

vegetables australia




**Special
Technology
Issue!**

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export markets with
UV light**

The horticultural sprayer specialists



GOLDACRES
Smart Farmers Choose Goldacres

Goldacres announce national distribution agreement

Goldacres, are pleased to announce their appointment as Australian distributors for Househam sprayers. As one of Australia's largest manufacturers of spraying equipment, the newly formed alliance enables Goldacres to complete their self propelled product range by now offering models suitable for the vegetable industry.

Goldacres will be stocking a large range of common Househam parts. Together with a national dealer network Goldacres aim to satisfy your needs for the quick and trouble free supply of parts while providing the highest levels of customer service and support.

The New Veg Boss range now available

With a range of tank sizes and optional accessories available the new Househam Veg Boss range has been expertly designed to suit the requirements of vegetable grower's.

An extensive range of optional accessories are available to allow you to build a machine that suits your situation.

Some of the new improvements that you will appreciate are:

- ◆ Total Machine Control - CAN-bus control system offering full control over the sprayer including engine and drive monitoring.
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- ◆ Improved plumbing system for faster de-contamination.
- ◆ 12/24m Gullwing Air Sleeve boom with Degarnia fan unit.



factory
expo

09

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www.goldacres.com.au or

phone Lukas Jess on 0437 244 049 or 03 5342 6328

A word from the AUSVEG Chairman

On 24 November 2008, the new AUSVEG board appointed me as Interim Chairman following the departure of David Anderson, whom I'd like to thank and congratulate for doing a stellar job in his six months in the role.

I take on the responsibility of Chairman with pleasure, and look forward to leading AUSVEG and guiding the industry through what are challenging times for the horticulture sector.

I would like to welcome Dr Elizabeth Duncan as a skills-based director of AUSVEG. Elizabeth, who is also Chair of the AUSVEG Finance and Audit Committee, was appointed as a director last month.

The new AUSVEG board has communicated regularly since

November, and a meeting in Sydney was held earlier this month to develop a new business plan for the organisation. This plan will build on the firm foundation laid at AUSVEG's inception, more than a decade ago, and includes a number of exciting initiatives that will be communicated to growers in coming months.

As the new AUSVEG constitution allows membership beyond state vegetable and potato organisations, a component of the business plan will be a concerted membership drive, to be conducted later this year (see page 34 for more information about opportunities the new constitution provides to growers and industry representatives).

By the time this issue of *Vegetables Australia* is printed,

the board will also have met with the Vegetable Industry Advisory Committee (IAC) to discuss mutual goals and how we can work together to strengthen and build the industry.

While issues experienced by growers these past few years, including fertiliser, fuel and labour costs, are abating slightly, the decreased value of the Australian dollar is a mixed blessing. We are also mindful of our fellow potato growers and the impact that PCN has had on their industry.

The Australian Vegetable Industry Conference will be held in Melbourne from May 4 to 6, and I encourage all growers and industry personnel to attend. It's a great opportunity to network with colleagues, and learn more about the issues affecting industry and



John Brent
Interim Chairman
AUSVEG Ltd

the latest research and development findings. A registration form is enclosed with this issue of the magazine.

2009 promises to be the first of many exciting and dynamic years for the Australian vegetable industry. I look forward to joining you on this journey.

From the editor



For most of us, technology is such an intrinsic part of modern-day life that we can't imagine functioning without it. As the vegetable industry is no exception, this issue of *Vegetables Australia* has a focus on technology. We cover the latest in greenhouse innovation, precision agriculture, harvesting, weed management, DNA testing, and spend time with grower John McKenna, whose farm is being used for controlled traffic farming (CTF) trials (page 26).

There's also an update about research conducted into the use of ultraviolet light to decrease the instances of chill damage so produce can be exported further, arriving fresher (page 42). Look for the technology logo, pictured right, to read articles that are part of this special feature.



While technological advances are indicative of changing times, the industry is experiencing changes on another front. Peak industry body, AUSVEG, has a new Board of Directors, who you can meet on page 36. Additionally, the new AUSVEG constitution is explained on page 34—learn what these changes mean for you.

Finally, a reminder that the 2009 Australian Vegetable Industry Conference is less than four months away. A conference update can be found on page 30 and a registration form has been included with this issue of the magazine.

To all our readers, have a happy, productive and profitable 2009.

Jim Thomson
Editor, *Vegetables Australia*



John McKenna: No more traffic jams

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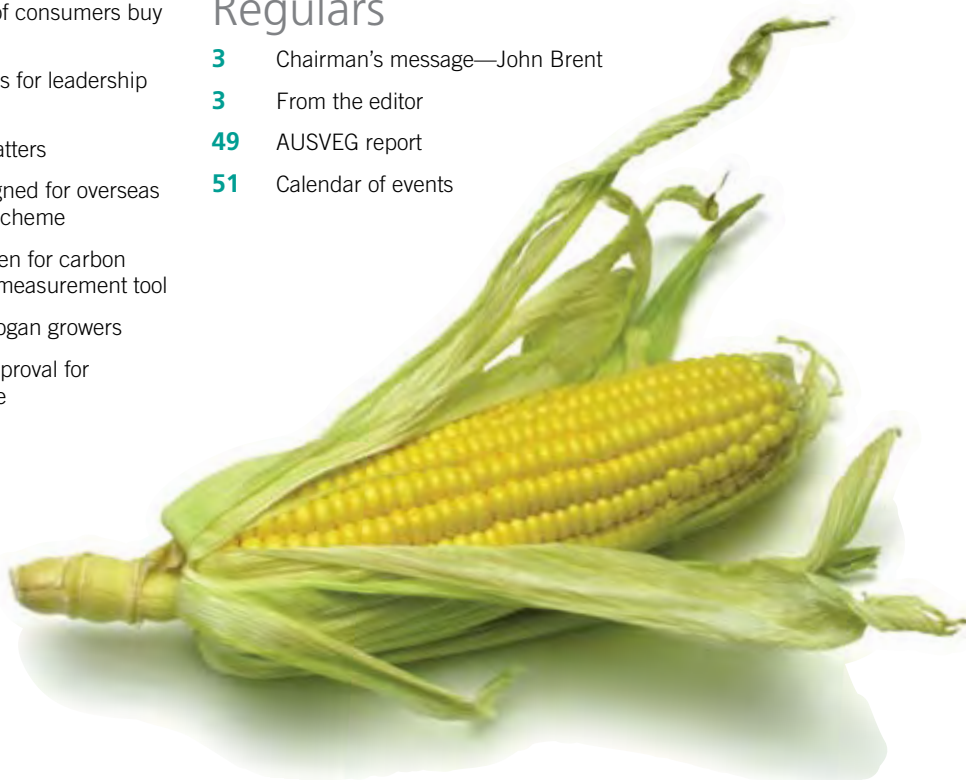
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vegetables australia

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From ears to eyes: sweet corn branches out

A new variety of antioxidant-rich sweet corn is being developed to help combat eye disease.

In the fight to slow the progression of age-related blindness, Queensland scientists are developing a variety of sweet corn with increased levels of the antioxidant zeaxanthin, which could help protect against the onset of macular degeneration.

“Zeaxanthin is the yellow-gold pigment that occurs naturally in sweet corn. Scientific evidence shows that eating foods that contain more of this antioxidant could allow eyes to be better protected against age-related eye disease,” said the Minister.

darker colour; it makes it easier to distinguish from regular sweet corn,” he said.

International interest

The project, which is believed to be a world-first, is garnering interest from overseas, including the United States. Commercially, this is good news, as there is enormous export potential to meet the demand of an estimated 25 to 30 million macular degeneration sufferers world-wide.

Project leader Dr Tim O'Hare said that the zeaxanthin-rich variety should be on the market by 2011.

“US research into the health benefits of zeaxanthin has focused on people consuming two

milligrams a day. Just eating one very small cob of our Queensland sweet corn will provide that amount of zeaxanthin,” he said.

“It would be great if sufferers of macular degeneration could get their zeaxanthin naturally, rather than in a tablet form.”

The team is also conducting research into other “functional foods” such as radish sprouts and high-lycopene tomatoes, which may help reduce the incidence of some cancers. [va](#)

“Scientists are working on breeding lines that contain four to five times the levels of the antioxidant that usually occur.”

Up the anti

“Macular degeneration is the leading cause of blindness in Australia; it is responsible for 48 per cent of severe vision loss. There are an estimated 800,000 sufferers and this number is expected to grow rapidly with our aging population,” said Queensland's Minister for Primary Industries and Fisheries, Tim Mulherin.

The condition affects one in seven people over the age of 50, with costs to Australia over the next 20 years estimated to be \$59 billion. The macula is at the centre of the retina—any degeneration results in a loss of central vision. While there is no cure, DPI&F scientists are breeding zeaxanthin-rich sweet corn in a bid to slow this debilitating condition.

As sweet corn is one of the best known sources of zeaxanthin, scientists are working on breeding lines that contain four to five times the levels of the antioxidant that usually occur.

“By increasing the level of zeaxanthin, the sweet corn has a rich, golden colour. Consumer studies indicate people don't mind the



AUSVEG signs biosecurity deed

Reimbursement for the costs of approved responses to pest and disease outbreaks is on the cards for the Australian vegetable industry.

The Emergency Plant Pest Response Deed (EPPRD) was signed by outgoing AUSVEG Chairman David Anderson with CEO Robert Lawler in attendance at the Plant Health Australia (PHA) offices in Canberra in November last year. AUSVEG joins 26 other plant industries, all state and territory governments and the Australian Government who are already parties to the deed.

“Ours is a large and diverse industry with a growing import and export trade but also more than 30 identified high-priority exotic pest threats. There is the ever-present risk of incursions of these serious plant pests and the potential for an outbreak to adversely affect the economic viability of Australia’s vegetable and potato industry. It is essential that we develop measures that will minimise risk to this industry, which is worth around \$2.5 billion each year,” said David.

Cost-sharing agreement

The EPPRD provides pre-agreed

funding mechanisms and cost-sharing proportions that are covered by affected government and industry parties depending on which emergency pest is involved.

PHA CEO Greg Fraser congratulated AUSVEG on signing the deed.

“As a signatory, the vegetable and potato industry will have a direct say on whether responses to plant pest incursions are to be mounted and, if so, a clear role in decision making and funding these responses,” he said.

“Producers from industries who have signed the EPPRD, and who suffer losses as part of an approved response, are eligible for reimbursement of certain direct costs. This is an important protection and one not guaranteed for non-signatories.”

Bolstered security

“The mechanisms agreed to in the EPPRD further bolster biosecurity arrangements that were enhanced in July 2007 with the



Pea leafminer was one of the pests analysed for the Vegetable IBP. Image supplied by Plant Protection Service Archive, Plant Protection Service, Bugwood.org.

introduction of national Industry Biosecurity Plans (IBPs) for the potato and vegetable industries,” said David.

Development of the IBPs involved identifying pests that affect vegetables and potatoes worldwide, and prioritising them according to the risk they pose to Australian producers. Each

pest was then categorised to determine agreed cost-shares that would apply in the event that an eradication response to an incursion is required. **va**

i For more information visit:
www.planthealthaustralia.com.au

New faces in key posts

Several new appointments have been made to key positions in the vegetable industry.

Kate Peake has been appointed Executive Officer of the Northern Territory Horticultural Association (NTHA); she began the role in December 2008.

With strong knowledge of the broader social and political environment, Kate has a proven track record for bringing interest groups together and negotiating positive outcomes.

Queensland appointments

Peter Peterson has replaced Matt Dagan as Executive Officer of Bundaberg Fruit and Vegetable Growers (BFVG). Peter has more than 20 years experience in cartography and geographic information systems (GIS).

In other Queensland news, Alex Livingstone’s move from Growcom Chief Operating Officer

to Growcom CEO in September last year will see him focus on the business side of Growcom and ensuring the association continues to represent growers’ interests in policy development.

Fraser takes the reins

In September 2008, Plant Health Australia (PHA) announced the appointment of Greg Fraser as

PHA’s new CEO.

“Greg has extensive executive experience across commercial, service and research and development sectors supporting plant industries. He has well established linkages with the plant industry and a comprehensive background working with all levels of government,” said PHA Chairman, Tony Gregson. **va**

Soil website now online

Before making soil-management decisions, log on to the new Knowledge Exchange.

Set to become one of the largest specialised industry-based soil and land systems websites in the world, The Australian Vegetable Industry Soil and Land Management Knowledge Exchange is a new and innovative tool for growers, researchers and industry representatives.

The Knowledge Exchange provides members with scientifically reviewed resources developed to increase accessibility and promote acceptance and adoption. A forum for growers to submit questions and seek advice from fellow growers or members of the Exchange Forum Panel is also included.

The site is expected to assist growers when they make soil-management decisions. All content will be reviewed by a forum of industry stakeholders, scientists and professional editors to verify appropriateness and ensure the information is correct.

Exchange members can submit content they feel is useful, which will be reviewed by the Exchange Forum Panel prior to upload.

To visit the Knowledge Exchange, go to <http://knowledge-exchange.ausveg.com.au>

Recent minor use permits

Permit number	Permit description (pesticide / crop / pest)	Date issued	Expiry date	States covered
ALLIUM VEGETABLES				
PER10902	Dimethomorph / Leeks / Downy mildew*	11-Oct-08	30-Sep-13	All states except Vic
PER11119	Diazinon / Onions / Onion thrips**	11-Jan-09	30-Sep-11	Tas only
FRUITING VEGETABLES				
PER10334	Methomyl / Specific fruiting vegetables (cucurbits & non-cucurbits), Legume vegetables, Sweet potato*** / Helicoverpa, Cucumber moth, Cluster caterpillar	09-Oct-08	30-Sep-10	All states
PER10760	Ridomil Gold MZ (metalaxyl-M + mancozeb) / Capsicum, Chillies, Paprika (field grown only) / Downy mildew****	24-Oct-08	30-Jun-11	NSW & Qld only
PER10948	Abamectin / Eggplant / Two-spotted mite	17-Oct-08	30-Oct-13	All states except Vic
PER10900	Endosulfan / Cucumber, Eggplant, Pepper, Ornamentals / Western flower thrips	08-Oct-08	31-Oct-09	All states except Vic*****
PER11120	Natrasoap and Neemtech (potassium salts) / Tomatoes (protected cropping situations) / Greenhouse whitefly	10-Oct-08	30-Sep-13	All states except Vic
LEAFY VEGETABLES				
PER10905	Dimethomorph / Silverbeet / Downy mildew*****	11-Dec-08	30-Sep-11	All states except Vic
PER10906	Dimethomorph / Spinach / Downy mildew*****	11-Dec-08	30-Sep-11	All states except Vic
PER10907	Dimethomorph / Brassica leafy vegetables / Downy mildew, White blister	11-Dec-08	30-Sep-11	All states except Vic
ROOT VEGETABLES				
PER10971	Tecto/Storite (thiabendazole) / Sweet potato (seed roots) / Scurf and root rot	01-Nov-08	30-Oct-10	All states except Vic
STEM & STALK VEGETABLES				
PER10946	Linuron / Celery / Weeds (as per the label)	01-Nov-08	30-Apr-12	All states except Vic

*Note: Modification to products available

**Note: This is a renewal of an existing permit – PER9648

***Note: Additional residue trials required in sweet potato to support the permit renewal

****Note: Additional residue trials required to support the permit renewal

*****Note: Use is not allowed in Victoria under their Control-of-Use legislation

*****Note: Additional residue data required

Final launch for "Just Add"

Snacks were the flavour of the day at the fourth "Just Add" launch.

The fourth and final stage of the "Just Add Fruit & Veg" campaign, focusing on snacks, was launched on 31 October at the building site for the new Melbourne Rectangular Stadium, with Grocon workers showing how easy it is to add fruit and veg to your snacks.

Funded by the Victorian Government, the "Just Add Fruit & Veg" campaign was coordinated by the Heart Foundation and Melbourne



Wholesale Fruit, Vegetable & Flower Market (Melbourne Market Authority) and supported by VGA Victoria. VGA Executive Officer Tony Imeson was a member of the Project Advisory Group.

The campaign had four stages,

each focusing on a particular meal—breakfast, lunch, dinner and snacks. **va**


i For further information visit:
www.goforyourlife.vic.gov.au

New dates for leadership course

Strategic course to start in February.

The Vegetable Industry Strategic Leadership Course for 2009 (postponed from November 2008) will be held from 24 to 26 February, 26 to 28 May and 18 to 20 August 2009.

This national course is suitable for all industry sectors. It will focus on three areas—personal development, business leadership and industry issues.

The course is subsidised by the National Vegetable Levy; cost to participants is \$500, plus additional costs such as accommodation and flights. While the cut-off date for registrations was 15 January 2009, interested persons are advised to contact course facilitator Jill Briggs, in case the program is held again. 

i For more information contact:
Jill Briggs, Rural Training Initiatives
Email: rti@dragnet.com.au
Phone: 0409 455 710
Download registrations forms from www.ausveg.com.au

Majority of consumers buy organic

A Newspoll survey has found that 61 per cent of Australian grocery buyers purchase organic products.

The survey, commissioned by the Organic Federation of Australia (OFA), was conducted nationally among 966 main grocery buyers.

