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ONIONS AUSTRALIA | 2015

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Welcome

Welcome to Onions Australia's 32nd edition of our annual magazine – with this year's publication featuring a range of articles from across the industry.

This year we have had the pleasure of 2014 MasterChef runner up Laura Cassai showcasing her love for all things onion for our magazine.

Laura's genuine passion for Italian cooking – and therefore plenty of recipes featuring onions – shines through in her new recipe book My Italian Kitchen.

We, here at Onions Australia, were extremely grateful for the time Laura spent with us, and her wholesome nature showed through with her love for onions.

There are plenty of other highlights in this edition, with informative articles about how YOUR levy money is being spent on a range of industry projects.

There are also details on international markets, permit updates and the annual State round ups.

As always the door to our Onions Australia office remains open and we encourage you to contact us with ideas for future publications – or any brickbats you wish to pass on.

Happy reading.

Onions Australia Vol 32 was produced for the Australian Onion Industry Association by juliareader.com.au.

Contents

From the Chair

There is no doubt the world of horticulture is a challenging industry, with onions no exception to that rule.

Having taken the reins of Onions Australia from my predecessor and fellow Queenslander Andrew Moon 12 months ago, I was hoping to continue the fine work he had started.

Little did I know the HAL Review –and the subsequent creation of Horticulture Innovation Australia (HIA) would lead to such far reaching and trying conditions for our industry.

While the Review has certainly implemented some good industry-wide changes and ensured that all Peak Industry Bodies, such as OA, provide optimum service to their industries, it has also proved exceptionally challenging for bodies to remain financially sound.

OA was in a fortunate position having worked hard to ensure it had some reserves in the bank, so that when the Consultation Agreement ceased last year we could continue on.

We are still working on securing key strategic partnerships with industry leaders – with obvious benefits on both sides.

On the home front, our last conference in Bordertown was a great success, and I encourage growers to make every effort to attend our upcoming conferences.

We have also spent a lot of time working with growers, wholesalers, retailers and the media to remind consumers that Australia is in no dire need of imported red onions from the USA and just because they might "look" better from the outside than the Australian red onions it's not supporting your Australian growers.

Our key message remains: Ask your retailer where their red onions come from and if in doubt, ask to see the packaging in which they were delivered to the store.

For those of you whom I am yet to meet, I am the Sales and Marketing Manager at Qualipac Pty Ltd, a passionate fourth generation Australian and family owned farming enterprise and onion grower in Gatton, Lockyer Valley, Queensland.

I have been with Qualipac since July 2010 and have been working in the horticultural industry for over a decade. I have a great passion in the areas of fresh produce, sales and marketing, and have extensive international experience in the industry.

I take great pride in being available to my industry, and therefore my 'door' is always open, as is that of the OA office, so feel free to contact me or the office if you wish to raise any issues, track down information, or simply have a chat.

Thank you sincerely,
Kees Versteeg

From the office

Horticulture facing tough financial times.

2015 has been a year of balancing budgets and tightening belts in the world of onions – and horticulture nationally.

With the implementation late last year of the new Horticulture Innovation Australia (HIA), replacing the previous Horticulture Australia (HAL), the entire horticulture industry has undergone a shake up – and Onions Australia is no exception to that.

One of the new HIA's first decisions was to scrap ongoing Consultation Agreements with Peak Industry Bodies, leading to savage funding cuts for organisations like ours.

We have been lobbying HIA for increased access to funding, given the important roles that PIBs play. OA has been at the forefront of a campaign to allow PIBs some financial support from raw levy funds in order to safeguard industry bodies.

Despite the drying up of funds, OA has soldiered on, albeit with a tightening of the purse strings, and done our utmost for our industry.

Our conferences in the last 12 months have been hugely successful, with about 50 industry representatives attending our May meeting in Bordertown, SA, and there was excellent attendance in Brisbane in October last year.

Our focus is on ensuring we stage high quality conferences, filled with information, education and networking opportunities in order to bring out the best in our industry.

These conferences rely on the generosity of our key strategic partners and sponsors and OA is proud to be associated with reputable businesses who have demonstrated genuine interest and investment in the national – and international – onion industry.

In other office news, Kelly has left OA, leaving only Lechelle in our Mt Gambier office to – for the foreseeable future – juggle both roles. Again, that may change dependent on future funding.

Let's hope that 2016 brings better prices for onions – and more funding for OA!

Lechelle Earl



Thinking Onion Seeds. Think **Terranova** Seeds!

Terranova is a specialist Vegetable Seed Company with offices in Australia and New Zealand. Our specialised technical staff service all states of Australia as well as all regions of New Zealand. In addition we service the Pacific Islands and Papua New Guinea.

Our current product range continues to focus on improved storage, skin colour and disease resistance along with a strong emphasis on increased marketable yields.

Our ongoing development programme highlights a number of new varieties with exciting potential in all of these vital aspects of successful onion production.

We expect to see a number of these new varieties become commercial in the years ahead.

We market a broad range of varieties which have been trialled under local conditions across both Australia and New Zealand.

Whether your requirements are for short day or intermediate day, Red, Brown or White varieties we are confident that we have the product range to meet your needs and we give full technical support to our customer base.

Reliable Seeds. Quality Seeds.That's what you can count on every time when you think Terranova Seeds.

New **Enza Zaden** intermediate hybrid onions.

OLIVINE Hybrid Brown Onion

First long day hybrid

Similar maturity to Murray Brown

Very uniform bulb shape & even maturity

Very dark brown skins with excellent skin retention

Should give higher pack out compared to similar maturity OP varieties

Long term storage

PLUTONUS Hybrid Brown Onion

A new Intermediate brown hybrid

Produces very firm, high globe bulbs

Extremely good storage potential

Foliage is large and vigorous and strong against Mildew

Should be trialled in the late part of the PLK timeslot or against Brown Keep types

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Palletizing partnership

A new partnership has been established in the palletizing industry between an international heavyweight and a respected Australian business.

Verbruggen Palletizing Solutions has announced that Dobmac Machinery will become its distributor for the Australian agricultural market.

Given that there is a large distance between Australia and The Netherlands, and therefore a large time difference, it is very important for Verbruggen that customers do have a reliable company in Australia to meet their needs.

Dobmac will become the first point of contact for the Australian market, and with over 30 years in the Australian vegetable industry Dobmac has a skilled team of technicians with experience in installation, service and support of a wide range of agricultural equipment. From planting and harvest equipment to complete grading and automated packing lines, the addition of the Verbruggen range of palletizing equipment complements Dobmac's existing product range and allows Dobmac to offer completely integrated packing solutions.

Verbruggen prides itself on giving its customers the best possible service, which means fast and professional support and a prompt delivery of spare parts. The company is confident that it has found its perfect Australian partner in Dobmac.

Verbruggen is a renowned Dutch manufacturer of solutions for palletizing mixed cargo in various packaging and dimensions.

These systems are successfully applied in various agricultural and industrial markets worldwide.

With more than 20 years of experience, Verbruggen is a reliable and competent partner for custom-made palletizers, pallet conveyors, pallet wrapping machines, conveyors and elevator systems.

The company's target is to provide its customers with a tool for the ideal presentations of their products to their clients.

The advanced Verbruggen palletizers, conveyor belts, pallet conveyor belts and pallet wrapping machines enable this to be achieved quickly and efficiently.

Experience, innovation and teamwork form the basis of our communication with customers and potential customers.

One of their key products focuses on carton/crate and bag stacking, something of key interest to the Australian market given how many crates are sent out to supermarkets.

Verbruggen has more than 50 palletizing installations already in Australia and over 700 worldwide.

"We're ready for the Australian agricultural market and trust the Australian market is ready for Verbruggen. We look forward to the cooperation with Dobmac," a Verbruggen spokesman said.

VERBRUGGEN
palletizing equipment

DOBMAC
AGRICULTURAL MACHINERY

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DuPont™ Fontelis® fungicide is a powerful single mode of action fungicide. It delivers the performance you need to protect against a wide range of fungal diseases in vegetables and fruit – from Grey mould, Gummy stem blight, Powdery mildew, Sclerotinia and neck rot, purple blotch and blight. Better still it's rain-fast within the hour and compatible with most insecticides, liquid fertilisers and fungicides. Realise your potential, for more information talk with your DuPont territory manager or visit **www.cropprotection.dupont.com**

DuPont™ Fontelis®
fungicide

2015 Reg Miller Award recipient

This year's Reg Miller Award winner has spent more than a quarter of a century studying onion related diseases in a passionate quest for results.

Tasmanian Dean Metcalf originally comes from the Ovens Valley in North East Victoria. He undertook a science degree at Roseworthy College in South Australia.

In a microscope class in 1989 he viewed a fungus killing another fungus and found out that it was Trichoderma – which led him to the idea that maybe the killer fungus could be used as a fungicide.

On returning to Victoria he found work in the Hop (as in beer) industry and was transferred to Tasmania. After a couple of years in that industry he returned to university, wanting to research the use of Trichoderma to control crop disease. The first opportunity he found was in the onion industry where he started to work on a biological control for onion white rot for his Honours project and got a PhD Scholarship sponsored by the Tasmanian Onion Industry to continue the work, which generated some very promising results.

In 1996/97 there was the worst season on record for the Tasmanian onion industry due to an epidemic of neck rot, which caused one-third of exported onions to decay in transit. Dean got the job of working out what had gone wrong and assembling a management strategy, which has largely been successful though the disease has never completely gone away.

In 1999 Dean moved back to Hobart to lead the Tasmanian Plant Disease Diagnostic laboratory where he helped farmers identify a very wide range of crop diseases and served as Quarantine Pathologist. He maintained his interest in onion diseases and biological control in the background.

In 2002 Dean started a business "Metcalf Biocontrol" in collaboration with a compost manufacturer. The first objective was to learn how to mass produce Trichoderma and further to multiply it using the natural heating cycle of compost and the process developed was successfully patented.

Dean widened his biological control interests into grapes and over the next few years developed two biological control agents for control of Botrytis in grapes (Colonizer used on flowers and Antagonizer used on ripening grapes). Antagonizer has also been very successful in stonefruit for controlling Brown Rot. He also developed the Phytoguard biological control agent which is used for Phytophthora root rot in Avocadoes and Solstice for Phytophthora root rot of raspberries. In 2015 he has launched "Macanizer" following three years of trials to control husk spot of macadamia nuts. In 2008 launched the Gauntlet biological fungicide for onion white rot, though it has not been all that widely adopted due to cost.

Dean has continued his work on Botrytis neck rot of onions including better understanding of detection in seed, fungicide control, infection process, factors affecting Botrytis during curing, negative effects of wetteners which enhance infection and most recently the epidemiology of Botrytis in the seed crop.

News that Dean was selected to receive the prestigious Reg Miller Award has been welcomed by industry representatives, with Tasmanian Institute of Agriculture Research Fellow James Hills saying that, as the senior plant pathologist for the DPI in Tasmania from 1998-2011, Dean provided a significant contribution to identification and control options of diseases for various horticultural crops in Tasmania including neck rot and white rot in onions.

"Botrytis control was a particular focus of Dean's research with Agronico that enabled the successful phasing out of Benlate, to various other fungicides including Filan. Dean was integral in assisting with the development of trial designs and a suitable inoculum source for providing sufficient disease challenge for screening trials that were very successful in identifying alternatives to Benlate," James said.

