Horticulture Innovation Australia

Final Report

Potatoes Australia

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AUSVEG Ltd

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PT12019

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Summary

Potatoes Australia is the flagship print communication tool for the communication programs funded by the National Potato Levies, rising from its launch in April 2006 to its current prominence as a cornerstone of research and development (R&D) communication in the potato industry.

Research conducted at the time highlighted a low level of internet and email use among growers, suggesting that a magazine format would be an appropriate and relevant mode of communicating with growers about the National Potato R&D programs. *Potatoes Australia* continues to be one of the most preferred methods of communication in the Australian potato industry.

The overall objectives of the publication of *Potatoes Australia* have remained consistent since the inception of the project: to present R&D projects and information in a clear and easy-to-understand manner, and to interpret and condense the key elements of new research, projects, news and events in a form that is practical for potato levy payers and a broader audience.

Since its first publication, *Potatoes Australia* has grown to reach approximately 3,000 readers across the country. By reaching such a broad audience across the entire Australian potato industry, *Potatoes Australia* has simultaneously aided and informed a greater understanding of R&D performed in key areas, such as pest and disease management and best farming practices.

Over the life of the project, *Potatoes Australia* has published 21 bi-monthly editions (six issues per annum), with all editions made available both in hard copy format and in soft copy on the AUSVEG website. Each edition has either met or exceeded the requirement of 14 pages of R&D content per edition, including stories on recently released milestone and final reports, as well as updates on domestic and international R&D relating to broader industry issues. Additionally, while compiling each edition of *Potatoes Australia*, the editorial team consults experts and interviews leading researchers and academics to ensure the scientific and technical accuracy of articles.

This focus on R&D outcomes has ensured that potato levy payers and other industry members were kept informed on R&D covering a wide range of topics, showing growers the tangible returns of levy investment and encouraging future uptake of R&D on-farm.

In addition to reporting on innovative R&D projects and recognising leading growers in the potato industry, *Potatoes Australia* has also reported on topical issues, including Country of Origin Labelling. With a holistic view of the industry being crucial to maintaining a successful potato growing business, this aspect of *Potatoes Australia* has ensured that potato levy payers were aware of important developments in the broader industry, which could affect their growing operations.

Ultimately, *Potatoes Australia* remains committed to acting as a reliable vehicle for the distribution of a broad spectrum of R&D information, as well as communicating news and issues to key players in the Australian potato industry. To carry on the success of this project, it is recommended that *Potatoes Australia* is consolidated into a broader Potato Communications Program that includes the Potato Industry Communications Strategy. It is also recommended to continue publishing both the hard copy and the digital formats of the magazine.

Keywords

potatoes; Australia; magazine; publication; potato industry; research and development (R&D); AUSVEG; Horticulture Innovation Australia Limited

Introduction

Potatoes Australia was launched in April 2006, after the Fresh and Processed Potato Industry Advisory Committees (IACs) approved the development and production of a magazine that replaced its predecessor, *Eyes on Potatoes*.

Research conducted at the time highlighted a low level of internet and email use among growers. In light of these restrictions, the magazine format was deemed an appropriate and relevant mode of communicating with growers about the National Potato R&D program, and continues to be one of the most preferred methods of communication in the Australian potato industry.

Today, *Potatoes Australia* is 36-page, bi-monthly magazine that is distributed nationally to those who pay the National Potato Levies and other individuals associated with the industry, such as local and international researchers and supply chain members. The magazine is distributed in February, April, June, August, October and December – the alternate months to its sister publication, *Vegetables Australia*.

Production of *Potatoes Australia* involves members of the AUSVEG Communications Team and a graphic designer. In addition to these roles, the magazine receives recurring input from a variety of specialised contributors who provide expert content in areas such as biosecurity and potato R&D extension. There is also budgetary provision for the use of freelance writers for each edition.

A combination of high quality stock imagery and research photographs are published alongside the articles, while freelance photographers are commissioned on a regular basis to provide a high level of professionalism to the magazine.

Potatoes Australia is printed externally by a Victorian-based printer on a high quality gloss paper source, and distributed by a Victorian-based mail house.

Potatoes Australia is received by approximately 3,000 individuals.

Rationale

The primary purpose of the magazine is to communicate outcomes of research and development that is funded by the National Potato Levies. The project states that *Potatoes Australia* must fill a quota of 14 pages of R&D per edition. This target continues to be reached, if not exceeded, in every edition of the publication.

The magazine is also produced to communicate potato industry news from Australia and abroad, address timely issues and challenges, provide insight into the work of leading individuals in the industry and feature columns from regular contributors offering practical advice relating to on- and off-farm issues.

Industry impact

Potatoes Australia is a vital form of hard copy communication that is delivered to its primary readership

(potato growers and processors), who do not necessarily access digital media services on a regular basis. Ongoing feedback continues to be overwhelmingly positive from readers, who very much appreciate the hard copy publication. *Potatoes Australia* is well-supported by the industry and valued by growers as a reliable source of information.

Feedback received through reader surveys and anecdotally at the National Horticulture Convention and other industry meetings suggests that the grower profiles in particular form an extremely popular component of *Potatoes Australia* and are enthusiastically engaged with by its readership.

The magazine's readership has continued to grow and, thanks to several media releases issued subsequent to its distribution, *Potatoes Australia* has been the subject of heightened media interest, with many of the country's high profile metropolitan and rural media outlets requesting subscriptions to the magazine. This assists in building relationships with the media to ensure the communication of R&D more widely to growers.

Overall objectives

Since its inception, one of the primary aims of *Potatoes Australia* is to present R&D projects and information – which are often quite scientific in nature – in a manner that is clear and easy to understand.

The magazine strives to interpret and condense the key elements of new research, projects, news and events into a form that is of specific and practical use to potato levy payers and a broader audience, while simultaneously aiding and informing their greater understanding of areas such as pest and disease management and best farming practices.

Ultimately, *Potatoes Australia* remains committed to acting as a reliable vehicle for the distribution of a broad spectrum of R&D information, news and issues to key players in the Australian potato industry.

Methodology

Potatoes Australia stands as one of the potato industry's leading journals and performs an essential role in the dissemination of R&D information, news and feature stories to its target audience of approximately 3,000 potato growers, processors and industry representatives throughout Australia.

Article development

The AUSVEG Manager – Communications, Senior Communications Officer/Editor, Writer/Journalist and Graphic Designer are responsible for overseeing all aspects of production of *Potatoes Australia* magazine.

Editorial planning for each edition of the magazine requires a detailed story list and pagination sheet, which outline what will appear in the magazine and the way in which it will be presented. These are reviewed and approved at a number of levels before interviews are commenced and validation regarding the appropriateness of the work is cross-checked with the relevant research body where required.

In maintaining the quality of written material, an in-house style guide is used to ensure consistency of content and language. Quality control measures are in place throughout the proofing and editing processes to ensure content is appropriate and relevant to the audience.

Freelance writers and photographers are then sourced at a competitive industry standard and rate, and subsequently commissioned. All content submitted by freelance writers and contributors is then edited to ensure copy is accurate and free from errors.

The editorial team is required to oversee the design of the magazine. This involves working closely with the in-house graphic designer to ensure the magazine is laid-out correctly and appropriate images are used.

The designer is responsible for all design elements of *Potatoes Australia*, including crop marks, bleed and maintaining colour accuracy. Within any edition of the magazine, the designer is required to adjust photographs supplied from freelance photographers, source additional stock images externally or from AUSVEG's image library and place all editorial.

On completion of the magazine, the designer is responsible for uploading final artwork to the printer. Once proofs of the magazine are returned to AUSVEG, it is the role of the designer and editorial team to thoroughly proof the magazine for any errors. Once all design and editorial inspections are satisfied, the magazine is signed off and the printing job is cleared to commence.

To ensure the magazine is distributed according to deadlines, AUSVEG is in constant communication about its requirements with the printer and mail house. This ensures that the R&D content within the magazines is delivered to growers in a timely and cost-effective manner.

Following publication, the magazine is regularly reviewed to ensure its visual appeal and information is consistent with the requirements of the project, and engaging for the readership. Feedback on the

magazine is regularly obtained through the annual reader survey and many workshops and industry meetings that are held throughout the year, where readers are in attendance. This feedback is then relayed to the editorial team for consideration in future editions.

Style and format

To maintain a strong visual appeal and contemporary look, the latest graphic design software and methodologies are used in creating the magazine. High quality freelance photography complements the articles and conveys R&D in an effective way, ensuring the magazine looks appealing to its audience.

Each 36-page edition of *Potatoes Australia* includes a range of R&D articles, grower profiles, contributor columns and news. Following is a list of the regular R&D and feature columns that appear in the magazine every edition.