A 2003 survey, conducted by the University of Central Queensland, found that 43 per cent of consumers purchased organic products. "This is a 50 per cent increase in buyers in five years and confirms ... other data that

'organic' is the fastest growing food category in the world," said Andre Leu, OFA Chairman.

"The organic industry is emerging from a small niche to a significant part of the Australian food industry. A recent report showed that it is worth more than \$600 million. When we add flow on industries such as the compost industry, which is worth more than \$400 million, the organic

industry is worth more than \$1 billion to the Australian economy."

"The Organic Federation of Australia would like to see industry and governments prioritise organic sector investments so that we can continue to facilitate more viable farms, increase employment and expand the range of organic goods and services across all areas of Australia." Andre stated. **va**



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The horticultural industry's carbon footprint and Tasmania's biosecurity arrangements have been given an airing by mainstream media in recent months. Below are two headlines.

"Lower-carbon veg better for everyone"

Australian Financial Review, National
Friday 21 November 2008, Page 67

During a Carbon Footprint workshop in Sydney, Horticulture Australia Limited (HAL) released six discussion papers on carbon emissions.

The workshop presentations revealed that although 16 per cent of Australia's emissions are attributed to the agricultural sector, the vegetable industry has a very small greenhouse gas (GHG) emission footprint, with only one per cent attributed to vegetable growers.

According to Alison Turnbull, HAL's Natural Resources and Climate Manager, "these developments will have positive business outcomes for our growers".

The workshop also identified areas of further research that would be required to make calculations easier and more accurate.

"Farmer fury at snails breach"

Hobart Mercury, Hobart
Wednesday 12 November 2008, Page 13

The Tasmanian Farmers & Graziers Association (TFGA) has attacked the state's biosecurity after fears a pest, that could potentially cost growers millions of dollars, may have infiltrated Tasmania.

The Department of Primary Industries and Water is currently investigating a possible invasion of the common white snail, which feeds on organic material. Questions are now being asked as to how the snails entered Tasmania.

"It seems they get past biosecurity or AQIS and spread by transfer on equipment or product. This is just negligent," said Mike Badcock, TFGA Chairman.

State Biosecurity Manager Alex Schaap said "at this stage we are still confirming the snail type but it does appear that at least some of the snails are common white snail".

The snail, which originates from Italy, is found in South Australia, Victoria, New South Wales and Western Australia.

MOUs signed for overseas workers scheme

Memorandums of Understanding for the Australian Government's Pacific Seasonal Worker Pilot Scheme have been signed.

Australia's Parliamentary Secretary for Pacific Island Affairs, Duncan Kerr, and representatives of the Kiribati, Tonga and Vanuatu governments have signed the first inter-governmental agreements to establish the Pacific Seasonal Worker Pilot Scheme.

Senior officials of the Government of Papua New Guinea also attended the signing ceremony, which was held in Canberra in November last year, ahead of further negotiations for Papua New Guinea's expected participation in the scheme in 2009.

The Pacific Seasonal Worker

“The pilot scheme is an essential initiative for our industry.”

Pilot Scheme, announced by the Australian Government in August 2008, is a three-year trial program that will allow up to 2,500 seasonal workers from Kiribati, Papua New Guinea, Tonga and Vanuatu to work in the

horticultural industry in regional Australia for up to seven months per year in areas of unmet labour demand.

The pilot will commence initially in the Swan Hill/Robinvale and Griffith regions.

Welcome initiative

The Australian horticultural industry has been strongly supportive of the pilot, with demand for the program driven by Australian growers unable to find the labour to get their produce to market.

"This is an essential initiative for our industry. There is a severe and growing labour shortage

in the Australian horticultural industry," said Horticulture Australia Council (HAC) Chair, Stuart Swaddling.

"We are delighted that the government has acknowledged the industry's acute labour issues. With projected global food scarcity, this pilot, once rolled-out nationally, will assist to optimise production, and minimise wastage of unharvested fruit and vegetables." **va**

For more information:
Email: <seasonalworkers@deewr.gov.au>



Steps taken for carbon footprint measurement tool

The vegetable industry is the first of many fresh produce groups beginning to measure its environmental impact.

Measuring the carbon footprint of the vegetable industry is the subject of a series of discussion papers released in November last year by Horticulture Australia Limited (HAL). According to HAL's Natural Resources and Climate Manager Alison Turnbull, there is increasing pressure for industry to be aware of the impacts from the production of fresh produce.

"Horticulture is now considering its impact on carbon emissions and the actions and research that need to take place to deal with it. These very exciting industry developments will have positive business outcomes for local growers and all Australians," she said.



Workshop findings

AUSVEG Environmental Manager Helena Whitman attended the Carbon Footprint workshop organised by HAL last November.

Six discussion papers were presented to the group, which comprised 30 people, one-third of whom were growers. Following the presentations, Helena commented: "to say 'this is a complex issue' is an understatement".

The workshop's objective was to determine whether the vegetable industry needs a carbon calculation tool and if so, what it should look like and what the benefits would be to growers.

The presentations revealed that horticulture accounts for an estimated one per cent of agricultural emissions. Agricultural emissions constitute 16 per cent of emissions across all industries.

After hearing this, Helena said many growers were keen to know what their levels of greenhouse gas (GHG) emissions were, and whether they could reduce their emissions.

Generally, it was agreed that any tool developed should enable growers, at a minimum, to calculate the GHG emissions directly under their control or resulting from on-farm activities. It was also agreed that growers should be able to include more information should they want a modular-type tool.

The workshop identified areas of further research that would be required to make calculations easier and more accurate. Recommendations will be made to the Vegetable Industry Advisory Committee (IAC) to address these considerations.

Footprinting tool in development

UK supermarket chain Tesco has developed product-specific carbon footprints. This means products are labelled with their carbon dioxide equivalent (CO₂e). This way, Tesco is able to benchmark its own labelled products against competitor labels.

In Australia, Tasmanian salad producer Houston's Farm is developing a carbon footprinting tool. A project is being conducted to assist in creating industry standards for defining how to measure the horticulture industry's carbon footprint.

According to Allison Clark of Houston's Farm, the project aims to develop a carbon footprint calculation tool and standard protocols for this tool to be tailored for

the Australian vegetable industry by mid-2009. It is hoped that the tool and corresponding protocols will be transferred to the rest of the horticulture industry.

THE BOTTOM LINE

- In Australia, horticulture accounts for only one per cent of agriculture's carbon emissions, which in turn accounts for 16 per cent of emissions across all industries.
- Even so, work is being conducted to create tools and protocols to help growers measure and reduce their carbon emissions on-farm.
- A carbon footprint calculation tool and standard protocols for tailoring the tool to the Australian vegetable industry should be developed by mid-2009.

For more information visit:
www.horticulture.com.au/delivering_know-how/Environment/ClimateChange.asp

Win for Logan growers

Proposed Planning Scheme amendments have been rejected.

Growers in Queensland's Logan City had a win in November last year when the Logan City Council voted not to proceed on the Planning Scheme amendment—Beaudesert Shire Planning Scheme 2007 – Amendment No 1 (open Field Market Garden).

As reported in *Vegetables Australia* (see issue 4.3 page 26), greenhouse growers found their businesses under threat from proposed changes to legislation due to the increased urbanisation of the previously rural area.



Logan City growers Lisa Crooks [left] and Don Pham have welcomed their council's recent decision to not proceed with proposed amendments to the Planning Scheme.

"Any properties smaller than 8,000 m², in a commercial sense, need a permit, while properties larger than 8,000 m² are exempt. It's a win for growers, but it's also a win for common sense," said Logan City Councilor Phil Pidgeon.

"Growers must remain vigilant and ensure things are done properly. We're not just talking market gardens here; this legislation was going to affect farmers with cattle, pigs, horses, everyone."

Phil stressed that there is no excuse for bad management on

growers' properties. "Do what you do, and do it well—that way no one can build a case against you. If you know of growers who aren't following regulations, bring it to your council's attention, so we can help manage it. It's in growers' own interests to do this." **va**

Healthy return on rural R&D investment

The largest evaluation of rural research and development undertaken in Australia has found that the average return for every dollar invested in rural R&D is \$11.

The evaluation was conducted by the Council of Rural Research and Development Corporations' Chairs (CRRDCC) to objectively quantify the return on projects conducted by rural research and development corporations (RDC). Of the 15 RDC in Australia, current investment stands at \$540 million per year, approximately \$325 million of which is invested by industry levies and voluntary contributions. The remaining \$215 million is provided by the Australian Government.

In the first year of a three-year evaluation, 32 projects were randomly selected from a pool of more than 600 projects. From this random sample, the return on every one dollar invested was \$11 (in 2007 dollars).


In subsequent evaluations, the number of randomly selected projects will be increased.

Broad benefits

In further good news, 36 highly successful projects were evaluated and found to have returned

\$10.5 billion in quantified benefits, \$5.5 billion of which directly benefited rural industries. The remaining \$5 billion worth of benefits was delivered to consumers, supply chain partners and the wider community.

Additionally, a range of social and environmental benefits were identified as being distributed to rural industries and the Australian community more broadly, including improved biodiversity and biosecurity, and increased efficiency in water use.

"This report shows the government's rural R&D model is exceeding expectations and delivering benefits not only to the primary industries sector but also producing other very positive social and environmental benefits way beyond the scope of the original investment," said Enzo Allara, Chair of the CRRDCC. 



For more information visit:
www.ruralrdc.com.au

Export approval for Thorpdale

Potatoes from the PCN-affected district are set to be exported interstate.

Negotiations aimed at getting approval for the export of potatoes from the Thorpdale district would bear fruit by the end of 2008, according to Victorian Agriculture Minister Joe Helper.

The export of potatoes to interstate destinations was disrupted by the discovery of Potato Cyst Nematode (PCN) at a property in Thorpdale in October 2008, as interstate plant health regulations prevent importation of potatoes from within 20 km of a known PCN infestation.

Victoria's Department of Primary

Industries (DPI) has been building agreements with interstate trading partners on risk mitigation and import requirements for potatoes grown in the region. It's a complex process involving development of science-based proposals, negotiations with interstate potato industry sectors and with government regulators.

"A revised National PCN Management Plan has been distributed nationally to industry and government stakeholders," said Joe.

"Negotiations with New South

Wales, Queensland and South Australia quarantine authorities have led to agreements to allow potatoes from the Thorpdale area to commence movement interstate under conditions to reduce the risk of spreading PCN," he said .

Thorpdale growers will be able to send potatoes to interstate markets if they meet the appropriate risk reduction treatments. It was planned that Thorpdale potatoes would commence movement early this month under government certification.

New spud cultivar

In more spud news, a new potato variety that produces crops that are bigger, better quality, cheaper to grow and kinder to the environment sounds like just the antidote to some of the hurdles experienced by the potato industry.

However, there has been a stumbling block to its acceptance by some parts of the industry. See the February issue of *Potatoes Australia* for an in-depth look at the new cultivar. **va**

Nominations now open

Nominations are now open for:

- Landini Grower of the Year
- Landmark Young Grower of the Year
- Syngenta Researcher of the Year
- Brisbane Produce Market Innovative Marketing Award
- AUSVEG Industry Recognition Award

Vegetable Industry Awards



Nominate now by downloading a registration form at www.vegetableindustryawards.com.au

Nominations close 27 February 2009

Winners receive a \$1,000 cash prize plus more!

The award presentations will be proudly hosted at the Australian Vegetable Industry Conference gala dinner, at the Crown Palladium, Melbourne on Wednesday 6 May 2009

For more information visit www.vegetableindustryawards.com.au or call the AUSVEG office on 03 9544 8098

PA knows best: precise, profitable production

Precision agriculture can help improve crop yield and quality as well as reduce input costs. Emma Leonard reports on how PA is being used in a range of horticultural industries.

For many, precision agriculture (PA) means driving straight. However, while guidance and autosteer are valuable tools, they are just one application of spatial management. Growers across a range of industries successfully use spatial management techniques to manage in-field variability, improving their yield, quality and productivity as a result.

Yield variation is rife

As in-field variability is often related to changes in soil properties and topography, understanding spatial variation in soil is a good starting point for managing in-field variation.

In commercial field sampling of onions in South Australia, soil and yield testing established up to 50 per cent yield difference across one paddock. A strong relationship was found between yield and the concentration or ratios of certain nutrients.

Trevor Twigden from National Onion Labs Australia believes that by tailoring input types and rates to different areas of the field, there is the potential to increase yield by at least 20 per cent. Trevor is also working on managing spatial variation of stress factors that influence the level of pungency in onions destined for the mild onion market.

Such variation in yield across a

production zone is not unusual. As seen in the previous issue of *Vegetables Australia* (see issue 4.3, page 42), researchers at the Australian Centre for Precision Agriculture reported yields between six and 30 ton/ha across three fields of irrigated sweet corn grown near Bathurst, New South Wales.

Yield variation was found in blocks within the field, that is, the variation had strong spatial patterns. These patterns indicated an opportunity to target nutrients to yield potential, offering savings of at least \$100/ha in fertiliser.

In this irrigated trial, spatial difference in final yield and quality could be predicted by combining

mid-season crop biomass data—gathered by active reflectance sensors—with plant-density information collected at the same stage.

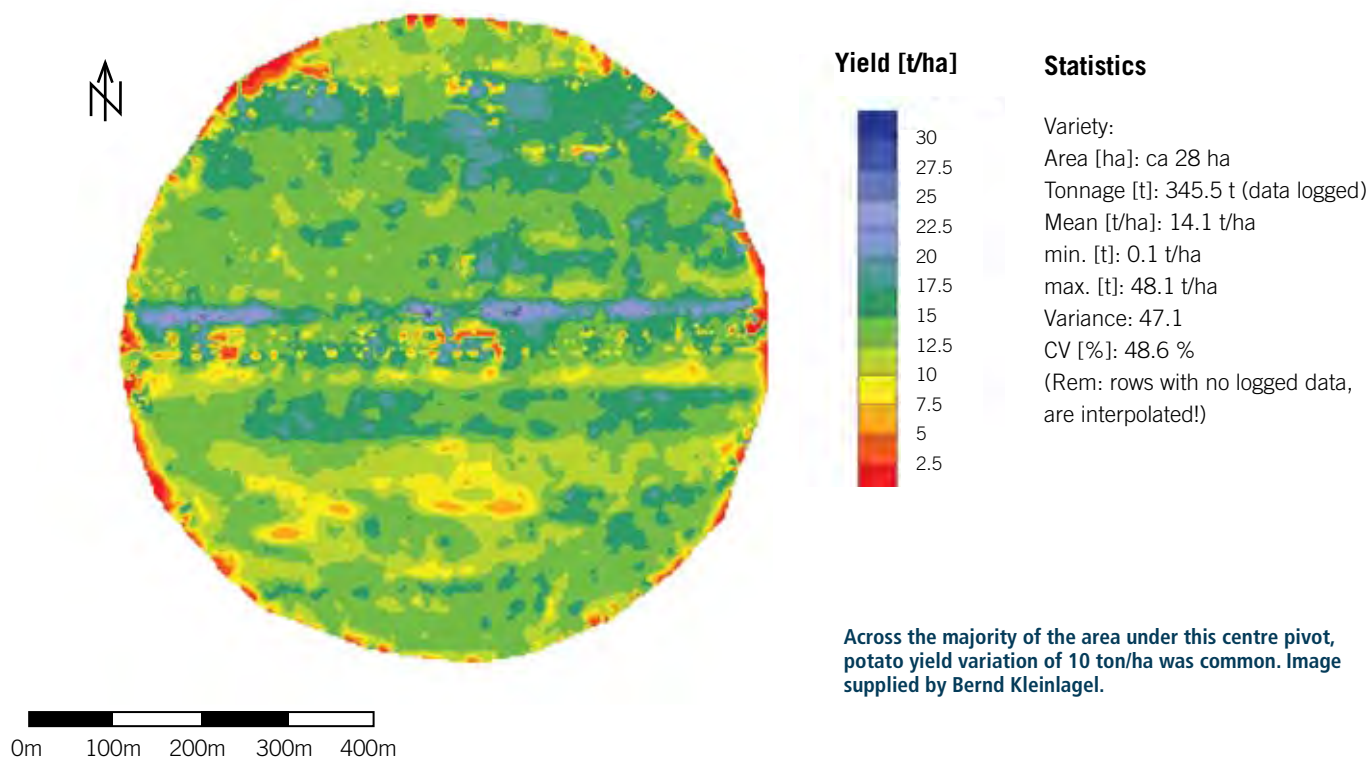
Eye in the sky

Data collection is at the heart of PA and management of spatial variation. Many industries now focus on crop biomass data for the management of spatial variability. This information can be gathered by active sensors mounted on ground or aerial vehicles, or from satellite images.

Satellite imagery of the Ord Irrigation Area has been gathered at 20 m, 10 m and 0.6 m resolution. That means each pixel in a 10 m



Satellite imagery of the Ord Irrigation Area has highlighted substantial differences in biomass production, helping growers target areas for further investigation for potential site specific crop management. Image supplied by Jonathan Medway.