"Another key aspect of Dean's involvement was in understanding the effect of various surfactants and wetters on the cuticle of the onion and the potential for the resulting damage to encourage diseases such as botrytis allii to penetrate the leaf surface and migrate to the neck of the onion causing neckrot. This very important piece of research helped focus attention on the practice of using surfactants in fungicide mixtures and the need to factor in the use of products that were not as destructive on the wax layer of the leaves.

"Dean was also very interested in Trichoderma and its potential for controlling diseases in a variety of crops including grapes and onions and in more recent years this has been the focus of his passion, with successful commercialisation of a Trichoderma product for white rot control in onions and botrytis control in grapes. This interest in Trichoderma goes right back to Dean's PhD research in the 1990s, with his current work through his company Biocontrol Australia broadening from onions and grapes to various other projects including raspberries and tree nut crops to name a few.

"Dean is a worthy recipient of the Reg Miller Award and we wish him continued success in his passion for Trichoderma and its application as a biological control agent. The agricultural industry needs the commitment and passion of scientists like Dean to assist it in the sustainable fight against the continuing threat of diseases."

Fellow Tasmanian, Managing Director of Wynyon Pty Ltd and friend Tim Groom said Dean was a worthy recipient of the award.

"As I recall he conducted his PhD on botrytis of onions, and then moved on to look at biocontrol of onion white root rot. He has put a lot of work into the onion industry, without a great degree of financial reward. His work with Trichoderma bio-control was very innovative at the time," Tim said.

"He is one of the most experienced onion plant pathologists in Australia."

Dean, who additionally operates a strawberry farm in Molesworth Tasmania, has been a member of the OA Executive since 2004. He has two sons and a daughter. Outside work he plays guitar, runs 24 hour ultra marathons, and likes restoring his 1949 Ariel motorbike.

Agriculture – time to invest?

Baldeep S. Gill is an independent business consultant with 24 years of experience throughout Australia and the Asia-Pacific region. Email: baldeep.gill@theapcg.com

The next few years sees a transformation of this sector. Regional Business examines the landscape.

Australian agribusiness has not yet received the level of attention it deserves from investors, but the next few years will see a transformation of this sector with individuals, corporates and fund managers seeking to build positions for the long-term.

To understand why, let's examine the landscape.

CONSUMER DEMAND IS GROWING

Between now and 2050 the World Bank has indicated that the global population will grow to 9 billion, 70 percent of which will be in the Asia Pacific region, Middle East and Africa.

There will also be an increase in affluence as GDP per person grows creating a greater demand for higher protein foods, such as meat, grain and dairy.

Australia is the largest net exporter of agricultural produce in geographic proximity to Asia, and as such is already recognised as a source of high quality and disease-free product.

The consumer demand is there.

BUSINESS CONDITIONS ARE TURNING

The receding dollar, favourable environmental conditions and falling interest rates have made Australian produce and producers considerably more attractive.

Food security is becoming more important and investors are factoring this into their decision about where to place capital.

Australian agriculture is also benefiting from the end of the mining boom as investors look to new growth areas with longer-term demand in mind.

OUR INDUSTRY IS HEAVILY SKEWED

The Australian Bureau of Agricultural and Resource Economics and Sciences indicates that there are around 120,000 farming enterprises in Australia, generating approximately $50 billion of turnover per annum.

Analysis by business intelligence specialists Neil Clark suggests that 8 percent of enterprises generate 50 percent of turnover and 75 percent of industry profits. The future of Australian agriculture relies on industry leaders.

At the farm gate level there are leaders in each industry:

- Beef industry leaders include the Australian Agriculture Company, Consolidated Pastoral, S. Kidman & Co and Stanbroke Pastoral.
- Grains industry leaders include the Nicoletti Group and the Greentree family.
- The dairy industry is led by the Van Diemens Land Company.
- Mixed farming is dominated by the Hassad corporation with assets across Australia.
- The horticulture industry includes leaders such as Select Harvest and Costa Group.
- Aquaculture includes leaders such as Tassal and Huon Aquaculture.

Beyond the farm gate there are also leading industry participants:

- Rural services providers include Ruralco, Elders and Landmark.
- Logistics providers include GrainCorp, CBH and Qube Holdings.
- Dairy processors include Fonterra, Murray Goulburn and Norco.
- Chemical companies include Nufarm, Incitec Pivot, Hi-Fert and IMPACT!
- Animal health providers include Bayer, Novartis and Pfizer.

INVESTING IN THESE ASSETS

Many agriculture assets are privately held and unlikely to be available for public investment.

However, there are a large number of existing – or soon to be listed – agribusiness companies either at the farm gate, or beyond the farm gate, which are open for investment.

While each investor should consult a qualified financial adviser for personalised advice, the following observations may be worth considering:

Broadacre enterprises in grain and beef are aiming to meet the needs of the emerging middle class in developing markets by developing closer links with purchasers – rather than relying on intermediaries that take a slice of the margin.

Dairy farms and processors are emerging as a significant growth play in Australia as they look to capture as much of the value chain as possible, concentrating on the upper end of the market for demand in powdered, UHT and fresh milk.

Horticulture offers significant prospects with current and newly listed players seeking to build vertically integrated businesses across production, processing, storage and distribution.

As with the mining boom, services companies in logistics, chemicals, rural services and processing businesses offer an alternative investment strategy, which may align with the risk appetite of investors who prefer not to invest directly in farm gate assets.

INVESTMENT REQUIREMENTS

At present agriculture does not receive sufficient attention from the investment community.

The Australian Stock Exchange has indices for the health, telecommunications and utilities sectors, but nothing for agriculture.

It is essential that an Agri Index be developed as a means of tracking and benchmarking participants, as well as supporting index-based investments.

Most brokers do not dedicate sufficient analytical resources to analysing, understanding and making recommendations in this sector.

Brokers may find this capability a service with which to gain prospective new business.

Fund managers and corporate investors may have the benefit of in-house analysts to guide their decision, but private investors may struggle to benchmark the opportunities in a meaningful way.

There are a number of specialist agri-investment advisors across Australia. However, given the complexity of this sector, it is essential to find an advisor that understands your risk profile – not just agri, but where in agri and why.

CONCLUSION

Australia is not yet 'in a dining boom', but we are certainly preparing the ingredients and laying the table.

Be sure to reserve your seat.

Baldeep S. Gill is an independent strategic consultant with over 25 years of experience working with agribusiness companies in domestic and international markets.

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Detection and management of bacterial diseases in Australian allium crops

HIA Project VN13005 - Cherie Gambley | Department of Agriculture and Fisheries, QLD | Cherie.gambley@daf.qld.gov.au | Mobile 0423 200 211

The Horticulture Innovation Australia Ltd (HIA) funded project VN13005 commenced in July 2014.

The main aim of the project is to increase the capacity of the onion industry to manage bacterial diseases, such as Bacterial blight of leek (caused by *Pseudomonas syringae* pv. *porri*; acronym: Psp) which affects onions and other alliums such as shallots and leeks. A further aim is to enhance preparedness for potential incursions of key exotic bacterial diseases, such as Xanthomonas leaf blight of onion.

The main activities within the project are to determine the importance of bacterial diseases to the Australian industry, gain a better understanding of how bacteria spread and survive in the environment and review current and potential management strategies for their control. This will involve surveys of Australian onion growing districts for bacterial diseases, investigating links between disease outbreaks and weather and reviewing known research on bacterial survival and spread. Specific experiments will study the influence of temperature on disease for improved early season predictions of potential economic impacts and evaluating bacterial isolates for their tolerance to copper. Potential alternatives to current control methods could include different formulations of copper, new chemical and biological control products and resistant or tolerant plant lines.

This project was initiated following an outbreak of bacterial blight of leek on onion and shallot crops in the Lockyer Valley, Qld a few years ago. The disease is thought to have caused production in these crops problems from 2010, with samples sent for diagnosis in late 2011. Initially the disease in the Lockyer was that to be downy mildew caused by the fungus *Peronospora destructor* as the symptoms can be superficially similar (Figure 1). The preliminary diagnoses in late 2011 was of an exotic bacterial pathogen, *Xanthomonas axonopodis* pv. *alli* (Xanthomonas leaf blight of onion) as this was the only disease of onion in the literature at that time that matched the symptoms (Figure 2). Subsequently, there was a report in 2012 from Georgia, USA of a different bacterial species causing these symptoms in onion. Further investigation of the bacteria present in the Lockyer, identified it as Bacterial blight of leek, similar to the pathogen described from Georgia.

Bacterial blight of leek is a well-known disease of leek around the world and was previously reported in Australia affecting leek crops in southern states and WA. The detection in the Lockyer Valley is the first report of this disease affecting onion and shallot for Australia and only the second report affecting onion worldwide. The pathway for introduction into the Lockyer of this disease is uncertain. It is possible it came with trial leek plantings or alternatively the bacteria have contaminated onion or shallot seed production areas elsewhere in the world. The bacterium is known to be seed borne in leek.

During the first phase of the project a literature review was completed. The review highlighted a lack of information on Bacterial blight of leek and Psp. Some information is available on related bacterium and will serve as a good foundation to build specific Psp experiments. The genetic and biological diversity of other related bacteria is quite high and preliminary investigations into Psp also indicate the diversity in Australia is likely to be greater than initially thought. Understanding this diversity is important for development of management strategies.

The review did identify coronatine as a likely toxin produced by Psp which causes the distinctive yellow-leaf symptom observed during the Lockyer disease

Figure 1: Red onion plants affected with downy mildew on the left and Bacterial blight of leek on the right. In both cases there is a yellowing of leaf tissue but with the bacterial infection it is often the whole leaf and always the new leaf, whereas, that caused by the downy mildew fungi is more localised and can occur on any leaf.

outbreak (Figure 1). The isolates of Psp detected in the Lockyer in 2012 all tested positive by molecular assays for the presence of the gene that is responsible for producing this toxin. Laboratory experiments by others show that growth at 18 °C for about 5 days is needed to induce coronatine and indicates a strong temperature influence on toxin production. Preliminary experiments support this temperature influence with infected shallot plants developing the yellow-leaf symptom after approximately one-week of growth at a constant temperature of 18 °C. Further experiments are underway.

In addition to Psp, there are many other bacterial diseases which affect onions and often symptoms can be superficially very similar. This includes diseases caused by *Pantoea agglomerans, Pseudomonas viridiflava* and *P. marginalis* pv. *marginalis*. These bacterial species can also cause significant impacts to production if environmental conditions are suitable.

If you see symptoms similar to those described in this article, or other symptoms you are unsure of, contact Cherie Gambley.

Figure 2: Shallot leaves showing symptoms of bacterial infection. The leaf is typically affected from the tip back with lesions joining together to cause large areas of dying tissue. Within this area, rust-tan coloured individual lesions are often seen. These symptoms were caused by infection with *Pseudomonas syringae* pv. *porri* and are very similar to that reported for *Xanthomonas axonopodis* pv. *alli* and other bacterial diseases of onion.

Global insights, local solutions

Seminis is committed to developing vegetables specific to the Australia market.

- We have invested significantly in an onion research and development station in Pukekohe New Zealand to develop varieties specific to the Australian and New Zealand environment.
- Our global breeding team visits Australia every year to understand direct from Aussie onion growers, the needs of the market.
- We have recently appointed new resources to focus on trials in the SA, VIC and Tasmanian environments.

This is why our team can proudly say that our varieties get better with every generation!

Talk to our local team about trialing some of our newest brown hybrids:

- *Rangaru* – has shown great uniformity, high yield and outstanding storage ability in Australian trials.
- *Akamaru* – boasts a great resistance package to Pink Root and Fusarium Basal Rot in addition to uniformity and attractive skins.