- **Potato Industry Extension Program column:** This regular column is written by the Potato Industry Extension Program Coordinator, who outlines current and upcoming developments in the program, such as workshops and potato-related R&D that could be of interest to readers.
- **Industry advice columns:** The "Ask the Industry" column provides a platform for industry professionals to offer on- and off- farm advice to readers to aid them in improving the efficiency of their operations.
- **Young grower feature:** The "Q&A Young Grower profile" features an informal conversation with a young person working in the industry in each edition. The decision to include this segment was based on the need to encourage young people to pursue rewarding careers in the potato industry, and to remind them that there are others successfully doing so.
- **Grower feature***:* The regular "Grower profile" provides readers with insights into the lives and operations of other growers in their industry. This segment is designed to allow growers to benefit from the practices employed by their peers and to inspire them to further expand their own operations. It also showcases the diversity of people that work in Australian horticulture.
- **The Front Line:** This regular column examines pertinent biosecurity issues facing potato growers and is written and submitted by the AUSVEG National Manager – Scientific Affairs.
- **YPP page:** Victorian potato grower Stu Jennings leads the 'Young Potato People' initiative, which is supported by Adama, which aims to provide a forum for young potato growers to network and discuss issues of interest on Facebook and Twitter.

Dissemination to industry

Potatoes Australia is delivered to approximately 3,000 recipients around the 15th day of the publication month and distribution is conducted through an external mail house based in Victoria. A database of recipients is continuously maintained and updated within AUSVEG, before it is sent electronically to the mail house prior to the distribution of each edition.

In addition to hard copy distribution, the magazine is made available electronically to levy-paying growers via the AUSVEG website. The magazine is also distributed through the National Horticulture Convention, as well as other industry events and conferences.

Outputs

All deliverable outputs for PT12019 were met throughout the life of the project, comprising 21 bi-monthly editions of *Potatoes Australia* where all deadlines were met (six issues per annum). The magazine was made available both in hard copy format and digital format on the AUSVEG website.

AUSVEG also maintained a National Potato Database that was used as a distribution list for *Potatoes Australia.* This database is regularly updated to ensure the magazine reaches a wide audience.

A comprehensive library of images for use in *Potatoes Australia* magazine was also maintained and increased through freelance photographers and stock imagery subscription throughout the life of the project.

Each edition of *Potatoes Australia* required at least 14 pages of R&D content; this target was reached, if not exceeded, in every edition of the publication. R&D content includes a range of R&D stories on recently released milestone and final reports drawn predominantly from Horticulture Innovation Australia's potato R&D program, as well as domestic and international R&D that relates to broader industry issues.

List of R&D articles

A breakdown of the total number of R&D pages per edition of *Potatoes Australia* is listed below. For a complete list of R&D articles, see Appendix 1.

October/November 2012: 14.75

December 2012/January 2013: 14

February/March 2013: 14

April/May 2013: 14.5

June/July 2013: 14.16

August/September 2013: 14.25

October/November 2013: 15.83

December 2013/January 2014: 15

February/March 2014: 15.33

April/May 2014: 14

June/July 2014: 15

August/September 2014: 14.5

October/November 2014: 16

December 2014/January 2015: 16.65

February/March 2015: 14

April/May 2015: 14

June/July 2015: 14

August/September 2015: 14

October/November 2015: 14

December 2015/January 2016: 16

February/March 2016: 14

Outcomes

Throughout the life of the project, it has been a key priority of *Potatoes Australia* to ensure that readers truly benefit from the publication of the magazine. To achieve this, *Potatoes Australia* has strived to promote the adoption of positive R&D outcomes and other new technologies that will assist growers' production in terms of yield, profit and long-term viability, as well as environmental impact, in every edition. *Potatoes Australia* complements and provides an additional source of information to other potato industry communications media, particularly those that are produced via electronic means.

The production of *Potatoes Australia* is an essential and proven mechanism to deliver effective communication to growers and industry members. R&D content is produced through a rigorous process of research, analysis and interviews. Experts are consulted to provide input on feature R&D stories and interviews are sought with leading researchers and scientists to ensure the content of articles is accurate and representative of the key research outcomes. As a result, *Potatoes Australia* continues to deliver at least 14 pages of R&D content per edition, for six editions per year.

Potato growers rightly want to see tangible returns on their levy investment and the magazine has continued to strengthen and develop its comprehensive coverage of levy-funded projects to ensure that growers do receive maximum benefit by being aware of outputs of the National Potato Levies. Ultimately, adoption of R&D outcomes will directly allow growers to see a tangible return for their levy investment and encourage future uptake after seeing the benefits first-hand.

Publication highlights

Potatoes Australia has registered some notable achievements in its most recent project cycle. In addition to the regular coverage of levy-funded R&D final reports and projects, the magazine strives to unearth innovative developments in the Australian potato industry as well as celebrate the success of leading growers. Following is a list of five highlights from this project.

Young grower profile: Patrick Fox (see Appendix 2 and 3)

"Q&A Young grower profile" published in Potatoes Australia December 2013/January 2014

This edition of the Young grower profile focused on Patrick Fox, a fourth-generation potato grower from Western Australia who started his own business of producing certified seed potatoes. In this profile, Mr Fox discussed the biggest challenges and threats facing potato growers, as well as the ways to encourage more young people to get involved in the industry. Mr Fox also reflected on his participation in the 2013 Potato Growers' Study Tour to the USA and Canada and explained what he had learnt from witnessing potato production in Idaho.

R&D: Potato Industry Extension column (see Appendix 4)

"Top 8 potato R&D" published in Potatoes Australia August/September 2014

This article was prepared by the Potato Industry Extension Coordinator and highlighted the top eight

potato R&D topics that have been communicated by the program since it commenced in January 2012. The topics included the PreDicta Pt DNA testing service, Potato virus Y research, maintaining the health and quality of seed potatoes, biofumigation, managing the threat of nematodes, controlled release fertilisers, Tomato potato psyllid and Zebra chip disease, as well as Powdery scab.

International R&D: New Zealand potato yields (see Appendix 5)

"Striving for maximum potato yields in Canterbury, New Zealand" published in Potatoes Australia October/November 2014

An example of leading international potato research featured in this edition of the magazine, focusing on potato yields in Canterbury, New Zealand, which have remained static at 50-60 tonnes per hectare. As computer-based modelling predicted that yields could potentially reach 90 tonnes per hectare, a field study was conducted by the New Zealand Institute for Plant and Food Research to identify the factors responsible for the potato "yield gap". The article discussed the method and results for the project.

Grower profile: Susie Daly (see Appendix 6 and 7)

"Rising from the ashes" published in Potatoes Australia February/March 2015

The Grower profile and cover story for this edition focused on Tasmanian potato grower Susie Daly, who discussed her recovery from a devastating bushfire that came through her home town of Dunalley in 2013. While her family and farm survived the blaze, it led Mrs Daly to reassess the business model and she has since introduced a range of innovative projects that aim to reduce potato waste on the farm. This included ideas such as pre-made gourmet potato salads and home-made potato vodka for tourists vising the local area.

Industry issue: Australian processed potatoes in fast food chains (see Appendix 8)

"Big brands tight-lipped about origins of processed potatoes" published in Potatoes Australia June/July 2015

This article set out to discover the extent to which some of the biggest names in fast food and casual dining in Australia sourced local potatoes for their French fry and hot chip needs. After extensive research, only a small selection of the companies contacted revealed the origins of their processed potatoes. The article also highlighted an international example that shows the opportunities that can be gained from transparency on the issue.

Evaluation and Discussion

Commissioned review

A review of the AUSVEG Vegetable and Potato Communications programs, which includes the publication of *Potatoes Australia*, was commissioned by Horticulture Innovation Australia Limited in 2015. This review examined the performance and achievements of the project and provided recommendations on future communications activities. The review was conducted for both the vegetable and potato industry communications programs; however, this section will only focus on the review of *Potatoes Australia.*

The review found the *Potatoes Australia* and its sister publication, *Vegetables Australia*, were "the most respected source of information from all the communication projects that were reviewed". Respondents spoke highly about the quality and professional nature of the magazines, which are highly anticipated and provide the readers with information on R&D outcomes and other industry development issues.

Potatoes Australia and its sister publication *Vegetables Australia* received an average score of 4.0 out of 5 from those interviewed, which indicated that it 'more than meets my expectations'.

Independent Review

As a requirement of the project, an independent review of the AUSVEG Vegetable and Potato Communications programs, which includes the publication of *Potatoes Australia*, was completed by Tom O'Meara. This review examined the performance and achievements of the project and provided recommendations on future communications activities. The review was conducted for both the vegetable and potato industry communications programs; however, this section will only focus on the review of *Potatoes Australia.*

The review was complimentary of the AUSVEG Potato Communications program, including publication of the magazine, with the reviewer highlighting "*Potatoes Australia* plays a key role in delivering R&D information". The reviewer noted the success of using traditional methods of communication to better inform all sectors of the potato growing community, as this results in better transfer of R&D outcomes to the industry.

The reviewer also conducted a series of formal and informal interviews with readers to generate feedback on the publication. Respondents noted that one of their main sources of information is the hard copy version of *Potatoes Australia*, which is often read from cover to cover. They enjoy reading R&D articles in hard copy format and find the magazine quite informative.