Across the majority of the area under this centre pivot, potato yield variation of 10 ton/ha was common. Image supplied by Bernd Kleinlagel.

resolution image represents 100 m². In this project, the infrared portion of the data has been used to produce biomass maps that have highlighted huge spatial variation in biomass production.

Up to 60 per cent of infrared radiation in sunlight is reflected upward by the growing leaves of non-stressed vegetation. Any limitation on plant growth reduces this percentage to a degree that can be measured.

“When these biomass maps were ground-truthed by strategically sampling areas identified

researchers are testing the use of remote control or autonomous aerial vehicles fitted with active sensors or cameras to gather biomass and other data in-crop.

Water wise

New developments in variable-rate irrigation by researchers in New Zealand and Australia may help to overcome the limitations of uniform water application across varying soil conditions.

The mismatch between water application and crop requirements can reduce productivity.

force transducer device that is compatible with other potato harvesters and selected root crop and tomato harvesters.

In a separate project, based in Queensland, research into the use of digital photography to estimate yield variation in lettuces is being conducted.

Autosteer for success

While the above are a few examples of how growers are starting to use PA to manage in-crop variability, the value of guidance and autosteer as precision management tools cannot be dismissed.

Using +/-2cm accuracy RTK (real time kinematic) guidance with autosteer, one commercial potato grower reported an increase in income of \$20,000 per year from 40 hectares of potatoes, from an investment of \$50,000.

In row crops, such as potatoes, benefits from autosteer include increasing the number of rows in a paddock by between five and 10 per cent. This figure can improve with the addition of implement guidance.

This technology also saves time, with one contractor reporting a 15 to 20 per cent time saving with autosteer.

“Our measurements showed that a grower targeting a potato row spacing of 81 cm, without autosteer, actually averaged a spacing of 86 cm,” said John McPhee, Extension Leader for the Tasmanian Institute of Agricultural Research Vegetable Centre.

“Improved accuracy in these situations increases seed, fertiliser, and harvesting costs. Water and spray costs remain the same, but the yield per hectare increases.” **va**

“In row crops, benefits from autosteer include increasing the number of rows in a paddock by between five and 10 per cent.”

as high and low biomass, variations in soil and irrigation efficiency were found,” said project manager Jonathan Medway from Terrabyte Services.

“If plant vigour can be managed, more product—in this case pumpkins or melons—can be produced in the premium size class demanded by the buyers.”

One of the limitations of satellite images is cloud cover, so

While yield is an important data layer for determining the need for and success of spatial management, yield monitors for vegetable crops are still rare.

Advanced Technology Agriculture (ATA) fitted a potato yield monitor on a Grimme single-row potato harvester in 2006. Crop yield was measured by load cells fitted under the conveying web. ATA has designed another

THE BOTTOM LINE

- Precision agriculture (PA) can increase crop yield and quality, and reduce input costs.
- Data collection is critical to successful PA. Information is gathered about in-field variability to help growers ascertain areas within crops where yield production varies.
- PA growers use autosteer technology to save time and increase row numbers within paddocks, in some cases by 10 per cent.

For more information visit:
www.spaa.com.au

Emma Leonard is a technical writer and editor of Precision Ag News published by the Southern Precision Agriculture Association.

Register to keep informed

Become a member of the Grower Portal to access detailed information about levy-funded R&D projects and more.

The Grower Portal, accessed via the AUSVEG website, contains information about more than 800 research and development (R&D) projects funded by the National Vegetable Levy and National Potato Levy, including contact details for project leaders. It's a great way for growers to see how levy funds are invested and keep abreast of levy benefits.

While some projects are still being conducted, many project profiles feature summaries, final reports, presentations, posters, images and *Vegetables Australia* articles. This provides an opportunity for R&D findings to be made available to all levy-paying growers and researchers Australia-wide.

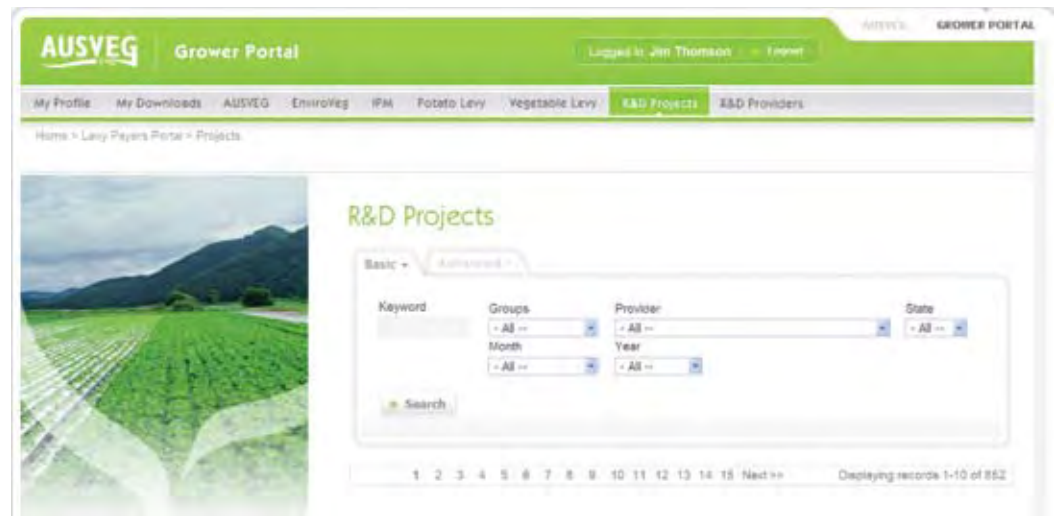
Free registration

To access this information, you must register as a member of the Grower Portal. This can be done by visiting www.ausveg.com.au/levy-payers.

THE BOTTOM LINE

- The Grower Portal is a free service offered to all National Vegetable Levy paying growers.
- Accessed through the AUSVEG website, it contains information about more than 800 research and development projects, including contact details for project leaders.
- The portal also provides information about IPM, EnviroVeg, the National Vegetable Levy, along with industry publications that are available to be downloaded.

For more information visit:
www.ausveg.com.au/levy-payers



Complete the registration form and AUSVEG will provide you with a username and password. Registration is free for all levy payers.

Once you have registered and logged on, R&D information is easily accessed by following a few simple steps:

1. Enter the keywords or project number you would like information about and click search. There are options for narrowing the search area by selecting service providers or the state the research is specific to.


An example might be “brassica research” or a specific project number, such as VG04014. This project, “A coordinated approach to the dissemination of brassica research and development through Better Brassicas”, has a detailed project summary, and a selection of fact sheets and posters available to download.

2. A list of projects relevant to your search request will

appear. Click on the most relevant project.

3. A project summary will appear, followed by the project leader's contact details and any documents that are available to be downloaded.

If a project has been complet-

ed, a final report will be available for download. For projects that are still in progress, additional information may be limited. In these instances, it's advised that the project leader be contacted for more information. 

Member benefits

In addition to information about R&D Projects, you can use the Grower Portal to access:

- Back issues of *Vegetables Australia* and *VegeNotes*, and past *Australian Vegetable Reviews*
- A sub-site devoted to integrated pest management (IPM)
- Information about EnviroVeg, the industry's environmental program, including a section about Healthy Soils, an Environmental Self Assessment Checklist and the EnviroVeg Registration form
- Information about the National Vegetable Levy, which answers frequently asked questions such as how the levy is collected and where the money is spent.

Vegetable Industry Awards 09

Nominations have already started coming in for the 2009 Australian Vegetable Industry Awards.

Nominate now for industry awards

Now in their fourth year, the Australian Vegetable Industry Awards aim to recognise and celebrate the best in our industry, and provide an opportunity to promote these success stories to the broader Australian community.

Awards categories include Landini Vegetable Grower of the Year, Landmark Young Vegetable Grower of the Year, Syngenta Researcher of the Year, Brisbane Produce Market Innovative Mar-

keting Award and the AUSVEG Industry Recognition Award.

The presentation ceremony will be held at the gala dinner of the 2009 Australian Vegetable Industry Conference on Wednesday 6 May at the Crown Palladium in Melbourne.

Nominate to win

This year, those who nominate a finalist will enter the draw to win a conference registration, two tickets to the gala dinner and

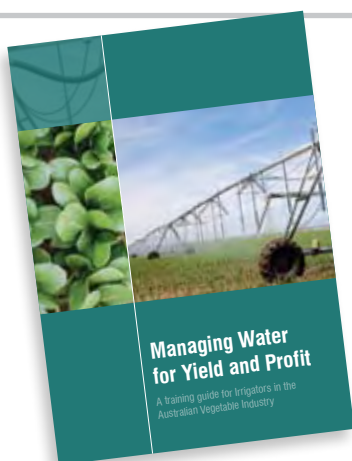
hotel accommodation for the night of the dinner. If you believe that you or someone you know fulfils the criteria for any of the awards categories, now is the time to nominate.

Awards winners will receive a \$1,000 cash prize and a winner's certificate, plus their airfare and dinner ticket to attend the presentation. Finalists will receive a finalist's certificate and a complimentary dinner ticket.

To book your tickets to the gala

dinner and awards presentation, complete the conference registration brochure provided with this issue of *Vegetables Australia* or visit the awards website www.vegetableindustryawards.com.au. **va**

For more information visit:
www.vegetableindustryawards.com.au



Manage water for yield and profit

A new irrigators' handbook is now available for National Vegetable Levy payers.

Managing Water for Yield and Profit, a training booklet for irrigators in the vegetable industry, has been published by Applied Horticultural Research (AHR).

The booklet summarises key messages from training workshops conducted by AHR Training in recent months in Sydney, Adelaide, Darwin, Gattton and Mildura.


Information in the 23-page booklet is based on data collected from on-farm research and trials undertaken during the past five

years. Soil-moisture probes collected field data for a wide range of crops such as lettuce, baby leaf salads, broccoli, carrots, potatoes, watermelon and rockmelon. Collected data also included information about water use from different irrigation methods such as overhead sprinklers, drip irrigation and buried trickle.

Questions answered

- Topics covered include:
- why plants need water
 - water and soil

- how to determine the timing and amount of irrigation
- how to measure and interpret soil moisture
- irrigation case studies.

The booklet aims to provide irrigators with an understanding of the tools required, and opportunities available, to improve the efficiency and profitability of water use in vegetable crop production. It includes an extensive list of resource websites, CDs and booklets for growers to further their knowledge. 

For more information visit:
www.ausveg.com.au/levy-payers
Project number: VG06138
Keywords: Irrigation strategies
To obtain a copy of Managing Water for Yield and Profit, contact:
Lynn Christie, AHR
Email: <lynn@ahr.com.au>
Phone: 02 9527 0826
or Alison Anderson, NSW IDO
Email: <alison.anderson@bigpond.com>
Phone: 0409 383 003

Help consumers embrace the unknown

Many consumers want to try Asian vegetables but are unsure what the varieties taste like and how they should be prepared. Getting information to them will help overcome this barrier.

They might account for only two per cent of vegetable sales at most retail outlets but, according to NSW DPI researcher Dr Jenny Ekman, Asian vegetables have major potential for growth.

“They are great products—quick to prepare, tasty and healthy. However, increasing the market depends on helping consumers understand what they are and what to do with them,” she said.

A three-year project, jointly funded by the National Vegetable Levy and Rural Industries Research and Development Corporation (RIRDC), aimed to improve the accessibility of Asian vegetables in the Australian domestic market. Its two main objectives were to:

- standardise the names of a range of Asian vegetables and encourage use of these names by the industry
- examine the current retail situation for Asian vegetables and investigate ways they could be marketed more effectively to consumers unfamiliar with the products.

Naming rights

The first stage of the project—deciding what to call the vegetables—was largely determined by a reference committee of key supply-chain members, including growers, wholesalers, retailers and members of the food media.



In-store demonstrations, presented by knowledgeable and engaging staff, are a great way to educate consumers about unfamiliar vegetable lines. Images supplied by Jenny Ekman, NSW DPI.

Results from a national survey were combined with commercial considerations to create a system that was agreed to by the major retailers and other participants.

The committee reached agreement on names for 14 of the most commercially important Asian vegetable lines.

“We launched the names in late 2005 on a Sydney Asian vegetable farm. It turned into a real media event, with reports in several newspapers, on national radio and even television. Apart from

anything else, it was a terrific way to get good publicity without spending much money,” said Jenny.

While change takes time, there has been a noticeable improvement in consistency of names given to Asian vegetables, particularly between the two major retailers (who account for approximately 60 per cent of fresh produce sales). The launch also demonstrated that it was possible to raise the profile of the category at minimal cost.

Strategic approach

Developing a marketing strategy involved a multi-pronged approach. Information was gathered about:

- the current status of Asian vegetables in retail stores (quantity, quality, types, price, availability)
- how much retail store managers knew about Asian vegetables
- drivers for impulse purchases or purchases of unfamiliar vegetables
- consumers’ perceptions of



Asian vegetables and their reasons for purchasing or not purchasing them.

The researchers also looked at different promotion methods, such as featuring the vegetables at Sydney's Royal Easter Show or conducting in-store cooking demonstrations.

Prices for Asian vegetables are generally lower and more stable than similar 'European' alternatives, for example English spinach compared with choy sum.

“People want a connection with where their food has come from; they want to feel as though they are helping growers.”

Unfortunately, as with many horticultural products, retail price and quality are barely linked. However, the data suggests that stores could charge more for good-quality product without significantly impacting demand.

Nearly half the store managers surveyed suggested that recipe cards would be the best way to increase Asian vegetable sales. Point of sale materials and in-store cooking demonstrations were other popular options.

“Perhaps educating the retailers themselves might be a good first step; many store managers knew very little about Asian vegetables. In-store promotions are much

continued page 22

Asian Vegetable Profile

Gai lan

(Brassica oleracea subsp. alboglabra)

Otherwise known as: Chinese broccoli, Kailan, Chinese kale

Background

Gai lan is thought to have originated in the Mediterranean and is one of the oldest varieties of brassica cultivated. Botanically, it is more closely related to European cabbage than wombok. It is also closely related to European broccoli; however, in this case the whole plant is eaten—leaves, stem and flowerhead. It is easily distinguished from other leafy Asian vegetables by its waxy, bluish-tinged leaves and white flowers.

Where and how does it grow?

Gai lan grows best in well drained soils with fairly neutral pH. It also adapts well to hydroponic production. A generally cool-season plant, some varieties are liable to bolting, especially during early spring.

Gai lan has a shorter shelf life than some other Asian vegetables, as the leaves are susceptible to premature yellowing and wilting.

Preparation and cooking

Many people of Asian background consider that gai lan is the best quality when the flower buds have formed and are just starting to open. Plants with slender stems are preferred to thick-stemmed varieties as they are more tender and cook quickly.

Gai lan tastes similar to head broccoli although its crunchy



stems and thick leaves give it a flavour all its own. The stems, leaves and flower buds can all be stir-fried, steamed or added to soups and casseroles. Thick stems should be cut in half and added before the leaves as they take longer to cook.

One of the most popular ways to cook gai lan is to steam or stir-fry with a little chicken stock and serve drizzled with oyster sauce. When it is eaten alone, especially

in Cantonese style, it's enjoyed stir-fried with ginger and garlic.

Gai lan is a source of carotenoids and glucosinolates as well as folate, iron, calcium and vitamin C. [va](#)



For more information contact:
Dr Jenny Ekman, New South
Wales Department of Primary
Industries

Email: <jenny.ekman@dpi.nsw.gov.au>



An estimated 40,000 to 50,000 people visited the NSW DPI stand at Sydney's Royal Easter Show in 2006; most looked at the Asian vegetable display.

more likely to work well if managers and their staff are engaged and understand the products," said Jenny.

"Despite this, the cooking demonstrations we did were a great success. We told consumers this was a project for the vegetable industry and they just loved it—especially when we said the veggies were locally grown as well. People really want to feel a connection with their food and where it has come from; they want to feel as though they are helping growers."

Consumer sentiment

The next step was to examine how familiar consumers were with Asian vegetables, what they thought about them, and what might change their buying behaviour. The researchers conducted six focus groups and, to support this qualitative research, an online survey. The survey involved more than 1,000 participants from around Australia, all of whom had nominated that they were

the main grocery buyer for their household.

The results confirmed that food shopping is still largely, though not always, the responsibility of women. However, food choices are strongly motivated by what other family members will eat. Meat is also an important driver—vegetables are chosen to go with meat, not the other way round.

Consumers are most likely to buy new or unusual vegetables if they are entertaining, bored with their usual meals or have been recommended to do so by friends or family. Enticing displays, specials, and point of sale materials can generate impulse sales, with 74 per cent of consumers making at least some of their decisions in the store.

Only 16 per cent of the internet survey respondents said they purchased Asian vegetables weekly, the remainder being monthly (33 per cent), rarely (26 per cent) or never (25 per cent). While this is almost certainly an overestimation of purchases, it is much less than

the 57 per cent of face-to-face survey respondents who said they purchased the products weekly.

According to Jenny, "the fact that people often overestimate how many of these products they buy shows what a strong positive image they have as healthy and fresh—it has good 'cred' to say you eat Asian vegetables".


