because

the growth of newly emerged plants is supported by the tuber, the mineral nutrition of that seed tuber will affect growth rates. Seed piece weight is critical, since small seed pieces will produce weak plants. However, on the other hand, oversized seed pieces do not flow well through planters and may contribute to ‘skips’. Seed pieces from smaller-sized whole seed are more productive than the same weight seed piece cut from a larger tuber.

Snippets from www.potatonews

Listed below is a small selection of the articles that are posted on the Global Potato News website. Please visit the site for further details or follow the links that are indicated.

APRIL 2007: NEWS HEADLINES

“World’s oldest man puts it down to potatoes”

Hryhory Nestor from the Ukraine turned 116 on 15 March. He attributes his longevity to a diet of potatoes, milk and cheese, and healthy outdoor living.

APRIL 2007: FEATURE ARTICLES

“Limited water supplies affect potato irrigation management decisions”

The March 2007 issue of “the SPUDVINE”, a grower newsletter produced by the University of Idaho, is focused on options for dealing with a potential limited supply of water. These include reducing potato acreage, selecting fields that have the greatest potential for maintaining adequate soil moisture, reducing applied nitrogen, planting potato varieties with greater ability to withstand water stress (e.g. GemStar Russet and Premier Russet) or that mature before drought develops (e.g. Russet Norkotah), planting physiologically older seed (which gives earlier plant emergence and tuber development), or planting at a wider in-row spacing. In situations of limited water supply it is critical to ensure the irrigator is operating efficiently. Because potatoes have a relatively shallow root system, they are more sensitive to moisture stress than most other crops. Water stress early in the season (during vegetative growth) tends to increase the crop’s ability to withstand water stress later in the season. This will reduce the number of tubers per plant and potentially increase tuber size. Water stress during tuberisation (from when stolon tips swell until tubers are about 1.25 cm in diameter) causes a substantial reduction in yield and quality, with a number of mis-shaped tubers. During the tuber bulking period, it is important to avoid severe water stress during the mid period; confining the water stress to early and late tuber-bulking periods will minimise yield and quality loss. Moisture stress during the maturation period can reduce tuber yield, but will also have an important impact on tuber quality, particularly storage and processing characteristics.

“On-farm evaluations of potato planter performance”

This article summarises a presentation given to the Idaho Potato Conference in January 2006. It is part of ongoing evaluations of potato planter performance carried out by the University of Idaho. The experiment included variations in seed spacing, planter speed and seed depth. After planting, the seed pieces were uncovered, counted and the spacings between them measured. The importance of planter speed in maintaining the optimum 20-30 cm spacing was demonstrated, with relatively small decreases in speed having a

big effect on spacing. There has been a significant improvement in planter efficiency since 1988. It is generally considered that higher planter efficiency results in more uniform potatoes.

“Efficient planter performance adds to potato profits”

This article, available at http://www.ag.uidaho.edu/potato/research/files/Volume%2031_32/EFFICIENT%20PLANTER%20PERFOR%2031-127.pdf, reiterates the statements made in the previous article about the importance of achieving uniform planting, with a decrease in seed tubers from 100 to 90% decreasing yield by about 8%. Russet Burbank crops are more likely to produce irregularly sized and shaped tubers as a result of wide seed spacing that Russet Norkotah. On-farm surveys in Idaho have indicated that growers with high planter efficiencies had more uniform and more US No. 1 potatoes. While good planter maintenance, including seed pick-up arrangements, and good machine operators are important, it has been estimated that over 80% of planting problems can be solved by decreasing planter speed. A small range in seed sizes is essential for good planter performance. Height extensions on planter hoppers have been known to reduce performance by increasing bridging.