The reviewer concluded: "The three-year project has provided a wealth of information including valuable new production practices, new technology, the good news stories about innovative growers and their successes around the nation and evolving industry issues."

Grower Feedback Survey

To obtain both qualitative and quantitative data from readers, *Potatoes Australia* conducts annual reader surveys to gain valuable information relating to readership demographics and attitudes towards content. The feedback from grower and non-grower readers provides a rounded industry perspective on the role of the publication within the Australian potato industry.

During the final year of the project, AUSVEG conducted a hard copy and online survey for growers and industry members who read *Potatoes Australia*. Looking forward, the magazine will endeavour to cater to the findings contained within the survey.

Results from the entire survey sample of 12 indicated:

- 75 per cent of respondents said that R&D articles were of most interest to them, followed by News (58 per cent), International R&D, Feature articles, Industry columns and New Products/Advertisements (all 42 per cent).
- R&D articles are useful to their business (average 3 out of 5 rating).
- 75 per cent of respondents noted that R&D content in the magazine influences the way they run their business.
- Each edition of the magazine can be passed on to 12 people in a business.

Recommendations

Based on the feedback from both internal and external reviews into *Potatoes Australia*, as well as observations from the AUSVEG Communications team, the following recommendations should be taken into account for future *Potatoes Australia* projects.

Recommendation 1: *Potatoes Australia* should be consolidated into a broader Potato Communications Program including the Potato Industry Communications Strategy (PICS)

There are currently two industry-funded projects that relate to communications in the potato industry: *Potatoes Australia* and PICS. Both projects have separate reporting requirements despite being conducted by the same team and having similar aims. These two projects should be combined into one Potato Communications Program to streamline reporting requirements and increase the efficiency of communications to the potato industry.

Recommendation 2: Continue the hard copy format of magazine and continue publishing editions online on the AUSVEG website

According to the HIA-commissioned review, hard copy is the preferred method of delivery for *Potatoes Australia*, particularly as many subscribers leave the magazine in the workplace for staff to read. Subscribers of the magazine also highlight that the hard copy format of the magazine should be maintained, as per the recommendations of the HIA-commissioned reviewer.

Recommendation 3: Increase the use of the HIA branding and funding statements, including a summary at the start of the article

While articles in the magazine mention that a project was funded by Horticulture Innovation Australia Limited, it is important that future communications have greater brand recognition and the use of levy funds. In continuing focus of R&D content in magazine, it is important for the AUSVEG Communications team to readily access milestones and final reports of levy-funded research from HIA.

Recommendation 4: Maintain use of stock images and freelance photography

According to the HIA-commissioned review, the use of photos adds value to the stories. It is recommended that a budget for stock images and freelance photography is continued to maintain the professional and high quality nature of the magazine.

Recommendation 5: Maintain Grower and Young grower profile features

The magazine gives readers the opportunity to connect and see how other growers are implementing innovations. The popularity of the grower profiles, which was reiterated in reader feedback, is important to subscribers as it provides a sense of community in the industry and celebrates the achievements of their peers. While these profiles are not always specifically R&D related, it is recommended to include them in future editions of the magazine.

Recommendation 6: Provide a stronger incentive to complete the annual reader survey

Given the low number of respondents to the annual reader survey, it is recommended that a stronger incentive is provided for growers to complete the survey.

Scientific Refereed Publications

None to report.

Intellectual Property/Commercialisation

No commercial IP generated.

Acknowledgements

AUSVEG wishes to acknowledge and thank the following individuals and organisations for their contribution, service or assistance in what has been the highly successful implementation of *Potatoes Australia*.

- Horticulture Innovation Australia Limited.
- Members of the former Potato Industry Advisory Committees (IAC).
- Potato R&D researchers, consultants and others belonging to institutions, universities and any other relevant bodies.
- Commissioned freelance photographers and journalists.
- Contributors and advertisers for *Potatoes Australia.*

Appendices

Appendix 1

A list of all R&D projects and levy-related articles that appeared in the current project period.

Project number	Article title	Pages	Issue published
PT11004	Potato Extension Program materialises in South Australia	1	October/November 2012
PT07017 and PT08033	Cultivating a new line	2	October/November 2012
	Chipping away at the market: the Australian industry and market-led success	3	October/November 2012
PT09027	White-fringed weevils beware	2	October/November 2012
MT09067	Defining losses due to nemtadoes	1.75	October/November 2012
PT11004	Potato Extension Program	2	October/November 2012
	Ask the industry	1	October/November 2012
	Soil solutions	1	October/November 2012
	International R&D: Horticulture New Zealand conference highlights industry issues	1	October/November 2012
PT11004	Warragul Potato Extension Workshop attracts several dozen members of industry (includes Notice of Annual Levy Payers Meeting 2013)	2	December 2012/January 2013
	Potato IAC Summary	1	December 2012/January 2013
	Pioneering young researchers	1	December 2012/January 2013
PT10001	Spotlight on R&D: keeping the psyllids at bay	1	December 2012/January 2013
	Potato virus Y: determining the damage	2	December 2012/January 2013

PT09039	Research and development for the processing industry	2	December 2012/January 2013
PT11004	An R&D day in the fields	2	December 2012/January 2013
	Ask the industry	1	December 2012/January 2013
	Soil solutions	1	December 2012/January 2013
	International R&D: Pioneering health benefits in yellow-fleshed spuds	1	December 2012/January 2013
PT11004	Upcoming potato R&D Field Day	1	February/March 2013
	Notice of Annual Potato Levy Payers Meeting 2013	0.5	February/March 2013
	An insight into irrigation	1	February/March 2013
	Strategic Investment Plans for the fresh and processed potato sectors	2	February/March 2013
	Controlling the wilt	1.5	February/March 2013
	Seed certification systems in Australia: are they still meeting industry needs?	2	February/March 2013
	Controlling potato moth in potatoes	1	February/March 2013
PT11004	Potato Extension Program: Tap into efficient irrigation	2	February/March 2013
	Ask the industry	1	February/March 2013
	Soil solutions	1	February/March 2013
	International R&D: Fighting the Green peach aphid resistance	1	February/March 2013
PT11004	Potato Extension Program Booth at 2013 Convention (includes Requesting industry feedback on Australian seed certification systems)	1	April/May 2013
	Notice of Annual Potato Levy Payers Meeting 2013	0.5	April/May 2013
	The National Potato Levy: Your investment explained	2	April/May 2013
	Potato Industry Advisory Committee	1	April/May 2013

	Summary		
	Slow release fertiliser trials	2	April/May 2013
	Ask the industry	1	April/May 2013
	The young faces of training and education in the Australian potato industry (Part 1)	2	April/May 2013
PT11004	Potato Extension Program: From the lab to the field – R&D hits the road	2	April/May 2013
	International R&D: Growing spuds in the air	2	April/May 2013
	Southern Ladybird to aid in Tomato-potato psyllid control in New Zealand	1	April/May 2013
	Fresh Potato Industry Advisory Committee expression of interest advertisement	0.5	June/July 2013
	New U.S. research shows resilience of highly destructive potato pest	0.66	June/July 2013
	Soil solutions	1	June/July 2013
PT11004	Potato Extension Program: Darren Long – R&D champion	3	June/July 2013
	New analysis techniques uncover the key to healthy soil	2	June/July 2013
	Richard Falloon: "The challenges of soil-borne diseases are still very great"	2	June/July 2013
PT10001	Monitoring potato crops for psyllids	2	June/July 2013
PT09026	The young faces of training and education in the Australian potato industry (Part 2)	2	June/July 2013
	Ask the industry	1	June/July 2013
PT11004	Upcoming Potato Extension Program Events	0.25	August/September 2013
	Ask the industry	1	August/September 2013
PT09019	The importance of tuber-borne inoculum in seed potato health	2.5	August/September 2013
PT11004	The Potato Industry Extension Program:	2	August/September 2013

	On the road		
	Soil solutions	1	August/September 2013
PT11004	Potato Extension Program R&D Champion Series: Buckley's chance	3	August/September 2013
	International R&D: A new approach to potato defect analysis	2	August/September 2013
	Predicting potato pathogens	2.5	August/September 2013
	AUSVEG welcomes Fresh Potato Industry Advisory Committee members	0.33	October/November 2013
	Ask the industry	1	October/November 2013
	International R&D: Potatoes confirmed as the smart and sustainable carbohydrate of choice	2	October/November 2013
	Showcasing potato science: APRP2 Symposium brings together horticulture's brightest minds.	1	October/November 2013
MT09067	Tackling the threat of Root knot nematode	2	October/November 2013
VG12050	Visy's vision for future of packaging technology	2	October/November 2013
PT11004	Potato Extension Program: Future focus – Tasmanian growers talk emerging R&D	2.5	October/November 2013
PT08032	Genetically characterising the Powdery scab pathogen on a global scale	2	October/November 2013
	Soil solutions	1	October/November 2013
	Reader survey	2	October/November 2013
	More money for fight against potato pest	1	December 2013/January 2014
	International R&D: Pest in the crosshairs as international research forges on	2	December 2013/January 2014
	Taking the fight to Potato virus Y	2	December 2013/January 2014
	Skin is king: optimising nutrition and irrigation in potato crops	1	December 2013/January 2014
PT12704	Spuds abroad: The 2013 Potato Growers'	2	December 2013/January 2014