On the negative side, many consumers don't know how to prepare and cook Asian vegetables or what they will taste like. Consumers worry they will create a culinary 'flop' or that their family won't like them. Some feel that these vegetables are for "Asian people", not for them. There are also a significant number who have just never thought about it (31 per cent).

Encourage experimentation

An effective marketing campaign needs to overcome these barriers. Providing simple recipes, explaining what the vegetables taste like, making sure displays are


fresh and attractive and ensuring that store staff can answer basic questions could encourage more consumers to try unfamiliar Asian vegetables.

Many consumers are eager to know more about Asian vegetables, particularly in middle and upper middle class demographic groups. However, success requires cooperation from all parties involved in the Asian vegetable supply chain, from grower to retailer, to ensure that both good-quality products and accurate information are available.

The project also found that further examination of the positive and negative implications of the term "Asian" should be conducted, potentially replacing the term with "exotic". Extending the list of agreed names for vegetable varieties beyond the current 14 commodities should also be considered. 

THE BOTTOM LINE

- To help grow the Asian vegetable market, names were chosen for 14 of the most commercially important Asian vegetable lines, with recommendations to expand this list in the future.
- Research has been conducted into finding ways to educate consumers and retailers about how these vegetables taste, and suggested preparation methods.
- Many consumers want more information about Asian vegetables, particularly in middle and upper middle class demographic groups. This information can be supplied via recipe cards and in-store demonstrations.

 For more information contact:
Dr Jenny Ekman, New South
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Industries

Email: <jenny.ekman@dpi.nsw.gov.au>

or visit www.ausveg.com.au/levy-payers

Project number: VG04031

Keywords: market access



R&D project preview

Design and demonstration of precision agriculture irrigation applied to different vegetable crops

Project number: VG08029

Start date: 1 December 2008

End date: 1 December 2011

Project leader: Dr Susan Lambert, University of Tasmania


Email: Susan.Lambert@utas.edu.au

Phone: 03 6430 5981

This project will investigate site-specific precision irrigation in vegetable production as a means of reducing water and energy consumption. It will investigate two commonly used irrigation systems—linear move and big gun traveller irrigators.

The linear move system will be retrofitted with equipment that will allow it to communicate with a network of soil moisture sensors across the field. The equipment will also enable the system to vary the water application rate to sections of the field as required.

Big gun traveller irrigators are considered to be older technology and relatively inefficient in terms of water and energy consumption. However, large numbers are still in operation in the vegetable industry due to their relatively low cost, simplicity and portability.

This project will also investigate technology that may be fitted to big gun traveller irrigators to improve efficiency. It will test the cost-benefits of the technology and compare them with current practices over a three-year rotation of vegetable crops. The aim of the project is to provide growers with options that will allow them to improve water-use efficiency, and reduce energy costs and environmental impact. 

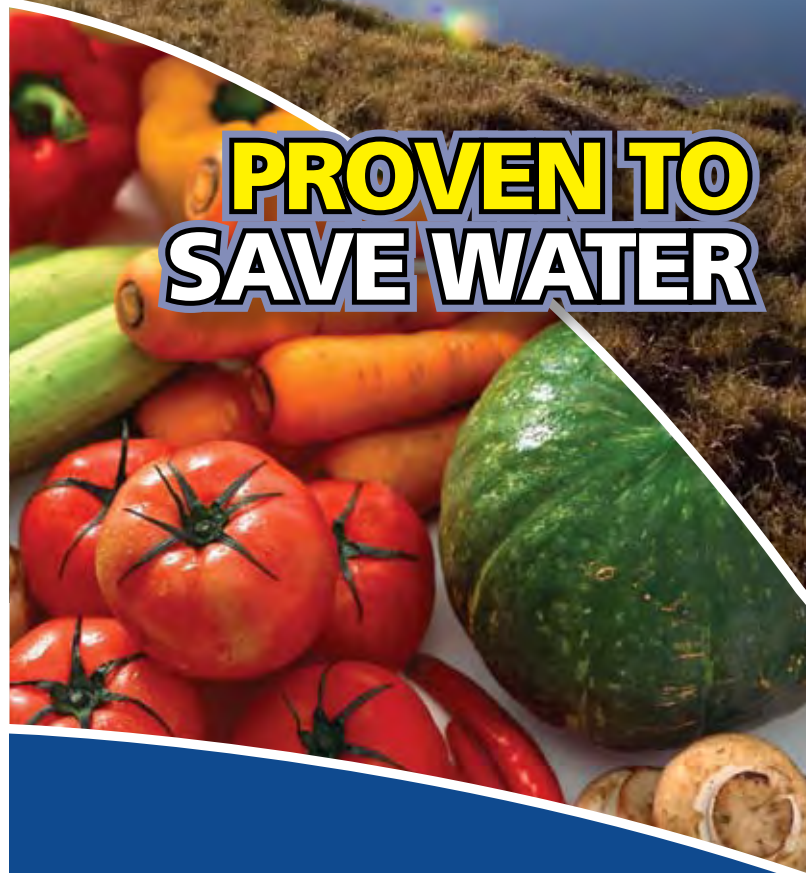


Wireless sensor network nodes [pictured above at a pasture in Elliot, Tasmania] will monitor soil moisture levels in real time to enable irrigation equipment to respond to soil-moisture variations across a vegetable crop. Image supplied by Tasmanian ICT Centre.

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Smart growers embrace the future

Mechanisation of the vegetable industry will lead to increased yield, better-quality crops, and reduced reliance on unskilled labour: a winning equation in any grower's language, writes Nuffield Scholar Tim Harslett.

Mechanisation and robotics will have a significant role to play in the vegetable industry's future. The most obvious motivation for this is that it will help reduce labour costs.

To date, most countries around the world have been able to source relatively cheap unskilled vegetable farm labour. In recent years, the Australian vegetable industry has relied heavily on backpackers (and potentially Pacific Islanders in the near future) to do jobs that most Australians choose not to do. However, the

“Harvesting is the area of vegetable production where mechanisation can make the largest potential labour savings.”

cost of labour will continue to increase, just as growers' capacity to find people to fill these positions will diminish.

From my time overseas, visiting farms and talking with industry representatives and researchers, I've concluded that the most



Vision Weeding's intra-row flame-weeder, available later this year, aims to provide efficient and economical weed control without herbicides. A computer, with an attached camera, detects individual plants within rows while the software calculates the plants' positions. The Plant Detection algorithms can distinguish between the crop and weeds, resulting in weeds being destroyed while crops are spared. Image supplied by Frank Poulson.

economically beneficial reason to change to mechanisation and robotics is the increase in crop yield and quality—a direct result of the improved agronomic practices required to meet the demands of the machines. The success of a machine in a vegetable crop is reliant on a consistently high quality of produce with minimal standard deviation. This can only be achieved through attention to detail.

Other benefits of mechanisation and robotics include:

- decreased undesirable repetitive and physically hard work
- a more consistent work rate by the remaining human input
- decreased personnel management issues as a result of fewer employees
- potential to expand with less human capital.

Growing a consistently high-quality crop with low standard deviation is a challenge in an outdoor growing environment. However, good growers don't see problems; they find ways

to overcome challenges. This mentality is required if a grower is to embrace mechanisation and robotics.

Transplanting

Australia is close to the forefront in automatic transplanters through companies like Williames and Transplant Systems. This is probably because the Australian vegetable industry relies so heavily on transplants compared with direct seedings used in other countries.

Both companies have a machine that takes plants from trays and places them in the ground.

Weed management

Many companies and research institutes around the world are working on weed-control machines. Herbicides do have a role to play, but environmental and social pressures will reduce our ability to use them. Another consideration is that, in many cases, they don't give complete weed control.

There are a number of devices already used for inter-row weed control. The companies I encountered that have developed camera-guided tines to increase efficiency and speed for this were Eco Dan, Garford and Vision Weeding.

The greater challenge with mechanised weed management is intra-row weeds. Vision Weeding and Sal Radis are both working on various methods of culling the weeds between plants by using real-time cameras to guide the tines.


The University of Copenhagen is developing a robot called the Cycloid Weeder that knows where the crop plants' locations are, based on GPS logging of the crop position at planting. The tines work around these reference points.

Harvesting

This is the area of vegetable production where the largest potential labour savings can be

made. It also requires the most consistently high-quality cropping practices with minimal standard deviation. If a crop is grown well enough, there is potential to harvest just about all vegetables lines with a machine. However, there will still be a need for human input in most cases.

There are two types of machines that are already commonly used for vegetable crops—band saws and top lifters. Various forms of band saws are available and used by growers for nearly all baby leaf lines, while top lifters are used for lines such as leeks, onions and carrots.

Between these two harvesting principles there is potential to adapt machines to harvest any vegetable, provided the farmer is willing to modify growing practices to accommodate machine requirements. ASA-Lift of Denmark and Ortomec of Italy are probably the world leaders in harvesting machines for vegetables. Both already have a presence in Australia. 

Companies mentioned in this article are companies that Nuffield Scholar Tim Harslett became familiar with on his global travels. They are not the only companies that manufacture the machines referred to. Tim's full report will be available on the Nuffield website in coming months at www.nuffield.com.au



Ortomec's SVC Herbex is a tracked self-propelled harvester suitable for rapid harvesting in the field. It uses a single-blade cutting system, with oscillating movement. Image supplied by Tim Harslett.

Search online

For more information visit these websites:

www.asa-lift.com

www.eco-dan.com

www.garford.com

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No more traffic jams

If you're concerned about heavy farm machinery squashing your cropping soil, follow grower John McKenna's lead and introduce controlled traffic farming into your operations, writes Angela Brennan. Photography by Mark Seaton.





A retired grower, who now lives on John McKenna's property in Gawler, on the north-west coast of Tasmania, used to harvest a 35-acre paddock of potatoes with a fork. Forty years later, John works on the same-sized paddock with a satellite guidance system and a tractor that drives itself.

His elderly lodger is impressed by John's ability to align traditional methods with cutting edge technology, but John might not have a choice. Traditional farming conditions have changed dramatically over the past 50 years, and as John said, "it's not all good".

He has long recognised the

connection between driving heavy machinery over his paddocks and the not-so-slow death of his soil. "We are squashing it to death."

John is among a new breed of grower prepared to try innovative farming methods for long-term economic and environmental benefits. Like many around him, he continues to grow potatoes, the traditional crop of the area, but has diversified into onions, brassicas, peas, poppies, pyrethrum, and cereal crops, as well as running some stock with pasture.

Maintain control

Serve-Ag's Peter Aird has been

“CTF separates wheel traffic from growing zones, thereby avoiding compaction of cropping soil.”

a visiting agronomist to John's farm for the past 20 years; in that time, he recognised John's interest in soil health. In 2007, he invited John to participate in a government-funded project—through the National Landcare Program—into controlled traffic farming (CTF). Put simply, CTF separates wheel traffic from growing zones, thereby avoiding compaction of cropping soil.

Jason McNeill from the Tasmanian Department of Primary Industries and Water (DPIW), John McPhee from the Tasmanian Institute of Agricultural Research

(TIAR), and Peter helped John McKenna set up the small trial on his 160-hectare farm to investigate and demonstrate the feasibility of growing vegetables on a commercial scale using CTF.

In horticulture, farm machinery is getting bigger and heavier, with some harvesters weighing more than 25 tonnes. John McPhee claims that the damage done by machinery can last for years.

“From primary tillage through to harvest of almost any vegetable crop, 100 per cent of a paddock will be driven over in normal production practices. If I had to pick one thing to improve the farming system, it would be to separate the wheels from where I’m growing the crop,” he said.

Consequently, soil structure, moisture-infiltration rates, drainage, and worm and microbial activity will be restored. Reduced fuel and energy costs and improved grower health through less stress and fatigue are added bonuses.

Softer soils, reduced runoff

To date, much of the world-leading Australian research and adoption of CTF has been on flat land with broadacre crops. John McKenna’s wet and hilly farm showed that combining CTF and vegetables is a challenging mix, particularly as the first requirement of CTF is common wheel-track spacings across all equipment.

However, at the end of the first season of the trial, with CTF and conventional methods established side-by-side in an eight-hectare onion paddock, early observations are more positive than the researchers anticipated.

The no-traffic soil was so soft that minimal preparation was necessary for the next crop.

“This trial has indicated an astounding improvement in the soil structure and moisture-holding capacity,” said soil specialist Jason McNeill. “Not only were the onion roots more fibrous—which meant they could grow deeper and theoretically have better access to nutrients—but

What is CTF?

Controlled traffic farming (CTF) is based on the principle that crops need soft soil and wheels need hard roads. In CTF, equipment runs on firm, precisely-located tracks that permanently separate wheel traffic from cultivated soil.

How does it work?

- all farm machinery has the same wheel track-width and works along designated, permanent “tramlines” in the paddock
- all equipment has working widths that are a module of the track width
- with satellite guidance systems, all traffic can return to the same wheel tracks year after year.

Benefits to industry

- reduced fuel, energy, labour
- facilitates no-till/low-till systems
- improved soil structure, microbial activity
- improved infiltration and water-holding capacity
- reduced runoff
- potentially higher, more uniform yield and double-cropping opportunities
- reduced erosion
- improved timeliness.

Cost considerations

Two options: high-tech or low-tech

- Some form of satellite guidance system (high cost, reliable) estimated investment: \$20,000 – \$60,000+. Costs are decreasing but can be initially daunting.
- Conventional marking systems (low cost, not reliably accurate) can be used in some circumstances, such as small-scale, simple crop rotations. Growers are guided by markers, but it is very difficult to maintain accuracy in the long-term. [va](#)



Friable soil from the crop zone that hasn't received any wheel traffic for more than 15 months. [Inset] Compacted permanent wheel tracks in a trial paddock of CTF potatoes.



John McKenna, pictured with son Sean, has two tractors he uses on-farm—a 1.6 m track-width tractor [left] and 2.5 m model [right]. While the 2.5 m model is not integrated with the current CTF work, it does straddle three rows, which means that the middle row has no wheel tracks beside it.

also the soil was loose enough to consider an immediate replanting. The conventional method of harvesting vegetables does not help the soil.”

With soil compaction, it's not uncommon to wait weeks before soil is loose enough for the next crop.

“Compaction from machine traffic consistently leads to poorly drained and less friable soil, resulting, among other things, in weaker plant establishment. This trial saw the re-establishment of more uniform soil structure. Potentially, this could lead to uniform crop maturity, facilitating harvest schedules,” said Peter.

“I did not expect the hydrological benefits of CTF indicated by this trial. There's very little runoff.”

John McKenna confirms this. “After bucketing 10 mm rain in 10 minutes, just after onion harvest, the rain disappeared into the ground on the CTF trial areas,” he said. “On the conventional side there was ponding and rivers running down the tracks, taking the soil with it. We're on

“After bucketing 10 mm rain in 10 minutes, just after harvest, the rain disappeared into the ground on the CTF trial areas.”

the coast here and the sea runs brown from the topsoil coming from farms.”

If the price is right

Despite the obvious advantages, CTF comes with establishment costs and machine modifications that concern some growers.

“Some modification is necessary. For example, for this trial we moved the tines on the ripper that usually work in the tractor wheel tracks so the compacted wheel tracks were retained. We did the same with the rotary harrow,” said Jason.

“The onion planting and lifting operations were no different to normal, except that tractors were kept on the compacted wheel tracks. The wheels of the direct-loading harvester were adjusted to track behind the tractor wheels, and the chaser trailer was kept on the traffic lanes,” he said.

“Access to suitable harvest equipment, particularly for root crops, is one of the bigger issues in vegetables, but harvesters are available that can be modified

without too much effort.”

“By far the most substantial cost is in guidance systems,” said John McPhee. “In the best-case scenario, machines are guided with an accuracy of +/-2cm by satellite-based guidance systems, such as that used on John's farm. Fortunately, costs are decreasing and experience suggests that guidance is a good investment.”

The CTF trial is continuing with potato crops, which are currently growing. “For this, we shifted the row spacing in from the standard to allow more room between the planted row and the wheel track. We also adjusted the moulders so that more dirt was lifted from the centre of the bed, and less from the wheel tracks, when forming the mould,” said John McPhee.

“We won't know until March how we go with potatoes. They are our hardest bet yet,” said John McKenna. “It's not all straightforward but it is heading in the right direction.” **va**

Healthy focus for conference

Registration is now open for the 2009 Australian Vegetable Industry Conference.

From 4 to 6 May 2009, more than 40 exhibitors and up to 600 delegates are expected to descend on the Melbourne Convention Centre for this important biennial event.

The conference steering committee, comprising representatives of key industry sectors, has been a dedicated force in informing the direction of the conference. Committee members include:

- Des Jennings, potato industry representative
- Luis Gazzola, vegetable industry representative
- Tony Imeson, EO, Vegetable Growers Association Victoria
- John Said, AUSVEG board member, Vegetable Industry Advisory Committee member
- Nigel Crump, Potato Pathologist, Australian Potato Research Program, DPI Victoria
- Rick Butler, young grower representative, Production Advisory Group
- Joanne Thomas-Ward, EO, Onions Australia
- Katie Fisher, Victorian Industry Development Officer.



