

A silver R44 Raven helicopter is parked on a grassy field. Three people are visible in the cockpit: a pilot in a blue shirt and sunglasses, a passenger in a white shirt, and another person in a blue shirt. The helicopter has "R44 Raven" written on its side. The background shows trees and a clear sky.

potatoes

australia

February/March 2011

Flying high
Michael Penna

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potatoes australia

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▶ FRONT COVER:

Michael, Natasha and Adam Penna.

Photo by Dale Knuth

John Brent AUSVEG Chairman

As I'm sure you're all aware, December and January saw some of the most devastating floods to hit south-east Queensland in the state's history.

We have recommended to the Federal Government that similar assistance to the Drought Exceptional Circumstances packages that have been offered in the past, are now made available to growers.

The severity of the damage faced by many growers is of such an extent that substantial assistance of this magnitude is required in the range of low rate loans of up to \$100,000 for those who cannot increase their borrowing, or up to \$100,000 to subsidise interest payments for those who have existing loans, in order to lessen the financial impact on their businesses.

The floods resulted in 30 people losing their lives, with countless others affected due to flooding of their homes and

properties.

Needless to say, our thoughts are with everybody who has been affected by this disaster in the potato sector.

As a Queensland, the devastation quite literally hit close to home for me.

In Boonah, we experienced rain and flooding that saw workers at my family's farm sent home early for the first time.

Fortunately, the only damage we suffered was superficial, and not as shocking as that in other areas.

Places with well-documented flood inundation included Toowoomba, Bundaberg and Rockhampton, with many suffering an enormous amount of damage.

The effect on growers has been far-reaching across a range of commodities, with the true extent of the damage not likely to be known for a matter of months.

Exact information about the

extent of the damage from the floods has so far been vague, but I'm sure that when these numbers are finally detailed, that they will surprise very few who witnessed this extraordinary event first-hand.

During the entire process I was particularly moved by the way not only Queenslanders, but Australians as a whole, were able to rally behind their neighbours.

Not only were there millions of dollars raised in relief efforts to help fund the clean-up and re-building, there were also many people from other parts of the state and other parts of the country arriving to provide hands-on assistance.

The generosity shown by these people to abandon the comfort of their homes in drier areas and to literally get their feet wet and lend a hand to those in need is truly worthy of recognition. It is often said that when the going gets tough, the tough get going,

and there's little doubt that the going got tough over the New Year period. There's equally little doubt about the fact that through all of this, through all of the rising floodwaters, damage and despair, that the tough certainly stepped up to the mark.



John Brent
Chairman
AUSVEG

Richard Mulcahy AUSVEG Chief Executive Officer

Later this month and in March, a series of national meetings will be held in 10 towns around Australia seeking feedback on the draft Potato Cyst Nematode (PCN) National Management Plan.

The grower consultation meetings are being held as a means to finalise the plan and AUSVEG is seeking input and feedback from growers and grower bodies Australia-wide. As I'm sure you are all aware, PCN has caused considerable problems for the potato industry in Australia for over two decades.

These meetings are part of an overall project that aims to construct a national plan that will help to manage the pest and ease the strain on growers.

Facilitating this meeting will be Dr Doris Blaessing of RMCG, Dr David Beardsell of the Victorian DPI and a representative of AUSVEG. Dr Blaessing is a Senior Consultant at RMCG and has extensive experience managing

business development, natural resource management and R&D projects in Australia and internationally. Her experience will no doubt be a great asset for the consultations.

Dr Beardsell will be crucial in ensuring that work previously done on the project will be taken into account and incorporated into the overall report at the conclusion of the process.

It is a decisive set of meetings and I encourage all growers to attend the meeting in your area. Meetings will take place in Deloraine, Tasmania; Ballarat and Warragul, Victoria; Wagga Wagga and Dorrigo, NSW; Bundaberg and Atherton, Queensland; Mt Gambier and Murray Bridge, SA; and Bunbury, WA.

Please see the enclosed flyer to register your interest in the event and for more information.

In other news, AUSVEG is very excited about the upcoming National Convention in

Brisbane.

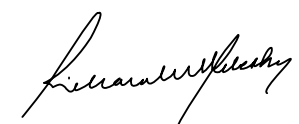
As one of the biggest events on the agricultural calendar, it is something I would urge all of our readers to consider attending, as I have little doubt there is something to gain for each of you.

As a networking event, this is second to none and we have arranged for a variety of qualified speakers to address attendees on issues including the Murray-Darling Basin that will feature in our Great Debate. Of particular interest to those of you in the potato industry will be the Australian-New Zealand Potato Summit which will take place on 17 April and incorporate a variety of topics including international speakers of relevance to the industry.

There will be a particularly strong focus on the Australian Potato Research Program 2 (APRP2), with these sessions to feature researchers from the program updating the industry on the work being conducted

around Australia.

For information on the Convention, PCN grower consultation meetings, or anything else, please contact AUSVEG on (03) 9822 0388 or email info@ausveg.com.au.



Richard J Mulcahy
Chief Executive Officer
AUSVEG

Editorial

The cleanup is underway all around Australia following the devastating floods in December and January.

As well as inundating homes and cities, the rains affected many growers who suffered some crop losses.

Needless to say, our thoughts are with everyone affected by this tragedy.

In this edition of *Potatoes Australia*, we speak to veteran Queensland grower, Michael Penna, who was recently appointed to the Processed Potato Industry Advisory Committee (IAC).

Mr Penna has spent almost all of his working life in the potato industry, with both his

grandfather and father growing potatoes in north-eastern Queensland.

We felt that his longevity in the industry, coupled with his recent appointment to the IAC made him a perfect candidate to be featured in the magazine.

Following on from our introduction of the Young Grower Profile in the last edition of *Potatoes Australia*, we have added two new sections that will feature regularly.

The first is the International R&D Update, in which we look at some of the best research and development projects and products found overseas.

With so much positive work

being conducted outside of Australia, we felt it important to give local industry members an insight into some of the other work they may not have come across.

The inaugural International R&D Update focuses on a product out of Europe called FLOW-AID that, in short, is a set of sensor technologies used to optimise water use for growers.

As water use is always a pertinent issue in this country, the use of sensor technologies like FLOW-AID moving into the future will no doubt play a much larger role in agriculture.

The second new feature that we have introduced is the Pests & Diseases Profile.

With help from our friends at Dow AgroSciences, we will feature a particular pest or disease in each edition to shed some light on the many different types affecting the potato industry today.

With our National Convention, Trade Show and Awards for Excellence fast approaching, please remember that nominations for awards close on 4 March.

It would be great to see a strong potato representation in the running for awards, so please get your nominations in soon!

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National Awards for Excellence.
Nomination form available inside.” - Pg 12



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New low GI potato now available

Australia's first officially certified low GI potato has been launched by Coles Supermarkets.

Naturally grown in Australia, the variety known as Carisma has a Glycemic Index (GI) of 55 which is around 30 per cent lower than other potatoes.

Its low GI qualities were uncovered by the Sydney University GI Research Service and it is now the only potato to be officially recognised as low GI by the Glycemic Index Foundation.

Glycemic Index Foundation Chief Scientific Officer, Dr Alan Barclay, said there were some very good reasons why consumers should choose Carisma.

"Potatoes have great nutritional value and this variety is low GI but still tastes good,"

he said.

"Research is continuing to show that healthy, low GI diets have a range of benefits, including more sustainable weight loss, improvement in the management of diabetes and possibly even reducing the risk of heart disease."

"Consumers can trust the fact that foods with the GI Symbol have been tested at an accredited laboratory using the Australian Standard and meet a range of category-specific nutrient criteria that ensures that they are all-round healthy choices."

Greg Davis, Coles General Manager of Fresh Produce, said Carisma is grown by some of the best potato farmers across the

country in regions such as the Riverland in South Australia, Lockyer Valley in Queensland and various areas in Western Australia.

"We are always looking to bring our customers innovative new products and the Carisma is the biggest thing to hit the potato market in decades. For millions of customers watching their weight or buying low GI products for other health reasons such as diabetes, it means potatoes are back on the menu," Mr Davis said.



Murray-Darling Basin Authority Boss replaced

Plans for fixing the Murray-Darling Basin have suffered a hit, with the changeover of Chairmen following the resignation of Michael Taylor in early December.

Mr Michael Taylor announced his resignation on 7 December, saying the Murray-Darling Basin Authority was neither empowered nor equipped to undertake the task of designing a plan to sustain the river system.

"A successful plan would require both the Commonwealth and states to work together," he said in his letter of resignation to Water Minister Tony Burke in December.

Former NSW Labor minister Craig Knowles took over the top job in late January.

Prior to the appointment of Mr Knowles, Prime Minister Julia Gillard reinforced the importance of finding an

adequate replacement.

"We've got one chance to get water reform right," she told reporters in Canberra.

"The Government will do what is necessary to implement the Murray-Darling Basin plan."

The Government and the authority have been at odds over the meaning of the Water Act - legislation brought in by the Howard Government to save the ailing river system.

Mr Taylor argued, and repeated in his resignation media release, that the final plan "cannot compromise the minimum level of water required to restore the system's environment on social or economic grounds."