	Study Tour takes on the northern hemisphere		
PT11701	Old Dart aims to bolster value: Learning British marketing lessons	2	December 2013/January 2014
PT11004	Potato Extension Program completes its second successful year of operation	3	December 2013/January 2014
	Ask the industry	1	December 2013/January 2014
	Soil solutions	1	December 2013/January 2014
	Ask the industry	1	February/March 2014
	Soil solutions	1	February/March 2014
PT11004	Potato Extension Program: The export game: Challenges and opportunities for Australian potato producers (including article on Spudcasts and upcoming potato R&D activities)	4	February/March 2014
PT12704	Potatoes proving vital in the land of the maple leaf	2	February/March 2014
	International R&D: Peru's Potato Genebank leading the way in research and conservation (including Notice of 2014 Annual Potato Levy Payers Meeting)	2	February/March 2014
	International R&D: Guide protects against bottom-line bruising	2	February/March 2014
	Plan puts pests on the outer	2	February/March 2014
	Super spuds keep additional diseases at bay	1.33	February/March 2014
	Ask the industry	1	April/May 2014
	The Front Line: Keen to be clean: Biosecurity pays off for island industry	2	April/May 2014
PT11004	Potato Extension Program: Sowing the seed: Crookwell on the radar as PIEP touches down	2	April/May 2014
PT11004	Potato Extension Program: South Australian growers embrace potato R&D	1	April/May 2014

	Charting a course towards effective PVY management	1	April/May 2014
PT09039	Practical research outcomes for the Australian seed potato industry	2	April/May 2014
	International R&D: Handling and storage focus for potato guide	2	April/May 2014
PT13010	Planting the seeds of a world-class product	2	April/May 2014
	International R&D: Potato propagation's future is up in the air – in a good way	1	April/May 2014
PT11004	Potato Extension Program: Tasmanian potato R&D workshop smashes PIEP records	3	June/July 2014
PT11004	Local growers seek R&D knowledge	1	June/July 2014
	Seeking your views on APRP2 and potato R&D	1	June/July 2014
	International R&D: Managing the risk of Late blight in Canada	2	June/July 2014
	Ask the industry	1	June/July 2014
	Leading potato experts to join the Potato Extension Booth at the 2014 AUSVEG National Convention Trade Show!	0.5	June/July 2014
	The Front Line: New gateway to biosecurity information/Building our Post Entry Quarantine defences	2	June/July 2014
	International R&D: Glowing psyllids shed light on disease	2	June/July 2014
	Getting acquainted with Verticillium in Australia	2	June/July 2014
	2014 Potato Industry Study Tour advertisement	0.5	June/July 2014
PT11004	Potato Extension Program: Top 8 potato R&D	2.5	August/September 2014
PT13010	Seed certification review seeks grower	0.5	August/September 2014

	input		
	Veggie Stats: The potato industry at a glance	3	August/September 2014
	International R&D: Generic marketing: Approach with caution	2	August/September 2014
	Ask the industry	1	August/September 2014
PT10001	Monitoring native psyllid populations in Australia	1	August/September 2014
	Spud growers have a field day	1.5	August/September 2014
PT13006	Growers: Have your say on PVY	1	August/September 2014
	International R&D: Breakthrough in battle to tackle potato blight	1	August/September 2014
	The Front Line: Minimise risk to maximize certainty	1	August/September 2014
	Industry development takes root at regional meetings	1	October/November 2014
PT13015	Potato Tracker to tap into consumer habits	1.5	October/November 2014
PT11004	Potato Industry Extension Program: The latest news from PIEP	2	October/November 2014
	The great biofumigation debate	2	October/November 2014
	Ask the industry	1	October/November 2014
	International R&D: Potato news around the world	2	October/November 2014
	Hot potato: Managing soil temperature in WA fields	2	October/November 2014
	Getting the best out of seed	1	October/November 2014
	International R&D: Striving for maximum potato yields in Canterbury, New Zealand	2	October/November 2014
PT09026	Monitoring soil-borne pathogens: Tasmania and South Australia	1.5	October/November 2014
	Continued success predicted for PreDicta	2	December 2014/January 2015

	PT		
PT11004	Potato Extension Program: R&D workshops a hit across the country	1.66	December 2014/January 2015
PT13015	Potato Tracker continues to quiz consumers	0.33	December 2014/January 2015
	A balanced diet: Why potatoes need calcium too	1.66	December 2014/January 2015
	International R&D: International researcher shares knowledge with Tassie growers	2	December 2014/January 2015
	The Front Line: What you need to know about PSTVd	2	December 2014/January 2015
	Ask the industry	1	December 2014/January 2015
	International R&D: UK research: The benefits of late season water management	1	December 2014/January 2015
PT13704	On a mission: Local growers learn from US and Canadian colleagues	2	December 2014/January 2015
	Conference highlights further links between Zebra chip and psyllids	1	December 2014/January 2015
	Zebra chip: Timing is everything in Texas potato crops	1	December 2014/January 2015
	Reader survey	1	December 2014/January 2015
	International R&D: Predicting potato production in Tasmania and Kenya	2	February/March 2015
	The Front Line: Eight potential pests that every Australian potato grower should look out for	2	February/March 2015
PT13015	More Potato Tracker results released	2	February/March 2015
	Zebra chip conference part 2: Further research provides valuable insights to industry	1	February/March 2015
	Ask the industry	1	February/March 2015
PT11004	Potato Industry Extension Program: PIEP celebrates 2014 and gears up for another	2	February/March 2015

	productive year		
	International R&D: International researchers team up to compare potato DNA results	2	February/March 2015
PT13704	Taking a closer look at American potatoes	2	February/March 2015
	Growers invited to identify key potato priorities	1	April/May 2015
PT11004	Potato Industry Extension Program: PIEP celebrates spud success at Crookwell Potato Festival	2	April/May 2015
	Sign up to have your say in HIA	1	April/May 2015
	The Front Line: Keeping seed clean for future generations	2	April/May 2015
PT13000	Using precision agriculture tools to understand potato yield variability	2	April/May 2015
	Putting the spotlight on potato export markets	1	April/May 2015
	International R&D: Potato storage: Avoiding the onset of disease	1	April/May 2015
	Ask the industry	1	April/May 2015
PT13015	Potato Tracker: Aussies still love the humble spud	2	April/May 2015
	A recap on the key findings in Brown fleck research	1	April/May 2015
PT11004	Potato Industry Extension Program: PIEP hits the road to boost R&D knowledge	2	June/July 2015
	Ask the industry	1	June/July 2015
	International R&D: New potato varieties developed in the U.S	1	June/July 2015
	Using ecological zones to combat potato pests	2	June/July 2015
	The Front Line: Close call: Zebra chip detected on Norfolk island	2	June/July 2015

	The next generation of potato research	2	June/July 2015
	International R&D: UK research: Improving potato cultivation practices	2	June/July 2015
PT13015	Potato Tracker: Two new waves of consumer insights released	2	June/July 2015
	Australian potato researcher honoured with international accolade	1	August/September 2015
	Ask the industry	1	August/September 2015
	Managing the PCN pest	1.5	August/September 2015
PT13013	Highlighting the opportunities for further potato research	1.5	August/September 2015
	The Front Line: Tomato spotted wilt virus: What you should know	2	August/September 2015
	Demonstrating water use efficiency in seed potatoes	1.33	August/September 2015
	Reducing variation in potato tuber weight with liquid seaweed	0.66	August/September 2015
PT11004	Potato Industry Extension Program: Spud growers' achievements celebrated at the national level	2	August/September 2015
	International R&D: A helpful guide to irrigation and water use	1	August/September 2015
	International R&D: Tackling Fusarium dry rot in potatoes	1	August/September 2015
PT13015	Consumers spill spud secrets in latest Potato Tracker findings	1	August/September 2015
PT11004	Potato Industry Extension Program: Workshops encourage Victorian growers to look out for pests and diseases	1	October/November 2015
PT11004	Potato Industry Extension Program: U.S. Potato virus Y expert visits WA	1	October/November 2015
	International R&D: Research highlights purple potato power in fight against bowel cancer	1	October/November 2015