Healthy growth

The conference will have four main focus areas, each derived from the theme, "Growing a Healthy Australia": Growing Healthy Growers, Growing Healthy Consumers, Growing a Healthy Environment and Growing a Healthy Business. These demonstrate the industry's commitment to strengthening both its economic position and its corporate social responsibility to the environment and consumers.

The gala dinner, to be held on Wednesday 6 May at the Crown Palladium, Southbank, is sure to

be a fantastic finish to the conference. The evening will feature the 2009 Australian Vegetable Industry Awards presentations.

Many organisations have already taken the opportunity to demonstrate their support for industry by sponsoring the conference, including:

- Platinum: Bayer CropScience
- Gold: Landmark, Vin Rowe Farm Machinery, BASF Australia, Withcott Seedlings
- Silver: DOW AgroSciences, Terranova Seeds, Bejo Seeds, Du Pont, Syngenta Crop Protection
- Bronze: South Pacific Seeds,

Crop Care, Wyma Engineering, Spraygro Liquid Fertilizers
Confirmed trade exhibitors include the abovementioned sponsors as well as APRP (Processed Potato IAC), Agsafe, Measurement Engineering Australia, the National Harvest Labour Information Service, Seminis Vegetable Seeds, Barmac Industries Pty Ltd and Melbourne Wholesale Fruit, Vegetable and Flower Market.

Opportunities are still available for conference sponsorship and exhibitors. For more information, contact Max Hyde, AUSVEG Sponsorship Manager, on 03 9870 4161 or <max@hydemedias.com.au>.

Registration brochures are available with this issue of *Vegetables Australia*, or register at the conference website, www.vegieconf.com.au.

Register before 27 March 2009 to receive an early-bird discount.

For more information visit:
www.vegieconf.com.au
or phone AUSVEG on 03 9544 8098

Conference registration prices

	Early bird (closes 27 March)	Standard (post 27 March)	On-site
Full conference registration—National Vegetable/Potato/Onion Levy payer or student	\$295	\$345	\$395
Full conference registration—Non-levy payer	\$395	\$445	\$495
Day delegate—Tuesday 5 May 2009	\$245	\$245	\$295
Day delegate—Wednesday 6 May 2009	\$245	\$245	\$295
Vegetable Industry Awards and gala dinner*	\$135	\$140	\$165

*SPECIAL OFFER: 'Table of 10' discount is available for the Vegetable Industry Awards and gala dinner: Book a table of 10 and get the tenth ticket free! All prices include GST and are quoted in Australian dollars.

Ask the industry

Phil Hoult, Technical Services Lead for Syngenta Crop Protection, responds to questions, concerns or problems you have about protecting your crops.

What effect do environmental conditions have on spraying and what is Delta T?

Many environmental factors affect the performance of herbicides, fungicides and insecticides. Temperature, humidity, light intensity and wind conditions during spraying can mean a loss of chemical through drift or evaporation. Under conditions of high temperature and/or low humidity, spray droplets can evaporate quickly and may not reach the intended target.

There are two critical outcomes of this. If the chemical or spray droplets are drifting or evaporating, efficacy can be affected because the chemical is not reaching the intended target. More importantly, if the droplets are drifting, the risk of off-target damage or contamination are a major concern.

Delta T

In recent years, the use of Delta T measurement has been a useful management tool to gauge the suitability of environmental conditions (temperature and humidity) for applying pesticides. It also helps reduce the risk of spray drift and subsequent off-target damage.

Delta T is the difference between temperatures recorded by a wet-bulb and a dry-bulb thermometer. Ideally, Delta T should be less than 8 °C and preferably not greater than 10 °C.

See Figure 1 for a simple guide to determining suitable Delta T conditions for spraying.

If you are able to measure the temperature and relative humidity, you can easily determine the Delta T value.

Alternatively, growers can take advantage of advances in technology with access to web-based forecast-

ing tools, which can determine the suitability of conditions for spraying.

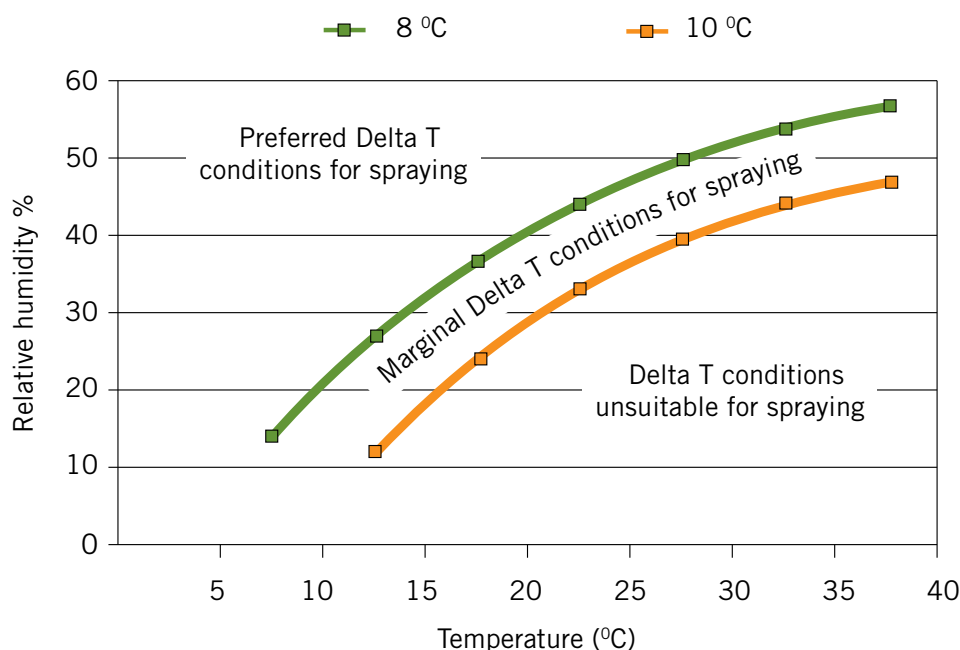
A number of forecasting programs are available online, including the AgriCast Spray Window Forecasting Tool from Syngenta.

The use of Delta T is just one management option to achieve better results and stewardship when applying crop protection products,

and advances in technology, such as web-based forecasting tools, now provide growers with even greater decision support. [va](http://www.vanrowe.com.au)

i If you have a question to ask the industry, email editor@ausveg.com.au or ring the Syngenta Technical Product Advice Line on 1800 067 108. Some questions may be published.

Figure 1. Suitable Delta T conditions for spraying



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DNA technology is being developed to correctly identify soil pathogens, helping growers make smart decisions about what crops to plant where, discovers Emily Webb.

Testing times

Usually associated with crime detection and human reproduction, what does the science of DNA (deoxyribonucleic acid) have to do with vegetables?

Dr Kathy Ophel-Keller, plant and soil health principal scientist at South Australian Research and Development Institute (SARDI), has been investigating the use of DNA methods to develop better diagnostics for disease management. This includes research into the development of DNA tests to determine pathogens in potato

crops. She said that the science of DNA could be an effective tool for vegetable growers—particularly in relation to soil-borne pathogens.

It's a logical step for the science, as agricultural R&D DNA diagnostic methods were first used in Australia to help grain growers predict the likely extent of losses from various soil-borne diseases. Several research labs working with similar ideas joined forces in 1998, combining technology to measure the

fungus *Rhizoctonia* and later, cereal nematodes.

One stop shop

Kathy said the rapid development of DNA technology in the 1990s provided, for the first time, a means of assessing a diverse range of organisms in a single soil sample. This research is important for vegetable growers because DNA science and methods are also appropriate for their crops.

“The use of DNA methods can

help develop tests for key vegetable pathogens that will assist growers by giving them an idea, prior to planting a crop, of the presence and levels of important soil-borne pathogens,” said Kathy.

The tests could give growers an indication of the likelihood of crops developing disease. Growers can then decide about the level of applied treatments, or whether they choose not to grow crops in particular paddocks.

“Growers could also reduce unnecessary use of fungicide

DNA—the basics

DNA (deoxyribonucleic acid) acts as a blueprint for all living organisms and some viruses. It contains genetic instructions used in the development, construction and functioning of these organisms.

The main role of DNA molecules is to store information; the segments of DNA that carry this genetic information are called genes. For humans, these genes relate to specific instructions, most easily seen in physical characteristics. For example, there is a gene for blue eyes and a separate gene for brown hair.

Within cells, DNA is organised into structures called chromosomes. Chromosomes are found inside the nucleus of a cell, which acts as the cell's control centre. Chromosomes are duplicated before cells divide, in a process called DNA replication.

The appearance of DNA is usually described as a 'double helix'—two strands coiled around each other. These strands are long polymers of simple units called nucleotides. DNA is shaped like this for two reasons: to reproduce itself, and for strength. DNA is incredibly compact; if the DNA of a single cell was uncoiled, it would measure a metre.

or nematicide if pathogen levels are low. The DNA-based disease management methods would be particularly relevant for root vegetable crops such as carrots but can be applied to any crop that is affected by soil-borne disease," said Kathy.

The tests involve the extraction of DNA from soil samples, which is then tested for specific pathogens. DNA strands within the sample will come from many sources—insects, the soil itself, plants and the pathogens the tests are designed to detect.

Kathy said it was the only definite method of determining the presence of disease.

"Growers send a soil sample to obtain a pathogen profile of their soil. Usually, growers determine soil suitability by past experience. DNA-based disease management diagnostics help growers make informed decisions about where and what to plant."

Only the beginning

A DNA test has been created for root-knot nematode that affects vegetable crops. Developed in conjunction with Graham Stirling, a Queensland-based nematologist, the test will determine the reliability and thresholds for tomatoes.

"There has also been a test developed for Fusarium wilt of tomato. Fusarium wilt is the most important soil-borne pathogen of tomato in tropical and subtropical



“DNA-based disease management methods would be particularly relevant for root vegetable crops such as carrots.”

areas of Australia," said Kathy.

While the scope of DNA science is broad, and does cross over into the controversial area of genetically modified organisms (GMO), Kathy said these diagnostic tests do not involve any genetic modification.

"They simply use a specific DNA sequence to find a matching DNA sequence in the soil sample. They do not involve any modifica-

tion of the pathogen or plant," she said.

The tests may also lead to growers using less chemical controls on their crops, which helps save money and is more environmentally friendly.

However, DNA-based methods for disease management are still a way off for the vegetable industry. There is no specific Australian R&D project currently

underway, said Kathy.

In the UK, research is being conducted into DNA-based technologies for the identification, detection and diagnosis of fungal pathogens for use by commercial mushroom growers.

"One of the main benefits of the DNA-based tests is that you can test more than one thing at a time," said Kathy. This knowledge is important for growers, but other factors do need to be considered.

"The relationship between the level of each pathogen and the disease it causes is affected by different factors. It's what growers do with the test results that matters." ▼



New constitution set to grow AUSVEG

The new AUSVEG constitution provides the opportunity for individual growers to have voting rights, provided they are also members of a state or regional industry group, or a national commodity group, that is itself a member of AUSVEG.

THE BOTTOM LINE

- Changes to the AUSVEG constitution have opened the way for increased member numbers by allowing state, national and commodity groups, individuals, businesses and other entities to join.
- Voting members of AUSVEG must also be members of a state or regional industry group, or a national commodity group, that is itself a member of AUSVEG.
- The Board of Directors will now have a maximum of 10 directors—an elected representative from each state and territory (excluding ACT), and up to three appointed directors.

Changes to the AUSVEG constitution have opened the way for increased member numbers. Whereas previous membership of AUSVEG was limited to one state grower representative body from each state and selected individual growers, the new constitution allows increased membership under several categories. Broadly speaking, there are two main categories: voting members and non-voting members.

Voting versus non-voting

The main difference between voting and non-voting members of AUSVEG is that voting members have the right to vote at general meetings of AUSVEG. This may be to elect board members, make

changes to the constitution, and help guide AUSVEG policy and direction.

Voting members can also be elected to the AUSVEG Board of Directors.

A voting member of AUSVEG is an individual or entity (a person, partner, association, trust, joint venture or company) within the Australian vegetable industry who is also a member of a state vegetable industry group, a national commodity group, or a regional vegetable industry group, provided that these groups are also members of AUSVEG.

A non-voting member of AUSVEG is an individual or entity that is an honorary, corporate, individual levy-paying grower, or associate member.

Honorary membership is a status conferred to an individual in light of extended service to the industry, upon recommendation by the board.

Corporate members are for-profit entities, while associate members are not-for-profit entities, including those that represent an industry association or supply chain component.

To clarify, if individual growers want to be voting members of AUSVEG, they must also be a member of a state or regional industry group, or a national commodity group, that is itself a member of AUSVEG.

Membership payments, if any, are yet to be finalised. It is possible that incoming members will be required to pay a one-off

joining fee, in addition to an annual subscription fee.

Board of Directors

Another major change for the new constitution is the restructure of the AUSVEG Board of Directors, which will now have a minimum of three and maximum of 10 directors.

Seven of these potential 10 directors are elected (one from each state and the Northern Territory), who can then select and appoint up to three more directors.

While the elected directors are nominated from state or regional vegetable groups, they represent all growers in their respective state or territory. A key difference in the new constitution is that elected directors now represent the states, not state associations.

All state or regional vegetable industry groups that are members of AUSVEG may nominate one representative for consideration

to be an elected director on the AUSVEG board.

If more than one person in a member group wants to be nominated as a candidate for an elected director of AUSVEG, it is the responsibility of that group to hold an election so that only one representative is nominated to the AUSVEG board.

If, for example, three nominations for the Victorian representative on the AUSVEG board are put forward by three state or regional vegetable industry groups within Victoria, then all members of Victorian-based state or regional groups, which are also AUSVEG members, have voting rights to elect a state representative to the AUSVEG board. It's important to note that elected directors represent all growers in their state, not just those growers who are members of the state/regional group.

Of the three appointed directors, up to two can be skills-based

directors, that is, persons whose background, skills and/or experience may be of benefit to the industry. The third appointed director is from a national commodity group. The appointment of this director is at the board's discretion, from nominations received by national commodity group members. Appointed directors can serve for a minimum of two and maximum of four years.

Transition period

Elected directors will serve three-year terms. However, over the next three years there will be a transition period as the board moves away from its previous arrangement of six state vegetable representatives, six state potato representatives, and one independent chair.

In this transition period, four directors elected in the 2007 AGM will remain in office as continuing elected directors, leaving three directors elected at

the 2008 AGM to make the seven elected directors.

At the 2009 AGM, two of the continuing elected directors will retire from office, replaced by two elected directors. At the 2010 AGM, the two remaining continuing elected directors will retire from office, replaced by two elected directors. From this point on, a three-year cycle of elected directors will be introduced, with three retiring on the first year of the cycle, and two each the second and third years.

At the first meeting of the board after an AGM, the chairperson and deputy chairperson are elected from all the then-current directors, be they elected or appointed.

The new board structure aims to simplify state representation and allow for levels of experience and expertise to be introduced to the board, at the discretion of the elected directors, to further the goals of the industry. **va**

Great selections



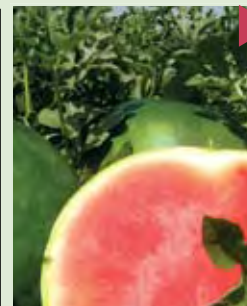
KODAK

- Oblong seeded watermelon
- Crisp flesh, high brix
- Ideal pollinator staked open field crops.



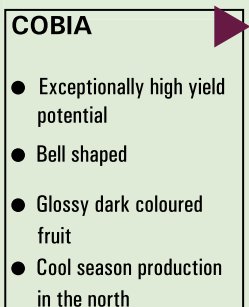
SWEET PEARL

- High Brix
- Smooth white skin
- High yield
- Warm season production



ROYAL ARMADA

- Heavy yielding
- High density flesh
- Fruit 7-10kg
- Good shelf life



COBIA

- Exceptionally high yield potential
- Bell shaped
- Glossy dark coloured fruit
- Cool season production in the north



SOHUTU

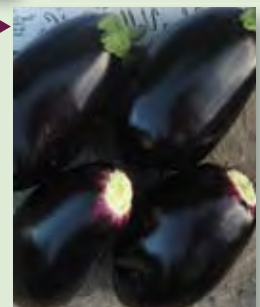
- Hot season production
- Solid dark coloured fruit
- Elongated bell shape



DALIA

- New variety for warm season production in the north
- High yield potential
- Glossy gourmet quality fruit
- Spinless petioles

DE RUITER SEEDS
HYBRID SEEDS



Meet the new AUSVEG board

In line with the new AUSVEG constitution, changes have been made to the AUSVEG Board of Directors. At the time of press, directors for Tasmania and the Northern Territory had not been appointed.

John Brent

Queensland and Interim Chairman

John has a deep interest in regional and rural issues; as Mayor of the Scenic Rim Regional Council in South-East Queensland he is heavily involved in the local community. He has more than 40 years experience in vegetable production; he is a director of Bunny Bite Foods, a family-owned business that grows and processes vegetable crops for diverse markets.

John is a director for Growcom, a board member of Local Government Mutual Queensland, Deputy Chair of the Council of Mayors in South-East Queensland and was an inaugural director of Horticulture Australia Limited (HAL).