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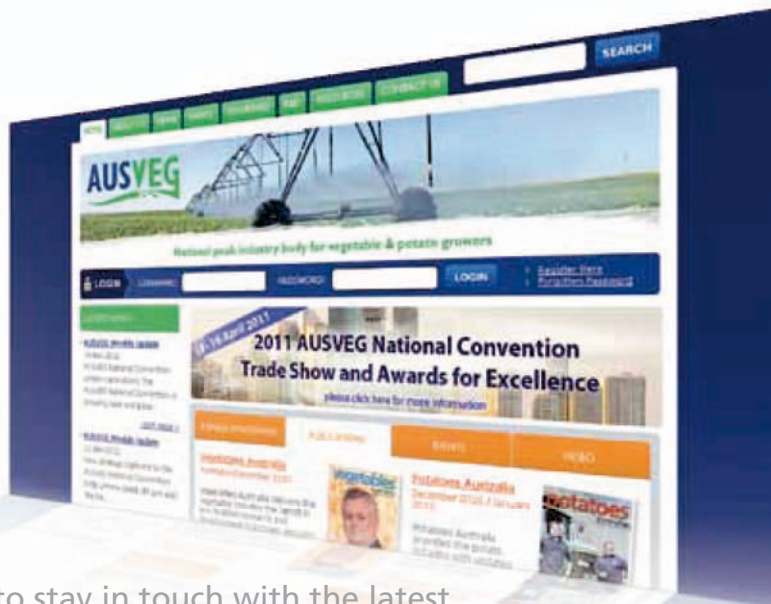
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Get online



Potato growers are being encouraged to stay in touch with the latest happenings in their industry, with vast amounts of information available online.

A number of websites can help potato growers obtain relevant information about the industry and developments which may affect it.

The best aspect of online information is that it is updated regularly and growers can receive up-to-the-minute information, such as weather

forecasts, pest incursions and news from the agribusinesses they deal with.

Some recommended websites include:

- www.ausveg.com.au
- www.ausfoodnews.com.au
- www.potatopro.com
- www.weeklynnewsnow.com.au
- www.freshplaza.com

www.getfarming.com.au

AUSVEG is already utilising the latest developments in technology to give growers access to the most recent and relevant information available here and overseas.

Programs such as Skype, an online communication tool, have made it easier than ever before

to stay in touch with people from all over the world. This edition's International R&D Update was put together following a Skype interview with Mr Jos Balendonck in the Netherlands.

The tool is easy and reliable to use. For more information visit www.skype.com.

'Spudlympics' to headline

Crookwell Potato Festival

With less than a month to go until one of Crookwell's biggest days, officials are hoping that the event kicks off with a bang.

Upper Lachlan Shire Tourism Manager Andrew Warren said that the Crookwell Potato Festival was shaping up to be a success, with many events planned to provide entertainment for families.

The festival will feature numerous events such as an early crop paddock for people to dig their own potatoes and areas for cooking and tasting potatoes, as well as 'Spudlympics'.

According to Mr Warren,

'Spudlympics' will involve a large number of activities.

"'Spudlympics' will pit local teams against other teams undertaking 10 different activities involving potatoes in different ways from peeling to carrying to tossing to eating, you name it," he said.

"We have two entertainment stages. One is with a country rock band, and the other one—we're very thankful to have—will be the NSW Fire Brigade band."



Crookwell locals enjoy last year's Country Festival.

The festival takes the place of what was previously the Country Festival. Coming up with ideas for the focus of the festival certainly did not prove to be a problem.

"We were encouraged to pick a theme that Crookwell had an authentic link to and that you can deliver a variety of activities within the budgets," he said.

"The actual bigger issue has been scaling down the ideas rather than coming up with new

ones."

Occurring on Saturday 5 March, the Crookwell Potato Festival hopes to attract up to 5,000 visitors.



Trade Show sold out

AUSVEG Trade Show set to eclipse last year's National Convention, with all booths sold for April's major event.

With just two months remaining until the biggest event on the AUSVEG calendar, the AUSVEG Trade Show has sold out, with a record number of exhibitors registering to be a part of the 2011 National Convention.

Following on from the success of last year's event, agribusinesses have shown enthusiasm to be a part of the Trade Show.

The event offers an avenue to liaise with some of the biggest players that the vegetable and potato industries have to offer.

This increased support highlights the growing reputation of the Convention, which also showcases an impressive lineup of speakers set to both entertain and inform all who attend.

War of words

The current list of speakers set to speak at the event boasts some of the most well-known names in Australian agriculture today.

With footballing legend Robert

DiPierdomenico set to return as emcee of the event, as well as recently announced Michael Schaper from the ACCC, the Convention will see other big names in the industry including Elders CEO Malcolm Jackman and Managing Director of Peracto, Ian Macleod.

Tony Abbott, Leader of the Liberal Party of Australia, has

'The Great Debate'.

Speaking on the topic of Water Usage in the Murray-Darling Basin will be Dr Arlene Harriss-Buchan and Dr Jennifer Marohasy.

Dr Harriss-Buchan is from the Australian Conservation Fund and leads the fund's work on the 'Water for the Future' program.

Dr Marohasy is a biologist

Convention, AUSVEG is proud to announce that both John Deere and Netafim have been confirmed as strategic partners.

They join the likes of Elders, DuPont, Syngenta, Bayer CropScience, Boomaroo Nurseries, Incitec Pivot, Visy, Dow AgroSciences, Terranova Seeds, Transplant Systems, Toolpak Engineering, Peracto and Willames.

Potato Summit announced

The Potato Summit, on Sunday 17 April, is anticipated to bring together some of the brightest minds in the potato industry to discuss varying issues.

A particular focus of this will be the work undertaken in the Australian Potato Research Program 2 (APRP2), with numerous researchers and industry personnel weighing in on one of the largest research programs in the horticulture industry today.

For Potato growers this will be an important event not to miss.

“The Potato Summit is anticipated to bring together some of the brightest minds in the potato industry to discuss varying issues.”

provisionally confirmed his attendance.

The speaker sessions will also welcome a representative from wholesale giant Coles to provide a look at the vegetable industry from a different angle.

On top of these names, Saturday 16 April will see Boomaroo Nurseries present

and expert in water science, who is concerned that public policy on environmental issues is increasingly driven by moral crusading, rather than objective science or need.

Increased partnership

To add to an already stellar cast of partners for the 2011





AUSVEG Chairman John Brent



Dr Robert Mikkelsen

Nominations closing!

With just weeks until nominations for the AUSVEG 2011 National Awards for Excellence close, industry members are being urged to return the nomination form on the following page to avoid missing out on nominating someone in your industry for an award.



Dr Jennifer Marohasy



2010 National Awards for Excellence

Fun for everyone!

No matter what your interest, a full weekend spent at the Convention is set to satisfy your needs. Not only will there be Speaker Sessions, The Great Debate, and the Trade Show; those who are young at heart are encouraged to be a part of the Young Growers Night on Thursday 14 April.



Michael Schaper






2011 National Awards for Excellence


The 2011 AUSVEG National Awards for Excellence will be held on Saturday, 16 April at the Sebel-Citigate hotel Brisbane, and will highlight the hard work and achievements of our industry's most successful growers, researchers and businesses across the supply chain. This event is set to be a highlight of the AUSVEG National Convention.

At a glance: **When:** Saturday 16 April, 7:00pm - 10:00pm **Where:** Sebel-Citigate Hotel, Cnr Ann & Roma Streets Brisbane, Queensland at the Presidential Ballroom

Nominations are being sought in the following categories:

Grower of the Year Proudly sponsored by 
(Open to all vegetable and potato growers)

- 1) Vegetable/potato grower is outstanding across all aspects of vegetable production, including growing, environmental management, staff management and product quality.
- 2) Grower is innovative, challenges convention and implements efficient practices (such as integrated pest management, minimising wastage, water conservation, precision agriculture, technology advances, and value-adding to product).
- 3) Grower actively contributes to the broader industry (such as participating in international R&D tours, industry committees, forums, conferences or field days).

Young Grower of the Year Proudly sponsored by 
(35 years of age or less as at 16 April 2011)

- 1) Vegetable/potato grower shows excellent business acumen and innovation and has applied it on-farm and in the wider farming community when practicable.
- 2) Grower demonstrates a high level of commitment to the industry, possibly illustrated through involvement in off-farm activities, participation as a member of industry groups/committees or in community activities (such as Landcare).

Industry Impact Award Proudly sponsored by



- 1) Individual/business has had a positive impact on the vegetable/potato industry through means such as innovation, research, or irrigation/water management techniques.
- 2) The impact has resulted in a significant contribution to best farm practice.

Industry Recognition Award Proudly sponsored by  *The miracles of science™*

- 1) Individual has provided overall service to the industry on a local, state or national level over a long period of time.
- 2) Individual is pro-active in advancing the industry.
- 3) Individual uses their leadership skills for the greater good of the industry.

Rising Star of the Year

(35 years of age or less as at 16 April 2011)

- 1) Individual who displays exceptional commitment and passion towards the horticulture industry.
- 2) Individual who contributes actively towards the organisation and/or management of a farm/company.
- 3) The nominee must not be an owner or proprietor of the business.
- 4) Individual who exceeds in every aspect of their position.

Productivity Partner Award Proudly sponsored by



- 1) Business has developed a new solution directly benefiting growers through improving their productivity, for example through reducing costs or environmental impact.
- 2) Business has significantly contributed in a positive manner to the Australian vegetable/potato industry.
- 3) Business has shown commitment to improving the industry's productivity.
- 4) New practice has delivered tangible, measurable results.