“IFA/TEAGASC National Potato Conference 2007 Proceedings”

This conference was held in Co. Kildare, Ireland, on 14 February 2007. The programme included presentations on Insect and Nematode Pests of Potatoes; Re-inventing the Potato: A Marketing Approach for the 21st Century; the Nitrates Directive and Potato Growers; and Potato Nutrition. The proceedings can be downloaded as a pdf booklet from <http://www.teagasc.ie/publications/2007/20070214/index.htm>

“Annual Maine Potato Conference 2007 Proceedings”

Presentations given at the 22nd Annual Maine Potato Conference, held in January 2007, covered a wide range of topics and are summarised in a booklet available at <http://www.umaine.edu/umext/potatoprogram/upcoming/abstracts.pdf>

RESEARCH SUMMARIES

CROP MANAGEMENT AND AGRONOMY

Cultivars

0733-020 How to maintain improved cultivars. Did you ever consider that cultivars need to be looked after so that their unique characteristics are preserved? This paper examines this concept, describing how outcrossing, volunteer plants, mixing, natural selection, mutation and seed-borne diseases may cause cultivars to lose their identity and healthiness. Maintenance selection can prevent this deterioration and the methods for doing this will depend on the reproduction system of the crop. Generally, small plots with spaced plants are planted and healthy plants of the cultivar type are selected. Seed, or tubers in the case of potatoes, are used in larger plots in the following season to increase the amount of “breeder seed”. *Euphytica* (2007) 153: 353-362.

0733-008 Molecular analysis of local potato cultivars from Tenerife Island using microsatellite markers. Following on from the previous paper, this research used molecular markers to examine 41 local potato cultivars from 10 locations on Tenerife Island. These varieties had previously been characterised morphologically and

ecophysiologically. The molecular characterisation was in general agreement with previous classifications but four accessions showed discrepancies. This suggests that detailed studies, including molecular methods, are needed to properly characterise potato cultivars. *Euphytica* (2006) 152: 283-291.

0733-005 Andean potato cultivars (*Solanum tuberosum* L.) as a source of antioxidant and mineral micronutrients. Nearly 1000 South American potato genotypes were analysed for iron, zinc, calcium, total phenolics, total carotenoids, total vitamin C and antioxidant capacity. Strong positive correlations were found between antioxidant capacity and the total phenolic content and between iron and calcium contents. Some genotypes could be distinguished by their high levels of distinct micronutrients. *Journal of Agricultural and Food Chemistry* (2007) 55: 366-378.

0733-010 Determining the geographic origin of potatoes using mineral and trace element content. Sometimes it is important to know where a particular potato tuber came from. This research examined the concentration of 10 mineral and trace elements (Mg, Cr, Mn, Fe, Ni, Cu, Zn, Sr, Cd and Ba) in potatoes from various regions of Italy. Potatoes from Fucino could be distinguished from those originating in other areas of Italy. The method also discriminated between the three potato varieties cultivated in the Fucino basin. *Journal of Agricultural and Food Chemistry* (2007) 55: 860-866.

Irrigation

0733-021 Effect of drip tape placement depth and irrigation level on yield of potato. This experiment investigated five depths of placement of drip tape (0, 5, 10, 15 and 20 cm) and three levels of irrigation (60, 80 and 100% of the crop evapotranspiration) over 3 years in cv. Kufri Anand. Variation in flow rates was small and distribution uniformity was more than 92% during the study. When drip tape was 10 cm or deeper, there was little upward water movement and the soil surface remained relatively dry. Highest yields were found with drip tape placed at 10 or 15 cm. Installation costs increased with increasing depth of drip tape placement. The maximum yield was obtained by applying 100% of the crop evapotranspiration (23.6 cm of irrigation water) with the drip tape at 10 cm. *Agricultural Water Management* (2007) 88: 209-223.

0733-025 Effects of partial root-zone drying on yield, tuber size and water use efficiency in potato under field conditions. This experiment investigated a new water-saving irrigation strategy, partial root-zone drying (PRD), over 2 years on potato cv. Folva. Using subsurface irrigation, soil was either kept close to field capacity or subjected to PRD. The PRD treatment alternated from one side of potato plants to the other side every 5-10 days. At each of the five measurement dates there were no differences between the treatments in leaf area index, top dry mass and tuber yield. At final harvest, the tubers were graded into four size classes, with the PRD treatment having more tubers in the most important marketable class than the full irrigation treatment. In the PRD treatment, there was a 30% saving on irrigation water and a 61% increase of irrigation water use efficiency. *Field Crops Research* (2007) 100: 117-124.