He believes that a great base has been established by the previous AUSVEG board, with two distinct arms to the organisation—the desire for enhanced R&D and issues surrounding advocacy for industry.

“We are developing a new team, with new directors and our administrative wing, to work closely with HAL and Horticulture Australia Council (HAC) to achieve these goals,” he said.

John hopes to bring the vegetable industry closer together, which he said will be achieved through “interaction, advocacy and integration”. John was appointed to the AUSVEG board in January 2007 and became interim Chairman in November 2008.



John Said

Victoria

For the past 15 years, John has been Managing Director of Fresh Select, a production/marketing company in Victoria and Queensland that supplies a range of vegetables to local and overseas markets.

A member of the Vegetable Industry Advisory Committee (IAC) and Chairman of the Consumer Advisory Group, John participated in the Australian Rural Leadership Program in 2008.

He hopes to see the vegetable industry create a sustainable future for growers and better value for Australian consumers.

“The industry needs to be re-engaged throughout the supply chain; this is for the benefit of growers right through to consumers. Growers have to be at the beginning and end of this process in order for the whole of industry to benefit,” he said.

John was appointed to the AUSVEG board in November 2008.

Dr Elizabeth Duncan

Skills-based director

Elizabeth has a breadth of practical business, commercial and financial experience gained during the past 25 years. She has held senior management roles in several organisations, consulted across a variety of industries including government, financial services, telecommunications, utilities and professional services. Most recently, she has been appointed to the position of Lecturer in Accounting at La Trobe University.

Elizabeth is noted for her ability to implement rigorous financial and governance protocols, her commercial expertise, and her ability to adapt her skills to many industries. She looks forward to a future where AUSVEG will provide greater benefits to its members and the industry as a whole.

Elizabeth is also Chair of the AUSVEG Finance and Audit Committee. She was appointed to the AUSVEG board in December 2008.



Jim Trandos

Western Australia

Jim runs a third-generation family business, Trandos Farms, with his brother and cousin in Western Australia. He has three farms producing sweet corn and beans in Wanneroo, Gin Gin and the Kimberleys.

As a director of vegetablesWA, Jim represents the interests of Western Australian growers and intends to serve the industry's needs at a national level.

"I'm looking forward to working together with the new AUSVEG board, whilst adding stability and common sense to the industry," Jim said.

He identifies water as the biggest issue faced by industry and believes that when industry partners work together, practical and achievable solutions can be found.

Jim was appointed to the AUSVEG board in January 2007.

Geoff Moar

New South Wales

For the past 40 years, Geoff has grown fresh and processed potatoes in the Riverina area of New South Wales for crisping and fresh markets. He is a member of the Horticultural Committee of NSW Farmers Association, and is keen to improve the percentage of retail dollar delivered to growers.

"When I first started growing potatoes, the percentage was much larger than it is today. Now everybody seems to justify a larger share leaving the grower with much less at the end," Geoff said.

Geoff is concerned about the availability of water throughout Australia, especially the Murray-Darling Basin.

He fears that growers may find themselves having difficulty retaining water rights that they have already secured with the Australian Government, and he hopes to improve this situation for industry.

Geoff was appointed to the AUSVEG board in 2004.



Romeo Giangregorio

South Australia

Romeo is Production and Marketing Manager for Rainbow Fresh, a family-owned business that grows and packages fresh salads and herbs, hydroponic lettuce and Asian vegetables on the northern Adelaide Plains. He holds a Bachelor of Management majoring in Marketing and Human Resources.

Romeo is Deputy Chairman for the Virginia Horticulture Centre where he has been a board member for four years. He serves as board director for the Virginia Irrigation Association, the Adelaide Plains Grape Growers Association, and is part of the South Australia-grown Steering Committee. He is also Chair of a South Australian commodity group.

"I want to be a part of AUSVEG because I believe the industry has a lot of potential and future growth. I don't think that the political arena gives enough consideration to the importance of the horticultural industry, given the necessity of food. Politicians and consumers need to be reminded of the necessity and importance of growers in Australia," he said.

Romeo was appointed to the AUSVEG board in June 2008. [va](#)

In the choice between proactive and reactive management of crops and properties, Greg Paynter says growers must decide what they want their focus to be.



Should technology be our focus?

Organic agriculture is based on a number of fundamental principles, including a focus on proactive rather than reactive management. Organic growers plan for potential problems with the aim of stopping them from occurring, instead of waiting for problems to eventuate and reacting accordingly.

The second principle is that organic growers design farming systems that utilise existing ecosystem functions; they do not rely on inputs. Systems that are designed to use ecosystem services—provided free by nature—are more cost-effective than those contained in bags or drums, which inevitably must be paid for.

To successfully engage in proactive practices, growers require

skills and knowledge in agroecology. This can arise only from experience, either derived from cultural practice and observations, or some form of study.

Balancing act

While the Australian Organic Standard (AOS) prevents organic growers from using forms of technology such as genetically modified organisms (GMO), irradiation, nanotechnology, and synthetic fertilisers, herbicides, insecticides and fungicides, this does not mean that organic growers are Luddites, ignoring all forms of technology. In fact, it's quite the contrary—they judiciously use technology to augment processes in organic farming systems, for example, GPS guidance systems, biological inputs, and Bt (*Bacillus*

thuringiensis) and other biopesticides.

Bt is a soil-dwelling bacterium. The spores and crystalline insecticidal proteins produced by Bt are used as pesticides—because of their specificity they are regarded as environmentally friendly, with little or no effect on humans, pollinators and most other beneficial insects.

Organic growers understand that soil has a carbon to nitrogen ratio that nature keeps in equilibrium. If they utilise practices that increase the carbon content of the soil, there will be a corresponding increase in total nitrogen.

Secondary effects of adding carbon in the form of organic matter are increases in crop production; water-use efficiency; resistance to pests, disease and weeds;

quality of product; and carbon sequestration.

Technocentric versus ecocentric

While plastic mulch has been used widely as a weed-control measure, it can create environmental problems. Research trials are being conducted into biodegradable plastic mulches; however, the embedded energy costs of these technological approaches to the problem of weeds are high.

A separate research project, which finished in 2006, worked towards the establishment of no-till permanent bed vegetable production systems in Australia's major vegetable growing regions. The project, led by Gordon Rogers from Applied Horticultural

Research, aimed to increase sustainability in relevant horticultural industries through the long-term maintenance of soil health and stability, as well as eliminating reliance on plastic mulch.

Cover crops were established on beds, grown to maturity, killed and then flattened into an organic mulch. Commercial crops were directly sown or transplanted into this cover crop residue. The mulch is created by solar energy, and through the cover crop's growth phase its root residues and exudates increase organic

and there is also rust to contend with. New technology is constantly being introduced to the market, which means that costs to remain current consistently increase, while profitable outcomes are assumed, not guaranteed.

In contrast, good organic growers use ecological design and knowledge application to reduce the need for technological fixes. An outcome of this is that nature does the work for you. So, it becomes a question of whether you want to depend on technology or your understanding

“ Organic growers judiciously use technology to augment processes in organic farming systems. ”

matter in the soil. This helps improve water-use efficiencies and soil health, and hence the grower's bottom line.

Ecocentric approaches tend to have multifunctional outcomes as described above, whereas technocentric approaches can address problems but often have unforeseen outcomes and externalities that the wider community has to accommodate or rectify.

Beat depreciation

In my experience as a broadacre farmer, both organic and conventional, every time you change technology it increases the capital cost of growing your product. Machinery can depreciate quickly

of the complexities of ecosystem functions in the management of your crops and land.

As Prince Charles said, “if we hope to restore the balance, we must reintegrate the best parts of this ancient understanding of harmony with the best modern technology and science, not least by developing innovative and more benign forms of technology that work with the grain of nature rather than against it”. **va**

Greg Paynter is a sub-contractor to Biological Farmers of Australia. He also runs Organic Advisory Service.



Light touch

One organic grower is making his mark with cutting edge technology.

Anthony Beutel, director of Googa Farms, is a grower who has found an alternative to stickers and plastic-wrap to label his produce as organic—he uses light laser technology.

The light laser machine—the only one of its kind in Australia—uses natural light technology to remove a layer of pigment from fresh produce, etching a fine permanent mark that cannot be tampered with or swapped for conventional product stickers in-store.

While Anthony is currently using this technology for his organic avocados, it may also be suitable for thick-skinned vegetables such as pumpkins.

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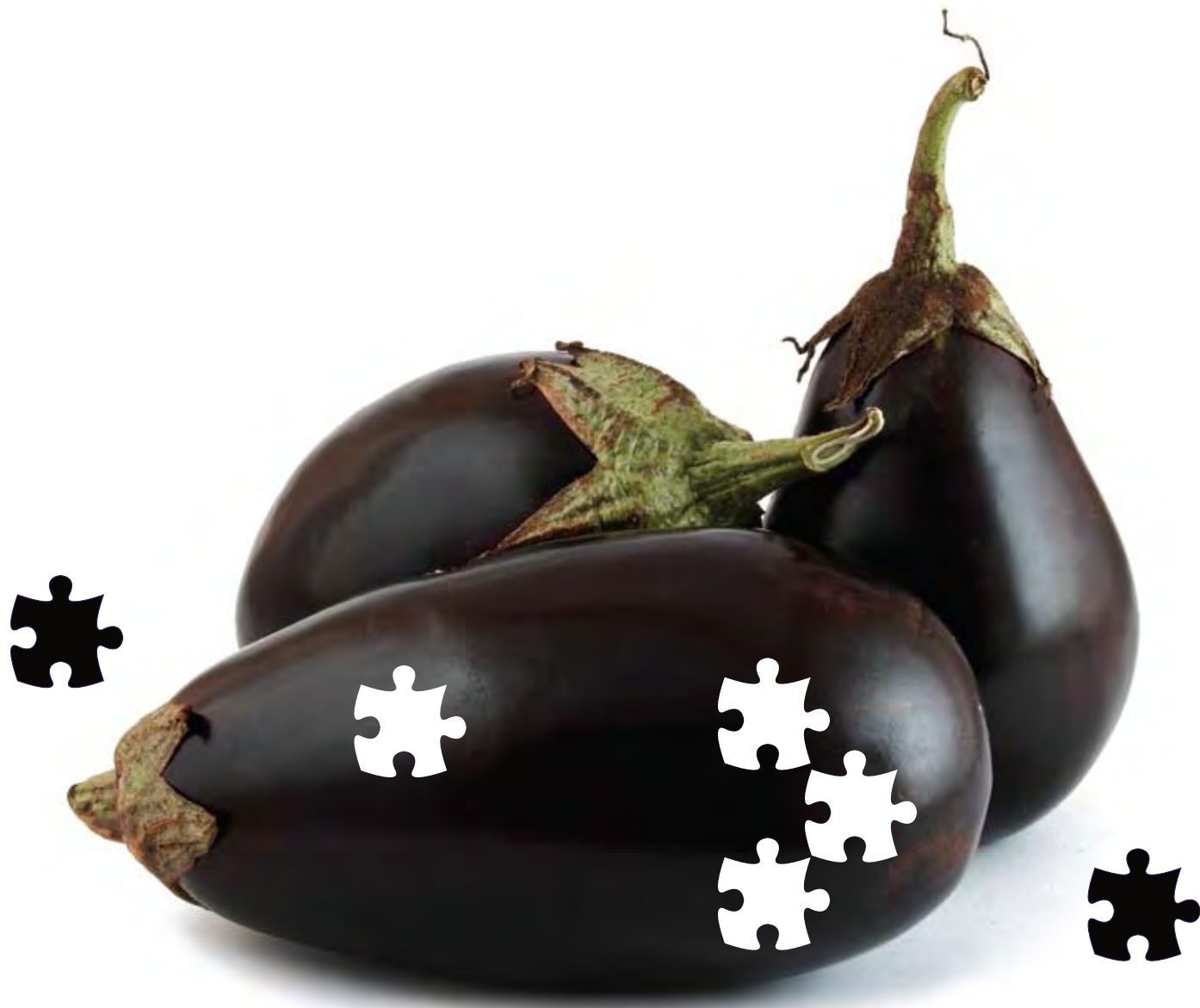
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Completing the picture of pathology research

Coordinating a national R&D program is a huge task. A concerted effort to find and fill knowledge 'gaps' is helping growers get the information they need, discovers Youna Angevin-Castro.

Identifying priorities for industry research and development (R&D) can be a challenging process. The Australian vegetable industry is a geographically, demographically and economically complex industry, not to mention the diversity of pathology that affects vegetable crops Australia-wide. The ability to address competing priorities requires an understanding of the issues at hand as well as an understanding of the ability of research to address these issues.

Until recently, the process of identifying and funding suitable R&D programs occurred in an ad hoc manner, with research

providers submitting research proposals during the annual industry call for submissions. However, according to Leanne Wilson, Horticulture Australia Limited's Plant Health Manager, this process lacked strategic direction.

"There was a feeling amongst researchers that there were no firm research priorities, making it very difficult to develop research proposals for industry that would address its specific needs," Leanne said.

To better define its research needs, the industry has undertaken a gap analysis—a process of identifying the gaps in industry

knowledge. In 2006, industry used this process to evaluate priorities in integrated pest management (IPM) research, with a particular focus on entomology and generic IPM issues. The process was so thorough, it prompted further gap analyses in the fields of nematology and plant pathology, and has led to the development of a nationally coordinated program in pathology research.

Setting priorities

As the coordinator for the vegetable pathology research program, Leanne recognises the role that the gap analysis

process has played in providing the strategic framework for future pathology investment.

“The industry-commissioned review of vegetable pathology was undertaken with the intent of establishing key priorities for research. By identifying the gaps in knowledge, we’ve been able to develop recommendations to industry for strategic short- and long-term investment,” Leanne said.

The gap analysis took a two-pronged approach, including a review of pathology research conducted over the past 20 years, as well as gathering information directly from industry experts.

“Workshops were conducted in each state, and participants, including consultants, growers and researchers, were asked to rank pathology issues according to their perceived priority. In an industry such as the vegetable industry, where you have a broad range of issues, it was important to have a mechanism for measuring the size and importance of each problem in relation to others, and the ranking system enabled us to do that.”

Leanne explained that these rankings were used to identify common priorities across different states and stakeholder groups, and the results then formed the basis for restructuring the vegetable pathology program. Six key program areas—pesticides, soil-borne diseases, foliar diseases, viral diseases, communication and extension, and innovative science—were developed, and projects were commissioned according to their ability to address these issues on a national level.

Joint effort

“The new pathology program requires projects to have a national focus. We found that there were a number of projects addressing the same problems, but in different states. Now, because of the national focus, we encourage research institutions to join forces and collaborate on a national level.”

Leanne believes that much of the success of the gap analysis

and priority-setting process can be attributed to the joint contribution of both researchers and growers.

“Both have their expertise: the researchers are able to recognise what is achievable, while the growers make a financial investment and are

“By identifying the gaps in knowledge, we’ve developed recommendations to industry for strategic short- and long-term investment.”

the ones who need to adopt project outcomes on-farm.”

As one of the researchers involved in conducting the gap analysis, Dr Ian Porter, of Victoria’s Department of Primary Industries, believes that the new program will encourage re-

searchers to ‘step up’ the services they provide to industry. He sees gap analysis and priority-setting as an ongoing process, and said that research outcomes can only improve over time, providing that stakeholders work together.

“This program has already seen an improvement in the coordina-

tion between research providers nationally, and the resultant outcomes will be a real benefit for industry in the next few years,” said Ian.

“This national program is the best thing for IPM research. The new structure allows researchers

THE BOTTOM LINE

- A gap analysis has been conducted to find any ‘holes’ in industry knowledge relating to vegetable R&D in Australia.
- Areas where R&D is still needed have since been highlighted as priorities for future projects.
- A national focus is also a component of future projects, ensuring that service providers work together to provide outcomes that benefit as many growers as possible.

For more information visit:
www.ausveg.com.au/levy-payers
 Project number: VG06092
 Keywords: IPM gap analysis

to understand how their projects contribute to the overall pathology program, and providing that they remain focused on the bigger picture of improving adoption of IPM by industry, this can only mean better outcomes for all.”

Virus education a national concern



Workshops and a guidebook for growers about better management of viruses are on their way.

One of the key project areas resulting from the IPM gap analysis was a national IPM virus project, led by Denis Persley of Queensland Department of Primary Industries and Fisheries. The project is working towards aiding growers to better manage the impact of virus diseases on their vegetable crops.

Virus diseases cause important economic losses in many vegetable crops in Australia, and are often difficult to manage because many have active insect vectors, such as aphids, thrips and whiteflies. According to Denis, the key to successful viral disease management is an understanding of how viruses work, and this forms a major focus of the research.

“Many consultants and industry representatives who deal with growers on a regular basis have very broad knowledge about viruses, but often lack some of the detail that is critical to effectively managing the problem,” said Denis.

“Part of the project will work towards providing training opportunities, through workshops, on what viruses are, how they are spread, and the important issues for the management of these virus diseases.”

Since the commencement of the project in 2007, surveys have been conducted on nominated crops in each state to identify viruses of importance, and their impact on vegetable crops.