Researcher of the Year Proudly sponsored by  Bayer CropScience

- 1) Researcher has track record of research or extension work that has advanced the industry offering long-term industry benefits.
- 2) Researcher actively communicates research outcomes and encourages uptake of outcomes on-farm.
- 3) Researcher contributes research or extension work that advances the reputation of Australian science internationally.

Innovative Marketing Award

(Implementation within the last three years)

- 1) Individual/business has created an innovative marketing solution, process or program.
- 2) Individual/business has created new market opportunities for vegetables/potato products.
- 3) Innovation has had significant impact on the industry and has potential for long term positive effects through sales, awareness, reach, etc.
- 4) Innovation has delivered tangible, measurable results.

Women in Horticulture

- 1) Female industry member has demonstrated outstanding ability and success in their chosen field, whether it is growing, research and development, farm management, or otherwise.
- 2) Individual is pro-active and has shown commitment to achieving success in the industry.
- 3) Has a reputation for mentoring women in horticulture.

Environmental Award Proudly sponsored by



- 1) An individual who has demonstrated a commitment to implement sustainable farming practices on-farm.
- 2) An individual who has developed an innovative solution to meet an environmental challenge on-farm.
- 3) An individual who has shown leadership in promoting environmental issues in the local and wider community.

Please note individuals or companies can only be nominated for a maximum of two categories.

Nominations close on 4 March 2011.

Nominations now open!

Nominations for the AUSVEG 2011 National Awards for Excellence are now open. To nominate yourself or someone you know in any of the categories listed, please fill in the form and return to the address listed below, or fax: (03) 9822 0688.

Nominations close on 4 March 2011.

Nominee details:

Name: _____

Contact number: _____

Address: _____

Business/Organisation/Farm name: _____

Nominated award: *Please note only a **maximum** of two categories can be selected per individual/business.*

1. _____

2. _____

Nominee's contribution to industry (additional information may be attached):

Nominator details: (your details)

Name: _____

Business/Organisation/Farm name: _____

Address: _____

Telephone: (work) _____ (mobile) _____

Fax: _____ Email: _____

Please return nomination form to:

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PO Box 2042
Camberwell West VIC 3124

Tel: (03) 9822 0388

Fax: (03) 9822 0688

Flying



high

Michael Penna is a man motivated by positive change to the industry he holds dear. As a recently appointed member of the Processed Potato Industry Advisory Committee (IAC), Mr Penna hopes to help continue to steer the industry in the right direction, writes Andrew Mahony.

For Michael Penna, like many potato farmers, growing potatoes is a family affair. Raised in the town of Major's Creek, some 45 kilometres south east of Townsville, Queensland, Mr Penna has been involved in the industry for the majority of his life.

His father and grandfather had both been growing potatoes on the same land since his grandfather acquired it between the First and Second World Wars.

Mr Penna's father, Giulio, began growing potatoes for Smith's in 1980-81, beginning what has been a 30-year relationship with the chip manufacturer.

Mr Penna learnt the basics of growing potatoes on that land in between stints as an apprentice fitter and turner, returning to the farm at the age of 23 on a full-time basis. Prior to this, he would fill in whenever his father required him to.

"Even though I was at school and doing an apprenticeship and wasn't technically at the farm, I still always lived and worked there," Mr Penna said.

"You know what it's like on the weekends and when you're busy; your father's not going to let you sleep in. So you work all week, and work all weekend."

Mr Penna purchased his current farm back in 1990, 20km north of Charters Towers and approximately 100km from his father's farm in Major's Creek.

As a third generation spud grower, he knows that success follows a combination of elements, not just skill.

Mr Penna was twice named Grower of the Year in the 1990s as well as runner-up in 2000 and 2005.

To receive the nationwide accolade not once, but twice, is to exhibit an intimate knowledge of both land and crop. And of course, according to Mr Penna himself, a little help from Mother Nature is always necessary.

"A lot of the time, if the weather goes well and your quality is good, you're in the running to get the award," he said.

"Other people don't get the award because they might have had a heavy downpour of rain, or a really cold period at a certain time."

Mr Penna enjoys the recognition from receiving such awards, but with an attitude similar to the vast majority of his counterparts, doesn't like to advertise his success.

"I like to achieve things, but I don't like to be in the

newspaper every second week saying how good I am either, because I'm not," he said.

"Growers like doing our own thing, we like to achieve things, and we get more personal satisfaction out of it (than anything else)."

There has been a lot of personal satisfaction for Mr Penna in his career as a grower, and at the age of 43 with a family of his own, he is committed to giving back to the industry that has served his family well.

Appointed to the Processed Potato IAC in November, Mr Penna now holds two important positions away from the farm. As well as sitting on the IAC, he is also kept busy in his role as Vice Chairman of the Queensland and New South Wales Crisping Growers Group, of which he has been a member since its inception.

It is a role that he particularly enjoys, and sees him travel to Brisbane for three day-long

meetings each year, as well as an added trip to Tasmania this month.

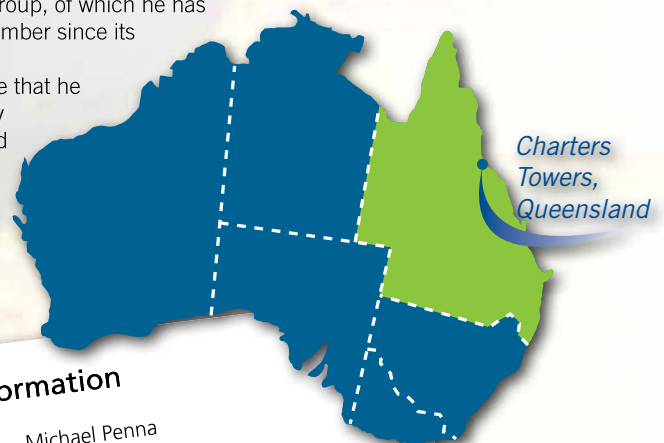
As Vice Chairman, his main job is to report to the group on news in the processing potato industry.

Having always been interested in involving himself in the Processed Potato IAC, Mr Penna felt that when he was first approached to join, it was one of the opportunities in life not to pass up.

"I've always thought I'd like to participate, but I never actively sought a position as such," he said.

"It's one of those things in life, it's like fate."

While many might shy away from the added hours involved in the position, Mr Penna's view is that his time is much better



Grower Information

Producer:
Region:
Crop:
Farm size:

Michael Penna
Charters Towers
Crisping potatoes
1,300 acres plus an extra 500 acres for irrigation that comes out of the Burdekin River.
Other activities: Vice Chairman of the Queensland and New South Wales Crisping Growers Group; Processed Potato IAC member.



spent aiming to make a positive change than it is by offering no help at all.

"I believe it's no good sitting around and complaining about what's happening in the industry if you're not prepared to put in a few extra hours and attend a few meetings and try and assist with making change," he said.

"I'm not going to make any massive changes, I understand that. But if you can assist in making some changes in the right direction (then that's a positive thing)."

One of the changes Mr Penna is involved in with the QLD and NSW Crisping Growers Association involves a program that aims to promote sustainable farming practices.

Mr Penna acknowledged that it is a combined effort between the growers association and the Smith's agronomy team.

The early stages of the plan, are to study how much of a difference is made by closely monitoring these practices in growing a crop of potatoes.

Getting base figures will help determine if changes made in the future are having a positive or negative result on the farm.

"It basically proves on paper

that we're moving in the right direction, even though the gut feel is that we're doing the right thing," Mr Penna said.

"Most growers are interested in the environment already, as they try to improve the health of their soil and increase water efficiency because you can get direct savings as a business."

"It makes sense to try and farm wisely," he said.

The ability to act in an

The direct impact of GPS technology for the Penna farm has seen a reduction in numerous costs.

"We found we used about 20 per cent less fuel over the same amount of ground," Mr Penna said.

"As well as getting straight rows, there was a direct fuel and man hours saving, because you weren't overlapping and things like that."

dieticians recommending low- or no-carbohydrate diets, the spud may have lost some of its popularity in certain sections of society.

"As an industry, we've got to advertise more that they're a healthy product and that the world's eaten them since the 16th century," he said.

"It's more a lack of exercise with people these days. It's eating too big a quantity and not doing enough exercise. That's more of an issue than if they eat one potato or two."

A lack of exercise is something that Mr Penna certainly doesn't have to worry about. With 1,300 acres of land to manage his way around on a daily basis, he is sure to get his fair share.

In the coming weeks, pending a helicopter licence test, he could be forgiven for taking the easy way out as the investment of an R44 Robinson helicopter is sure to make getting around a much quicker and much more exhilarating experience.

Whether in the air or on the ground, it remains that Michael Penna is a driven and enthusiastic individual, keen to help the potato industry in any way he can.

“ It's no good sitting around and complaining about what's happening in the industry if you're not prepared to put in a few extra hours. ”

environmentally-friendly manner is being made easier due to a number of different reasons. These include potato varieties that require less fertilisers; fertilisers that require less applications; a better understanding of when to apply fertilisers and water; as well as GPS technology in farm machinery, to name a few.

Despite the many advances that potato growing has made over years, there are always challenges that will face the industry.

