

GROWER SUCCESS STORIES

REAL RESULTS FROM THE
POTATO R&D LEVY



AUSVEG



Horticulture Australia



Potato Processing Association Australia



The Oxford English Dictionary defines success as “the accomplishment of an aim or purpose”. I can say with certainty that Australian potato growers are amongst some of the most accomplished growers on earth. This is not solely due to the rich, fertile soils that we are lucky to have in areas of Australia, or the remarkable farming skills passed on between generations of potato-growing families. The National Potato Levy serves one purpose – to profit all Australian potato growers through the investment of funds into industry research and development (R&D). The existence of this Levy is also one of the reasons why many Australian potato growers are at the forefront of global production.

The Department of Agriculture Levies Revenue Service (LRS) collects the National Potato Levy at the first point of sale, at the rate of 50 cents per tonne. The Australian Government then matches this money dollar for dollar. These funds are passed on to Horticulture Australia Limited (HAL), an industry-owned corporation, to coordinate their investment.

I am the Chair of the Fresh Potato and Processed Potato Industry Advisory Committees (IACs). My colleagues and I on the two Potato IACs all want a bright future for our industry and ensure that all projects put forward are scrutinised to the finest detail, to provide the best return on investment for all levy payers.

This booklet has been produced to demonstrate that the investment of the National Potato Levy is indeed fulfilling its purpose – to benefit levy payers. *Grower Success Stories* provides an account of six Australian potato growers that have used specific R&D outcomes to modify existing on-farm practices, or trialed new ways of growing their businesses. You of course, can become involved in this process by attending the regular workshops facilitated by the Potato Industry Extension Program and hearing from some of the leading Australian and international researchers within horticulture.

Furthermore, AUSVEG, in conjunction with HAL, holds a Potato Levy Payers’ Meeting annually to provide growers and processors with the opportunity to suggest potential areas for research and provide feedback on a range of R&D-related issues. Naturally, all ideas are welcome – no matter how adventurous or small they may be. This is your chance to make your mark.

I hope that you find value in this brochure, and it encourages you to become involved with the R&D that will continue to drive our industry’s improvement.

Yours sincerely,
The Hon. Paul Calvert AO
Chair of the Potato IACs



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KON PEOS

Tapping into new markets



It was over a decade ago when Kon Peos of Southern Packers Ltd first began exporting seed potatoes from the Manjimup district, about 300 kilometres south of Perth. Initially, he was sending a few tonnes of seed to buyers in Mauritius, and later, Vietnam.

Today, Mr Peos has contracts to supply more than 1,000 tonnes annually to seed buyers in Mauritius and between 500 and 600 tonnes a year to buyers in Vietnam, Thailand and Indonesia. He recently negotiated to fill new orders in Sri Lanka and the United Arab Emirates and believes he could obtain orders for many more tonnes if he had the seed to fill them.

Mr Peos says the growth of his seed potato business wouldn't have been possible without the assistance of the Department of Agriculture and Food Western Australia (DAFWA) research team that has been involved in a series of National Potato Levy-funded seed potato projects over the years.

"The information members of the team who have supplied information and research outputs concerning overseas disease, storage facilities and other requirements have been a crucial factor in the success of my ongoing negotiations with buyers," he said.

Mr Peos was involved in HAL project PT09038, which aimed to increase the competitiveness of exports of seed potatoes from Australia to Mauritius through reduced seed costs and better adapted varieties.

“ Anyone entering the field needs to be prepared to work hard and be patient for results. ”

Equipped with this valuable knowledge, Mr Peos now makes regular trips to Mauritius, Thailand and Indonesia to meet buyers and growers to learn more about their seed requirements and problems.

He said there were still many difficulties for anyone exporting seed to Asian destinations – many of which were related to disease and lack of storage facilities.