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HIA update

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Pest and disease issues remain a major concern for the Australian onion industry investment program.

Development of management protocols and registrations to cost effectively manage major pest, weed and disease threats including thrips, onion stunt, iris yellows, onion white rot, *Botrytis allii* and smut ensuring marketable yield is maintained remains a focus.

A new onion marketing program is being prepared in response to the recent commencement of levy collection for the onion marketing levy. Well grounded industry advice coupled with consumer research will help identify opportunities to meet consumer preferences, and the implementation of the new marketing levy will provide much needed opportunity to promote onions directly to consumers. Watch this space over the coming months.

Continuing Projects - Forecast 3 for 2014/15 and Endorsed 2015/16 Budget

Objective	Project Code	Title	Levy or VC	Current Status	Start Date	End Date
2	MT14027	Horticultural Market Access Manager 2014 - 2015	LEVY	APPROVED	1/10/14	1/10/15
1	VN14007	Research to support the development of a domestic investment strategy for the Australian Onion Industry	LEVY	COMPLETED	27/10/14	23/11/15
1	VN14008	Nutrition Support for Onions	LEVY	DRAFT	30/10/14	30/01/15
1	MT11023	Generation of data for pesticide registrations or minor-use permits in allium crops	LEVY	VARIATION APPROVED	1/10/11	30/05/15
1	MT12011	National honey bee pest surveillance program	LEVY	VARIATION SUBMITTED	15/05/13	30/04/15
1	MT12049	A model for industry planning and preparedness for an incursion of Varroa mite	LEVY	VARIATION APPROVED	17/06/13	30/05/15
1	MT13002	Protecting pollination for the Australian horticultural industry Stage 3	LEVY	VARIATION APPROVED	1/07/13	30/06/16
1	MT13027	Understanding practice in key pollination industries	LEVY	COMPLETED	1/07/13	30/05/14
1	MT13028	Deployment and refinement of bait box remote surveillance system	LEVY	COMPLETED	1/11/13	1/09/14
1	VN11005	Assessing and managing Iris yellow spot virus in onion production regions of Australia	LEVY	COMPLETED	8/08/11	31/08/14
1	VN12000	Physiology of onion bulbs destined for export markets	LEVY	APPROVED	1/07/12	1/07/15
1	VN12007	Minor use allocation for the onion industry	LEVY	VARIATION SUBMITTED	5/11/12	31/05/15
1	VN12008	Minor use permits for the onion industry	LEVY	VARIATION APPROVED	5/11/12	31/05/15
1	VN13001	Classification of the onion rust complex and development of rapid diagnostic assays	LEVY	VARIATION APPROVED	25/06/14	30/07/16
1	VN13003	Managing soil borne diseases of onions	LEVY	APPROVED	16/12/13	29/07/16
1	VN13005	Detection and management of bacterial diseases in Australian allium crops	LEVY	APPROVED	25/06/14	30/03/17
1	VN14001	Development of an onion white rot forecast model for Tasmania	LEVY	PM TO APPROVE OR IMPROVE	1/01/15	30/06/17
2	MT12028	OHMA Operational Support 2012 to 2015	LEVY	APPROVED	1/10/12	31/05/15
2	MT12029	Horticultural Market Access Manager 2012 - 2015	LEVY	COMPLETED	1/10/12	30/09/15
3	VN12003	Communications Plan for the Australian Onion Industry extension	LEVY	VARIATION APPROVED	17/06/13	1/03/16
3	VN13910	Onion Consultation Funding Agreement 2013-14	LEVY	COMPLETED	1/08/13	31/10/14
3	VN14800	Onion Industry Advisory Committee Annual Report 2013/14	LEVY	COMPLETED	1/07/14	30/06/15
3	VN14910	Onion Consultation Funding Agreement 2014-15	LEVY	SUBMITTED	1/11/14	10/08/15

Peeling back the layers of investing... with Entello

Preparing an onion for a meal is a bit like selecting shares for your portfolio. If you know what you're doing, and if you get the right balance with other ingredients, you might just enjoy a feast fit for a king.

If you don't, you could be left with an undesirable taste in your mouth!

At Entello, we don't profess to be experts in all-things-onion. But we do know investing.

We have been working with farmers for over ten years, helping them to generate off-farm passive income and growth while taking advantage of different asset classes.

Strategically, our way of thinking owes much to the principles of the Economic Clock.

Otherwise known as the Investment Clock, it first appeared in London's Evening Standard in 1937.

According to the theory, it's possible to track the progress of market cycles and foresee what is round the corner.

That's probably oversimplifying it a touch, but it has become regarded as one of the best indicators on the movement and condition of the investment market since its publication.

Mind you, it's not an exact science. At Entello we regard it more like a guide, something to refer to when weighing up the pros and cons of different investments.

Whichever way you look at it, investing is simply a means to an end. It is through investing that many people hope to accelerate their wealth creation so they might have a better chance of realising their goals and dreams.

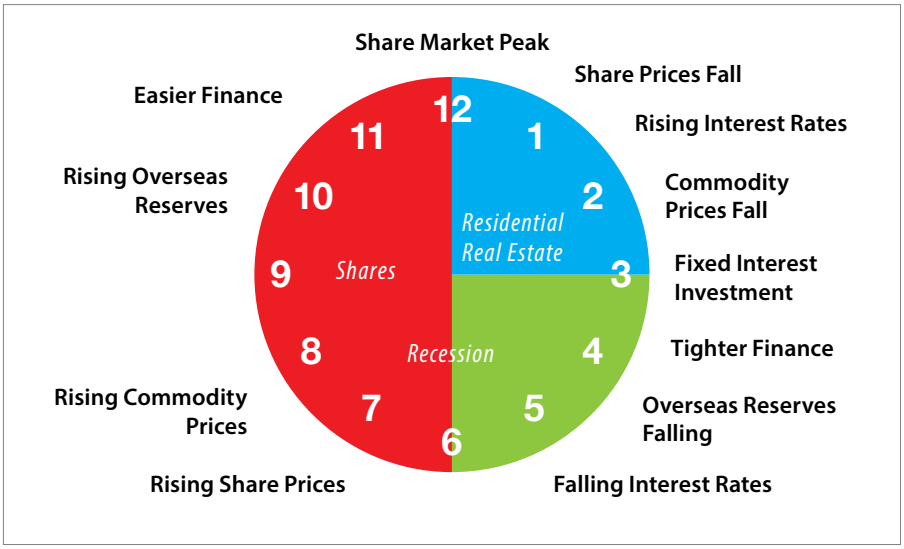
Yet whatever people aspire to in terms of wealth creation, one thing often separates those who are ultimately successful from those that underachieve: the willingness to plan early and review regularly.

Well, that's how Entello can help; working out the steps required so you can reach your destination.

And as Private Client Advisers specialising in direct investment, we keep one eye on the clock at all times!

So, if you have a financial goal, or if you just want to know what time it is, give Entello a call today on 1300 361 571.

To access the interactive version of the clock, please go to www.entellogroup.com.au.



Entello Pty Ltd (ABN 79 088 113 599) a related entity of Entello Financial Services Ltd (ABN 28 101 927 413) holder of AFSL No. 227096

Minor Use permits for the Onion Industry

Jodie Pedrana, Portfolio Manager - Minor Use - Chemicals. Horticulture Australia Limited
Suite 2, Level 5, 87 Wickham Terrace QLD 4000 | PO Box 12996 George Street Brisbane QLD 4003 | Mob: 0404 314 751 | Email: jodie.pedrana@horticulture.com.au

CURRENT PERMITS

Permit No.	Permit Description	Comments	Submit to APVMA	Status
PER11450	Tramat (ethofumesate) / Beetroot & onions / Various Weeds REGISTERED	08-Jun-09	30-Jun-15	Growcom
PER13119	Diazinon / Onions / Onion thrips	06-Mar-12	31-Mar-17	AOIA
PER14602	Boscalid (Filan), Iprodione (Rovral Aquaflo & Chlorothalonil (Bravo) / Onion seed & Onions / Neck Rot (Botrytis alli)	24-Jul-14	30-Sep-16	AOIA
PER13698	Phosphorous acid / Lettuce (leaf and hydroponic), Fennel and Bulb (Alliums) Vegetables / Downy Mildew	01-Oct-12	30-Sep-17	Growcom
PER14773	Bentazone-sodium (Basagran) /Onions / Broadleaf weeds	16-Apr-14	30-Jun-16	AOIA
PER80282	Alpha-Cypermethrin / Onions / Onion thrips	16-Dec-14	30-Nov-17	AOIA

EXPIRING PERMITS

Permits that will expire by September 2015 with comments:

Permit No.	Permit Description	Comments	Status
PER11450	Tramat (ethofumesate) / Beetroot & onions / Various Weeds	Registered by Bayer for onions and beetroot	No action required

DATA GENERATION PROJECTS CURRENTLY UNDERWAY

Permit No.	Permit Description	Contractor	Status
PER13574 now PER14602	Boscalid (Filan), Iprodione (Rovral Aquaflo & Chlorothalonil (Bravo) / Onion seed & Onions / Neck Rot (*Botrytis alli*)	CPR MT11023	APVMA data requirements - residue data for boscalid (in progress x 4) and iprodione (completed x 2, additional x 2 - in progress). CPR expects completion by Mar-14. **Completed 18/12/13 but will need to be repeated for iprodione – see below**

OUTSTANDING DATA REQUIREMENTS ASSOCIATED WITH PERMITS

Permit No.	Permit Description	Trila Details
PER11851 now PER14773	Basagran (bentazone-sodium) / Onions / broadleaf weeds	APVMA data requirements - residue data from a minimum of 4 trials to support renewal of permit. Permit expires 30-Jun-16
PER14602	Boscalid (Filan), Iprodione (Rovral Aquaflo & Chlorothalonil (Bravo) / Onion seed & Onions / Neck Rot (*Botrytis alli*)	APVMA requires 2 residue trials in iprodione as the trials undertaken and submitted via CPR – MT11023 were only 0.25 times the proposed rate. Trials must be the maximum application rate and number of applications and sampling supports the desired WHP. Samples must be frozen and analysis completed within 6 months of collection.

PERMIT APPLICATIONS WITH APVMA FOR ASSESSMENT

Permit No.	Permit Description	Comments	Submit to APVMA	Status
PER11854	Switch (cyprodinil + fludioxonil) / Onions / White rot, Black mould, Botrytis	As registration delayed, asked APVMA to extend permit for 6 months.	24/6/13	REGISTERED Jan 2014
PER13574	Filan (boscalid), Rovral (iprodione) & Bravo (chlorothalonil) / Onion / Neck Rot (*Botrytis alli*)	Renewal of PER13574 APVMA # 14602	18/12/13	Permit Issued PER14602 24/7/14
PER11851	Basagran (bentazone-sodium) / Onions / broadleaf weeds	Renewal of PER11851 4 residue trials still outstanding and permit will not be renewed unless data provided.	1/04/14	Permit Issued PER14773 16/4/14
PER12397	Alpha-Cypermethrin / Onions / Onion thrips	Renewal of a vegetable permit PER12397 that was surrendered by Growcom Submitted DC21-61054679 App# 100536 (PER80282) Application will be determined by 16-Dec-14	4/08/14	Permit Issued PER80282 16-Dec-14

For permits to be renewed (that do not have any outstanding data requirements), the APVMA fee is $350.

The expected time frame to renew APVMA permits is 3-5 months. Therefore the renewal process should commence 5 months before the permit expires to ensure a continuation of the permit availability.