0733-031 Interaction of potato production systems and the environment: a case of waste water irrigation in central Washington. This analysis examined the current use of waste water from processing potato products to irrigate potato crops. Both the water and the nitrogen dissolved in the water positively affected crop yields but there was an over-application of potassium. These results imply that the waste water could be diluted with fresh water and additional nitrogen fertiliser applied independently. *Waste Management & Research* (2007) 25: 14-23.

0733-001 Sustainable nutrient management in sandy soils - fate and transport of nutrients from animal manure versus inorganic sources. This laboratory experiment examined leaching from a fine sand used for growing potatoes in Washington, USA. Water was placed on top of columns of the soil that were (1) unamended, or amended with (2) 100 kg N/ha as urea, (3) 100 kg/ha each of N and P, or (4) 200 kg N/ha as manure. Leaching of NH₄-N was considerably lower than that of NO₃-N. The amount of P leached was much greater from the soil amended with N and P than that amended with the manure. *Journal of Sustainable Agriculture* (2006) 28: 139-155.

Nitrogen and cultivation

0733-007 Response of potato to nitrogen application methodologies. Nitrogen fertiliser (250 kg/ha as urea) was applied to potato cv. Symphonia by broadcasting, sidedressing or foliar application. Potato plant and tuber yield parameters and some physiological measurements (total soluble solids, specific gravity and dry matter content) were greater under various combinations of broadcasting and sidedressing than foliar application. Other tuber characteristics (moisture, N, P, K and crude protein contents) were highest under foliar application. *Pakistan Journal of Agricultural Sciences* (2006) 43: 45-49.

0733-032 Comparison of petiole nitrate concentrations, SPAD chlorophyll readings, and QuickBird satellite imagery in detecting nitrogen status of potato canopies. A 3-year field experiment involving six N rates (34 to 270 kg/ha) and different timing of N application was used to compare three methods for assessing the N status of a potato crop. In general, differences between treatments detected by the conventional petiole sampling technique were also detected with the SPAD-502 chlorophyll meter. However, this did vary with growth stage (severe N deficiency detected earlier by petiole sampling) and growing season. N deficiency at hilling was detected by QuickBird satellite imagery in 2002 but not in 2003. Further research with more detailed images is needed to determine the effectiveness of this technique, but its usefulness may be limited by cloud interference and the high cost of images. *Field Crops Research* (2007) 101: 96-103.

0733-017 Effect of pre-plant tillage systems for potatoes in Prince Edward Island, Canada, on soil properties, weed control and potato yield. Much of the potato production land in Prince Edward Island, Canada, is a fine, sandy loam soil that is prone to soil erosion. This paper summarises research aimed at investigating four cultivation regimes: residue management, zero tillage, zone tillage and conventional tillage. The first three are conservation tillage practices and they resulted in reduced soil erosion rates and sediment loss compared with the conventional tillage. Although some of these systems increased soil penetration resistance, levels that are considered detrimental to root growth (1500 kPa) were not reached. Conservation tillage treatments had 2-12% greater early spring soil moisture levels but this did not delay planting. There was no difference between tillage treatments in weed control, potato plant emergence or potato yields. *Journal of Soil and Water Conservation* (2006) 61: 370-380.

PESTS AND DISEASES

Late blight

0733-015 Late-blight epidemics on potato in Finland, 1933-2002; increased and earlier occurrence of epidemics associated with climate change and lack of rotation. Data from a large number of cultivar trials, fungicide tests or late-blight monitoring projects during the periods 1933-1962 and 1983-2002 were used to examine the

factors that may affect the incidence and onset of potato late-blight epidemics in Finland. From 1998 to 2002, the risk of blight outbreak was 17-fold higher than in earlier periods, and these epidemics began 2-4 weeks earlier. Lack of crop rotation did not affect late blight in the 1992-1997, but advanced epidemics by an average of 9 days in 1998-2002. The aggressiveness of the *P. infestans* isolates appeared to only have a minor effect on the onset of the epidemics after 1991. The sales of late blight fungicides in Finland increased 4-fold from the 1980s to 2002. *Plant Pathology* (2007) 56: 167-176.