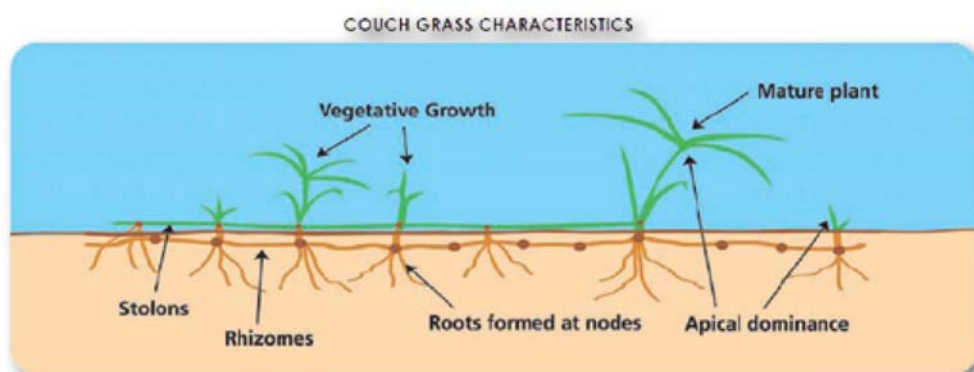
For Mr Penna, one of the biggest issues facing the potato industry today is the perception that potatoes are bad for your health.

With a growing number of

Ask the industry

with Scott Mathew

Following the excessive rains over the past two months, weed growth in grasses has been a significant issue for a lot of growers. Scott Mathew answers your questions on managing the issue in this edition of Ask the industry.



Question: With all of this rain, grass weeds are becoming a major problem this season. How should I manage these weeds?

There are some common application guidelines for using grass-selective herbicides when dealing with both annual and perennial grasses in spring and summer conditions:

- Good coverage and applications to actively-growing weeds are the two most critical factors essential for optimal results;
- Apply in a minimum of 200 L/ha of water to ensure thorough coverage of the target weed;
- Apply using properly calibrated and maintained equipment;
- Use flat fan nozzles to produce fine-medium spray droplets (150 to 300 micron VMD);
- Avoid drift onto susceptible crops;
- Spray in cool and/or humid conditions. Do not spray on days when the temperature will reach over 30°C;

- Check if an adjuvant is required as per label instructions;
- Check the rain fastness of herbicides.

Question: What if the grass weeds that are present are perennial grasses like couch? What is the best way to manage these grass weeds?

The use of SPRAY.SEED herbicide at label rates in late spring/early summer, ensuring good coverage will help to remove the more advanced existing couch grass growth and reduce apical dominance. This leads to a stimulation of the development of new growth on the couch grass, making it more susceptible to a grass-selective herbicide application. This SPRAY.SEED application should be followed with an application of the grass-selective herbicide 50 to 70 days later (or when the re-growth is approximately 5cm high, with three to six leaves per actively growing shoot) to control any re-growth from the stolons and rhizomes.



Scott Mathew, Technical Services Lead from Syngenta

Ask the industry

For more information or to ask a question, please contact your local Syngenta Territory Manager, the Syngenta Advice Line on 1800 067 108, visit www.syngenta.com.au or email *Potatoes Australia*:

andrew.mahony@ausveg.com.au

Please note that your questions may be published.

Pushing for a *fair go*

If life in the horticulture industry wasn't busy enough for Hugh Tobin, head of responsibility of managing AUSVEG's new public affairs activities, writes David



Now in a joint role as Communications and Public Affairs Manager, Mr Hugh Tobin's schedule is as unenviable as those of the vegetable and potato growers he represents. Often up early to meet media commitments and travelling far and wide to speak with politicians and decision-makers, the 27-year-old is committed to helping growers overcome a variety of challenges.

Before joining AUSVEG, Mr Tobin held the position of Public Affairs Manager with a public policy think tank. With an even temperament and a passion for representing growers' concerns, he is well placed to assume the dual responsibilities and advance the interests of the Australian potato industry.

The AUSVEG Public Affairs Program has been in the works for some time,

but it wasn't until the 2010 AUSVEG National Convention, that enough resources could be generated to fund what will become an invaluable weapon in the fight to protect the rights of Australian growers.

Though just months into operation, Mr Tobin believes AUSVEG is already making an impact at the federal level.

"After the launch of the Public Affairs Program on 1 July, our CEO wrote to every member of the Senate and of the House of Representatives. We were quite overwhelmed with the response, receiving over fifty replies requesting briefings," Mr Tobin said.

"I think this reflects the increasing importance of horticulture to the politicians."

"They are starting to wake up to the problems in our industry and realise that we need to protect it from imports and rising input costs. That's what people want in the city electorates as well; secure access to Australian-grown food at a reasonable price."

The main purpose of the meetings, Mr Tobin said, was to create linkages with key political

figures and to alert them to the major challenges confronting growers.

"Two current issues that we were keen to discuss were the dimethoate and fenthion review, and the ineffective country of origin labelling legislation, that we believe isn't doing enough to help consumers find Australian-grown produce."

AUSVEG Board member, Romeo Giangregorio, joined Mr Tobin for the important meetings, which cast the net far and wide to secure linkages with members from both the left and right sides of Australian politics.

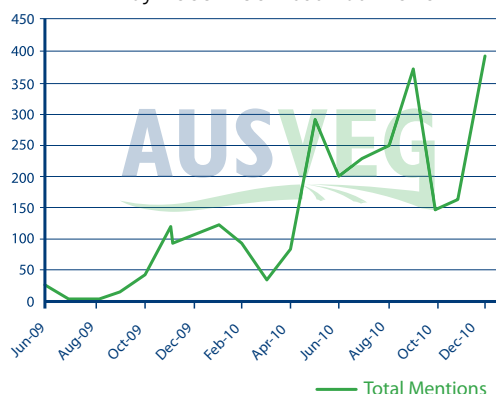
"In line with our strategy, we met with senior members from the Australian Labor Party, the Liberal Party of Australia and the National Party, along with members from the Australian Greens. From the youngest MP, Wyatt Roy, to the longest serving, the Hon. Phillip Ruddock, we wanted to ensure we were speaking to all major parties," Mr Tobin said.

"In this current parliament every MP can make a difference."

Mr Tobin explained that the public affairs activities would

AUSVEG Media Mentions

1 May 2009 – 30 December 2010



for growers

the AUSVEG Communications team, it certainly is now with the additional O'Neill.

be expanded over the next five years as further resources became available.

"As we refine our strategy going forward and increase our resources we will be able to construct a more targeted and comprehensive approach," he said.

AUSVEG has in the past been focused on promoting Research and Development (R&D) outcomes and communication activities concerned with keeping growers informed of industry developments.

However, through the insistence of growers, a voice that united their interests and one that had real effect at the federal level, became one of the key objectives of the organisation.

"Horticulture is now the second biggest and fastest growing sector of agriculture, and so it deserves a greater and more unified voice that reflects that size," Mr Tobin said.

"Whether it is the fragmented nature of horticulture or the lack of awareness of the issues that concern our growers, the sector has in the past often been treated unfairly in the formation

of free trade agreements."

"This new Public Affairs Program hopes to address this. Going forward—as we grow, our ties increase and our profile builds—we will have an improved ability to influence decisions and policy formation."

Though the Public Affairs Program is now just over six months old, the profile of

growers are now receiving significant coverage. We now have the situation where instead of trying to create stories to get our name out there, media outlets are coming to us because they know we are a reliable source and we have an important story to tell," he said.

"Growers produce the food that feed Australian families.

produce clean and safe food for this country."

Mr Tobin was keen to point out that industry communications was still an integral and dominant part of his job. He credited his hard-working communications team for helping to improve communication with all industry members, including the approximately 9,000 vegetable and potato growers AUSVEG represents.

"We have a great hardworking communications team at AUSVEG who handle various roles on behalf of the industry," he said.

"From performing the role of secretariat of the Industry Advisory Committee, to the publishing of *Potatoes Australia* and other publications, we aim to provide a crucial link between R&D outcomes and vegetable growers."

Whether it be internal communication within the industry, or campaigning for a fair go for Australian growers, it appears Hugh Tobin is helping growers finally have their voices heard.

“As we refine our strategy going forward and increase our resources we will be able to construct a more targeted and comprehensive approach.”

AUSVEG has been increasing rapidly for 18 months, since the appointment of CEO Richard Mulcahy.

This increase, Mr Tobin said, has made politicians sit up and take notice.

"In all forms of media and in all states of Australia, the issues facing vegetable and potato

Increasingly they are finding it really hard to make a profit."

"They are faced with rising input costs, a flood of imports, smaller profit margins and more red tape. We need to do more to support growers and secure the vegetable and potato industries so that in 10, 20 or 50 years there are still growers around to



[From left] AUSVEG CEO, Richard Mulcahy; Syngenta General Manager, Paul Luxton; Member for Kooyong Josh Frydenberg and AUSVEG Chairman, John Brent



[From left] Horticulture Australia Limited Chairman, Selwyn Snell; Olympian, Brent Livermore and Hugh Tobin.

Common scab disease control

just a spray away

Research is currently being undertaken toward finding an alternative for control of this recalcitrant disease, writes Dr Robert Tegg.

Researchers at the University of Tasmania within the Tasmanian Institute of Agricultural Research (TIAR) are aiming to make Common scab “uncommon scab” through control strategies targeting the pathogen’s toxin, its “Achilles heel”.

Common scab is an important soil-borne bacterial disease of potatoes, with its occurrence varying from year to year. While the usage of resistant cultivars, later planting and precise irrigation timing may aid in the abatement of this disease, it does not always guarantee a disease-free crop.