	The importance of a healthy heart	1.5	October/November 2015
	The Front Line: Indian mustard a key ingredient in the fight against PCN	2	October/November 2015
	International R&D: A practical guide to filed drainage	1.5	October/November 2015
	Ask the industry	1	October/November 2015
PT14702	International R&D: Global potato industries unite to discuss key issues	1	October/November 2015
PT14701	Aussie growers gain unique insight into Chinese potato industry	2	October/November 2015
PT13015	Results point to positive trends as Potato Tracker monitoring ends	2	October/November 2015
	Uncovering the potato levy	2	December 2015/January 2016
	Stopping the spread of PVY	1	December 2015/January 2016
PT13010	Healthy system, healthy seed, healthy crops	2	December 2015/January 2016
	The Front Line: The Australian biosecurity system under the magnifying glass	2	December 2015/January 2016
	International R&D: Swiss potato losses highlight importance of quality and aesthetics	1	December 2015/January 2016
PT11004	Potato Industry Extension Program: Late blight update: No new strains of *Phytophthora infestans* found in Australia	2	December 2015/January 2016
	Ask the industry	1	December 2015/January 2016
	International R&D: Feeling the heat: Potato yield suffers under high temperatures	1	December 2015/January 2016
PT13015	The psychology of spud sales: A wrap-up of the Potato Tracker project	3	December 2015/January 2016
	Reader Survey	1	December 2015/January 2016
PT11004	Potato Industry Extension Program: Tackling Potato tuber moth with IPM	2	February/March 2016

	The Front Line: Zebra chip: Management and current research in New Zealand	2	February/March 2016
	International R&D: Silver scurf transmission in potato crops	2	February/March 2016
	International R&D: Next stop: Potato farms on Mars?	1	February/March 2016
	Ask the industry	1	February/March 2016
	Monitoring a natural threat to the potato industry	2	February/March 2016
	International R&D: Drones put new potato varieties on the horizon	1	February/March 2016
	Back to school: Gauging the effect of liquid seaweed on Kipfler potatoes	1	February/March 2016
PT09039	Research program puts plant health under the microscope	2	February/March 2016

Appendix 2

Potatoes Australia December 2013/January 2014 cover

Appendix 3

"Q&A Young grower profile" published in *Potatoes Australia* December 2013/January 2014

Appendix 4

"Top 8 potato R&D" published in *Potatoes Australia* August/September 2014

Appendix 5

"Striving for maximum potato yields in Canterbury, New Zealand" published in *Potatoes Australia* October/November 2014

Appendix 6

Potatoes Australia February/March 2015 cover

Appendix 7

"Rising from the ashes" published in *Potatoes Australia* February/March 2015

Appendix 8

"Big brands tight-lipped about origins of processed potatoes" published in *Potatoes Australia* June/July 2015

potatoes australia

December 2013/January 2014

Patrick Fox

Young grower looking to the future

Frank Cuda

From the deep red dirt

Potato virus Y

Dealing with the threat

Visit www.ausveg.com.au

Q&A Young grower profile

Name: Patrick Fox
Age: 27
Location: Margaret River, WA
Title: Manager
Works: P.C. Fox
Grows: Delaware, Bliss and Atlantic seed varieties

How did you first become involved in the potato industry?

My family has a long history in potato production. I'm a fourth generation grower so it's in the genes, I guess you could say. I've worked on my family's export seed business for the past eight years. This year I've ventured out on my own with their support and started producing certified seed potatoes under my own name.

What is your role in the business?

My main role is managing the crops and its requirements.

Can you describe your average day at work?

One of the great things about being a potato farmer is that no day is the same as the last. Depending on the season, I could be irrigating, preparing ground for seeding, planting, harvesting, machinery maintenance, grading, disease and pest monitoring, or in the office.

What do you most enjoy about working in the potato industry?

The challenge of getting as much out of the crop as you put in. There is always something new to learn from season to season and I'm always challenging myself to achieve better results. There is no better reward for all your hard work than watching a good-yielding, clean potato crop going up the harvester.

What are the biggest challenges you face as a grower?

Increasing production costs are a serious challenge. I always have to look where I can make a saving whilst still maintaining good yields and high quality. Cheap imports are having an effect on the processing industry. Consumers need to be urged to buy Australian-grown potatoes to support our industry.

What do you see as the biggest threats to the Australian potato industry?

Australia is one of the most disease-free potato growing regions in the world. It would have catastrophic consequences on our industry, particularly the seed industry, if we were exposed to some of the diseases that are found in other potato-growing countries. It's critical for our future that we don't get any more diseases into the Australian potato industry.

How do you think more young people could be encouraged to take up jobs in horticulture and the potato industry in particular?

In my view I believe the Federal Government should set up a lending institute for the agricultural sector where fixed low-interest loans of two per cent or less are available for farmers, similar to what occurs in the USA. If young people see the opportunity to start their own business and have a career in agriculture, it would generate more interest. As it stands now, it's extremely difficult for a new grower to start off from scratch.

If you weren't working in the potato industry, what would you be doing?

After school I went into the viticulture industry for three years and gained some qualifications, so if I never got involved in the potato industry, I'd be more than likely pursuing a career down that path.

Where do you see yourself in five years?

Having expanded my own export seed business, and producing high-quality low-generation certified seed potatoes. Australia has huge potential in the export seed industry, particularly within the south-east Asian region where potato consumption is growing more rapidly than any other region in the world. With increased consumption grows increased demand for seed.

What did you gain from participating in the 2013 Potato Growers' Study Tour to the USA and Canada?

I gained valuable knowledge talking to the American and Canadian farmers about how they've improved their efficiency and management techniques over the years with the help of technology to make their businesses more profitable. We discussed their methods in disease and pest prevention/controls and also learnt about the latest studies and research being done on virus and diseases, storage methods and the latest chemicals that are on the market. We learnt about how the USA and Canadian governments have realised the importance of agriculture to their economies, whereas here in Australia we don't seem to get the same support.

Photographs by Ben Yew.

What was the highlight of the tour for you and why?

Potato production in Idaho is something that needs to be seen to be believed. Being able to look at some of those huge operations was definitely a highlight. Also, being predominantly a seed grower, I found visiting the New Brunswick region and being able to talk with the growers in the region about the Canadian seed scheme, their markets they supply, varieties grown and their opinions on the industry, was really beneficial.

Potato Extension Program

Top 8 potato R&D

IN THIS ISSUE OF *POTATOES AUSTRALIA*, WE HIGHLIGHT THE TOP 8 POTATO R&D TOPICS THAT HAVE BEEN COMMUNICATED BY AUSVEG THROUGH THE POTATO INDUSTRY EXTENSION PROGRAM, SINCE IT FIRST COMMENCED IN JANUARY 2012.

#1 PreDicta Pt DNA testing service

Stemming from the work of Project PT09023 within the Australian Potato Research Program Phase 2 (APRP2), this prized piece of potato R&D packs some serious productivity-increasing potential.

Known as PreDicta Pt, the DNA soil testing service has rapidly become one of the most important pre-planting disease management options available to Australian potato growers since it hit the (pre)commercial phase in August 2013.

PreDicta Pt is the culmination of nearly 10 years of research, led by a dedicated team of researchers at the South Australian Research and Development Institute (SARDI), with collaboration from scientists at the Tasmanian Institute of Agriculture (TIA), the Victorian Department of Environment and Primary Industries (DEPI) and other research institutions overseas.

The service currently tests for soil-borne pathogens that cause Powdery Scab, Black dot and Root knot nematode, providing growers and agronomists with a disease risk rating based on a DNA analysis of soil samples.

PreDicta Pt is now a pivotal disease management resource for all potato growers (seed, ware and processing), and for this reason, has easily glided its way into the #1 position of the Potato Industry Extension Program R&D Top 8!

#2 Potato virus Y

Leading the charge on Australian Potato virus Y (PVY) research is the Department of Agriculture and Food Western Australia Plant Virologist, Brenda Coutts, who has undertaken a number of important R&D projects on this critical plant virus over the past two years.

Ms Coutts has taken part in several Potato Industry Extension Program events held in Western Australia, Victoria, South Australia and Queensland, to speak directly with potato growers about some of the new knowledge on PVY gained through her work in this important area of research.

PVY transmission and management options have been a key focus of discussions led by Ms Coutts. Growers have been urged to consider applying an integrated approach to PVY identification and control, with insecticide application largely proving ineffective as a single management practice.

Ms Coutts is currently undertaking a PVY scoping study (PT13006), which is examining the broad range of research activities carried out in Australia and abroad on PVY. The project will determine if, or where, knowledge gaps on PVY in Australia still lie (see page 34 for more information).

A symptom of PVY: necrotic rings on Nadine tuber.

Further information on PVY research, including an interview with Ms Coutts, is featured in Episode #2 of the Potato Industry Extension Program Spudcasts series (www.ausveg.com.au/potatoes/multimedia).

#3 Maintaining the health and quality of seed potatoes

We know that buying and planting certified seed potatoes is one of the most critical measures that commercial growers can take to ensure high quality, high yielding crops.

But using certified seed potatoes alone will not guarantee that a commercial crop reaches its full potential. There are many crop and post-harvest management activities, such as curing, grading, storage and transport, which can affect final seed quality.

The range of seed supply pathways and the different 'custodians' of seed potatoes who are involved in each of these pathways, for instance, can pose a significant risk to the overall quality of seed potatoes.

Major risk factors that are unrelated to technology and are often neglected include skills, knowledge, attitudes, levels of communication and organisational management, including planning and record keeping.

RMCG Senior Consultant, Dr Doris Blaesing, has been an advocate of the need for the industry to adopt good practices for storing and handling certified seed, at all stages of the supply chain.