It is difficult to provide a specific costing for the generation of additional data required by APVMA as it is unique for each permit.

But approximate costs are:

- $8000 per GLP residue trial (generally APVMA requires 2-4 residue trials per crop).
- $7000 per efficacy or crop safety trial (generally APVMA requires a minimum of 2 trials per crop).
- $2000 for permit application preparation
- $350 APVMA fees

WHO WE CONTACT FOR PERMIT INFORMATION

The person(s) contacted by HIA with any issues to do with permits are:

- Lechelle Earl (OA)
- Trevor Twigden
- Andrew Moon (OA)
- Julian Shaw
- Jason Dennis (Field Fresh)
- Dean Metcalf
- Richard Jones

NOMINATED PERMIT HOLDER

- Australian Onion Industry Association Inc.

PESTICIDE REGISTRATION AND PERMIT INFORMATION

Information on Australian registered pesticides can be found at the APVMA website: https://portal.apvma.gov.au/pubcris

Information on Australian permit pesticides can be found at the APVMA website: https://portal.apvma.gov.au/permits

STRATEGIC AGRICHEMICAL REVIEW PROCESS (SARP)

- Industry meeting conducted and provided with final report - August 2009
- Industry review with final report - August 2010
- Industry review and update with final report - February 2013.
- Industry review and update with final report – September 2014.

Minor Use permits for the Onion Industry

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INDUSTRY PRIORITIES:

The diseases identified as a high priority with possible alternative/new fungicide options are:

Disease (common name)	Disease (scientific name)	Fungicide options (action)
Downy mildew	*Peronospora destructor*	Ametoctradin + dimethomorph - new use, need to determine efficacy and residues before pursing. Boscalid + pyraclostrobin – new use, need to determine efficacy and residues before pursing. Mandipropamid – new use, need to determine efficacy and residues before pursing.
Neck and bulb rot	*Botrytis allii and B. aclada*	No new fungicides could be identified.
Black mould	*Aspergillus niger*	No new fungicides could be identified.
White rot	*Sclerotium cepivorum*	No new fungicides could be identified.

In onions, 4 diseases were identified as high priority diseases.

The insects identified as a high priority with possible alternative/new insecticide options are:

Disease (common name)	Disease (scientific name)	Fungicide options (action)
Cutworms	*Agrotis spp.*	Chlorantraniliprole – new use, need to determine efficacy and residues before pursing.
Onion thrips	*Thrips tabaci*	Abamectin – new use, need to determine efficacy and residues before pursing. Imidacloprid – new use, need additional efficacy and residues for registration. Pyriproxyfen – new use, need to determine efficacy and residues before pursing. Spinetoram – new use, need to determine efficacy and residues before pursing.

In onions, 2 insects were identified as high priority pests.

Onions are very susceptible to weed pressure due to the parallel growth phases with many weeds. As seedlings, onions are also very susceptible to herbicide damage. Therefore, proper herbicide crop safety screening trials are necessary before any products are pursued.

Therefore, new herbicides have not been recommended as crop safety cannot be guaranteed.

Quality food starts with quality crops. Farming, the biggest job on earth.

People today expect more from their food. They want high quality at affordable prices. So farmers face a dual challenge: produce crops in higher quantities but also make them tastier and more nutritious.

That's why BASF is working with farmers to create chemistry, helping them grow the healthier crops we need now and in the future. With help from BASF, food quality is in the farmers' hands.

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Introducing Laura Cassai: 2014 MasterChef Runner Up

My love and passion for food was something I was born with. I was fortunate enough to be born into an Italian family, where food was, is and always will be a way of life.

Every family gathering was based around food – my mum, Anita, and my two nonnas, Maria and Rosa, in the kitchen preparing feasts, while the kids ran around the house waiting to be fed what we still call the best food we've ever had!

Mum's side of the family comes from Sicily and Veneto, and Dad's comes from Tuscany, which meant I was often getting three cuisines on a plate every dinnertime. And I guess that's where it all started, being taught by the people I love and being inspired by the most traditional regional dishes from my family's Italian roots. Each region has its own recipes, cultural ways and ingredients. There are the fresh seafoods, capers, anchovies and citrus fruits of Sicily, the warm winter polenta stews and cheeses of Veneto, and the most traditional chestnut pancakes of Tuscany. In a sense I had the best of three worlds...

From the moment I started walking and for as long as I can remember, I would climb onto the bench next to Nonna Maria and want to help make pasta or stir the pot. Over the years, I remember outgrowing the apron that my Nonna made me as a child, the one that she still keeps in her drawer at home. My first real food memory is from when I was six years old, living in the beautiful countryside of Tuscany in Italy, where my Nonna Rosa taught me how to make homemade gnocchi. There was more flour on the floor and in the cracks of the cupboards than in the pasta itself. To this day it is still one of my fondest memories. I look back on my time spent in Italy as a child, and it seems like yesterday. I can still smell the chestnuts cooking over the open fire, feel the damp forest floor while foraging for mushrooms, and taste the crisp and salty potato focaccias we would pick up every morning before school. That was nearly 14 years ago now.

In my teenage years, I was inspired by the time I spent in Italy learning all the traditional cooking techniques. This is the time when I discovered that all I wanted to do was cook. I found food fascinating, everything about it. I began learning more about my Italian heritage, and am still learning today. The traditions and variations in recipes for each region continue to amaze me. But then along came 2012. It was a rough year for me, one of those years when nothing went

right. I was struggling with the demands of Year 12, and ended up in and out of hospital for months with chronic fatigue and glandular fever. I lost my Nonna Rosa in June, one of the most influential women in my life, who has left me with memories and food knowledge to last a lifetime. For her to see me today... well, I don't think she would have any words. I regained my health and managed to graduate from Year 12. However, on New Year's Eve, I lost my beautiful cousin David in tragic circumstances. It was a huge loss. And then I somehow ended up at university, studying a Bachelor of Health Science... strangely worlds away from food. But things happen in life, and people regain their direction. In the last few years, I've learnt the hard way that life is precious and you need to take every opportunity that comes your way. For me, that was MasterChef.

I now look back at the 18-year-old girl who amazed world-renowned chefs – as well as the judges, Matt Preston, George Calombaris and Gary Mehigan – and, strangely enough, I feel inspired by the girl who first auditioned. I achieved so much in such a short amount of time. I rediscovered my love for a cuisine that defines me. And the show brought out an inner strength I didn't know I had. Being on a reality television show isn't all glamour – it's bloody hard work! Hours of studying, sleepless nights and late-night cook-ups, all to help achieve my goals of being the best that I can be. It's incredibly demanding and stressful, but for all the right reasons. It pushes you to better yourself, and I couldn't be more grateful for the opportunity I was given. It was one of the toughest, yet most rewarding and fulfilling experiences of my life. I got to connect with people and share my story, of a young Italian home cook whose inspiration comes from the apron strings of her mother and two nonnas, Anita, Maria and Rosa.

When I was little I was no kid in a candy store. I was the girl in a bookstore … and now I'm the girl about to have her own cookbook in a bookstore. Bucket list item 7, check. My Italian Kitchen is full of recipes and stories scattered across my life – family ones and my own creations. It's a book of recipes that defines what I'm about: family, love, all things Italian, artichokes and chestnuts, regional recipes, Nonna... My inspiration for this book comes from my family. I could not have created any of these recipes without their knowledge, their passion for regional Italian food and, most importantly, their love.

Italian food has a way of bringing families together, and that's what I want to highlight in this book: simple, traditional Italian dishes, showcased with only the best seasonal and local produce. Italy is not all about pasta and pizza – it's about the small markets on the side of the road, the wild fruit and vegetables, the annual tomato sauce–making days, Nonna's wooden spoon and Sunday feast of traditional family recipes, sharing meals with your loved ones, large platters and large portions, and the regionalism and seasonality of every dish. It's about family. Oh, and a glass of homemade vino and an espresso coffee. I couldn't imagine growing up in any other family.

I'm sure this is the first chapter of many.

You're forever invited into My Italian Kitchen.

This is an edited extract from *My Italian Kitchen* by Laura Cassai published by Hardie Grant RRP $39.95 available in stores nationally.

Laura Cassai

Rolled gnocchi with porcini mushrooms, caramelised onions and crispy sage

This dish will always be connected to my fondest memories of Marco Pierre White. I was fortunate enough to cook for Marco while on MasterChef, where he gave me the highest compliment I will probably ever receive in my life. To be told by the father of modern cooking that at my age he couldn't cook a dish to this standard, was truly one of the proudest moments in my life.

{ SERVES 4 }

INGREDIENTS

- 1½–2 cups dried porcini mushrooms
- 1.8 kg (4 lb) white-fleshed potatoes (about 8), cut into 1.5 cm (½ in) cubes (I use desiree or toolangi delight potatoes)
- 40 g (1½ oz/1 bunch) sage, leaves picked
- 140 ml (4½ fl oz) extra-virgin olive oil
- 2 large brown onions, finely chopped
- sea salt flakes
- 75 g (2¾ oz/½ cup) 00 flour
- 1 egg yolk

METHOD

Cover the porcini with water in a small saucepan over a high heat. Bring to the boil, remove from the heat and allow to sit for 10 minutes until softened. Remove the porcini from the water and finely chop. Set aside.

Cover the potatoes with cold water in a saucepan, salt the water and set over a high heat. Bring to the boil, reduce the heat to medium and allow to gently boil until soft, about 20–25 minutes.

While the potatoes are cooking, make the stuffing. Finely chop half the sage leaves. Pour 2 tablespoons of the olive oil into a frying pan and set over a medium heat. Add the onion, porcini mushrooms and finely chopped sage, and fry until golden, about 5 minutes. Season with sea salt and freshly ground black pepper. Remove from the heat and set aside.

Drain the potatoes and mash. Pass through a drum sieve into a bowl. If you don't have a drum sieve, use a regular sieve or a potato masher to turn the potatoes into a smooth mash. Add the flour, egg yolk and a pinch of salt and stir to combine. Do not overwork the potato dough as it will become very gluey and starchy.

Lay a large piece of plastic wrap on a work surface. Spray with olive oil to prevent sticking. Spread one-quarter of the potato mix onto the plastic in a rectangular shape approximately 10 cm × 28 cm (4 in × 11 in) with a 1 cm (½ in) thickness. Spread one-quarter of the stuffing mix along the length and roll tightly in the plastic wrap. Twist the ends to secure, and seal by tying with cooking string to make a tight, firm roll. Repeat with the remaining mixture, using one-quarter quantities each time to make four rolls.

Bring a saucepan or large deep frying pan of water to the boil over a high heat. Add the potato rolls and cook until set, about 10–12 minutes. Remove from the water and allow to sit for 10 minutes.

Unwrap and cut the rolls into 2 cm (¾ in) thick slices. Pour the remaining olive oil into a frying pan and set over a medium heat. Add the gnocchi slices and fry until lightly browned on both sides. Remove from the frying pan and set aside, keeping warm. Add the remaining sage leaves to the frying pan and cook until crispy, about 1–2 minutes. Season with sea salt and remove from the heat.

To serve, place the gnocchi slices in a bowl with the crispy sage leaves.

Potato, caramelised onions and rosemary oil pizza

I would always want this as my focaccia topping during our time in Tuscany. It's a beautiful combination that works well even if you ditch the pizza base. Just toss the onions and oil through roast potatoes – it's absolutely stunning.

{ SERVES 6–8 }

INGREDIENTS

- 3 potatoes
- 105 ml (3½ fl oz) extra-virgin olive oil
- 2 red onions, thinly sliced
- 2 rosemary sprigs
- sea salt flakes
- 1 pizza base

METHOD

Preheat the oven to 220°C (430°F).