Management options for control of Common scab disease are limited and not reliable. Infection of potatoes occurs early in tuber development when the soil-borne Common scab pathogen (*Streptomyces spp.*) produces a toxin (Thaxtomin A) that eats a hole in the tuber causing the scab symptom.

It is through greater understanding of the process of infection that novel control strategies may be developed.

In one such approach to control Common scab, the team led by Associate Professor Calum Wilson is investigating a range of chemical compounds applied as foliar sprays. The work builds on promising findings conducted in the Australian Potato Research Program 1 (APRP1).

“The first phase of our research identified the synthetic auxin 2,4-D as highly effective in controlling Common scab when applied as a simple foliar spray,” Dr Wilson said.

“The current stage of the project will look at optimising timing and number of applications and reduced rates, as well as looking at some other compounds of interest,” he said.

“An easily applied foliar spray is a novel yet highly practical strategy for controlling a soil-borne disease such as Common

scab and we have shown we can reduce disease incidence by up to 90 per cent.”

According to Dr Wilson, it is important that industry develops a raft of measures to control this disease and a foliar spray would be a useful tool for the commercial grower.

Hannah Thompson, a PhD student within the TIAR team, has been studying the application of 2,4-D as a foliar treatment for the control of Common scab with a scholarship partly funding through the initial APRP1 program.

“Foliar applied 2,4-D helps reduce disease by moving to the developing tubers where it competes with the pathogen’s toxin (thaxtomin A) reducing infection and subsequent disease,” Ms Thompson said.

“Research indicates that just one foliar spray applied early in the growing season may be enough to protect developing tubers from Common scab with research now focusing on reducing the rate of the applied chemical and optimising timing.”

“We are also attempting for a first time a 2,4-D tuber dip prior to planting. If this was to work, it would provide an easy and cheap treatment option for growers.”

When used at moderate rates, 2,4-D can have a negative impact on



PhD student Hannah Thompson inspects potato plants.

Untreated "Desiree" tubers harvested from plants grown in soil amended with the Common scab pathogen.



"Desiree" tubers treated with three 2,5-dibromobenzoic acid foliar sprays.



potato growth and tuber yield.

However, Ms Thompson's work has already shown that rates well below those that can cause damage to the potato plant may provide effective disease suppression.

As part of the new APRP2 program, the TIAR research group is also testing a range of other compounds as alternatives to 2,4-D, including those with no negative effects on potato growth and yield even at higher concentrations.

In recent months Dr Robert Tegg (a research fellow within TIAR) has identified two other compounds that show great promise.

"One of these compounds, a specific dibromo-benzoic acid, has been identified having no yield reduction but demonstrating significant disease suppression in replicated glasshouse trials," Dr Tegg said.

"Its mechanism of action is thought to be similar to that of 2,4-D through inhibiting the pathogen toxin Thaxtomin A. This chemical is currently undergoing field testing in the current growing season."

"If successful, one or both of these chemicals may become viable options in the future for combating common scab disease of potatoes."

In summing up the project, Dr Wilson states that "it is good to have a range of younger researchers and PhD students working within the

the research presented in this article is experimental in nature, and the strategies discussed are part of a novel research program. Growers should be aware that 2,4-D is not registered for this use, and therefore cannot be used in commercial production for disease mitigation. It may

Potato Levy with matched funds from the Australian Government.

“ An easily applied foliar spray is a novel yet highly practical strategy for controlling a soil-borne disease such as Common scab and we have shown we can reduce disease incidence by up to 90 per cent. ”

potato industry looking at novel commercial control alternatives for important diseases such as Common scab."

"Hopefully with the support of industry the technology being developed in this project will one day be an effective control strategy for growers."

It is important to note that

emerge as a practical and registered use in the future, depending on the success of current research activities, and ultimately acceptance by regulatory authorities.

The work described here has been partially supported by Horticulture Australia Limited using the National

THE BOTTOM LINE

- TIAR researchers are having success in reducing Common scab through the use of novel foliar sprays by optimising timing and concentrations of synthetic auxins.
- This APRP2-funded project is a follow-on from a study conducted as part of APRP1.
- Researchers hope that the current success of the product will see it enter the commercial market.

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Project number: PTO9026



Cultivar "Desiree" tubers harvested from plants grown in soil amended with the common scab pathogen and untreated or treated with three 2,5-dibromobenzoic acid foliar sprays.



Continuing the fight

As part of the ongoing fight against the devastating Zebra Chip disease, a study *Phytoplasma* and *Liberibacter* pathogens of solanaceous crops, writes Andrew

The project that began in early October 2010 is being organised by the Victorian Department of Primary Industries, and is to employ the help of New Zealand Crop and Food Research.

The aim of the project is to sure up Australia's defences against diseases such as Zebra Chip in potatoes and psyllid yellows of tomato and capsicum.

Fiona Constable of the Victorian DPI said that it's about making it easier to detect and identify bacteria associated with these diseases in order to help protect the industry.

"It's about ensuring that we have appropriate, validated and peer-reviewed protocols so that we've got a really good tool to detect these quarantinable pathogens of solanaceous crops," Ms Constable said.

There are three objectives that are at the heart of the project. They include:

1) Validating diagnostic protocols of *Candidatus Liberibacter (Ca. L.) solanacearum* and phytoplasmas in Australian potato crops. This includes identifying baseline data of

associated diseases, especially through early detection;

3) Understanding the incidence of phytoplasmas in Australian solanaceous crops and their contribution to diseases in

Ms Constable believes that the study has an important role to play in keeping the *Liberibacter* pathogen out of the country.

"It's very important. It'd be fair to say that the industry feels concerned that this pathogen—the *Liberibacter*—might make it to Australia, because it's close," she said.

"It's caused significant economic impact to the places where it's occurred so you see a loss in production due to reduced quality and yield and the like with potatoes."

The *Phytoplasma*, *Candidatus Phytoplasma australiense* found in New Zealand, also occurs in some Australian horticultural crops, but is yet to have been reported in potatoes or tomatoes, although other phytoplasma species are known to occur in these crops in Australia.

"We're not really sure why we haven't seen *Ca. P. australiense* in potatoes, and maybe it's

“It's about ensuring that we have appropriate, validated and peer-reviewed protocols so that we've got a really good tool to detect these quarantinable pathogens of solanaceous crops.”

these pathogens in the absence of disease symptoms;

2) Improving the preparedness of the Australian potato industry for an incursion of *Ca. L. solanacearum* and its ability to manage the

the absence of *Ca. L. solanacearum* and its vector the Tomato-potato psyllid.

Each objective represents an important part of the project, with the Australian potato industry hoping to benefit.



Fig 1: Shoots of a Zebra Chip-affected potato plant that was also infected with *Candidatus Liberibacter solanacearum*.



Fig 2: Fresh tuber slices of Zebra Chip-affected potato plants that were also infected with *Candidatus Liberibacter solanacearum*.

against Zebra Chip

based in Victoria is building on the knowledge needed to detect both Mahony.

because we haven't really looked, or could be that we just don't have a suitable vector for potatoes here in Australia," Ms Constable said.

"We're not really sure what the role of *Ca P. australiense* is yet in the disease."

There are a number of methods that will be employed in the study, including semi-nested PCR assays for detection of *Ca. L. solanacearum* and phytoplasmas in potatoes, which were developed by Researchers at Crop and Food Research in Lincoln, New Zealand. These will be compared with other tests that are currently being used by other laboratories worldwide.

PCR stands for 'Polymerase Chain Reaction' and according to Ms Constable is a "molecular method that detects and makes multiple copies of the small fragment of DNA from the target of interest."

The following step is

to evaluate molecular diagnostics for detection of *Ca. L. Solanacearum* and phytoplasmas in solanaceous hosts under Australian conditions.

This will be achieved by testing approximately 600 potato samples from some of Australia's key growing regions for the pathogens.

According to DPI Victoria, not only does this testing help update the disease status for each pathogen, it also will help "identify any 'false positives' or organisms that can make interpretation of results difficult."

A strong relationship with the aforementioned Crop and Food Research in Lincoln, New Zealand is bound to be an asset to the study, particularly with that country's well-documented battle with Zebra Chip.

The project will shed some light on whether *Ca P. australiense* is in Australian

potato crops, with Ms Constable saying that it will certainly help the industry find out if it is, and how prevalent it is.

"It'll give us a background feel for what's going on in the absence of positive identification of the actual disease itself," she said.

"We've not seen Zebra Chip disease in Australia before in potatoes, and that's quite interesting as well. This will give us a little background about the association of pathogens to the disease."

It is hoped that at the conclusion of the project, reliable validated molecular tests that are established in the study will be used on a national scale as a part of the virus indexing scheme.

This study is funded by Horticulture Australia Limited using the National Potato Levy with matched funds from the Australian Government.

THE BOTTOM LINE

- The project's first milestone occurred in December 2010, with an end date scheduled for October this year.
- One of the main aims of the project is to ensure that the industry is prepared if Zebra Chip is to arrive in Australia.
- The inclusion of New Zealand Crop and Food Research in the study is hoped to add to the knowledge base of the disease and its impact on the New Zealand potato industry.

i Ms Fiona Constable
Victorian Department of
Primary Industries
Phone: (03) 9210 9222
Email: <fiona.constable@dpi.vic.gov.au>
Project number: PT10019

Figures 1 & 2 courtesy of Dr. Lia Liefing, Ministry of Agriculture and Forestry, New Zealand.