“We’ll conduct further surveys this year, and use that information to develop training workshops, a series of reference notes, and a guidebook about virus diseases in vegetable crops, which will outline symptoms and tips for managing diseases.”

For more information visit:
www.ausveg.com.au/levy-payers
 Project number: VG07128
 Keywords: Improved IPM management

Make light of cold-storage hurdles

Exposing vegetables to ultraviolet or xenon light could be growers' key to securing distant export markets, discovers Graham Gosper.

Promising results from initial trials that involve treating vegetables with powerful bursts of ultraviolet (UV) light have raised hopes for a research breakthrough that could revolutionise the industry's cold-storage practices.

The results indicate UV-C light treatments can significantly reduce chill sensitivity and rots in vegetables, allowing mixed lines to be stored at lower than recommended temperatures for longer periods, without significant loss of quality.

Chill factor

New South Wales Department of Primary Industries Research Horticulturist Dr Jenny Ekman said, though it is still early days, the results raise some exciting prospects.

"If further testing confirms the initial trials, UV treatment systems could have a major impact on cold-storage practices for

vegetables and a whole range of other horticultural produce. They may pave the way for Australian vegetable growers to access lucrative new markets in distant countries," she said.

The light-treatment trials are part of the second stage of a levy-sponsored project, "Evaluation of New Shipping Technology", which aims to find cost-effective ways for growers to ship vegetables to distant markets. Jenny is the leader of the project, which began in 2004.

The first stage assessed the effectiveness of using modified atmosphere (MA) shipping containers and different types of packaging for overseas vegetable exports. MA and standard reefer containers were used in trial shipments of broccoli, cauliflower and lettuce to the Middle East, with parallel container tests carried out at the Food Science Australia facility at North Ryde in Sydney.

The research team found that

“UV-C treatment systems may pave the way for growers to access lucrative new markets in distant countries.”

although MA shipping technology had a number of advantages, the expense and extra difficulties involved were not justified when exporting these products to Dubai, as the shipping time is relatively short.

Quality veggies to distant markets

The second stage of the project, which began in March 2007, is examining a range of issues raised by the earlier studies.

Jenny said the wide variation between the optimum cold-storage temperatures recommended for various vegetable lines is a major obstacle for anyone seeking to ship mixed vegetable consignments to distant markets.

With that in mind, the research team looked for ways to protect vegetables from chill damage so different lines could be stored at common low temperatures during transport.

One of the technologies trialled

involves exposing capsicums, cucumbers and chillies to germicidal UV-C light from lamps similar to those used in laboratory sterilisation procedures.

The researchers found that exposure to the UV-C light can significantly reduce chill sensitivity and rot damage, and may allow treated vegetables to be stored at low temperatures for up to six weeks or longer without significant loss of quality.

The capsicums were treated with UV-C light before they were stored at 2 °C for periods ranging from two to six weeks.

Then they were moved to a 20 °C-environment for two days.

“Attributes including pitting, decay, colour and weight loss were measured. We found exposure to UV-C light led to a significant reduction in pitting and improved the overall acceptability of the capsicums,” said Jenny.

Destroy germs

Similar experiments were conducted with chillies. “Red or green chillies that were exposed to UV-C light were still generally acceptable following up to five weeks’ storage at temperatures well below recommended levels,” said Jenny.

Cucumbers were included in initial trials following the encouraging results achieved with capsicums and chillies.

“Cucumbers are highly chilling-sensitive and were chosen as a model crop. Exposure to UV-C light reduced yellowing, softening and the onset of rots following one week’s storage at 5 °C and two days at 20 °C. There were no negative impacts observed in terms of weight loss or other quality attributes,” said Jenny.

Exposing vegetables to UV-C light could offer other benefits. “Germicidal UV-C destroys any microorganisms on the vegetables before they get the chance to germinate and spread through the flesh during storage,” said Jenny. “It may also enhance the production of special defensive compounds by



Light treatment may prove to be a boon to Australian exporters, allowing produce to resist chill damage, spending more time in cold storage without significant loss of quality. Images supplied by Dr Jenny Ekman.

the vegetables themselves—a bit like people who have a flu injection before winter.”

X marks the spot

The next round of experiments will involve a wider range of vegetable lines and xenon light—a relatively new technology used for flash photography, lasers and production of Blu-ray discs.

“To our knowledge, this will be the first time that researchers will examine the effects of xenon light on whole vegetables anywhere in the world. Xenon light offers a faster, more efficient means of treatment that could readily be incorporated in production lines. Xenon lamps produce pulses of wide-spectrum radiation, including large amount of UV-C. These are much more intense than achievable with conventional UV-C lamps,” said Jenny.

“It is possible that a couple of seconds of pulsed xenon light will produce results similar to that gained through several minutes’ exposure to conventional UV-C lamps. Xenon lamp output is stable and produces no radiant heat.

“There may be other benefits; xenon light has been demonstrated to increase the vitamin content

of mushrooms, suggesting it can stimulate photochemical production.”

Despite the promise shown by the UV-C trials, Jenny said a great deal of work still needs to be done. The second stage of the project also involves research into the effects of growing conditions and harvest times on the storability and shelf life of vegetables.

“Initial trials suggest these and factors such as variety can have significant and sometimes unexpected effects. This work will also help us to determine the optimum time for UV-C treatments to achieve maximum benefits,” she said, adding that the research team is encouraged and excited by the early results in both areas.

“Any development that slows down the rate at which vegetables burn their fuel reserves after harvest has the potential to give the product longer legs and improve quality at all stages of the supply chain. In an industry where estimates of post-harvest waste vary from 20 to 40 per cent, that has to be a good thing.”

THE BOTTOM LINE

- Initial trials into shipping technology have found that ultraviolet light (UV-C) may protect vegetables from chill damage, allowing longer periods in cold storage without significant loss of quality.
- UV-C also works as germicide, destroying microorganisms on vegetables before they get the chance to germinate.
- Xenon lights are being tested as a potential UV-C replacement, as a few seconds of pulsed xenon light may provide the same benefits as exposure to several minutes of UV-C light.

i For more information contact:
Dr Jenny Ekman, New South Wales Department of Primary Industries
Email: <jenny.ekman@dpi.nsw.gov.au>
or visit
www.ausveg.com.au/levy-payers
Project numbers: VG04020, VG06045
Keywords: Shipping technology

Dutch innovation sets pace for greenhouse industry

From aquaponics to moving gully systems—the world of greenhouse-specific technology aims to sustainably increase production levels, discovers Youna Angevin-Castro.

A recent greenhouse study tour of the Netherlands revealed a new wave of technological innovations set to transform the way Australian greenhouse growers tackle production into the future. Led by Graeme Smith, President of the Australian Hydroponic and Greenhouse Association (AHGA), the study tour exposed a group of growers to some of the latest, cutting edge technologies in protected cropping.

“As the Netherlands is the leader in greenhouse growing, there is an enormous amount to be learned from growers there in terms of increasing efficiencies and profitability in the greenhouse and hydroponic sector,” said Graeme.

With climate change being a global concern, Graeme believes that much of the technology being used in Europe addresses issues that also affect Australian growers.

“We’re seeing a lot of technologies that are tackling issues of water conservation and how to deal with increasingly hot and dry climates—both of which are particularly important to the local industry,” he said.

Water wise

While close to 90 per cent of Australian greenhouse growers operate free drainage systems, issues surrounding water security may require growers to consider converting to a closed irrigation



Lettuce grown to maturity in three weeks in Belgium NFT moving gully system. Images supplied by Graeme Smith.

system. In the Netherlands, legislation requires growers to recycle their water, hence driving technological development in this area.

According to Graeme, many growers could benefit from this approach, but often lack the know-how to close off their systems. He believes that the savings involved with operating a closed system could convince many growers to make the switch.

“Closing off the system can offer

up to 40 per cent savings in water use, and 50 per cent savings on fertiliser. This could save the industry an average of around \$25,500 per hectare,” he said.

Taking water recycling to a new level, aquaponics combines aquaculture and hydroponics within one production system. Fish and plants are grown in an integrated system, where water from the fish tank is circulated through the hydroponic growing beds. Nitrifying bacteria convert

the fish waste into a nutrient supply that can be used by the plants, thereby reducing the need for the addition of chemical fertilisers. Meanwhile, the fish also benefit from the natural filtration functions of the plants, providing fresh, clean water for the fish to live in.

Automated solutions

As the traditional Australian vegetable industry moves towards increased mechanisation, so too

National institute planned

Greenhouse growers may soon have access to a world-class demonstration and training facility in Australia.

While overseas study tours are an excellent way to uncover new trends and innovations, they generally allow only a small number of growers to observe upcoming technologies in situ. With approximately 1,300 greenhouse growers in Australia, this means that many growers are likely to miss out.

Recognising the need to showcase emerging technologies and practices, Goulburn Ovens Institute of TAFE in regional Victoria has plans to build a national centre for excellence in controlled environment horticulture.

The purpose-designed facility, which is expected to get the green-light for construction in the next 18 to 24 months, is likely to feature a large commercial-sized greenhouse operation, as well as smaller demonstration sites for the purposes of showcasing a range of greenhouse crops and technologies.

"The aim of the centre will be to embrace technology from a range of areas and commodities, including floriculture, vegetables, herbs and nursery production," said Leigh Taig, Manager Horticulture at Goulburn Ovens Institute of TAFE.

Working closely with industry, the centre will provide opportunities for growers to observe new greenhouse technologies, as well as offering researchers a state-of-the-art facility in which to conduct horticultural research.

"We hope to establish a training program within the centre, targeted specifically to the needs of the protected cropping industry. This will allow growers to obtain specialised training in greenhouse/controlled environment production—from short courses, through to fully accredited certificate and diploma programs," said Leigh. [va](#)

does the greenhouse sector. As one of the largest producers of hydroponic lettuce and herbs, the Australian industry is likely to show some interest in new crop growing systems that take the hard work out of harvesting.

'Mobile' or 'moving' gully systems are providing automated alternatives to the traditional fixed channel systems traditionally used by hydroponic producers.

The moving gully system works through the automatic conveyance of plants through moving gullies. Plants gradually move from a centralised planting area, through the growing field, before reaching the centralised harvesting area at maturity. As well as reducing labour costs, this technology allows growers to increase the number of plants grown within a fixed area, as access between plants is no longer required between channels for harvesting the mature plants.

"While a reduction in labour costs is obviously one of the drivers of these automated technologies, the benefits extend to increased production, as greenhouse operators are able to maximise floor space and boost

production," said Graeme.

"A typical two-hectare fixed channel greenhouse lettuce system would produce approximately 3 million heads per year. By comparison, the moving gully system could produce around 8 millions heads per year, which represents around two-and-a-half times more than the fixed channel system, and around 16 times the production you would normally expect for a typical field production system," he said.

Climate control

Creating a controlled environment is nothing new to the greenhouse

“A moving gully system could produce around two-and-a-half times that of a fixed channel system.”

industry, however, some of the new technologies being introduced in the Netherlands take environmental control to the next level.

Completely closed greenhouse systems now also use closed ventilation systems. Expired air is



Strawberries grown in hanging gutters in a closed greenhouse system. In this instance, yield targets were 20 kilograms per square metre.

redrawn through the air conditioning system, while transpired air is also recaptured.

"This reduces the level of evapo-transpiration, which means that growers using this system can reduce their water use. The

addition of carbon dioxide is often used to enrich greenhouse atmospheres, and by closing off the system completely, high levels of carbon dioxide can also be retained," said Graeme.

According to Graeme, increases in production have been experienced by Dutch growers using a fully closed system, with yields of up to 105 kilograms per square metre, compared with an average yield of 60 to 70 kilograms per square metre in open ventilation systems. [va](#)



Classic cultivars to make a comeback

After receiving a Pratt Foundation/ISS Institute Fellowship last year, Nic Gowans, VegCheque Officer at DPI Victoria, spent one month touring the United Kingdom to learn more about heritage vegetable cultivars.

It is 'five minutes to midnight' in the race to preserve the genetic diversity of heritage fruit and vegetables, and we need to ask ourselves the question: What is worth saving? Valuable pockets of diversity in Australia must be preserved for future generations, so it is time for local research to address the issue.

As part of my fellowship, I undertook the daunting task of identifying and collating data on heritage fruit and vegetables—cultivars that are no longer grown

by industry for commercial, mass-market consumption.

In a best-case scenario, the aim of the fellowship is to reintroduce heritage fruit and vegetable cultivars as viable alternatives for both the commercial and domestic markets, such as in nurseries. A broader range of cultivars will increase our options for texture, taste and nutrition, and provide protection against pests and diseases.

Beyond just a list of names in a database, the task required a

more complex understanding of the 'genetic fingerprints' of cultivars to clarify the depth of the gene pool and track down what cultivars we still have in Australia. Fortunately, much of this work is already occurring in Europe, and there is a cautious optimism that we will see this research benefit Australian growers.

Impact of globalisation

The playing field of horticultural production has been changed by globalisation. The quest for

critical-mass efficiencies and the market's love affair with logistics and assured supply pathways means that commercial entities mould production in terms of not only what we grow but also when and how we grow it. These factors often determine how businesses are run.

However, a result of this change has been the genetic attrition of vegetable cultivars, as selection criteria move from desired consumer characteristics of taste, texture and seasonality, towards

“ Many of the older potato varieties in Europe have ingrained resistance to pests such as Potato Cyst Nematode. ”

commercially desirable factors such as storability, even yields, uniformity and appearance.

The rate of genetic attrition differs from country to country but older cultivars can help remedy this situation. There is opportunity to study their characteristics in the context of climate change, low-input sustainability, the issue of cultivar ownership, and the market parameters that will be categorised by carbon footprints of food production.

Celebrate diversity

Genetic diversity in vegetable varieties is necessary. Monocultures (growing a single species, often genetically uniform) increase risks from pests and diseases. The Irish Potato Famine of the 1840s was partly a result of growing potato varieties that contained a narrow range of genetic diversity.

The reintroduction of older



Modern production methods for the commercial vegetable industry were exhibited alongside examples of heritage cultivars at the Chelsea Flower Show 2008 in England. Images supplied by Nic Gowans.

cultivars provides plant breeding material with the potential to counteract the shortcomings of the ‘new norm’ of the modern marketplace. For example, many of the older potato varieties in Europe have ingrained resistance to pests such as Potato Cyst Nematode, which is an immediate biosecurity concern to the Australian potato industry.

The vegetable industry faces many challenges including high food prices, food accountability and the quest for local, sustainable production methods—but there is the opportunity for heritage vegetables to play a role.

The United Kingdom has a powerful groundswell of support for the protection of cultivars; partnerships between industries and organisations have proven critical to the preservation of its food produce. This is the nature and scale of collaboration that the Australian industry must promote in order to provide a healthy basis for the future of the nation’s horticultural food production.

We should be grateful for the heritage passed on to our generation by our forefathers. Let us hope that our children will be as fortunate. va

THE BOTTOM LINE

- Globalisation encourages critical-mass production efficiencies in the vegetable industry.
- It has also resulted in the favouring of vegetable cultivars that have commercially-desirable attributes such as storability, even yields, uniformity and appearance.
- There are opportunities for heritage vegetable cultivars (varieties that are no longer grown commercially) to be re-introduced to commercial and domestic markets to provide increased variety and protection from pests and diseases.

For more information visit:
www.issinstitute.org.au



Fellowship findings

- Australia needs to collate and identify its food-based plant material into a central catalogue in order to align itself with potential opportunities.
- There are distinct opportunities for plant breeding of cultivars in the commercial sector and for marketable quantities of specialist material in the domestic sector.
- Small- and larger-scale enterprises are well positioned to respond to new opportunities.
- New technology and genetic information is making ‘traditional information’ and nomenclature about vegetable cultivars less important.
- Varieties are trending away from ‘public inheritance’ towards private ownership and bureaucratic hindrances such as the National List in the United Kingdom.
- There is little need for Australia to replicate the science being developed in Europe. However, we do need to develop collaborative networks to share knowledge.

Carrot export market at risk

Despite no recordings of burrowing nematode in Western Australia's carrot-growing regions, carrot exports to Taiwan may be prohibited entry from March 2009, writes Economist Ian James.

In December 2007, the Taiwanese equivalent of Biosecurity Australia lodged a notification with the World Trade Organization that it was proposing amendments to Taiwan's Plant Protection and Quarantine Act that would apply from 1 March 2009.

The immediate impact on the Australian vegetable industry was that current carrot exports from Western Australia would be prohibited entry into Taiwan due to evidence of *Radopholus similis* (burrowing nematode) in that state. Taiwan is free from burrowing nematode.

Impeccable record

Since 1989, carrots have been exported from Australia to Taiwan almost entirely from Western Australia. In that time there have been no recordings of burrowing nematode infecting carrots anywhere in Australia.

Burrowing nematode is not normally associated with carrot production. A pest of tropical areas, it mainly affects banana plants. The problem for carrot growers in Western Australia is that there has been a record of burrowing nematode in the banana growing area around Carnarvon.

Burrowing nematode is intolerant to cold and is not found outside tropical areas. In the areas around Perth, where carrots are grown, winter temperatures can drop below nine degrees Celsius, which burrowing nematode cannot tolerate. The distance between Western Australia's carrot and banana-growing regions is more than 700 kilometres.