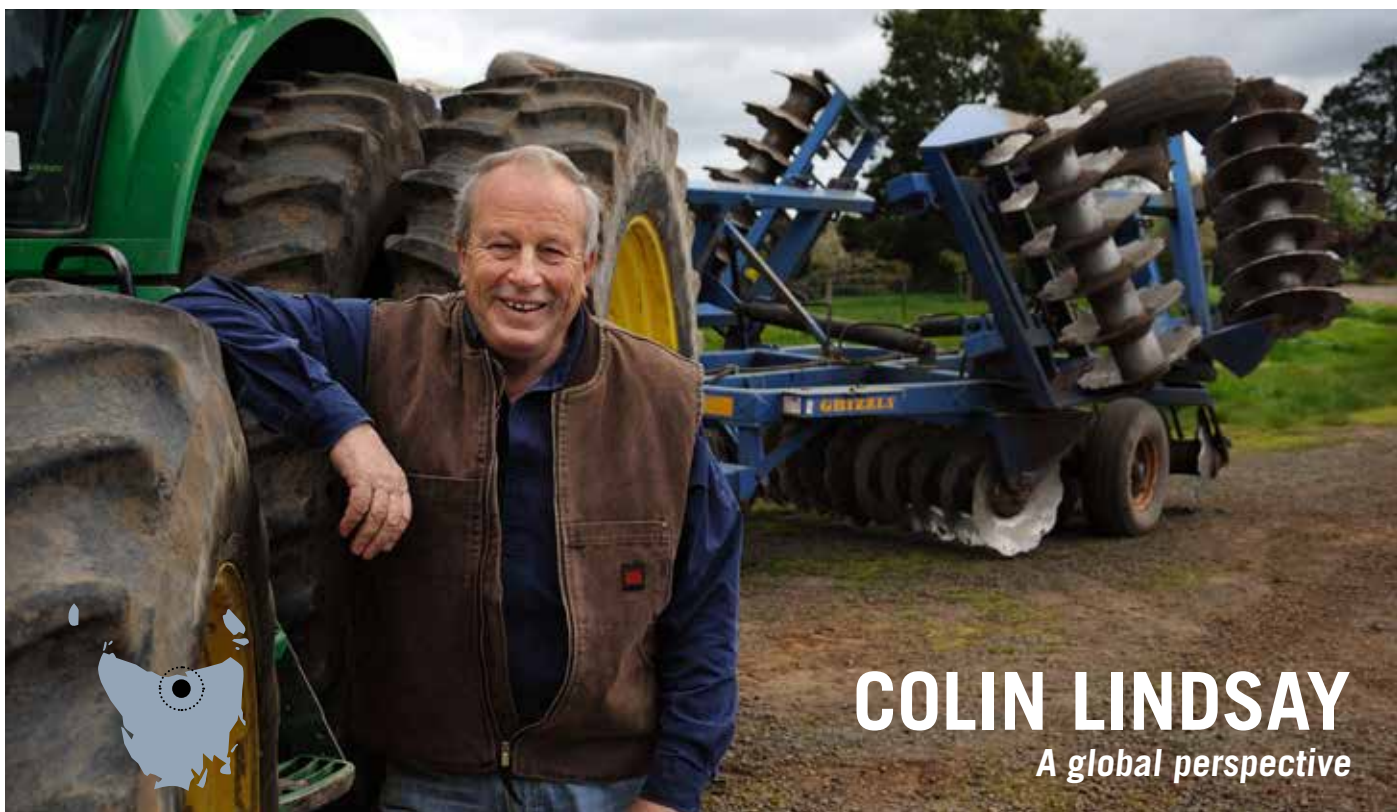
"Anyone entering the field needs to be prepared to work hard and be patient for results," he said. But Mr Peos believes there are good opportunities for new market players. "Most of the orders I get are for more seed than I can supply at short notice."

Mr Peos operates on about 1,500 acres of land in the Manjimup area where he grows seed on rotation and he organises other growers to supply him with seed under contract. He plans to expand this business further through more contracts with outside growers.



Summary:

- **The National Potato Levy** has funded several projects to improve export opportunities for Australian seed potato growers.
- **PT09038** aimed to increase the competitiveness of exports of seed potatoes from Australia to Mauritius.
- **The R&D information** provided by the project research team has proven vital to the success of growers' ongoing negotiations with seed buyers.



COLIN LINDSAY

A global perspective

A Potato Growers' Study Tour to farms in the US and Canada gave Tasmanian grower Colin Lindsay great insight into future industry trends, as well as ideas for improving his own on-farm management.

The nine-day tour in July 2013 visited farms through the US, New Brunswick in Canada, and finished with a conference in Québec City.

"We need to monitor what's happening overseas and see first-hand the changes farmers are making. That's why I took the trip," explains Mr Lindsay.

He, together with wife Glenda and son Tom, grow 75 hectares of potatoes on their mixed dairy, peas and poppy farm at Longford in Tasmania. Mr Lindsay looks after innovation and infrastructure, while other farm management roles are split between Glenda and Tom.