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Discovering more *about CTF*

Interest in Controlled Traffic Farming (CTF) continues to gain momentum in the potato industry. An ongoing project hopes to refine the technique and discover the benefits associated with implementing such a practice, writes David O'Neill.

Controlled Traffic Farming (CTF) is defined as a farming system that uses technologies such as Global Navigation Satellite Systems (GNSS) for steering guidance, ensuring all paddock traffic is confined to the same wheel tracks year after year.

It is believed by many, including John McPhee from the Tasmanian Institute of Agricultural Research (TIAR), that CTF offers many economic and environmental benefits.

Mr McPhee is leading the project entitled *Development and demonstration of controlled traffic farming techniques for production of potatoes and other vegetables*.

According to Mr McPhee, the economic and environmental benefits offered by CTF include: reduced soil erosion; improved soil structure and organic matter; improved water use efficiency; improved crop productivity and quality;

reduced energy and fertiliser use; and improved timeliness of cropping operations.

While it is still early days in the application of CTF to vegetables and potatoes, all of these benefits have been demonstrated in research and commercial practice in a range of cropping industries.

This project—due for completion in 2014—is facilitated by Horticulture Australia Limited, with funding from the National Onion and Potato levies, and matched funding from the Australian Government.

Mr McPhee said there are two major elements to the project.

“One purpose of the project is to look at the differences in the soil, water and yield aspects of conventional and CTF systems,” he said.

“Another major component is about demonstration. CTF is still a long way from being a widespread practice, primarily

“This project will build awareness and demonstrate some of the essential factors that need to be considered before such a system can be implemented.”

because of the incompatibility of a range of equipment used in the potato and vegetable industries.”

“This project will build awareness and demonstrate some of the essential factors that need to be considered before such a system can be implemented.”

To reach these goals, a trial has been established in a two hectare paddock at the TIAR Vegetable Research Facility at Forth. The paddock consists of one half CTF and one half conventional farming practices and is arranged to provide two replications of each farming system. The size of the site allows the use of commercially relevant practices, using modified, commercially-available machinery, while at the same time providing the opportunity to collect scientific data on soil and crop factors.

Mr McPhee said the data collected and the experience gained in the use of modified

equipment would improve the industry's practical knowledge base in relation to CTF conversion.

"Though the project is in its early stages, we have already gathered a significant amount of information that will help us to understand more about the benefits and requirements of CTF," he said.

"We have had some varying results so far in the different crop rotations, but one highlight was a 13 per cent yield increase in the 2009-10 onion crop."

Mr McPhee said infiltration tests indicated another important benefit of the CTF treatment.

"In the middle of winter, when the soil was very wet, we ran infiltration tests. This involved sprinkling water on the soil, and measuring the run-off," he said.

"In the conventional area, we ran the test for 30 minutes and had run off after four minutes. In the controlled traffic area we ran it for 90 minutes and didn't have any run off at all."

"It appears that in the controlled traffic area, there is a lot more pore space in the soil for the water to be either retained or to drain through, if it is already saturated."

"We found that approximately 15 centimetres beneath the surface in the conventional area there was some firmer soil which was stopping the water from soaking in. This firmer soil is a left over of traffic and tillage practices during seedbed preparation."

Mr McPhee also pointed to other benefits of CTF, such as the reduced amount of tillage required and a subsequent fuel saving.

"In preparing a seedbed for broccoli after onions, three tillage operations were required in the conventional area, though only one was needed in the CTF area. In this specific case, we saw a fuel saving of about 80 per cent," he said.

Mr McPhee first became involved in CTF over 25 years ago in north Queensland.

After moving to Tasmania in the early 90s, he was convinced the practice had a place in potato and vegetable growing. Early on-farm attempts

problems experienced by potato and vegetable growers."

A major stumbling block, Mr McPhee said, was the vastly different types of equipment used by growers. Making them all compatible with CTF is a challenge.

Solving such problems was another aim of this project. Mr McPhee said that though there were many possible benefits of implementing CTF, there were also a number of components that need to be considered to achieve good results.

slipping occasionally.

"The rear wheels are running on a really narrow track of compacted soil. Sometimes the back wheels slip off the track," Mr McPhee said.

"We have a few ideas to solve this problem and will be looking to see how we can overcome it in the future."

It is hoped that as this project progresses, awareness of CTF will increase and results will demonstrate exactly how the practice can benefit growers in ways that justify the initial investment costs.

““ We have had some varying results so far in the different crop rotations, but one highlight was a 13 per cent yield increase in a recently harvested onion crop.””

to develop this theory with Peter Aird, a consultant with Serve-Ag, showed promise but also revealed a number of challenges that indicated that CTF could only become viable when technologies like satellite guidance became cheaper and more available.

"I have always believed that the potato and vegetable industries would benefit from CTF. From a machinery and tillage point of view, these industries feature a lot of big machinery and intensive tillage operations," Mr McPhee said.

"This means that CTF should be well-suited to the soil

"As a concept, CTF is very simple. It is about having wheel tracks in precisely known locations, and driving on them at all times, however, if you don't pay particular attention to detail, then you're not going to achieve the level of consistency required to make it work," he said.

Mr McPhee said the very first thing to do is to map your traffic lanes in the paddock from a known reference point, so every time you go to the paddock you can be back on the same tracks.

He also highlighted problems with wheel tracks, in regards to the rear wheels of the tractor

THE BOTTOM LINE

- The benefits of CTF and the challenges of implementing the system are being examined in a project conducted by the Tasmanian Institute of Agricultural Research.
- Though the project is in its early stages, a number of results show that CTF may bring about yield increases, fuel savings, and helping retain water in the soil.
- The demonstration aspect of the project is also helping to build awareness of CTF and reveal what obstacles growers may face using such a system.

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Project number: MT09040



Cold Sweetening Resistance - the Holy Grail for a storage cultivar

Ongoing tests completed by the Australian Potato Breeding Program aim to discover a trait in potatoes that could prove to be invaluable to the processed potato industry, writes Tony Slater of the Victorian Department of Primary Industries.

Cold sweetening resistance in potatoes, and the possibility of developing it in a potato cultivar, is being undertaken by the Australian Potato Breeding Program.

The program aims to try and find a cultivar—referred to as the “holy grail” for the processed potato industry—that will ensure more reliable processing quality after storage, hopefully creating a greater profit for growers and processors.

The Australian Potato Breeding Program has been investigating long-term cooking and storage results in order to identify parents with the desirable traits and target the development of new cultivars with good crisp colour when cooked fresh and after cold storage.

Progeny tests on material from the glasshouse and field have been used to better understand when quality traits can be selected in the breeding

program. If possible, earlier testing in the glasshouse will enable more rapid development of high-quality cultivars.

The acceptability of fresh potato tubers for processing is dependant on the colour of the end product, whether it is chips (French fries, wedges etc) or

also small amounts of sugars, mainly sucrose, and the reducing sugars glucose and fructose. The reducing sugars react with amino acids during frying, producing a brown colour. This is known as the Maillard reaction, (as seen in Fig. 2). The higher the level of reducing sugars, the darker the

and sites, so consistency is desirable.

Not all tubers are processed when they are freshly harvested. The harvest of potatoes is a seasonal activity, but the factories continue to process potatoes throughout the year. For this to occur, potatoes must be stored for a period of time either in-ground or in cool stores, usually with the application of sprout inhibitors such as Chlorpropham (CIPC).

An alternative to using sprout inhibitors is to cold store the tubers below 6°C, however, starch can convert to sugars under cold storage. Consequently, there is a need for potatoes that are resistant to the production of reducing sugars when stored below 6°C. This trait is known as cold sweetening resistance and is the “Holy Grail” for a processing potato cultivar as it will enable tubers to be cooked directly from ground or refrigerated

“ The development of a cold sweetening resistant cultivar will ensure more reliable processing quality after storage. ”

crisps. The preferred colour is light cream to golden, with the colour of the end product being determined by the level and type of carbohydrates within the tubers.

The main carbohydrate in potatoes is starch. There are

cooked product and the more bitter the taste.

Targets for the breeding of new processing cultivars are high starch content and low reducing sugar content. Tuber sugar content can also vary considerably across seasons



Fig. 1: Pref: Atlantic (left) cooks dark compared to the new cultivar with cold sweetening resistance.



Fig. 2: An acceptable crisp compared to one showing the Maillard reaction.



Fig. 3: Eight cultivars with cold sweetening resistance

storage.

Studies into the heritability of chip colour prior to, and after, cold storage at 3°C and reconditioning (a process of reconvertng sugar to starch by exposing cold stored potatoes to higher storage temperatures prior to processing), have shown that the average colour of chips among siblings in a family was a fairly reliable predictor of the chip colour of the parent. Cold sweetening resistance is a complex recessive trait that will only be exhibited in a few of the progeny from a cross involving a parent with cold sweetening resistance.

Identification of cold sweetening resistant parents

Cooking and storage results from cultivar evaluation trials conducted by the Australian Potato Breeding Program from 1991 to 2006 have allowed the identification of a number of cultivars and selections that feature in the pedigree of progeny that exhibit resistance to cold sweetening. They include Atlantic, Crispa, Coastal Chip, Knox, Lemhi Russet, Lenape, ND860/2 and Simcoe.

In 2008 over 300 cultivars and selections from our germplasm collection were placed in cold

storage at 4°C for six months. After six months, their crisp fry colour was assessed when processed at 180°C directly from storage.