Thinly slice the potatoes on a mandoline and place the slices in a bowl of water to prevent them from going black.

Heat 60 ml (2 fl oz/¼ cup) of the olive oil in a saucepan. Add the onion slices and cook over a very low heat for 15–20 minutes until they are soft and lightly caramelised. Set aside.

Finely chop the rosemary, mix with 3 tablespoons of olive oil in a small bowl and season with sea salt and freshly ground black pepper.

Place the pizza base on a baking tray or pizza stone. To assemble, drizzle some of the rosemary oil on the pizza base. Layer the potato slices all over the pizza, top with the onion and drizzle with more of the rosemary oil.

Bake for 15–18 minutes, until the pizza base is crisp.

This is an edited extract from *My Italian Kitchen* by Laura Cassai published by Hardie Grant RRP $39.95 available in stores nationally.

Pollo alla birra skewers
Chicken with beer

For as long as I can remember, Mum has made this dish, but slow-cooked it and served it with a creamy polenta. I decided to create my own take on it by reducing the sauce to get a sticky marinade for the chicken skewers. Serve with polenta chips and it makes a great bar-style snack.

{ SERVES 4 }

INGREDIENTS

- 8 × 150 g (5½ oz) boneless, skinless chicken thighs
- 60 ml (2 fl oz/¼ cup) extra-virgin olive oil
- 2 onions, finely diced
- 2 garlic cloves, finely chopped
- 40 g (1½ oz/1 bunch) sage, chopped
- 375 ml (12½ fl oz/1½ cups) pale ale
- squeeze of lemon juice
- 2 tablespoons brown sugar

METHOD

Cut the chicken thigh fillets into 2 cm (¾ in) cubes, and line them up on 16 skewers.

Heat 2 tablespoons of the olive oil in a saucepan. Add the onion, garlic and sage, season with salt and pepper, then cook over a low–medium heat until they are lightly caramelised, about 5 minutes.

Pour in the beer to deglaze the pan, and add a squeeze of lemon juice. Slowly reduce the mix to create a sticky sauce. Cook off over a low heat for another 5 minutes, then add the sugar and cook for a further 10 minutes, or until it has reduced by half

Meanwhile, as the sauce is reducing, heat a chargrill pan over a high heat. Coat the chicken skewers in the remaining oil and season. Cook the chicken on the pan for 3 minutes on each side, or until cooked through.

Add the skewers to the pan with the sauce, give them a quick toss, then plate the skewers up and pour the remaining sauce over the top.

Serve immediately.

Tip top Tasmanian onions

Onion Project VN12000 | Alistair Gracie, Adrian Hunt and Mark Boersma
Tasmanian Institute of Agriculture, University of Tasmania, Life Science Building, College Road, Sandy Bay, Private Bag 54, Hobart TAS 7005.

A key to expansion of the Australian onion industry is the capacity to export into counter-seasonal markets.

Overseas customers in the fresh market expect onions to look appealing and taste great, that is, they should have at least one intact, unblemished skin with a level of pungency customers like. This is a challenge given the long transit times, multiple handling events and ambient storage conditions. Onions exported from Tasmania are first lifted and cured in-field then harvested, sorted and packed before enduring up to six weeks in a fantainer. Typically, only 80% of onions will survive the first grading and make it onto the ship. Those that make it are then shipped above deck from the temperate region through the tropics, Mediterranean and then often back into the northern temperate region and hence experience hot-humid, hot-dry, and cool-humid conditions, these external conditions are modified slightly by the environment created by the fantainer. Once reaching overseas markets, the bulbs are again sorted, with diseased and skinned onions being discarded, often at the Australian providers cost. This makes it a tough market, and a big ask, and maximising the chance of success, and increasing Australia's market share requires a good understanding of how to ensure the robustness of export bulbs.

So how do we produce robust bulbs? We know from experience that all facets of production and handling are involved, particularly nitrogen management, lifting and harvesting operations and, because bulbs are living, possibly mechanical shock during harvesting and handling operations. The objective of this collaborative research between Field Fresh Tasmania (now Sumich) and the Tasmanian Institute of Agriculture was to gain a greater understanding of how these external factors actually influence bulb performance. This is important, because understanding how and why something happens, informs decision making for more reliable, positive outcomes.

Our first topic of investigation was to understand the effects mechanical impacts, particularly those that occur during grading and packing as it is here that we have the most control over drops, vibrations, sharp edges and collisions. To do this we sampled onions from different points on the packing line, and also carried out controlled-impact studies, and after this measured stress levels and time to sprouting in storage as well as other commercially relevant faults. Onion "stress levels" were determined by measuring bulb respiration rate, the rate at which carbon dioxide is produced by the bulbs. High respiration rates lead to low shelf life. We were able to show that impacts do temporarily increase respiration rate, and the larger the impact the greater the response. Of most interest, onion bulbs are extra sensitive to impacts received to the base plate and bulbs that received impacts to the base plate either sprouted earlier during storage or if the magnitude of the impact was sufficiently high the internal sprout disintegrated causing internal discolouration. The applied aspect to these findings is that wherever possible mechanical impacts should be kept to a minimum, and a challenge for engineers is how can you stop impacts to the onion base plate during handling and shipping?

Onion research trial at the Tasmanian Institute of Agriculture Vegetable Research Facility.

Another major focus of our work was to understand how time of lifting and harvest influences bulb robustness. Bulb lifting is an event that interrupts the onions natural life cycle; the roots are severed and the bulb has no further access to water and minerals, and at some point the shoot is also cut or pulled off. The stage of bulb development at which this event occurred could influence storage outcomes. From industry practice, and some earlier scientific studies we also knew that the optimal stage of lifting for an on-ground cured crop is roughly when 80% of the crop canopy has collapsed. Canopy collapse and senescence are normal for an onion plant, yet knowing when a crop canopy will collapse, and if lodging to 80% will take one or three weeks, is very difficult to predict. Not knowing when or for how long canopy collapse will occur, makes scheduling crop lifting challenging. From our work we were able to show that canopy collapse is primarily a function of pseudostem tissue softening in a zone

Monitoring pseudostem mechanical properties.

Trial evaluating crop lifting dates based on canopy collapse and pseudostem mechanical properties.

just above the bulb. On the basis of this knowledge we custom-built a device to apply a constant force (4N transverse load) to a section of the pseudo-stem. The results showed that the probability of plant collapsing could be predicted using the device even when tested in different seasons and across different genotypes. This discovery provides the basis for a simple tool that may allow agronomists to predict when a crop canopy will collapse, and how variable (how far apart in time) plant to plant canopy collapse will be. Results from this study indicate that lifting bulbs at 90-100% canopy collapse will produce bulbs with longer storage life, compared to later or earlier lifting which increased sprouting.

Lastly, we wanted to know if altering growth rates, particularly around bulbing, would influence bulb storage life. We used a range of treatment to achieve this including high levels of nitrogen. Confirming industry experience, excess nitrogen produced softer bulbs that were more susceptible to pitting and physical damage, but this did not influence sprout growth during storage, suggesting that softer bulbs are do not necessarily store less well than firm bulbs.

So if you are a grower or packer, what are the key points? This research has shown that;

- Impacts to the base plate of onion bulbs shortens storage life and reduces skin quality
- Onion neck collapse is caused by softening of the stem and using this knowledge it is likely we can develop practical tools for predicting when and how long it will take a crop canopy to collapse.
- Lifting earlier, or later that 80% to 100% tops down shortens storage life and reduces quality

Soilborne diseases research report

Onion Project VN13003 | Michael Rettke, Barbara Hall
South Australian Research and Development Institute, Plant Health and Biosecurity, Waite Building, GPO Box 397, Adelaide SA 5001.

Good crops of onions need healthy roots. Root health can be compromised by a range of pathogens and or growing conditions.

Above ground symptoms of root disease can vary from obvious patches of severely stunted onions (e.g. onion stunt) to widespread less noticeable symptoms that nonetheless quietly reduce size and yield of bulbs (e.g. pink root). This project is primarily focussed on the management of onion stunt, now recognised as a major problem within the Australian onion industry.

PREDICTING THE RISK OF ONION STUNT

Rhizoctonia solani AG8 has been identified as the primary cause of onion stunt. Presence of *Rhizoctonia* in previous crops, cropping history, rainfall and management practices prior to the planting of an onion crop are among factors that will impact on the risk of onion stunt. Assessment of these factors can provide an indication that onion stunt may occur in a paddock, but the complex interactions that occur in the soil and many unknowns makes it far from certain as a means to estimate this risk.

With the advent of soil pathogen DNA testing we now have the ability to quantify the level of inoculum of a pathogen in a soil sample. The value of quantifying the inoculum level in the soil for assessing the risk of disease prior to planting varies with the pathogen, the crop and the environment. One of the key aims of this project is to determine the usefulness of soil DNA testing of *Rhizoctonia solani* AG8 levels prior to planting for the assessment of the risk of onion stunt occurring.

Characteristic patches of stunted onion growth caused by Rhizoctonia solani AG8.

RESULTS FOR THE 2014/15 SEASON

Twenty paddocks were sampled in the 2014/15 onion growing season. These paddocks are located in the Murray Mallee region of South Australia, with all but one of the paddocks under centre pivot irrigation. In each centre pivot, 6 soil samples were collected and DNA tested for *Rhizoctonia solani* AG8. Pre-plant sampling was conducted prior to or early in the ground preparation cycle for the onion crop where possible.

Occurrence of onion stunt in pivots that had been DNA soil tested for Rhizoctonia solani AG8 prior to planting was assessed by physically walking through and recording the number and size of stunted areas. Six beds were assessed in each pass with sampling paths uniformly spaced across the entire pivot area. This data enables estimation of the percentage of stunting to be calculated for a pivot or in relation to each of the soil sampling transects within a pivot. Plant samples were collected from stunted patches to confirm presence of *Rhizoctonia solani* AG8. In some pivots there were areas of reduced growth and stunted onions resulting from other causes that were not included in the assessment of stunted area. In many cases reasons were known, such as from inadequate drainage, irrigation distribution and soil type, management practices, while in a limited number of cases other pathogens may have been the cause. Overall the percentage area affected by onion stunt was not as high as has been seen in past seasons, however the data demonstrates that the sampling strategy and testing methods used to measure pre-plant DNA levels in the soil of *Rhizoctonia solani* AG8 provide a useful indication of the risk of onion stunt. The estimate of risk was better on a whole of paddock level (shown in Figure 1) than for individual sampling units within a paddock (shown in Figure 2). Pre-plant soil DNA testing for disease risk aims to indicate the risk of onion stunt occurring, as even when the pathogen is present at high levels occurrence of the disease also depends on environmental conditions and management practices.

Conducting intensive pre-plant soil sampling for comparing with incidence of onion stunt and bulb yield.

Total yield of onions was reduced on average by 25% in the stunted areas compared with onions in non-stunted areas of the same paddock. Evaluation of yield data from non-stunted areas within and between pivots did not find any relationship with pre-plant DNA levels of *Rhizoctonia solani* AG8 suggesting that yields are not being impacted by this pathogen outside of patches where obvious stunting symptoms are seen. In contrast poor root health as assessed at the time of harvest was correlated with yield, especially in red varieties (shown in Figure 3). While many factors can contribute to poor root health and reduced bulb weight, the incidence of pink root was also strongly correlated with bulb weight (shown in Figure 4), suggesting it may have been a contributing factor in the 2014/15 season.