"We found that American and Canadian farmers have consolidated how they grow and handle potatoes. They have looked at what works well in terms of growing, harvesting and storing their crops. If ground spraying works, then they stick with that. They are not trying to be innovative and reinvent the wheel every year," he says.

"The farmers we visited took a professional approach to their work. They are meticulous in growing their crops and carefully plan all stages of the crop cycle. One of the biggest lessons I brought home is how vital it is to plan."

"There was also great emphasis on ensuring accurate costing of both the growing and handling of crops. Nothing was left to chance, or relying on that extra good crop to bail you out."

While Mr Lindsay already runs his "small business" along similar lines, seeing other growers in action helped reinforce what was happening on his own farm. What was also

noticeable overseas was that all the farmers were happy growing potatoes and excited about the future of the industry.

"There were plenty of modern factories and new potato stores being built. The industry in both the US and Canada hit a peak and has now plateaued to a sustainable level," says Mr Lindsay.

He was also impressed with the large scale of many of the farms and the equipment used. "While many of the US farming practices would not work here, investing in 4-6 row planters rather than the smaller 2-3 row planters could be worthwhile," he says.

The study tour also provided an opportunity to see first-hand the devastation caused by the Zebra Chip disease complex and its associated vector, the Tomato-potato psyllid (TPP). "We all know what the disease looks like in the green crop, but I had never seen its effect on seed tubers."

“ We need to monitor what’s happening overseas and see first-hand the changes farmers are making. ”

"These grow little wormy-like sprouts, which when planted, never really amount to much," he says.

For Mr Lindsay, the tour not only provided an opportunity to network, chat and brainstorm with other like-minded growers, but helped to fire his passion for doing what he loves – farming.

"I love being a farmer and I love going out and meeting other people and seeing other farms," he says.

Photographs by Chris Crerar.



Summary:

Joining an industry study tour has many benefits, including:

- **Exposure** to international producers, new farming techniques and emerging technologies.
- **The opportunity** to develop new business and supplier relationships – both domestic and international.
- **An insight** into the research and development (R&D) activities being conducted outside of Australia.

HAL project PT12704 was funded by the National Potato Levy, voluntary contributions from industry and matched funds from the Australian Government.



ANDREW POWELL

Soil testing technology



Photographs by Ian Wilson.



The newly developed PreDicta Pt soil testing technology is a useful management tool that has the potential to decrease crop loss and increase profit margins, according to agronomist and certified seed grower, Andrew Powell.

The innovative DNA technology allows potato growers to test for soil-borne pathogens that cause Powdery scab, Black dot and root knot nematodes.

“If the tests can give us an idea of what’s in the soil before we start planting the crops that information could be quite beneficial to growers in the future,” explains Mr Powell.

Mr Powell grows about 16 hectares of certified seed in Victoria’s central highlands, just north of Ballarat. While his father has grown potatoes for more than 40 years, this is his second year in the business.

He used the PreDicta Pt technology last season and was “quite lucky”, but this year the farm has one paddock with a high Powdery scab reading. “If we know there is going to be a particular problem in the soil, then we can treat it accordingly prior to the crop going in the ground,” he says.

“We will choose a resistant variety to plant into that paddock. We will also treat the soil pre-planting with a chemical. Hopefully, we will get a positive result and decrease the amount of Powdery scab in the crop for the coming year.”

As a certified seed grower, Mr Powell says that potato skin diseases, such as Powdery

scab, are the biggest problem.

“To ensure our seed passes certification we are only allowed one per cent tolerance. If we can decrease the pathogen before the crop is grown or during the growing of the crop, then we can increase our profitability,” he explains.

At the moment, he believes Powdery scab is the only pathogen that is worth testing for on his property, but he is keen for more tests to be developed. “I understand the South Australian Research and Development Institute (SARDI) is working on developing another test for pink rot and Common scab, both of which will also be helpful,” Mr Powell says.

“ These R&D projects are really important for the industry and the future of potato growing in this country. ”

As an agronomist, he recommends that other seed growers use the PreDicta Pt tests, particularly if they have a history of Powdery scab in their paddocks. “It’s definitely a worthwhile tool to have in the kit bag,” he says.

The tests give growers an idea about whether they have a high, medium or low

risk category for disease. While the technology is only in its infancy in Australia, Mr Powell believes it certainly has the potential to save entire crops.

“It’s only been launched this year, so it’s too early to quantify the benefits of saving entire crops yet.”

“As more tests for soil-borne pathogens come online this PreDicta Pt tool will become the ultimate test for the potato industry. These R&D projects are really important for the industry and the future of potato growing in this country.”