From the 300 cultivars and advanced selections, 12 cooked with an acceptable crisp fry colour.

Progeny testing

Over the last three seasons, tubers have been collected from families in the glasshouse and field and placed into storage at 4°C for six months to determine the value of parents for cold sweetening resistance and identify elite lines for potential release. After the storage period, material was cooked directly from cold storage to determine the mean family value for cold induced sweetening resistance.

A second lot of material was reconditioned for two weeks prior to cooking to determine the mean family value for this method of storage. Family mean values were obtained at harvest for crisp cook scores to provide a reference.

We have also compared the crisp scores and dry matter content from tubers grown in the glasshouse with tubers from the same families grown in the field. So far there has been a good correlation between the performances of material from

successive field generations, however, the correlation between material from the glasshouse and the field, while still quite good, requires further work. If the results can be correlated from the glasshouse and the field, this will indicate the testing can be done reliably during the early glasshouse generation.

Cold sweetening resistant cultivar development

A number of our new cultivars have produced light coloured fried product following long-term cold storage. Some have exhibited the ability to process directly from long-term storage (up to 12 months) whereas others respond to a period of reconditioning (up to two weeks at 17°C) following cold storage to produce acceptable colour.

Conclusion

The development of a cold sweetening resistant cultivar will ensure more reliable processing quality after storage as it could be cooked directly after harvest or cold storage without increases in dark colours due to reducing sugars.

It will also eliminate the need to use sprout inhibitors in storage facilities.

To be commercially successful, a cold sweetening resistant cultivar will also need to have a range of other commercially desirable traits, including shape, yield, long dormancy and disease resistance. Fig. 1 illustrates the “Holy Grail”, a new cultivar from the Australian Breeding Program with cold sweetening resistance that is currently under commercial evaluation with a major processing company.

THE BOTTOM LINE

- The potential for a cold sweetening resistant cultivar is being studied by the Australian Potato Breeding Program.
- Cold sweetening resistance in potatoes allows them to be stored before processing at levels of below 6°C without reducing sugar levels.
- The establishment of a cold sweetening resistant cultivar would ensure no increases in dark colours due to reduced sugars.

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Potato industry gathers for meetings on *a global scale*

The African Potato Association (APA) Conference and International Potato Group (IPG) meeting in December saw representatives from all over the world descend on South Africa to tackle some of the biggest issues facing the potato industry, writes Andrew Mahony.

From 5-12 December 2010, the 8th Triennial Conference of the African Potato Association was held.

One of the main aims of the Conference was to gather minds from across the world and discuss ways that problems facing the potato industry can be addressed through improved communication and research.

Two main events took place, with the first—the African Potato Association (APA) Conference—involving members from various African countries including host nation South Africa, as well as representatives from Australia, Canada, Netherlands, New Zealand, the United Kingdom and the United States.

The APA conference lasted four days, covering issues on both potatoes and sweet potatoes.

Based on discussions at the Conference about the future of the industry, communication would prove to be a very important method in the fight against the seemingly endless array of pests and diseases affecting growers globally, as well as other issues such as availability of water in many areas.

Dr Kevin Clayton-Greene, Chairman, Technical Advisory Group, Potato IACs, was in attendance and found that despite the great difference in the farming practices and situations of growers globally, the problems that growers face are very much universal. “Although the production of potatoes in Africa is coming from an entirely different

Horticulture Australia Limited, a lack of access to clean water for irrigation would play a key part in global research and development moving forward.

“A major outcome of the African Potato Association (APA) Conference and International Potato Group (IPG) meeting in Cape Town was the realisation that development of drought-resistant varieties is of critical

VanderZaag, addressed the APA Conference.

The CIP is an international organisation based in Peru that aims to provide food security for developing countries through scientific research and related activities on potato and sweet potato, among other crops.

The second main event which took place, following the Conference, was the IPG meeting that involved representatives from Australia, Canada, New Zealand, South Africa, the United Kingdom and the United States.

It covered three sectors of the industry including strategy, marketing and research and development.

The structure of research and development in each of the six participating countries in the IPG is different. Each country made a presentation outlining the various issues it faced.

Canada

There is concern in Canada about the lack of national-level expertise in the research & development sector, with the process between government and researchers disjointed and disorganised.

“The similarity of issues faced by the industry, not only within the IPG, but throughout the world is striking.”

perspective to that in Australia or the West generally, the similarities in challenges that are confronting the industry are remarkable,” he said.

The impact of water availability on potato growers worldwide is to continue creating problems, and is an issue that needs constant attention, attendees heard.

According to Stuart Burgess of

importance to food security across the world,” he said.

“There is potential for Australia to be part of this strategy, meeting both our domestic needs and also opening up potential opportunities in the likes of Sub-Saharan Africa and more importantly, the work conducted by CIP.”

Chair of the International Potato Center (CIP), Dr Peter

Significant issues include Late blight, Bacterial ring rot and PCN. PCN has proven to be a particularly important issue, as a recent outbreak saw exports to the United States fall by 50 per cent.

New Zealand

Tomato-potato psyllid (TPP) is the big issue in New Zealand, with virtually all levy funding taken up by the problems it continues to cause.

Despite the devastation caused by Zebra Chip, however, the New Zealand representatives said it was providing the industry with a rallying point. Aside from TPP, environmental responsibility and agricultural chemical reassessments—including nitrogen management—also prove to be important issues.

South Africa

In South Africa, water availability, Powdery scab and Potato virus Y (PVY) are proving to be the biggest issues for the potato industry.

Energy costs (and therefore, production costs) are also significantly high, with approximately AUD\$15-17,000 spent per hectare.

United Kingdom

Priorities in the R&D sector in the UK are soil-borne diseases that include Powdery scab and the new spp of *Dickeya*, which is similar to Blackleg, but considerably more aggressive.

Type A2 blight is also very serious, making up 75 per cent of infections.

The UK Potato Council receives a sum of £6 million

per year, with £4.8 million coming from growers and £1.2 million coming from buyers, with almost one third of this figure spent on research and development.

United States

Despite a stabilisation in the decline of potato growers, the past decade has seen grower numbers almost halved, from 3,000 to 1,600.

Knowledge transfer between fresh and processed growers is minimal, with much of this interaction being encouraged by state associations.

Outcomes

Challenges for the global industry identified at the Conference include a number of disease-related issues, as well as the impact of water availability and use.

Soil-borne pathogens, namely Powdery scab, are of particular concern.

Due to the devastating effect of Zebra Chip worldwide, TPP was also named as one of the biggest challenges facing the

industry.

Africa has been hit hard by PVY, and there is an understanding that growers should be aware of the dangers of poor seed hygiene practices, as well as the dangers associated with Late blight and its type A2 strain.

The use and availability of water was a major concern raised at the Conference. The majority of countries involved in the meetings emphasised the importance of the industry keeping up-to-date with the situation, as environmental compliance becomes more of an issue.

Despite the geographical distance between Australia and the majority of the world, Dr Clayton-Greene believes that the issues faced by the potato industry here reverberate worldwide, and Australia's participation in meetings like this is very valuable.

"Prior to attendance I had some concerns as to what a group like this could achieve and whether there would be any

long-term tangible benefits to flow from participation, especially given the cost," Dr Clayton-Greene said.

"I believe that Australia has much to gain, however, and little to lose from participation, in this group. The similarity of issues faced by the industry, not only within the IPG, but throughout the world is striking."

"This fact together with the diminishing amount of money for R&D and the increasing complexity and cost of good research, demand that wherever possible, collaboration and synergies be sought."

With more large-scale international meetings like this one, as well as continued collaboration with various bodies around the world, the Australian potato industry is aiming to strengthen its position against the problems that it will continue to face moving forward.

Thanks to Dr Kevin Clayton-Greene, Stuart Burgess and Richard Mulcahy for their input into this story.



Processing plant in South Africa sorts potatoes.

From L to R: AUSVEG CEO Richard Mulcahy; HAL Industry Services Manager Stuart Burgess; Chairman, Technical Advisory Group, Potato IACs, Dr Kevin Clayton-Greene.



Jos Balendonck discusses the use of EKO nodes wireless sensors. Photo courtesy of: Erik van Os of WUR Greenhouse Horticulture.

Working on water

On the driest inhabited continent on the its conservation crucial in agriculture. An sensor technologies that aim to optimise

With growers around Australia having dealt with drought over many decades in our history, the importance of using water wisely on the land has always been of high importance.

A project led by Jos Balendonck of Wageningen UR Greenhouse Horticulture in the Netherlands should provide some optimism about the world's future in monitoring water use, found in the form of FLOW-AID.

FLOW-AID is a product consisting of sensor technologies designed to alert growers when the optimum time to water crops is.

It is part of a project that began five years ago, with studies of wet sensor technology dating back to the 1990s.

Mr Balendonck says that it is a gradual process to work products like this onto the market.

"We have to spread the news and show that it helps," Mr Balendonck said. "It takes a while before these farmers know about it and start implementing it. We have to really show that it works for them."

"We have to work with these farmers and set up and help them. We must attempt to go further and spread the news, talk with them, and not from where I'm sitting in an office—you have to go out in the field."

The product that he is talking about boasts some impressive statistics in reducing both water and fertiliser.

It is believed that the FLOW-AID sensor technology can improve water use efficiency by

Tests of FLOW-AID were conducted in arid are heavily legislated for controlling water

LEBANON

In Lebanon, the tests were conducted in Bekaa Valley, where a staggering 92 per cent of the irrigated lands use uneconomical irrigation techniques.