0733-006 Adaptation of *Phytophthora infestans* to partial resistance in potato: Evidence from French and Moroccan populations. Populations of *Phytophthora infestans* from France and Morocco were inoculated onto potato cv. Bintje (prevalent in France but not grown in Morocco) and Desiree (popular in Morocco but cultivated to a very small extent in France). French *P. infestans* populations were more aggressive on Bintje and Moroccan populations were more aggressive on Desiree. The experiments indicated that *P. infestans* populations adapt to locally dominant cultivars, regardless of their resistance levels. *Phytopathology* (2007) 97: 338-343.

Nematodes

0733-029 Field performance of *Solanum sisymbriifolium*, a trap crop for potato cyst nematodes. I. Dry matter accumulation in relation to sowing time, location, season and plant density. *Annals of Applied Biology* (2007) 150: 89-97.

0733-028 Field performance of *Solanum sisymbriifolium*, a trap crop for potato cyst nematodes. II. Root characteristics. *Annals of Applied Biology* (2007) 150: 99-106.

Root exudates of *Solanum sisymbriifolium* induce hatching of potato cyst nematodes and this species can be used as a trap crop. Two papers investigated the potential of this crop in the Netherlands. In the first paper (0733-029) field experiments carried out between 2001 and 2003 investigated the effect of sowing time, sowing density and site on germination, plant establishment and light interception of the crop. Dry matter accumulation was higher in Wageningen (51°58'N) on light sandy soil than in Flevoland (52°31'N) on clay soil and in Drenthe (52°51'N) on reclaimed peat soil. The above-ground growth was adequate if the crop was planted between early May and the end of July. In the second paper (0733-028), the relationship between root length density of *S. sisymbriifolium* and root length density was examined. A mathematical model was used to estimate the minimum root length density needed to expose 75%, 90% or 95% of cysts to root exudates, given a zone of influence of 1.00, 0.75 and 0.50 cm around the centre of each root. The minimum root length density calculated was related to above-ground crop biomass. Although the work needs further validation, this means that easily measurable characteristics of the crop can be used to estimate potential effects on nematode hatching.

0733-016 *Verticillium dahliae* and *Pratylenchus* spp: populations in potato soils and plants in Australia. This study examined levels of the fungus *Verticillium dahliae* and *Pratylenchus* spp. (nematodes), the combination of which has been implicated in potato early dying disease. Soil and potato plants were collected from 77 fields in Australia between 1996 and 1997. *Verticillium dahliae* was detected in soil from 81% of the fields and in plants at 80% of the fields, while *Pratylenchus* spp. were detected in soil from

Chips a look at what's new in potato information and technology

87% of the fields and from potato roots at 92% of the fields. The most common nematode species were *P. crenatus* (60% of fields) and *P. neglectus* (27% of fields), while *P. coffeae* was only found in one field in New South Wales and *P. penetrans* in two fields, one each in New South Wales and South Australia. *Australasian Plant Pathology* (2007) 36: 62-67.

0733-026 Modes of action associated with microbially induced in planta suppression of plant-parasitic nematodes. This review paper looks at biocontrol agents (bacteria or fungi) that have activity towards the root-knot nematode, *Meloidogyne incognita*, and the potato cyst nematode, *Globodera pallida*, on potato. These micro-organisms have the ability to colonise the plant roots but can still grow saprophytically in the soil or in the rhizosphere. As well as their antagonistic activity towards the nematodes, the micro-organisms also appear to have plant health promoting activity. *Australasian Plant Pathology* (2007) 36: 124-134.

Insects

0733-033 Yield response of indeterminate potato (*Solanum tuberosum* L.) to simulated insect defoliation. This experiment was undertaken to investigate the effect of leaf removal during a 10-day period late in the season on tuber yield. In the first year, 75% leaf removal resulted in a 14% yield loss, while in the second year, 50% defoliation resulted in 15% yield loss and 75% leaf removal resulted in 22% yield loss. Defoliation reduced the number and weight of large (65-100 mm diameter) tubers. The relationship between percentage light interception and yield was stronger than between percentage defoliation and yield. *Agronomy Journal* (2006) 98: 1435-1441.