Summary:

- **The innovative PreDicta Pt** soil testing technology, developed under PT09023, is a useful management tool for potato growers.
- **Pre-planting testing** for soil-borne pathogens has the potential to decrease crop loss and increase profit margins.
- **Understanding what’s in the soil** can save on-farm costs. If the PreDicta Pt test finds low risk of Powdery scab, then the grower can choose to plant a non-resistant variety and avoid preventative chemical at planting.

JOHN MCKENNA

Environment champion



An opportunity to turn research into action on his north west Tasmanian farm has rewarded John McKenna with the commercial and environment benefits of Controlled Traffic Farming (CTF).

The grower, who was awarded the 2013 Netafim Environment Award at the AUSVEG National Awards for Excellence for his involvement in CTF, has been practising the system for a number of years alongside a team of agronomists.

During this time, Mr McKenna has managed to reduce the impact of his machinery on his now-improved soil while increasing the productivity of his potato, onion and carrot crops.

As well as cutting his tillage operations by up to 30 per cent in some areas, the CTF system has helped to improve water infiltration in the property's controlled traffic area, resulting in an enhanced soil structure.

“Minimising soil compaction and recompaction is not only great for promoting healthy soil condition, but has been a huge time saver for us.”

“CTF keeps all paddocks in the same wheel tracks year after year, therefore permanently separating compacted traffic zones from soil used for growing crops,” he said.

“In practice, this means that all implements have a particular span and all wheel tracks are confined to specific traffic lines.”

“While this system can be a challenge in a diverse vegetable industry, the concept itself is simple - plants grow better in soft soil and wheels work better on roads.”

Mr McKenna said sowing into old rows, where moisture infiltrated, produced early sowing with associated yield benefits.

“Across all three trial plots we found that



the crop roots were exposed to quicker water penetration and improved moisture holding capacity.”

“The infiltration rate in the controlled area is about four times greater than in the conventional growing area, which definitely helps in preventing run-off and creates a huge potential for water irrigation savings down the track.”

“In times of heavy rain, this drainage and holding capacity will be very useful for the dry season.”

Mr McKenna said there was a reason that CTF was a proven method of preventing future occurrence of soil compaction after deep tillage.

“Minimising soil compaction and recompaction is not only great for promoting healthy soil condition, but has been a huge time saver for us,” he said.

“Basically, the less trips you have to make up and down the paddock, the less hours - and energy - will be spent taking out the tracks again and again. In the long-term this will generate savings in energy and fuel consumption.”

Today, Mr McKenna updates his farming equipment regularly and has a new potato planter, which has resulted in 50 per cent less wheel tracks in his paddock.



Photographs by Belle Young.

Summary:

- **Controlled Traffic Farming (CTF)** keeps all paddocks in the same wheel tracks, thereby separating compacted traffic zones from soil used for growing crops.
- **Benefits** observed in research under HAL project MT09040 included reduced soil erosion, energy and fertiliser use, improved soil structure, organic matter, water use efficiency, and crop productivity and timeliness.
- **Issues to be resolved** for the successful adoption of CTF in the vegetable and potato industry include tracking stability on compacted wheel tracks, and working width compatibility for implements and harvesters.



DEAN BONE

Reaping the benefits of R&D extension



Photographs by Brandon Rooney.



Certified seed potato grower, Dean Bone, is a keen supporter of the Potato Industry Extension Program and believes the series of R&D ‘road show’ workshops, held in potato-growing districts Australia-wide, have been beneficial to his operations.

Mr Bone grows 40 hectares of certified seed potatoes in the sandy loam country at Kennedys Creek, in the foothills of the Otway Ranges in south-west Victoria. “We are fairly isolated and located in an area that’s mainly dairying country,” he explains.

He likes that the workshops bring information “out to the farmer” and enjoyed attending a workshop held recently in Ballarat. As well as listening to the experts, what appealed to Mr Bone was meeting other growers and networking about what they were doing on their farms.

“The growers are in the one room, or paddock if it’s a field day, and everyone gets talking and sharing information about planting, planters, fertilisers, and things like that. That can really help,” he says.

“But I’m also aware of how important it is for us, as growers, to understand and learn about the latest research. For example, the big issue for us at the moment is Potato virus Y (PVY). It’s particularly important for seed growers to understand about this problem because it can be passed onto successive crops in seed tubers.”

“The workshops have been helpful in explaining what to look for in the crop, and

more importantly, some of the preventative techniques we can use on the farm,” Mr Bone says.