IMPORTANCE SAMPLING METHODS

Sampling methodology is a critical component of developing a pre-plant soil test to assess the risk of disease across a paddock. Test results are only as good as the sample or samples tested. Soil DNA tests are conducted on samples up to 500g in weight. Previous research in cereals has established that 45 cores (10cm depth by 1 cm diameter) collected from a cropping unit and combined to make a single sample will deliver acceptable repeatability in test results. Depending on the size of the paddock, variability of soil types and cropping history, more than one test is normally required to assess risk for a high value irrigated crop. The strategy adopted to evaluate risk of onion stunt in a pivot has been based on previously mapped Rhizoctonia solani AG8 pathogen distribution patterns in centre pivots and results of pre-plant testing of onion paddocks.

For centre pivots, individual samples are collected along straight line sampling paths starting approximately ¼ the distance out from the centre to the edge of the pivot. Testing so far indicates that 3-4 samples will adequately characterise the DNA level of Rhizoctonia solani AG8 and associated risk profile in a pivot. In making a decision on how many samples to take, uniformity of past cropping history must always be considered.

Where paddocks rather than pivots are sampled, the strategy is modified, so as to take a series of separate zigzag sampling paths across the length of the paddock.

Compromising the sampling technique reduces the reliability of pathogen DNA soil test results.

WHERE TO NOW

Multiple years of data are important to assessing the reliability of a disease risk assessment tool and data from 2015/16 is essential to gain further confidence in the test. At the completion of assessments in the 2015/16 season the usefulness of pre-plant DNA testing for the prediction of the risk of onion stunt will be evaluated. Based on this a decision will be made regarding the establishment of a commercial test for assessing the risk of onion stunt. There are a number of other facets of this project that are providing a greater understanding of the management of onion stunt, including management of nurse crops, impact of cover crops and rotations, as well as understanding the impact of and interaction with other soilborne diseases and nematodes. These finding are independent of test commercialisation, but should it be commercially released, these findings would be incorporated into the overall commercial testing service package for delivery to industry. In addition any new information will be incorporated into the best practice guidelines previously issued.

Unhealthy root system of an onion seedling with symptoms of pink root.

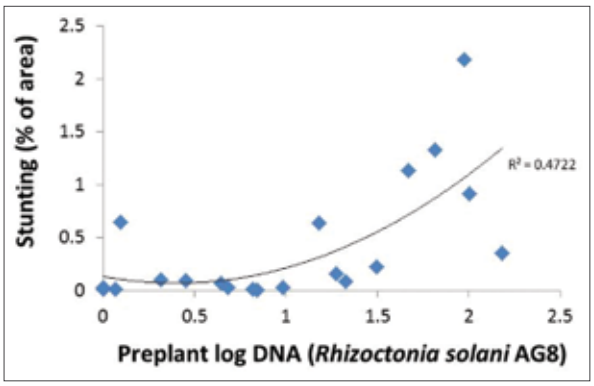


Fig 1.
Relationship between average (up to 6 samples) pre-plant soil log DNA (*Rhizoctonia solani* AG8) levels in a paddock and the percentage of that paddock affected by onion stunt.

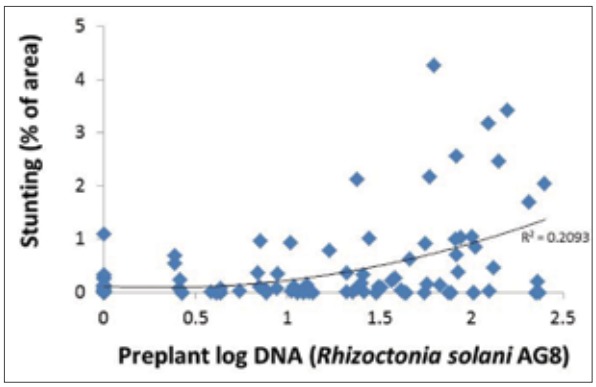


Fig 2.
Relationship between individual sample pre-plant soil log DNA (*Rhizoctonia solani* AG8) and the percentage of that sampling unit affected by onion stunt (up to 6 sampling units per paddock).

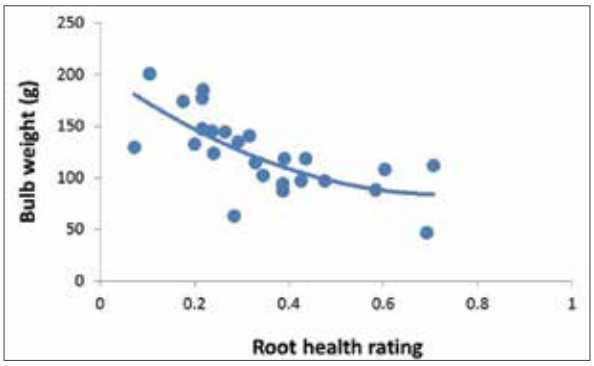


Fig 3.
Relationship between root health rating (0 = healthy, 1 = no roots) assessed at the time of harvest and average bulb weight (g) of red onion varieties (25 sampling points located across 10 paddocks).

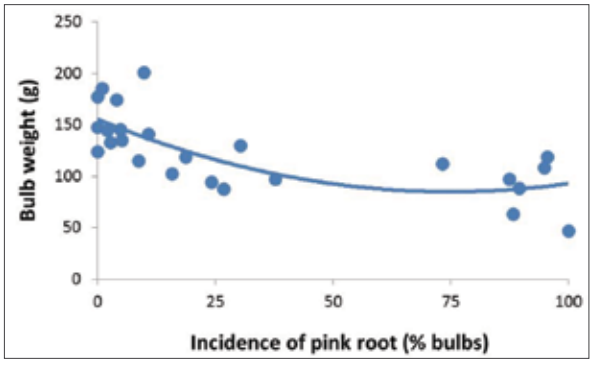


Fig 4.
Relationship between incidence of pink root on bulbs (%) at harvest and average bulb weight (g) of red onion varieties (25 sampling points located across 10 paddocks).

Deciphering the onion rust complex

Onion Project VN13001 | Andrew Geering, Alistair McTaggart, Chanintorn Doungsa-ard and Roger Shivas
The University of Queensland and the Queensland Department of Primary Industry and Fisheries, Ecosciences Precinct, 41 Boggo Road, Dutton Park QLD 4102.

Those old enough will remember the $2 paper banknote, which featured the faces of two pioneers of Australian agriculture, John Macarthur and William James Farrer.

Macarthur is famous for being the father of the Australian wool industry and leader of Australia's only coup d'état, the Rum Rebellion. Farrer led a rather less colourful but just as impactful life, as breeder of the Federation variety of wheat, which was immune to infection by wheat leaf rust, and in so doing, trebled wheat harvests for the next 20 years. Wheat leaf rust is just one example of the group of plant pathogens called rust fungi, which comprises over 8000 different species. Plants that are particular prone to infection by rusts include grasses, lilies and other monocots, legumes and daisies. Mostly, the different rust species have very narrow host ranges, often restricted to a single plant species. However, there are exceptions, such as eucalypt rust, which infects hundreds of different species in the Myrtaceae and is a serious threat to the Australian native flora. Rust fungi get their names because of the orange pustules that form on the leaves and stems of a plant. These pustules collectively produce millions of tiny urediospores, which are blown in the wind, sometimes over thousands of kilometres in the jet stream, and initiate new infections. Rust epidemics can develop at a very rapid pace and cause great damage to the crop. Towards the end of summer, many species produce black teliospores (including the onion rusts), which allow the fungus to overwinter.

In the Onion Industry Biosecurity Plan, onion rust, caused by *Puccinia allii* and its relatives, was considered the most important plant pest threat to the Australian onion industry. This assessment was based on several criteria including entry potential, establishment potential, spread potential and economic impact, for which the risk rating for onion rust was either high or extreme for each criterion. As an example of the economic impact of this disease, rust epidemics in 1999 and 2000 led to a reduction of garlic production in California by almost 90%. Infection by onion rust is favoured by cool, wet conditions and the emergence of rust as a serious disease in California coincided with an El Niño weather event, which on the eastern rim of the Pacific Ocean, means high rainfall and long periods of cool temperatures.

At least one form of onion rust does occur in Australia, but the big question is which one(s). The Onion Industry Biosecurity Plan lists nine onion rust species as being of biosecurity concern to Australia. However, there are several practical problems with implementation of the plan. Firstly, the different onion rust species are almost impossible to differentiate using morphological characters and there is tremendous taxonomic confusion in the scientific literature. Secondly, there is great uncertainty about which onion rust species occur in Australia or in other countries around the world.

Rust telia on unidentified Allium.

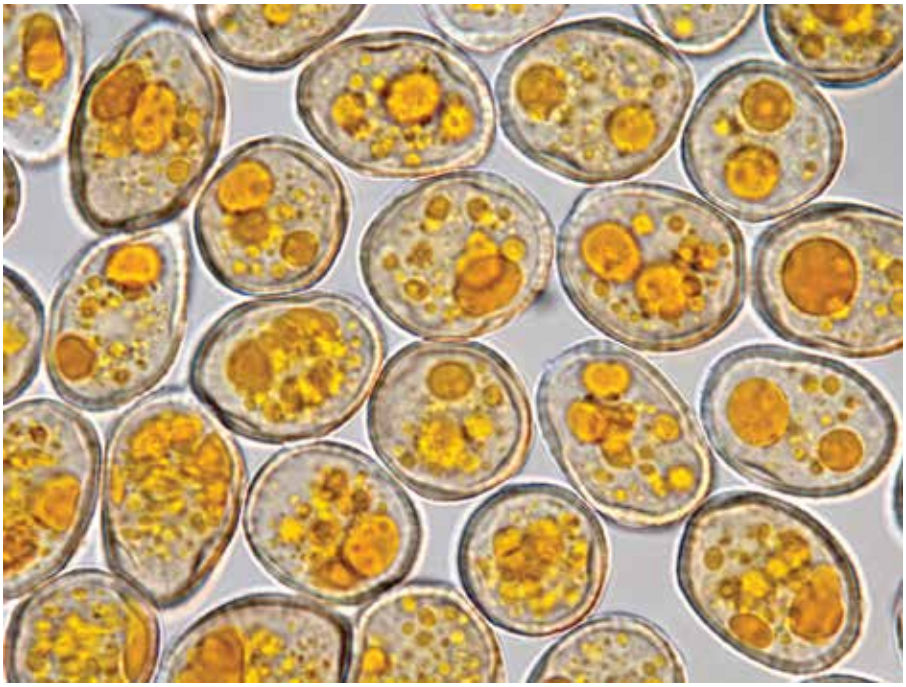
Rust on garlic chives.

Why do we care about the accuracy of a name? There are two principle reasons. Firstly, it is highly likely that the various onion rust species differ in biology and thus will be managed differently (e.g. different resistance genes need to be deployed). Secondly, there is no legal basis to impose quarantine conditions on a plant commodity if a pathogen already occurs in the destination country – this applies to imports into Australia or exports to other countries. Sorting out the taxonomy of onion rusts and determining which already occur in Australia is the principle aim of this project.