0733-003 Resistance and cross-resistance to imidacloprid and thiamethoxam in the Colorado potato beetle *Leptinotarsa decemlineata*. Colorado potato beetle, *Leptinotarsa decemlineata* (Say) has a remarkable ability to develop resistance to virtually every insecticide that has ever been used against it. Basic understanding of resistance and cross-resistance patterns in a range of insect populations is important for developing strategies to delay the onset of resistance in new insecticides. This study examined beetle response to imidacloprid and thiamethoxam from populations throughout the USA and Canada. The results supported the recommendation to avoid rotating imidacloprid with thiamethoxam as a part of a resistance management plan. *Pest Management Science* (2007) 63: 32-41.

0733-002 Effects of potato plants expressing a barley cystatin on the predatory bug *Podisus maculiventris* via herbivorous prey feeding on the plant. Transgenic potato plants expressing a barley cystatin, which is an insect resistance compound, inhibited growth of the Colorado potato beetle but increased growth of the Egyptian cotton leafworm, which lacks an enzyme to digest this protein. Survival and growth of a predator (spined soldier bug) feeding on these insects after they had eaten the transgenic potato plants was not affected, although the protein had affected the gut of the predator. *Transgenic Research* (2007) 16: 1-13.

General

0733-027 Root, shoot tissues of *Brassica juncea* and *Cereale secale* promote potato health. A series of experiments looked at the effects of two cover crop species, rye (*Cereale secale*) and oriental mustard (*Brassica juncea*) on potato root and tuber health.



In the laboratory, after 24 hours, volatile compounds from all residues of the cover crops suppressed growth of two fungi causing important potato diseases (*Rhizoctonia solani* and *Pythium ultimum*). However, after 48 hours, only the mustard residues were effective. In a container study, incorporating high doses of mustard shoots into *R. solani* and *P. ultimum* infested soil increased potato yield by 54% and reduced disease rating. In the field, incorporating whole mustard plants into the soil gave a healthy root status of 91% in comparison to 58% for the standard farmer practice of a fumigated fallow. However, tuber yield in the field was not influenced by cover crop treatment. To gain maximum benefit from this strategy, it is important that whole mustard plants are incorporated, not just the root tissues. *Plant and Soil* (2007) 294: 55-72.

0733-014 Management of soilborne diseases of potato. This paper reviews the current research efforts directed at the control of soilborne potato diseases that are important in the United States. These include early dying disease and the storage rots pink rot and leak tuber rot. While there is some understanding of the biology of the pathogens involved in these diseases, further information is needed to develop management strategies to reduce the potato industry's reliance on agrochemicals. In particular, methods to incorporate genetic resistance into cultivars are being investigated. *Australasian Plant Pathology* (2007) 36: 109-115.

0733-012 Potato silver scurf affected by tuber seed treatments and locations, and occurrence of fungicide resistant isolates of *Helminthosporium solani*. The incidence of silver scurf on potato, caused by *Helminthosporium solani*, differed between four locations in Washington and Oregon, USA. Treatment of seed tubers with fungicides (fludioxonil, fludioxonil + quintozene, azoxystrobin, or thiophanatemethyl + mancozeb) reduced silver scurf on progeny-tubers compared with untreated ones. In a separate experiment, 13 isolates out of the 20 tested were resistant to thiabendazole. One out of four isolates was resistant to both thiabendazole and thiophanate-methyl. Variation in resistance was not related to geographical origin. In fact, one tuber contained both a sensitive and a resistant isolate. *Plant Disease* (2007) 91: 315-320.

0733-018 A test of taxonomic predictivity: resistance to white mold in wild relatives of cultivated potato. This paper tested the theory that if a trait, in this case resistance to white mold caused by the fungus *Sclerotinia sclerotiorum*, is present in a small group of closely related plants, it will also be found in a wider group of those plants. A total of 144 accessions of 34 wild relatives of potato was screened for resistance to white mold, and there was tremendous variation both within and between species. There was no consistent association between various groupings of plants based on factors such as taxonomy, geography and climate. Although plants with high resistance to white mold were found, there is no guarantee that similar resistance will be found in closely-related plants. *Crop Science* (2006) 46: 2561-2570.

0733-019 Synthesis and fungicidal activity of N-2-(3-methoxy-4-propargyloxy) phenethyl amides. Part 3: Stretched and heterocyclic mandelamide oomyceticides. This paper describes novel fungicides that have high efficacy against potato late blight (*Phytophthora infestans*) and other important plant diseases. *Pest Management Science* (2007) 63: 57-62.

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