She has highlighted that seed potatoes are unknowingly 'mistreated' along the way – which is both frustrating for seed producers and buyers alike, given the difficulty (at present) in determining whether a poorly performing crop from certified seed is the result of sub-standard certification delivery or, rather, the result of inadequate custodianship somewhere along the chain.

#4 Biofumigation

While it's not a farming practice that is currently the focus of industry-funded research, biofumigation has sparked strong interest in growers around the country.

Tasmanian-based fresh potato grower, Darren Long, has been a champion of practices, taking part in several Potato Industry Extension Program workshops to discuss how he has successfully used biofumigants in his operation in Sheffield for the past 10 years. Mr Long believes the use of biofumigants in potato crops can be an effective mechanism to improve soil health and structure, and potentially mitigate soil disease issues, including Powdery scab and Rhizoctonia.

Tasmanian-based potato grower Darren Long.

Information about biofumigation has been shared through the Potato Industry Extension Program with the aim of presenting growers with new and/or alternative crop management practices that could benefit growers' operations. Growers interested in the practice have been urged to consider it as part of an integrated crop management approach, and are reminded that there are some factors to consider that may make biofumigation unsuitable for some growing operations.

More and more growers around the country are seeking further information on the practice, with a number of growers recently trialling it in their paddocks.

#5 Managing the threat of nematodes

Nematodes pose a consistent threat to potato growers around Australia – Root lesion nematode and Potato cyst nematode are among the different variations that can infect potato crops.

In particular, it has been found that Root knot nematodes are the most economically damaging of all the nematode species to agricultural crops worldwide.

While growers have long been practicing prevention and avoidance methods, recent advancements have been made that can help keep nematodes at bay.

PreDicta Pt effectively tests for and detects nematodes, while biofumigation has also been identified as a possible method of controlling and preventing nematodes in particular regions.

#6 Controlled release fertilisers

As we all know, nutrient delivery to crops via fertiliser is an integral part of producing a healthy and high-yielding crop.

While fertilisers provide many benefits, efficiency can be an issue, with fertiliser often being used to excess in order to ensure adequate nutrient delivery. This is also necessary to work around factors such as weather events and timing applications.

Controlled release fertilisers offer a solution to this, with the fertiliser slowly supplying nutrients to match plants' demands, optimising growth and efficiency.

Controlled release fertilisers can increase quality control and provide consistent and efficient nutrient delivery – resulting in less wasted fertiliser and reduced application costs.

#7 Tomato potato psyllid and Zebra chip disease

Military strategists and football coaches alike will tell you that 'the best form of offence is good defence'. And when it comes to the Tomato potato psyllid (TPP) and the dreaded Zebra chip disease it vectors, the best form of defence for the Australian potato industry is, by far, awareness and preparation.

TPP and Zebra chip arrived in New Zealand in 2006, and has proven to be staggeringly destructive and costly for the country's potato industry ever since.

Through heavy industry campaigning and a concerted effort to keep both biosecurity hazards out of Australia, neither TPP nor Zebra chip have managed to cross the ditch. However, both pose a continuous threat to the nation's potato growers and the fight to keep them out will not relent.

Tomato potato psyllid. Photo courtesy of Whitney Cranshaw, Colorado State University, Bugwood.org.

#8 Powdery scab

Any Australian spud producer with crops growing in heavier soil types and wetter conditions can attest that their most pressing disease issue is Powdery scab. It is little wonder then that the industry has placed such a strong emphasis on the destructive potato disease over the past 5-10 years in the R&D programs undertaken.

Powdery scab disease and the pathogen which causes it – *Spongospora subterranea* – was a key focus in the APRP2 project. Thanks to research undertaken by the New Zealand Institute for Plant and Food Research, we now have much greater knowledge of Powdery scab and its causes, and importantly, can plan to effectively manage the disease.

Through crop rotation, field management, production hygiene and the right selection of seed, growers can minimise the risk of Powdery scab incursion.

Seed certification review seeks grower input

The first stage of a project reviewing the existing seed certification framework within the Australian potato industry has recently been completed. All seed potato and commercial growers and other parties involved in growing, handling or using seed potatoes are now being asked to contribute their views as part of widespread consultation being carried out over the following month during the next phase of the project.

Dr Doris Blaesing of RMCG is heading the 'Seed Potato Certification Review'. The work is funded through Horticulture Australia Limited by the National Potato Levies and matched funds from the Australian Government.

The review has to date noted that the current Australian National Standard for the certification of seed potatoes was last published in 2007, and was based on the knowledge of that time. In light of new research on the latest diagnostic technologies and scientific understanding of seed and soil-borne diseases, the review is being carried out to provide the Australian industry the options and information required to develop the best possible seed certification system for the future.

Seed potato certification arrangements across Australia are diverse, even though principally based on the 2007 National Standard. Certification schemes and standards are comparable to those used in other countries. Schemes are run or executed by state governments or not-for-profit organisations throughout the country's various jurisdictions. Most schemes allow some deviations from the National Standard so that different compliance levels can exist within schemes.

Following on from the first stage of the seed certification review, the second stage now includes a wider 'potato community' consultation. Dr Blaesing is currently seeking feedback from growers and other industry members on current seed certification arrangements within Australia to help determine how the system might be upgraded.

Growers and other industry supply chain members are encouraged to take part and have their say by completing a survey prepared by Dr Blaesing. She will be consulting further with industry members in the weeks ahead and also welcomes written contributions to dorisb@rmcg.com.au.

The feedback gained during the consultation period will be used to develop a roadmap for an enhanced national seed certification scheme.

To complete the survey, visit: tinyurl.com/lwkg575
Project Number: PT13010

Striving for maximum potato yields in Canterbury, New Zealand

A group of researchers examine a potato crop during the field study.

POTATO YIELDS IN CANTERBURY, NEW ZEALAND, HAVE REMAINED STATIC AT 50-60 TONNES PER HECTARE (T/HA) (PAID YIELD), A LEVEL OF CROP PRODUCTION THAT IS BECOMING UNECONOMIC. AS COMPUTER-BASED MODELLING PREDICTS THAT YIELDS OF 90 T/HA ARE THEORETICALLY POSSIBLE, A FIELD STUDY WAS CONDUCTED IN THE 2012/13 GROWING SEASON BY THE NEW ZEALAND INSTITUTE FOR PLANT AND FOOD RESEARCH LTD TO IDENTIFY FACTORS RESPONSIBLE FOR THE POTATO "YIELD GAP".

Eleven commercial potato crops were included in the study. These were planted with either Russet Burbank or Innovator cultivars, in paddocks that were previously with or without potatoes in the last 10 years. A representative site was chosen in each crop after planting. Soil structure, the presence of soil-borne pathogens, and crop characteristics were measured. Every 10 to 14 days throughout the season, each crop was checked for growth and development, and any inconsistent areas were marked for later assessment. Yields were measured at the end of the season.

Fertiliser trials were established in four of the crops. Normal rates of nitrogen, phosphorus and potassium, double these rates, and a calcium treatment, were applied. Further applications of nitrogen during the season, as part of commercial practices, were also doubled for some treatments. Yields were measured at the end of the season.

Three measures of tuber yields were used for each crop. These were "potential yield" from a yield simulation model (using 2012/13 climate data), and "paddock yield" from the whole paddock as measured by the grower. These two were expressed as paid yield (not including tubers less than 67 mm). The third measure was "plant yield", the gross yield per plant (all tubers). This was used to compare yields between individual healthy or unhealthy plants.

Results

A yield simulation model, conducted for each season from 2002 to 2013, showed that the 2012/13 season gave the greatest potential yield at all sites, and this was used as a baseline. High winds damaged some crop canopies in January 2013, which probably reduced final yields.

Averaged over the 11 crops, potential yield was 87 t/ha and paddock yield was 54 t/ha (see Figure 1). Russet Burbank and Innovator produced similar yields. There was no effect of previous potato crops on the yield difference, but initial soil pathogen amounts were greater in paddocks where potatoes had been recently grown.

The yield gap between the potential 87 t/ha and paddock yield ranged between 20-42 t/ha (see Figure 1). Yield gaps were greatest where water uptake was restricted in the plants, because of damage to roots and underground stems by diseases, and through poor soil structure and compacted layers limiting soil water storage. Yield was also reduced because foliar diseases caused premature canopy death, ending the final tuber bulking stage.

Diseases were important factors associated with variability of "plant yield" within individual paddocks (see Figure 2), and soil compaction produced variability between paddocks. Plants that were less severely affected by soil-borne diseases and without soil compaction yielded up to the equivalent of 90 t/ha. Where plants were affected by these diseases and the soil was compacted, yield was reduced to less than the equivalent of 30 t/ha.

All 11 crops had Stem canker symptoms. Six crops also had root galls caused by Spongospora infections, and root-limiting compacted soils (see Table 1). Five crops were affected by the two soil-borne diseases and soil compaction. Four crops had shortened canopy duration, five had significant wind damage, and four had irrigation problems, highlighted in the particularly dry 2012/13 season.