Sound argument

Throughout 2008 a series of discussions were held between Australian and Taiwanese officials

on this matter. Biosecurity Australia, backed by industry and state departments including the Department of Agriculture and Food Western Australia, produced detailed submissions that remain commercial in confidence. Industry and the carrot growers affected were involved in a series of teleconferences, during which Biosecurity Australia provided regular updates. Industry arguments to Taiwanese officials were that:

- burrowing nematode is a tropical-zone pest attacking bananas
- Australian carrots are not a host of burrowing nematode
- the climate in areas of Western Australia where carrots are grown is not favourable to the development of burrowing nematode

- testing has not found any evidence of burrowing nematode in carrot-growing regions.

On the basis of this evidence, Biosecurity Australia argued for recognition by the Taiwanese that carrots from Australia were not a host of *Radopholus similis* and thus posed no risk to Taiwan agriculture. The Taiwanese rejected this argument.

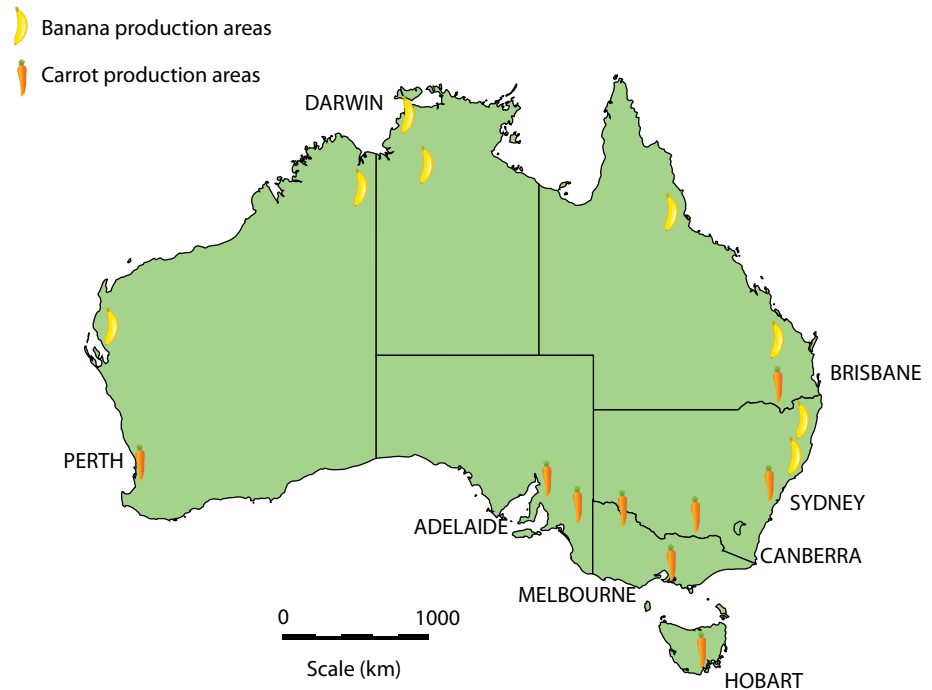
Time's running out

Industry argued that, in the light of this, Taiwan should recognise pest-free production areas within the states of Australia. Under international protocols this is an available avenue. It requires testing by growers and auditing by quarantine authorities of designated places of production. Industry agreed to this procedure and Taiwanese officials are

looking into the matter. However, they have indicated that they would not be able to complete the required assessment and procedures for declaring designated places of production before the March 2009 deadline when the prohibition comes into effect.

Australia has since approached the Taiwanese to ask for a deferral of the prohibition until procedures can be completed. The Taiwanese have shown some reluctance to extend the deadline but have requested a detailed draft protocol for pest-free places of production for consideration before the end of December. At the time of writing the matter has not been resolved but there is a real danger that this market will be lost. **va**

Main Banana and Carrot Production Areas of Australia



From "The Horticultural Statistics Handbook 1999/2000 Edition" Australian Horticultural Corporation (AHC) 1999

AUSVEG CEO Message

November was a significant month for AUSVEG with a new Board of Directors being appointed. The new board was elected under guidelines set out in the new AUSVEG constitution.

Under the amended constitution, the AUSVEG board will consist of a minimum of three and maximum of 10 directors. Seven of these potential 10 directors are elected (one from each state and the Northern Territory), who can then select and appoint up to three more directors.

Of the three appointed directors, up to two can be skills-based directors, that is, persons whose background, skills and/or experience may be of benefit to the industry. The third appointed director is from a national commodity group.

At the time of writing, the new board consists of Interim Chairman John Brent (Queensland), Geoff Moar (New South Wales), Romeo Giangregorio (South Australia), John Said (Victoria), Jim Trandos (Western Australia) and Elizabeth Duncan (skills-based).

Directors from Tasmania and the Northern Territory are yet to be appointed. It is envisaged that the elected and skills-based vacancies will be filled in the coming weeks. For more information about the new AUSVEG Board of Directors, see page 36 of this issue of *Vegetables Australia*.

I would like to thank the outgoing directors for the hard work, dedication and commitment they have made to the Australian vegetable industry. Thank you to: David Anderson (Western Australia), Luis Gazzola (Victoria), Ian Young (Tasmania), Jeff McSpedden (New South Wales),

Phillip Beswick (Tasmania), Des Jennings (Victoria), Steven Page (South Australia), John Bishop (Queensland) and John Mundy (South Australia).

We look forward to working with the new Board of Directors to ensure excellent grower representation through an effective peak industry body.

The HAL Annual General Meeting and forum was held in November. Discussion sessions at the forum included a presentation about the new HAL industry strategy, "Future Focus", carbon footprints, sequestration and emissions trading.

These issues need considered discussion and action, and we can begin by re-thinking our approach to our practices and operational processes.

A reminder that the Australian Vegetable Industry Conference 2009 is less than four months away. It will be held from 4 to 6 May at the Melbourne Convention Centre. The theme, "Growing a Healthy Australia", reflects the industry's commitment to helping address Australia's health issues.

The conference is an excellent one-stop shop for knowledge transfer with networking opportunities for growers and other industry stakeholders. With a wealth of expert speakers presenting on a range of topics, a packed program is already well into the planning stages. The conference registration brochure is included with this issue of *Vegetables Australia*.

If you have any questions about changes to the constitution or the AUSVEG board, or would like more information about upcoming AUSVEG initiatives, please don't hesitate to contact me at <robert.lawler@ausveg.com.au> or on 03 9544 8098.



Robert Lawler
Acting CEO
AUSVEG Ltd

AROUND THE STATES

Northern Territory



The Northern Territory Horticultural Association has appointed a new Executive Officer who commenced in December last year. Kate Peake has had an extensive career, most recently as the Youth Services Manager with Red Cross.

Kate is a born and bred Territorian who was educated at the Northern Territory University, studying Anthropology and Politics.

She has significant administrative and management experience, a good knowledge of the broader social and political environment, strong interpersonal skills and a sincere enthusiasm for learning and working hard.

Kate has a proven track record for bringing interest groups together and negotiating positive outcomes, and a demonstrated ability to form and maintain effective networks.

Having been involved in a variety of projects requiring negotiation and advocacy across diverse stakeholder groups, including implementing local government reform and negotiating organisational partnership and regional agreements, Kate brings a range of skills to the association, particularly in coordination, advisory and liaison roles.

"I have a strong interest in environmental issues and sustainability and I look forward to the opportunity to work with industry on important issues such as efficiency and competitiveness, changes in market demands and the impact of increasing globalisation," she said.

Northern Territory Horticultural Association

Address: PO Box 2207
Palmerston NT 0832
Phone: 08 89 83 3233
Fax: 08 89 83 3244



Queensland

Growcom congratulates AUSVEG on signing the Emergency Plant Pest Response Deed (EPPRD) at the Plant Health Australia offices in Canberra in November last year.

The EPPRD is a legally binding document that details arrangements agreed by government and industry on how to manage a pest or disease incursion (see page 9 for more details).

Other commodities can also take comfort from the potato and vegetable industries signing the deed. The potato and vegetable industries represent a large chunk of the horticulture sector. Some pests and diseases that affect potatoes and vegetables are also common to other commodities; by raising the standard of the national biosecurity response for one industry, other commodities in horticulture will benefit.

It is pleasing to see that AUSVEG has taken this step, which shows a maturing industry outlook where a decision has been made that will benefit all players.

It follows AUSVEG's recent steps to rebuild its role as the peak industry body with the announcement of a new board comprising seven state-representative directors and up to three appointed directors, under Interim Chairman John Brent.

Growcom acknowledges the importance of having an effective peak industry body that works for the benefit of all vegetable growers and looks forward to

working as a member of the newly constituted body on state issues.

Mark Panitz
Chief Advocate
Growcom
Address: Floor 1
385 St Pauls Terrace
Fortitude Valley QLD 4006
Phone: 07 3620 3844
Fax: 07 3620 3880



Victoria

Victorian vegetable growers are encouraged to provide submissions to the State Government Enquiry into Outer Suburban Development and Green Wedge. Growers who farm in green wedges face considerable problems when residential regions spread to the boundaries of vegetable growing areas.

VGA Victoria has prepared a general submission; however, more individual growers are required to provide a brief summary of their specific issues as individual submissions will greatly influence the decisions of the enquiry panel. Contact the VGA office for further details.

The re-design of the VGA Victoria website during 2008 by our Industry Development Officer (IDO) Craig Murdoch has attracted more than three times the number of visitors, included national and overseas interest. Industry issues, vegetable research and e-news articles have proved very popular.

Visit www.vgavic.org.au to see the new website.

The vegetable industry's strategic plan, VegVision 2020, is committed to delivering the next stage of national marketing, consumer and leadership programs.

Your VGA Executive is very active in assisting in the delivery of these programs for Victorian growers and maintaining the IDO position for Victoria into the future. A Victorian Vegetable Industry Strategic Plan is currently being discussed with the initial steering committee.

Fruit and vegetable campaigns that encourage increased consumer consumption of fresh produce can become confusing when numerous programs are delivered across the states. The vegetable industry has been lobbying with no avail to establish a National Vegetable Levy Promotion Program that would benefit all vegetable producers. VGA Victoria endeavours to support the campaigns by providing representation, including donations of fresh vegetables to local and regional promotions.

Tony Imeson
Executive Officer
VGA
Address: Mail Box 111
Melbourne Markets
542 Footscray Rd
West Melbourne VIC 3003
Phone: 03 9687 4707
Fax: 03 9687 4723
Email: <contact@vgavic.org.au>

CALENDAR OF EVENTS

February 2009

27 February

Australian Vegetable Industry Awards 2009— Closing date for awards nominations



For more information:

Website: www.vegetableindustryawards.com.au

Phone: Alisha Johnson, AUSVEG, 03 9544 8098

28 February

VicFresh Combined Industry Gala Night

Crown Casino, Melbourne, Vic

For more information:

Phone: David Fussell on 03 9258 6102

March 2009

10 March

Production Advisory Group meeting

For more information:

Phone: AUSVEG on 03 9544 8098

11 March

Vegetable Advisory Group meeting

For more information:

Phone: AUSVEG on 03 9544 8098

12 March

Vegetable IAC meeting

For more information:

Phone: AUSVEG on 03 9544 8098

22-25 March

World Potato Congress

Christchurch, New Zealand

For more information:

Website: www.potatocongress.org

April 2009

2-3 April

Fresh Produce India

Mumbai, India

For more information:

Website: www.freshproduceindia.com

3 April

Produce Executive Program—Applications due

Course to be held 3-8 May, Mt Eliza, Vic

For more information:

Contact Anita Pike

Email: apike@streamwise.com.au

Phone: 03 9904 4172

May 2009

4-6 May



Australian Vegetable Industry Conference 2009

Melbourne Convention Centre, Melbourne, Vic

For more information:

Website: www.vegieconf.com.au

Phone: AUSVEG on 03 9544 8098

6 May

Australian Vegetable Industry Awards 2009 and conference gala dinner

Crown Palladium, Melbourne, Vic

For more information:

Website: www.vegetableindustryawards.com.au

Phone: Alisha Johnson, AUSVEG, 03 9544 8098

7-8 May

National Vegetable Expo

Werribee, Vic

For more information:

Contact Claire Luppino

Email: scluppino@optusnet.com.au

Phone: 0427 335 518

24-26 May

Future Focus & Produce Marketing Association (PMA) 2009 Fresh Connections Conference

Hilton Hotel, Sydney, NSW

For more information about Future Focus:

Website: www.horticulture.com.au

Phone: 02 8295 2300

For more information about PMA 2009 Fresh Connections:

Contact John Baker

Email: john@producemarketing.com.au

Phone: 02 9744 6366

August 2009

1 August

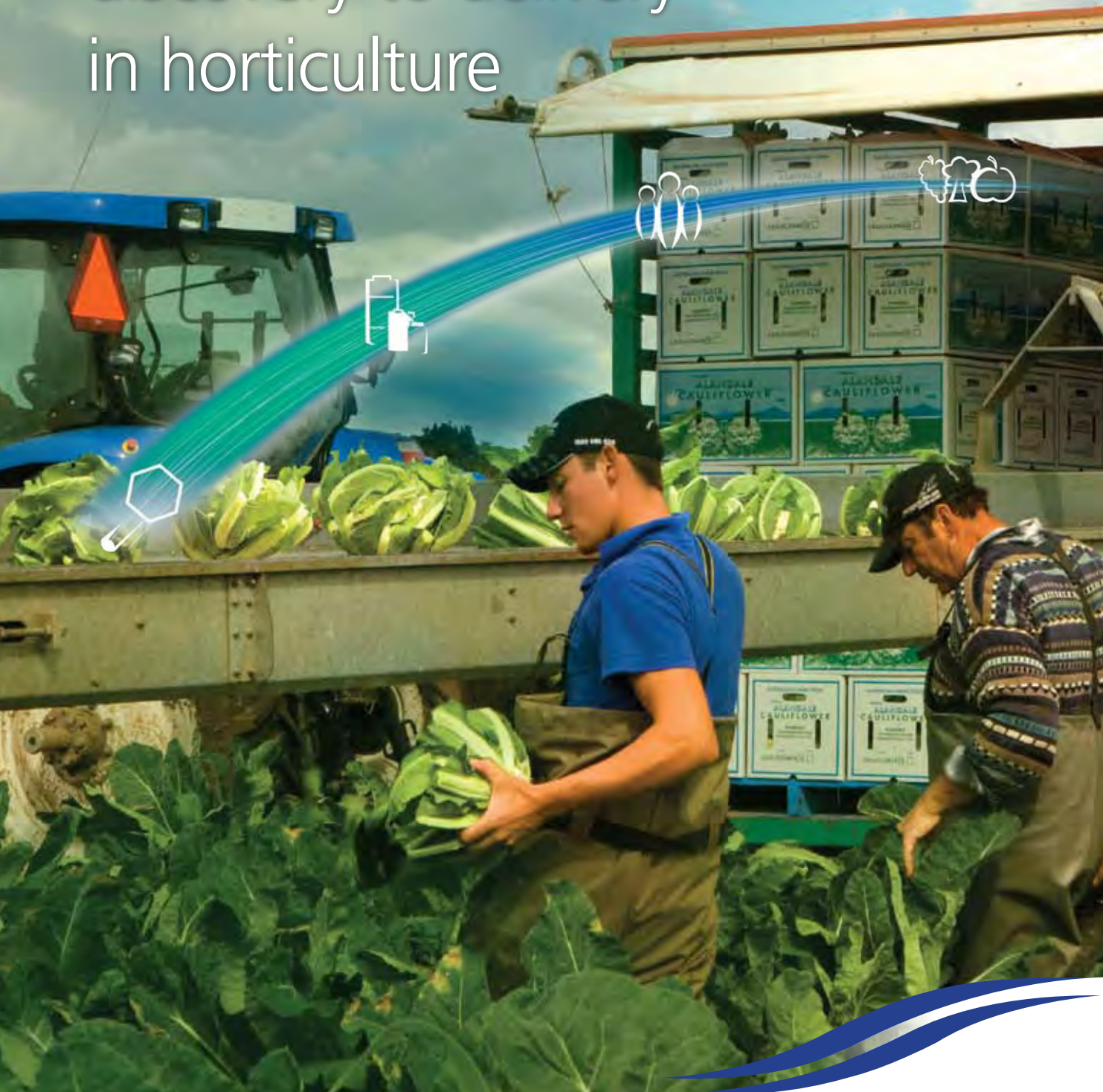
VGA Victoria Vegetable Growers Gala Night

Crown Casino, Melbourne, Vic

For more information:

Phone: VGA Victoria on 03 9687 4707

With you from discovery to delivery in horticulture



From Discovering Sustainable Chemistry



With Knowledge and Experience



By Developing Innovative Brands



To Delivering Quality Produce

Everyday, Syngenta invests millions of dollars in discovering and developing sustainable horticultural crop protection solutions.

To find out how we can help you deliver quality produce, call the Syngenta Technical Product Advice Line on Freecall 1800 067 108 or visit www.syngenta.com.au

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