Soil water levels were monitored to create a watering schedule that maximised water saving.

Following the introduction of the sensor technology to the area, it was found that there was nearly a 20 per cent water saving when calculated over the whole season.

“With global warming and other extremes, more difficulties have arisen for the agricultural industry to have enough good quality water.”

solving the problem



planet, water use has always been a valued commodity, with ongoing project in The Netherlands has developed state of the art water use, writes Andrew Mahony.

up to 60 per cent in some cases, while the use of fertilisers can be reduced by up to 30 per cent.

Considering the costs of water and fertiliser, this is a significant saving to any grower's bottom line.

"Over the last 20 years, the water issue has become more severe over the world," Mr Balendonck said.

"With global warming and other extremes, more difficulties have arisen for the agricultural industry to have enough good quality water."

Mr Balendonck said that improved technologies must help pave the way to ensure that "more crop per drop" is achieved.

"In drier regions where people don't have enough water or good quality water, they have to come

up with something," he said.

"I believe that these farmers in these areas, under these circumstances will need to implement newer technologies to deal with this issue."

According to Mr Balendonck, the initial steps of the FLOW-AID technology are easily set up.

"You dig a hole, you place two to three sensors in a spot, erect an antenna, and you have an antenna at your farm and your data is available online," he said.

The next step is to implement the irrigation system, with each installation being very client-specific, depending on the size, water sourcing and types of crops on the farm.

Crops that use equipment such as drip line systems are much easier to connect with the sensors than pumps used in

larger-sized fields.

Once connected, the system can be programmed to begin watering, based on the level of moisture in the soil.

As water continues to become a scarce commodity around the world and in Australia more specifically, it is important that there are ways in which this can be dealt.

According to Mr Balendonck, sensor technology in this industry is part of an important step forward.

"If you cannot grow with the amount of water you have, you have to come up with something," he said.

"In these regions, these technologies will be implemented earlier, especially in Middle Eastern countries where they have very dry soils."

THE BOTTOM LINE

- In some testing FLOW-AID has resulted in a water saving of up to 60 per cent and a fertiliser saving of 30 per cent.
- FLOW-AID incorporated 10 research and technological centres across eight European and Asian countries.
- The project has been costed at €1.53 mil.



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areas such as Lebanon and Jordan, as well as areas in The Netherlands that are heavily and nutrient flows.

JORDAN

With Jordan's limited fresh water resources and 1.2 billion cubic metres of annual demand, it too is in need of an option to provide clean water for irrigation.

Field tests were completed in 2007 and 2009 using fresh water and treated wastewater, with the majority of these findings revealing an increased crop yield, including those that used dual water.

THE NETHERLANDS

In areas restricted through legislation, under the Water Framework Directive (WFD), growers are looking for ways to optimise fertigation. Studies undertaken in the Netherlands with the FLOW-AID sensors aimed at reducing the emission of nitrate into the environment, as well as increasing crop yield and salvaging quality.

The tests found that not only was there some prevention of water and nutrient leaching, but that crop quality remained the same.

On top of this, there was a 10 per cent higher crop yield found with the use of the FLOW-AID sensor technology.



Pests and Diseases Profile *New feature*

Potato moth can be successfully managed

In this inaugural edition of *Potatoes Australia's* Pests & Diseases Profile, Dow AgroSciences offer an in-depth look at the Potato moth.

Potato moth or tobacco leafminer (*Phthorimaea operculella*) is a serious pest of potatoes around the world. Other host plants include tomatoes, eggplants and several weeds from the same family - the Solanums (e.g. nightshades and thornapple).

In potatoes, serious damage is caused by the larvae to all parts of the growing plant and to post-harvest (stored) tubers. It is most damaging in dryland crops and in hot dry seasons when soil cracking allows the larvae access to tubers.

Moths are small with a wingspan of 12-16 mm. During the day, they rest within the foliage and are seen mostly at dusk flying above the crop and laying eggs.

Eggs are tiny (less than 0.5 mm long) and usually laid on the underside of leaflets or on the soil near a plant.

The eggs hatch in four to five days and the larvae tunnel into the plant's leaves creating mines that reduce the leaves' photosynthetic ability. Tunnelling may continue through the leaf and down stems and in severe cases the entire crop foliage may be decimated this way. Once fully grown, larvae move to the soil and pupate.

Damage to tubers only occurs where tubers are close to the surface or when soil covering the tubers has dried and cracked allowing the larvae easy access. Larvae tunnel into tubers and allow

fungi and bacteria to enter as well, rendering the tubers unmarketable and a ready source of infestation in storage.

There are a number of things growers can do to minimise infestations. Only planting clean seed potatoes, planting them deep to stop tuber exposure, and keeping water up to the plant to stop soil cracking will all help minimise tuber infestation.

Early season infestations of potato moth can be dealt with using sprays which will control the larvae in their mines before major foliar damage is done.

This will protect the crop's yield potential and minimise the number of insects going on to create the next generation.

There are a number of

beneficial insects that will help provide control by preying on or parasitising eggs or larvae.

When considering chemical control it is important to choose a product which will not disrupt the beneficial insects and these days there are several products which fit the bill. One such 'IPM compatible' option is Success2 Naturalyte, which kills moths as well as larvae and a proportion of eggs.

Crop hygiene is also important and involves removing crop trash at harvest, and getting rid of infested tubers and solanaceous weeds.

Bins should be disinfested and treated before potatoes are stored in them. Potatoes should not be left in the field after harvest.



Spraying Tobacco splitworm. Source: David Jones, University of Georgia, Bugwood



Tobacco splitworm. Source: David Jones, University of Georgia, Bugwood

Name: Sam Montano

Age: 26

Location of farm: Dean, VIC

Potatoes farmed: Various crisping varieties

Role in company: My role is to grow the spuds on the ground I rent off my grandfather. I also work a full-time job on another spud farm at Bungaree, Victoria.

How did you get involved in the industry?

My grandfather grew spuds probably 16 years ago, and I grew up with that. When I was older, a bit of the gear was still there, so I decided to do an apprenticeship on a neighbour's property. I grew five to six acres to start off with, and now I'm up to eight this year. The farming comes from my mum's side of the family as my dad is a hairdresser with his own business in Ballarat.

Where do you spend most of your time?

I live in Dean on my grandfather's property and work there a couple of days a week, and then work on the 35 hectares in Bungaree.

Do you plan to continue farming into the future?

Yes, I see myself farming throughout my whole life.

Describe your average day.

I wake up at 6 o'clock, depending on what time of the year it is, sometime between 5-6am. Once I'm up, I do a couple of hours of work at home in the morning, and then go out on the farm.

What's the best thing about your job?

Watching the crop grow and change throughout the season and seeing the end product. It's very satisfying to see what you've achieved.

How do you think younger people could be encouraged back into farming?

I think the best way is through apprenticeships. Bigger growers need to give younger blokes a go; giving them a hand by using a bit of their equipment just to get them started off. If they could find five to six acres somewhere, or put five to six acres aside to give the young people a go and tell them to manage that bit of land, and whatever they get off that bit they can keep, I think that'd be a great advantage to get young people back into growing and to give them a feel for it.

If you weren't farming, what would you be doing?

I'd like to be a salesperson selling agricultural machinery.

Do you read *Potatoes Australia*? If yes, what do you like about it most?

Learning off other growers and getting a feel for who else is out there and in the same boat as you.

Q&A Young Grower Sam Montano



What's on

18-20 February 2011

Seymour Alternative Farming Expo

Where: Seymour, Victoria

What: As Seymour's own outdoor farm machinery supermarket, the expo will have more than 450 exhibitors present the world's best agricultural technology for a general audience of 45,000 visitors including farming professionals and members of the general public.

Further information: www.seymour-expo.com

5 March 2011

Crookwell Potato Festival

Where: Crookwell, New South Wales

What: The inaugural Crookwell Potato Festival takes the place of the previous Crookwell Country Festival. The Potato Festival is set to feature 'Spudlympics', as well as various other activities ideal for families.

Further information: www.crookwellpotatofestival.com.au

4-7 April 2011

International Symposium on Organic Matter Management

Where: University of Adelaide, South Australia

What: The International Symposium on Organic Matter Management & Compost use in Horticulture is a collection of field trips and workshops covering all things organic in the horticulture industry.

Further information: www.compost-for-horticulture.com

▶ 14-16 April 2011

AUSVEG National Convention 2011

Where: Sebel-Citigate Hotel, Brisbane, Queensland

What: The largest single gathering of vegetable and potato growers each year, once again featuring the annual trade show that promises to be bigger and better than last year.

Further information: Phone (03) 9822 0388 or email convention@ausveg.com.au

17 April 2011

AUSVEG Inaugural Potato Summit

Where: Sebel-Citigate Hotel, Brisbane, Queensland

What: Following the AUSVEG National Convention, the Potato Summit will bring together some of the brightest minds in the potato industry to discuss varying issues of relevance to the industry.

Further information: Phone (03) 9822 0388 or email convention@ausveg.com.au

24-29 July 2011

EAPR2011 Potato Research Conference in Oulu, Finland

Where: Oulu, Finland

What: The 18th triennial Conference of the European Association for Potato Research will feature discussion sessions including the future of potato breeding, and ways that the potato can become a true food security crop in the developing world.

Further information: www.eapr2011.com



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