Fertiliser trial results

The fertiliser trials found that there were no significant effects on yields from doubling the nitrogen rates over those used normally. Small yield gains came from doubling the rates of phosphorus and potassium in some cases, but there were

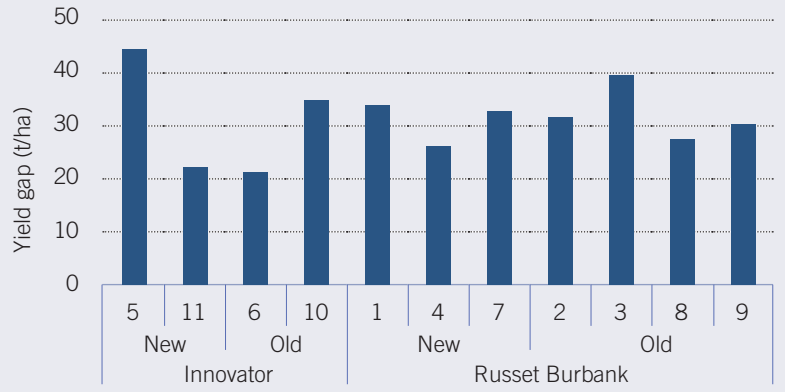
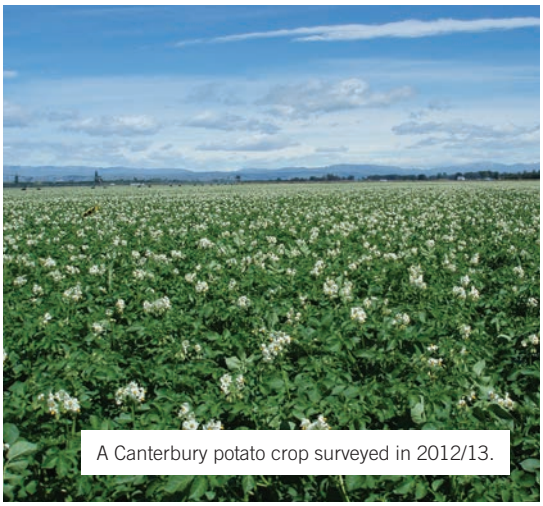


Figure 1: The yield gap (t/ha, fresh, tubers > 67 mm) between potential and paddock yields for 11 monitored Canterbury potato crops of Innovator or Russet Burbank, planted into new or old paddocks.



A Canterbury potato crop surveyed in 2012/13.

Spongospora root galls on potato plants.

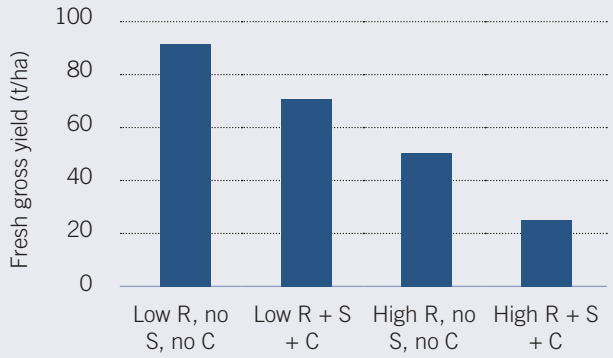


Figure 2: Averaged plant yield-equivalent from targeted areas (affected by different factors) in 11 Canterbury potato crops. R = Stem canker incidence; S = Spongospora (root galls); C = Soil compaction.

no strong effects. There were also no significant responses to additional calcium.

Findings

- Current yields of processing potatoes were 20-40 t/ha less than potential.
- Soil-borne diseases (Rhizoctonia stem canker, Spongospora root infection) were prevalent, probably restricting water uptake and causing premature canopy death.
- In 11 surveyed crops, healthy plants produced close to potential.
- Paddocks not previously growing potatoes (new) had less pathogen inoculum than those with potato cropping histories (last 10 years; old). However, previous cropping history did not predict soil-borne disease incidence or severity.
- Soil compaction reduced water-holding capacity and root growth.
- Current fertiliser rates are near optimum for growth and production.
- Other factors (e.g. seed tuber quality, irrigation efficiency) could also limit yields.

Advice

Based on this study, researchers have the following advice for growers:

- Plant potatoes in soils that have high water-holding capacities, good drainage and no root restriction zones.
- Choose paddocks that have had long periods (at least 10 years) without potatoes.
- Carry out soil testing for pathogen DNA to indicate disease risk.
- Match crop nutrient requirement with supply, possibly reducing some fertiliser inputs.
- Select disease-free seed tubers with high vigour for strong plant growth.

Paddock	Factors
1	Rhizoctonia stem canker (R sc), Spongospora root galls (S rg), soil compaction, uneven irrigation (waterlogging and dry spots), wind damage
2	R sc, S rg, soil compaction, shortened canopy duration, uneven irrigation (waterlogging and dry spots), wind damage
3	R sc, S rg, soil compaction, waterlogging, wind damage
4	R sc, wind damage, seed or psyllid problem
5	R sc, diseased canopy with low vigour, wind damage
6	R sc, S rg, soil compaction, uneven irrigation
7	R sc, three spans of irrigator malfunctioning, wind damage
8	R sc, S rg, soil compaction, shortened canopy duration
9	R sc, S rg, soil compaction
10	R sc, shortened canopy duration
11	R sc, shortened canopy duration, poor seed quality

Table 1: Factors contributing to yield reductions for each of the 11 Canterbury potato crops included in this study.

This research was guided by Sarah Sinton, Professor Richard Falloon and Dr Hamish Brown, with assistance from Craig Tregurtha, Alex Michel, Steven Dellow, Dr Farhat Shah, Dr Sarah Pethybridge, Dr Jeff Reid and Dr Bruce Searle. Duncan McLeod (Seed & Field) and the potato growers and their agronomists are thanked for allowing access to crops.

The project was funded by Potatoes New Zealand, the McCain Foods growers group, Ravensdown Fertiliser and Plant and Food Research.

For further information, contact Sarah Sinton. Email: sarah.sinton@plantandfood.co.nz

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February/March 2015

Susie Daly
Rising from the ashes

The Front Line
8 potato pest threats

National Horticulture Convention
AUSVEG and APAL unite

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Rising from the ashes

SURVIVING A NATURAL DISASTER CAN MAKE ANYONE REASSESS THEIR SITUATION. FOR POTATO GROWER SUSIE DALY AND HER FAMILY'S FARM, A LUCKY ESCAPE FROM THE DEVASTATING BUSHFIRE THAT TORE THROUGH THE SMALL TOWN OF DUNALLEY IN TASMANIA TWO YEARS AGO FORCED THEM TO TAKE STOCK AND APPROACH THE FUTURE WITH A NEW SENSE OF DETERMINATION. DIMI KYRIAKOU SPEAKS TO SUSIE ABOUT SOME OF HER EXCITING POTATO PROJECTS THAT, IF IT WEREN'T FOR THE BUSHFIRE, MAY NEVER HAVE COME TO LIGHT.

Photography by Loic Le Guilly.

January 2013: The scene at Dunalley, a small coastal town in southeast Tasmania, is one of incredible tragedy and loss.

The postcard views of Marion Bay – a famous backdrop to the annual Falls Festival – are hidden behind a curtain of smoke and haze; the tranquil blue of the sky is replaced by a suffocating amber that only results from the fuel of a bushfire.

Many will remember the images of devastation that plagued the state just over two years ago. Hundreds of properties and livestock in the area were lost during the fire, and there were few locals left unscathed.

One of the luckier residents was Susie Daly and her family, who have been growing potatoes in the Dunalley region for the last 25 years. Although the bushfire came dangerously close to the boundary of Daly's Gourmet Potatoes, a well-organised attack and a little bit of luck saw the fire skirt the property.

"My husband has been in the fire brigade so we were very organised. All of our fences got burnt and there was a lot of rebuilding, but we're over the hump," Susie recalls.

Having seen their neighbours' devastation and witnessed first-hand how close they came to losing everything, it was no doubt a sobering time for the Daly family. But, as with any event of this magnitude, it was also a turning point.

"We sat down together after the bushfire and realised we were very lucky to get out of it like we did. It makes you think and bring things forward in a way. It pushed me to get to where I am, because otherwise I would probably still be plodding along," she adds.

Winning friends with salad

These days, Susie does anything but plod along as she continues to put Daly's Gourmet Potatoes on the map with some innovative projects. The seed of creativity was first planted with the launch of the 'Purple Gem' potato in 2011, a heritage variety with a distinct purple flesh, which proved to be popular among consumers.

Not one to settle for a single good idea, Susie has since turned her attention to the 60 tonnes of potatoes that would otherwise go to waste because of their aesthetic appearance. Her latest projects aim to not only find a use for these leftover potatoes, but simultaneously bring in some extra dollars for the business.

"After we wash our potatoes there are some that have blemishes on them. There's nothing wrong with the actual potato that one peel of the slicer won't remove. We thought about what we could do with them and I believed there was a need for a gourmet potato salad," Susie explains.