To investigate the diversity of onion rusts in Australia, *Allium* specimens were borrowed from all major Australian plant pathogen herbaria and fresh specimens were collected from South Australia, Tasmania and Queensland. Unusually, there are *no* rust disease records from bulb onion in Australia, although the disease is common in garlic, spring onion, shallot and chives. Principal among the techniques used to identify the various rust species was PCR, a technique that allows DNA to be amplified from reference regions in the fungus's suite of genes. This DNA was then sequenced to obtain a genetic barcode. The results of this study indicate that one rust species has been present on the east coast of mainland Australia since 1971 and in Tasmania since 2000 (see Onions Australia 2000 Magazine for a description of this outbreak). In South Australia, onion rust appeared for the first time in 2013 and this outbreak represented a second species that is the same as that which caused the garlic disease epidemics in California at the turn of the millennium. Three other onion rust species have been detected, two on single occasions from Kingston, Tasmania, in 1992, and in metropolitan Brisbane, Queensland, in 2010, but it is uncertain whether these have persisted. The fifth onion rust species present in Australia specifically infects chives.

What do you do if you do see signs of onion rust? Rust on bulb onion anywhere in Australia would be of great biosecurity concern and state biosecurity agencies should be notified. No onion rust on any *Allium* species has been recorded in Western Australia, so again the state biosecurity agency should be notified.

Control of onion rust in any other region on known hosts is based on a multipronged approach, including the use of clean seed, the reduction of inoculum levels (removal of diseased crop residue, infected volunteer plants, older diseased plantings and weedy onion relatives) and when environmental conditions are favourable for disease development, multiple applications of fungicides such as tebuconazole and azoxystrobin (before use, check usage permits in each individual state as legislation does vary). Some useful sources of resistance have been identified in *Allium* germplasm and in the future this could be incorporated into commercial onion cultivars through plant breeding although the genetics of resistance have not been determined.



Rust urediniospores on leek.

Rust urediniospores on unidentified Allium.

Rust on garlic.

Rust uredinia on spring onion.

Rust on garlic.

Dear Grower,

AgNova is pleased to announce that we are financially supporting your industry body, Onions Australia.

AgNova is an Australian based and owned company that has innovative products to support Onion growers; by you purchasing AgNova brands, AgNova will in return support you association by donating money to your association based on every drum of the below products you purchase and use on your onion crop.

THE PRODUCTS INVOLVED IN THIS DONATION ARE:

- **Baron 400 WG** - Excellent crop safety and persistent weed control
- **Bladex 900 WG** - for selective weed control
- **Lorox Linuron DF** - proven crop safety and unmatched weed control
- **Lorox Linuron flowable** - proven crop safety and unmatched weed control
- **Tribunil** - early option for post emergent weed control
- **Surround** - protection from sunburn anad heat stress

- Go to our website: **agnova.com.au**
- Click on Onion Industry support (circled left)
- Log your details and attach your proof of purchase

AgNova will donate money to keep your association going.

Thanks for your support.

Minimising *Botrytis allii* in your crop

Dr Dean Metcalf | Biocontrol Australia Pty Ltd, Molesworth Tasmania 7140, Email Metcalf@tassie.net.au, tel 0409 054 323, Dr Jason Dennis, Bioden Pty Ltd & Field Fresh Tasmania

Botrytis allii is the cause of neck rot disease which is introduced to onion crops by planting infested seed and causes onions to decay in storage.

The project studied the biology of Botrytis in the seed crop with a view to minimise production of Botrytis infested seed.

It has not been understood how Botrytis enters seed crops. It was found that bulbs in a partial state of decay, which would break down in storage, will grow if they are planted as mother bulbs. These bulbs rarely produce seed, but they do spread Botrytis to nearby bulbs. It has been assumed by seed producers that bulbs that remain sound following two months storage do not carry Botrytis. It was found that visibly healthy mother bulbs can carry Botrytis in the dry scales of the neck, or on the bulb surface which can infect the leaves or produce spores that spread into the crop and these are a major source of infection in seed crops.

A method was developed for reducing the level of infection of mother bulbs by soaking in sodium hypochlorite (bleach) before planting. Internal infestation of seed was reduced from 23% to 6.8% with no other disease control measures. There was mild phytotoxicity from this treatment in one of two field trials and a commercial demonstration, but this can probably be overcome by fine tuning the treatment.

It has not been understood how Botrytis spreads from mother bulbs to infect the seed. It was found that in addition to sporulation, Botrytis can grow systemically through the seed scape without producing symptoms of infection, and will eventually grow into the crown of the scape to infect individual florets without sporulation being visible to the naked eye.

The different parts of the onion flower were tested to find out what is the most susceptible part for infection. Flower petals and the pollen receptacle were especially susceptible sites. The stem was less susceptible.

Onion heads contain florets at a variety of development stages at any one time which has made it hard to know how to schedule sprays. Seed heads were artificially infected at a variety of times and it was found that heads are at their most susceptible from the time the cap releases the unopened florets, through until the end of pollen release.

Some of the Botrytis spores in onion seed are on the surface of the seed and are others are carried deeper within the seed coat. The spores within the seed coat are more hazardous than those on the surface for infection, but both are a still a hazard. It was found that all of the spores on the surface and most of the deeper spores can be eradicated by treatment in sodium hypochlorite (bleach). It is necessary to test what concentration of bleach to use for each seed line, as there can be mild phytotoxicity. The treatment was used to eradicate Botrytis from commercial quantities of seed and crops were successfully produced. The method has great potential for use where availability of Botrytis free seed is limited.

Vegetable leaf miner in the Cape York Peninsula

Sharon Abrahams, Communications Officer | Main: 02 6215 7700 Fax: 02 6260 4321 Level 1, 1 Phipps Close, Deakin ACT 2600 www.planthealthaustralia.com.au

The vegetable leaf miner (*Liriomyza sativae*) is continuing its march across the globe and was recently detected on mainland Australia for the first time, having been island hopping across Torres Strait since about 2008.

The vegetable leaf miner (Liriomyza sativae) is continuing its march across the globe and was recently detected on mainland Australia for the first time, having been island hopping across Torres Strait since about 2008.

ON THE MARCH

Vegetable leafminer was first detected by biosecurity officers working for the Northern Australian Quarantine Strategy as part of the annual plant health surveys throughout Northern Australia and Torres Strait.

In 2014 the Consultative Committee on Emergency Plant Pests agreed that it is not technically feasible to eradicate vegetable leafminer from the Torres Strait islands.

On 1 May 2015, routine surveillance detected two vegetable leafminer larvae in the Cape York Peninsula community of Seisia. They were found in a backyard garden on siratro which is a widespread legume plant, commonly used as a pasture.

Seisia is located within the Cape York Peninsula Pest Targeted Quarantine Area: no plant materials can be moved out of the area without approval.

Surveillance also found mines in leaves similar to those of vegetable leafminer on pumpkin and tomato plants, located 30 kilometres from Seisia on Albany Island. However, no adults or larvae were found.

Vegetable leafminer affects a broad range of vegetables and ornamentals, including a native plant that grows on the Cape York Peninsula, and numerous weed species. The pest is wind borne and eggs, larvae and pupae can be moved through plant material, soil, clothing and equipment.

SIGNS OF INFESTATION

Vegetable leafminer damage is primarily caused by larvae feeding under the surface of leaves and petioles. This feeding causes long, narrow 'mines' which appear as white or grey lines on leaves. Higher levels of infestation affect the plant's ability to photosynthesise, reducing plant growth and crop yields.

Foliage punctures caused by females during feeding may cause a stippled appearance on leaves and stems, however this damage is small compared to the leaf mining activity of the larvae.

L. sativae is extremely fertile and can have as many as 300 to 400 offspring per female. Mature larvae leave the mines, dropping to the ground to pupate. The life cycle takes only 2 weeks in warm weather.

VEGGIES ON THE MENU

The diet of vegetable leaf miner includes cucurbits (cucumber, bitter-gourd, zucchini, squash and pumpkin), solanaceae (eggplant, capsicum, potatoes, and tomatoes) and leguminosae (red kidney beans, soybeans, lima beans, cannellini beans, chickpeas, lentils and split peas). However, affected hosts are not restricted to vegetables, as the pest also affects ornamental plants and most allium species, including onions and garlic.

Spotted anything unusual?

Onion, vegetable, grain and flower growers are encouraged to adopt good biosecurity practices to prevent pest and disease incursions. You should also regularly check crops for signs of disease and pest activity.

It is important to be aware of the major pests, diseases and weeds in your region, as well as those that are exotic to your property. Keep a list of pests and diseases and ensure that farm staff are aware of what symptoms to look out for while inspecting crops.

If you suspect a vegetable leafminer infestation, report it to the department of primary industries or agriculture in your state or territory by calling the Exotic Plant Pest Hotline on 1800 084 881.

Image left:

The adult L. sativae is a small dark bodied fly, about 1.3 to 2.3 mm in length. Note the areas of bright yellow on the head, scutellum and part of the abdomen. Image: Bugwood.org

Image above:

Onion leaf damage caused by vegetable leafminer. Image: Whitney Cranshaw, Colorado State University, Bugwood.org

Onion industry loss

By Dean Metcalf, with input from Robyn Bergersen and Alan Carey

The Australian onion industry is mourning the loss of one of its pioneers, following the death of Tasmanian Don Fawker.

Don, who received the prestigious Reg Miller Award from the Australian onion industry in 2007, died earlier this year.

Don spent three and a half decades working as a key member of the onion industry at all levels, making significant contributions to the industry, particularly in Tasmania.

Don originally worked for Clements and Marshall Pty Ltd, who commenced growing onions in the early 1970s and continued until the major onion exporters formed Field Fresh Tasmania in July 1997.

Clements and Marshall were the first Tasmanian onion exporter to ship onions overseas. These onions were sourced from Victoria and shipped in reefer containers, and Don was responsible for sourcing the onions. A successful export industry was soon established from Tasmania. Don was heavily involved in the development of the Fantainer, which is still the major form of product transport for the onion industry.

Don was in charge of the Clements and Marshall onion operation responsible for ground selection, contracts, agronomy, harvesting and packing. During his latter years with Clements and Marshall, Don ventured into seed breeding under the watchful eye of his good friend Peter Ryan from May and Ryan. Don was obviously a good student and really took to this side of the business.

He continued with Field Fresh Tasmania, taking over their seed breeding program. It was Don's drive and enthusiasm that led to a dramatic improvement in seed quality.

NZ Creamgold onions were a major seedline used. Recognising the differences between Tasmanian and NZ climate and soils, Don worked closely with Peter Ryan to select onion lines which were suited to Tasmanian conditions.

Don spent a lot of time grading seed bulbs to alleviate one problem related to bulbs becoming elongated.

He took a particular interest in developing onion seed lines with a vigorous root system suited to Tasmania's northern midlands (the area south of Devonport) which required different attributes to the onions grown on the deep red Kraznozem soils along Tasmania's north-west coast. Most of the seed used by Webster Fresh (Australia's largest onion exporter) is derived from Don's selections. He also produced his own line of red onion seed, which became the only red onion seed planted by Field Fresh.

Don made a significant contribution to the development of management strategies for onion white rot and Botrytis neck rot in Tasmania in the late 1990s as a member of the Onion Panel's technical committee. The onion industry would have been crippled without these two strategies, which have allowed onion production to continue.

Don acted as a mentor to young people entering the industry on many occasions. He was always open to experimenting with new ideas. He often would call DPIWE's plant pathologists when he noted something unusual in a crop, and a joint investigation would be conducted. Don's experience combined with the scientific expertise of others to unravel many production problems—this was always a very beneficial learning experience for the scientists involved.

When Field Fresh Tasmania formed in 1997 following an epidemic of Botrytis which had badly hurt the industry, it was noted that the crops under Don's care had suffered the least. Don had been avoiding use of leaf wetteners in crop sprays. Other field officers noted this and all minimised the use of wetteners. Scientists have since followed up on this observation and have found that wetteners can injure leaf waxes, which encourages foliar diseases. This was a significant step in making neck rot more manageable.