“For example, planting whole seed instead of cut seed is one such preventative measure we’ve introduced. But we’ve found it best to combine this with other techniques such as planting border crops and using early generation certified seed. It’s about introducing a series of actions to try and reduce the risk,” he says.

Another beneficial workshop about Common scab and soil borne diseases, presented by Dr Tonya Wiechel, Victorian Department of Environment and Primary Industries (DEPI) researcher, also assisted Mr Bone’s on-farm practices. “As a seed grower, one of main our issues is Common scab. But correcting the potassium and magnesium ratio in the soil helped better manage this problem.”

Mr Bone explained that Dr Wiechel’s work had also led to being able to test the soil to see if it contained Common scab. “This is helpful because it means you are more aware of what’s in your soil and whether or not you need to use a seed treatment,” he says.

While as yet there is no evidence in Australia of the tomato potato psyllid (TPP), an insect associated with Zebra Chip disease, it’s been a nasty experience in New Zealand, where it has devastated the country’s industry. Importantly, workshops have been held across Australia providing a description

of the pest and symptoms of what would happen in crops if it was found here.

“This information has been really helpful,” explains Mr Bone. “We hope the disease doesn’t arrive here, but we want to be prepared if it does. It would be disappointing if these workshops and R&D projects were put on hold. There’s something new coming out all the time and we need to be on the front foot,” Mr Bone says.

“ I’m aware of how important it is for us, as growers, to understand and learn about the latest research. ”

Summary:

- **Potato Industry Extension Program (PT11004)** R&D workshops are important for growers.
- **The workshops take valuable information** on diseases and crop improvement out to the farmer.
- **They also allow growers to network**, share information and compare production methods.

TERRY BUCKLEY

Soil health matters



Mingbool potato grower Terry Buckley describes soil health research as the “last big exciting frontier” in successful potato production.

“It’s still the greatest unexplored territory that we have. [The industry] has done machinery, variety development and a lot of chemical and fertiliser work, but we really haven’t concentrated as much as we should have on soil and soil health,” he says.

Over the past 15 years in particular, Mr Buckley has been working on improving the soil on his family’s property north-east of Mount Gambier, trialling a range of industry R&D initiatives. A decade ago, he took part in a HAL think-tank session in Melbourne that aimed to identify and develop new priorities for research within the Australian potato industry. The ideas generated at this session inevitably became the catalyst for a greater emphasis on soil health research in the Australian potato industry, which ultimately formed the APRP1 program.

“My belief then was that soils and soil health was the way to go, and that seems to have swayed a lot of potato research in that direction... I’m still absolutely of the belief that you’ve got to get [soil health] right or you’re just not a sustainable industry for a start,” he says.

He regards the new soil DNA test developed by scientists from the South Australian Research and Development Institute (SARDI), as “one of the most ground-breaking trials yet”, due to its ability to give growers a snapshot of any common disease pathogens present in their soil prior to crop planting.

The trial work on Mr Buckley’s property was carried out by SARDI over several years, and this year, researchers focused on two paddocks measuring 26 and 35 hectares.

Testing assessed the risk of diseases that reduce yield and tuber quality, such as Powdery scab, root knot nematode, Rhizoctonia and Common scab, and helped to summarise relationships between pathogen DNA and yield loss.

Projects investigating soil health within the industry - some of which Mr Buckley has also reaped the benefits of - include research into the importance of tuber-borne inoculums on seed potato health, soil health and disease mitigation, soil amendments, ameliorants and nutrient manipulation, endophytes and their potential for disease suppression, and several others.

“ I’m still absolutely of the belief that you’ve got to get soil health right or you’re just not a sustainable industry. ”

Mr Buckley believes his commitment to adopting soil health research findings has paid dividends. He continues to fine tune his own practices in this area and says that he is now “getting a bit of a gain” on his yields every season as a result.

“We keep pretty good records of what we’ve done all the time and then often we’ll look at what our yields and things have turned out like, and anything that stands out tends to be the basis of the next projects. So apart from adopting the industry-funded research, we really do quite a lot of it ourselves here,” says Mr Buckley.

Photographs by Brandon Rooney.



Summary:

- **There is a need** for horticultural research to focus on soil and soil health to ensure that the Australian potato industry remains sustainable.
- **PTO9026** aims to develop integrated disease control strategies for soil-borne diseases.
- **Potato levy payers** have found the outputs of soil health research useful and have applied technology developed by the program on farm.