With the help of local food scientist Hazel MacTavish-West, the Dalys have created a new range of gourmet potato salads using their leftover Nicola spuds. The family rents the commercial kitchen at a local school to prepare the salads (using local ingredients of course), before packing and marketing the products.

"My first goal was to use our waste potatoes but my second goal was to create some employment in the local town; our saw mill burnt down during the bushfire and we lost a lot of jobs in the process. So it value-adds our waste product and it's been good for the Dunalley community," she says.

"We're trialling different things, including some salmon patties. We want to show people what you can do with potatoes – the options are endless."

Next stop: Vodka

Fortunately, these waste potatoes are not only destined for salads.

"At the moment we are having a go at making some potato vodka. Traditionally, they still make potato vodka in countries like Poland, Russia and England," Susie says. "We've had to build all the machinery but we've finally got that last piece of machinery delivered and we'll be running some test batches."

Susie hopes that the location of Daly's Gourmet Potatoes – halfway between Hobart and Port Arthur – will tantalise the taste buds of some 200,000 thirsty tourists that pass by Dunalley every year.

"It will be good to tell the story of our area and our farm and the tourists may be looking to take something special back home with them," she says.

"People want to know where their food comes from. We've had bucket loads of people come through our potato shed and they're absolutely fascinated. They buy a potato but they don't know the work that goes into it."

A team effort

As a mother to four young adult children, Susie believes the prospect of distilling vodka from waste potatoes is a sufficient hook to keep them interested

in the family business. Susie and her husband Gerard are currently working on a succession plan that will leverage their children's passion for tourism and harness their ideas for the budding business.

"We work as a company and it's been really good to sit down with the kids and plan for the future with them. They are interested in the tourism side of things because we've got a great coastal farm and they're interested in the vodka production, as they would be – they're at the right age!" she laughs.

"Diversifying into these different projects actually makes it a really good proposition for the kids to be involved in. It's a real team effort here with my husband and our staff. We want to plan to make sure the staff has a future as well."

With so many different projects on the go, there is never a dull moment in Susie's life.

Susie and her son, Nathan.

"There's lots of variety – I come to work every day and I can be making potato salads and then meeting with a farmer to look at where we should put our vodka distillery. It's so versatile and I've never learnt so much in the last 12 months as I've learnt in my whole life.

"It's something that becomes addictive. I would never have thought leaving school that I'd end up being a potato farmer – it wasn't on the bucket list at that stage. But I enjoy the challenges."

Industry working together

Another lingering challenge on Susie's list is to promote the inherent health benefits of potatoes, particularly to younger generations. At the moment, this is being achieved with a little help from Diabetes Australia.

"I'm trying to do a lot of different things to get people to be aware of how healthy potatoes are for you. My main potato at the moment is Nicola, which has been picked up by Diabetes Australia as one of the three recommended potatoes for diabetes," she explains.

"As potato growers, we need to be telling everybody about the benefits of potatoes, particularly because they've got a really bad perception that they're fattening. But they're not – they've got more potassium than a banana.

"I definitely think we need to be, as an industry, working together. We've missed a generation in a way – my parents eat meat and veg every night but my son's generation has grown up around fast food. We need to try to find a more convenient way for them to buy vegetables."

By the sounds of it, a potato farm that produces potato salads and potato vodka on the side is the perfect place to start.

"The potato industry has got a really bright future, we just need to promote it and give the consumer what they want. We grow the best potatoes in the world here. We won't be able to feed the rest of the world, but we'll be able to give them top end produce. And that's just the beginning."

Big brands tight-lipped about origins of processed potatoes

SOME OF THE BIGGEST NAMES IN FAST FOOD AND CASUAL DINING HAVE PROVEN RELUCTANT TO CONFIRM THE ORIGINS OF THE PROCESSED POTATOES USED FOR THEIR FRENCH FRIES AND CHIPS. WE EXAMINE THE FINDINGS FROM THIS SPECIAL INVESTIGATION AND HIGHLIGHT AN INTERNATIONAL EXAMPLE THAT SHOWS THE OPPORTUNITIES THAT CAN BE GAINED FROM TRANSPARENCY ON THIS ISSUE.

Where do my French fries and chips come from?

It's a simple question, but apparently quite difficult for some to answer.

In a special investigation for this edition of *Potatoes Australia*, we approached nine of the most well-known buyers of French fries and chips to find out the origins of their processed potatoes. However, from the nine companies that were contacted, only four provided feedback.

Representatives from KFC, Hungry Jacks, Lord of the Fries and Salsa's did not provide comment before the deadline, despite repeated requests. While a Red Rooster representative indicated in a statement earlier this year that the chain's fries were sourced from Simplot Australia and McCain Australia, both Red Rooster and its sister company Oporto did not respond to requests for further detail.

However, McDonald's, Grill'd and Nando's did provide information, which is outlined in this article.

The seeming reluctance on behalf of some to respond is somewhat surprising, as recent events have highlighted that Australian consumers want to know more about where their food is coming from (see page 20 for more information). This undoubtedly extends as far as the processed potatoes used for French fries and chips in some of Australia's most well-known food chains and restaurants.

As can be seen from the following international case study, transparency on this issue can not only contribute to the credibility of a brand and stronger relationships with suppliers and consumers, but also open up new opportunities to clearly show support for locally grown produce.

Setting standards

Lamb Weston, a United States supplier of frozen potato products, recently launched the website TraceMyFries.com, which aims to provide consumers with a user-friendly tool that depicts exactly where the potatoes for their fries were grown. Using a 20-digit tracing code found on the company's branded French fries, customers can trace the fries back to one of five growing regions in the United States and Canada where Lamb Weston sources its processed potatoes.

These regions include Southern Alberta in Canada; Columbia River Basin in Washington and Oregon; Snake River Valley in Idaho; the Heartland in Minnesota and the Southern Mississippi River Basin. Users can click on each region to find out interesting facts about potato growing in the area and read a profile on a local grower.

The ability to customise merchandise at the point of sale is also an option that can be explored further on the website, which allows suppliers to join in the conversation of how a potato makes the journey from paddock to plate and effectively communicate this to consumers.

"We're helping our customers tell the story of their fries – and it all starts with the potato," Lamb Weston Director of Strategy for Agriculture Services, Ashley James, told PotatoPro.com.

"The farmers we work with take great pride in growing our high quality potatoes and we are excited to share their story with our customers."

Nando's Australia

According to Nando's Australia Commercial Director Lachlan Welsh, the company only uses Australian grown potatoes for the chips served in its 265 restaurants nationally. These are sourced from South Australia, Victoria and Tasmania.

Russet is the variety of choice, as its favourable qualities of high starch, low moisture, large size and white flesh make them suitable for the chips in Nando's restaurants.

"We're proud to be able to say 100 per cent of the potatoes used in our restaurants are Australian grown," Mr Welsh told *Potatoes Australia*.

He added that the company places a high importance on using Australian grown potatoes for its chips and this has helped to build committed partnerships with its food suppliers. In turn, the suppliers understand and support Nando's desire to keep food miles to a minimum and support local farmers and producers.

"Our potato farmers are among the best in the world and it's wonderful to know we're supporting the Aussie market, along with current and future generations of Australian farmers. To know that we can also visit these farms at any time and talk to the growers is an added advantage," he said.

"Our decision to use 100 per cent Australian grown potatoes means we're also supporting Australian manufacturing and processing jobs. The food industry is a big contributor to the Australian economy and keeps many regional areas alive. It's great to know our business decisions are helping keep these people employed and ensure these towns remain key players in Australia's food manufacturing industry."

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Grill'd Healthy Burgers

According to a Grill'd spokesperson, "All Grill'd potato chips are made from Australian potatoes."

The potato varieties used are predominately Russet Ranger and Russet Burbank, and the chips are manufactured at the company's potato manufacturing facility in Ulverstone, Tasmania.

The spokesperson said that purchasing Australian ingredients has been a long time priority for the company.

"The use of Australian grown ingredients across the entire Grill'd menu wherever possible is a priority for Grill'd … we pride ourselves on transparent, accountable and proactive relationships with all of our suppliers."

McDonald's Australia

In recent years, global fast food giant McDonald's has promoted its desire to open up the lines of communication with its customers by encouraging them to send in questions about any aspect of the company, including the food, with the answers published on its website.

A McDonald's Australia spokesperson told *Potatoes Australia* that 100 per cent of potatoes for all of the company's national restaurants are grown in Australia. Its two suppliers, McCain and Simplot Australia, source potatoes from Tasmania, Victoria and South Australia, with Russet Burbank, Russet Ranger, Shepody and Innovator the most common varieties used for their French fries.

"Our supply chain philosophy is 'buy local', however being an agricultural crop there have been times during bad weather or crop failure where we needed to source from New Zealand or the United States," the spokesperson said.

"Suppliers comply with our Supplier Quality Management System, which is third party audited annually.

"As part of our quality system, fries are sent regularly for sensory tastings to our regional quality centre in Hong Kong. This is to ensure consistency of quality and taste for our consumers."