In his retirement, Don continued to work as a consultant, ensuring his knowledge and expertise would continue to benefit all in the industry.

Interview with the Monsanto Global Onion Breeding Team

Dr. Rick Jones
Onion Breeding Lead

Franco Asoro
Mid-Day Onion Breeder

Dennis Atkinson
Global Technology Development Lead
Large Seed, Root & Bulb

Anthony Julian
Station Manager New Zealand

SO WHAT BRINGS YOU TO AUSTRALIA?

Rick: The Pukekohe Onion Breeding Station in New Zealand forms a key part of our global onion breeding program so we visit the site annually to evaluate the success of new hybrids. Being in the region also provides a great opportunity to visit the local growers both in New Zealand and Australia.

WHAT DID YOU THINK OF THE HYBRIDS YOU SAW AT THE BREEDING STATION?

Dennis: To use the language that you say in Australia and New Zealand, the new varieties "tick all the boxes" for what we look for in that segment: maturity is good, amazing bolt tolerance, storability, yield and overall appearance including skins and colour is performing well.

TELL US ABOUT THE ONION BREEDING PROCESS?

Rick: Onion is one of the most difficult species to produce seed. It takes us a minimum of about fifteen years from the time we start planning for a new breeding process to when we can deliver a finished hybrid.

Dennis: Each generation takes about two years from the time you plant, to harvesting the bulb after the first season, storing the bulb for up to six months and then planting the bulb to produce the seed.

Franco: Unlike other crops such as tomatoes which only take six months before you harvest the seed.

HOW DO YOU ADDRESS THIS CHALLENGE?

Dennis: Because onion seed is so difficult to produce we rely heavily on our global program to address this challenge.

Rick: We have four breeding programs globally and we coordinate each of these programs to share germplasm, which gives us our technical horsepower. If we find a particular trait of importance in one type, we can fairly rapidly transfer it to all the types in development.

WHERE DO YOU CONDUCT YOUR ONION BREEDING?

Dennis: We identify locations that represent the major growing areas across the globe, then we break down into types based on the latitude bands. We breed long-day types in Wisconsin, mid-day types in California and New Zealand and short-day varieties in Texas.

Franco: On top of this we have testing programs in the majority of onion growing areas globally from the USA to East and Western Europe, parts of Asia and South America. At the moment varieties that Anthony is testing in Pukekohe are also being sent to regions in South Africa. We test concurrently and use results from both locations to find something that can work in multiple areas.

WHAT ARE GROWERS LOOKING FOR IN NEW VARIETIES?

Rick: We always ask this question of our customers because we really need to be looking twenty years down the road. We are really focused on working with growers to help them produce a more profitable crop. They want better and higher yield so we develop bolting tolerance and the roundness of the bulb so you can get a higher yield from the same amount of seed planted. Disease resistance and uniformity of the crop is also a priority.

Anthony: Storability is really key – we want consumers in Europe to be able to see this product in six months time so this is an important feature. Korimako really addresses storability in addition to really good skins, even colour, consistent shape and size with great eye appeal.

WHAT WOULD YOU SAY IS THE GREATEST STRENGTH OF YOUR VARIETIES?

Rick: I think we can say that we have the best disease resistance package in the world for onions.

Dennis: Particularly in the root diseases.

Anthony: We are working hard to bring those disease resistances into the new varieties that we sell in Australia and New Zealand.

WHAT DOES THE FUTURE HOLD FOR ONIONS?

Rick: We aren't making more farm land but we are making more people in the globe. As farm-land becomes limited you have to reuse it more frequently so you build up these soil-borne diseases that really need to be a focus of onion varieties in the future.

Dennis: At the consumer level, onions are the second most economically important crop in the world behind potatoes. For the most part consumers are looking to onion for flavour as it tends to be a component of a dish, rather than the feature. We have seen a consumer movement towards more red onions and this is really coming from the desire for something bright and colourful.

New fungicide for Onion growers

DuPont Crop Protection is preparing to launch DuPont™ Zorvec® Enicade® fungicide, a new product to control Downy mildew in Bulb vegetables including Onions, Garlic, Shallots and Leeks.

DuPont expects that Zorvec® Enicade® will also be approved for use in Cucurbits, a variety of other Leafy and Brassica vegetables, and Poppies.

DuPont Crop Protection also markets other products for Onion and Vegetable growers, including DuPont™ Fontelis® fungicide which is registered for Botrytis blight, Neck rot and Purple blotch.

Tom Loveless, Product Development Manager in Australia with DuPont Crop Protection said that Zorvec® Enicade® is a new fungicide for treating Downy mildew disease in a range of crops. The active ingredient oxathiapiprolin has a new mode of action (MOA) that is effective against all strains of target pathogens, including those which are becoming resistant to currently available products.

DuPont recommend it is used in preventative spray programs in rotation with other approved fungicides.

"There is a growing need for a new MOA Downy mildew fungicide in the crops targeted by Zorvec® Enicade®, and it has shown great promise in trial work to date across a variety of different crops and growing regions" Mr Loveless said.

To get the most from Zorvec® Enicade® growers should target the early, rapid growth phases of crops to protect emerging leaves. Best results in recent positioning trials in Onions have been when Zorvec® Enicade® was used early in the program, which is often when conditions are conducive to Downy mildew.

Wet weather is also conducive to Downy mildew, and Zorvec® Enicade® is able to rapidly penetrate the leaf surface of plants and will not be washed off by rain as little as twenty minutes after the spray residue dries on the leaves.

Above: Tom Loveless from DuPont Crop Protection explains the treatments in an Onion fungicide trial.

Ongoing stewardship of Zorvec® Enicade® will be a very high priority, Mr Loveless said. The label will provide very clear guidance on correct use of the product, and DuPont will work closely with agronomists and advisors to make sure they understand how to get best value from the new fungicide, and also minimise the risk of resistance developing to the Downy mildew pathogens.

"Researchers, agronomists and growers who have seen Zorvec® Enicade® in field trials are very keen for the product to be approved for sale and DuPont expects it will be rapidly adopted into preventative spray programs in registered vegetable crops, and also in poppies" he added.

Zorvec® Enicade® is currently under evaluation by the Australian Pesticides and Veterinary Medicines Authority, and is expected to be registered and available later this year.

Du Pont (Australia) Pty Ltd.
Locked Bag 2067 North Ryde BC, NSW 1670

State roundups 2014/15 season

South Australia

Greg Bragg

This season's plantings in South Australia are well under way with the May and early June sown browns up out of the ground, germinations look very good. As I write this the ELK types have started to be sown.

As previously mentioned unfortunately the market has not improved for South Australian growers with downward pressures on prices remaining, it has been reported to me that onions have been dumped into Melbourne for $6/bag inclusive of freight, this is obviously well under the cost of production which is a real blow to growers after coming off a couple of seasons of below average prices. Whilst growers have seen prices like this occasionally in past seasons, they have always still been in demand and they have been able to sell their crop. What concerns myself and many growers is that the demand is very sluggish this season, to the point growers may be forced to have to dump earlier maturing varieties that are coming towards their use by date (which should have been sold by now) to make way for their late season varieties.

On a brighter note, early indications are that plantings both in Australia and New Zealand appear likely to be on the downward side of last season's plantings, so let's hope we see a return to some normality in the market next season, and now with the lower Aussie dollar maybe not as many imports early on in the season as well?

It seems a little like a carbon copy of last season with downward price pressures on onions as the southern packing season continues.

Growers in South Australia experienced good harvest conditions throughout summer and into autumn with no real heat waves this year, there were the odd very hot days but generally conditions cooled down quickly, as a result yields and quality were very good. The area planted would have been slightly up on the previous season.

The season didn't start well with red onions due to the imported reds from California, as well as a plentiful supply of good quality early reds from Queensland and NSW, I think this is the first time we have seen the red price under browns. A number of growers have had to dump some of their early reds due to low demand , as well some growers experienced some heavy rain at harvest time followed by a couple of very hot days which led to some of the break down in their early reds.

Harvesting of the late onions are nearly completed, I suspect harvest should be completed by early May which I would consider is late for South Australia. Most cool rooms would be full now, so there will be plentiful supply of late brown and red onions out of South Australia.

I feel there will be less planted both in browns and reds for the coming season.

Tasmania

Richard Birtill

The start of planting for 2015/2016 has been very good for May and June, soil conditions has been excellent with enough frequent rains for a good even germination.

Although some crops have been frost damaged in July it hasn't been necessary for any re drilling. Usually it is too wet for drilling onions in July but due to the frosty fine weather the soil has been dry enough to get on and sow them.

Overall the area being drilled seems to be similar to last season.

Looking forward, drilling is going well and ahead of schedule so far, so all going well a warm season ahead of us with good onion prices would be nice.

State roundups 2014/15 season

Victoria

James Ryan

NORTHERN VICTORIA

The season has again been very average in terms of price for the early season varieties grown in Northern Victoria. The quality has been fine this past season with the supply of onions ending by late January. There are no storage onions to report on this season in Northern Victoria, with the Northern Victorian plantings this coming season being very similar to 2014.

SOUTHERN VICTORIA

The extremely poor price trend continued for Southern Victoria this past season with growers selling onions for under cost of production. Even red onions which have been slightly positive in the past seasons are being sold for extremely low prices and offering no relief. Onions in storage are holding up well which may allow growers to capitalise if there is a spike in late season pricing. A late season price increase would certainly assist, however the increase would need to be significant to make up for already lost ground. Unfortunately the cost of production is the biggest issue facing not only Victoria but the whole onion industry which does not allow Australian growers to be competitive on a world stage. The associated costs of export coupled with the average prices on offer unfortunately make exporting onions an unattractive option.

Queensland

Michael Sippel

The wrap up from last season was one of cost recovery. Good yields of high quality onions early in the season clashing on the market with Southern stored onions and then the threat of imported red onions never allowed a gap in the market to create price. Dry harvest conditions through the later part of 2014 led to ideal harvest conditions and as a result quality was equal to that of 2013. Supermarket confidence in the quality of onions coming out of Queensland is high and growers hope to repeat this in the latter part of this season.

Planting began in late April with some growers deciding to push back plantings due to the threat of substantial rain falling in late April. Growers who did opt to plant were not affected as the 100mm of rain was gentle in nature and led to good establishment. With 75% of the onions now in the ground, area planted looks to be very similar to last year and establishment is well over 90% due to ideal conditions. The focus again is on later varieties as the supermarket chains continue to push growers to pack into January. The concern again this year will be the threat of imported red onions as this had an adverse effect on growers last season. Adding to growers concerns were the incorrect labelling of red onions from the USA in many independent stores across the region. Education and persistence will be the only way forward.

New South Wales

Lucy Gurciullo

There was a good start to the 2014/2015 season with good rains and mild weather. Most onions were sown in May/June with later sowing up to the end of August.

Early crops grow well with a fairly mild spring. There were some thrips problems with late crops. There was good size in all the crops and growers reported that their onions were all storing well. Prices were a bit of a let down expressly in the red onions. Red onions were hard to sell due to the imported onions, so there were a lot of red onions dumped. The area sown for 2015/2016 will be about 650 hectares which is up from last year. Growers are saying that crops are growing well. We have had a fairly normal winter so far. Hopefully this season will bring better prices as we all need it.

Business directory

The below listed members are paying members and have opted on their membership form to be listed in our OA magazine. If any of the above member details have changed and/or are incorrect, please advise OA. If you are a paying member and would like to be included in above, please advise OA.

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