

GROWER SUCCESS STORIES

REAL RESULTS
FROM THE
VEGETABLE R&D
LEVY

AUSVEG





Every year, the Australian vegetable levy collects approximately seven million dollars to invest in Research and Development (R&D). The Federal Government then matches this money dollar for dollar, giving the vegetable industry over \$14 million in funds to spend on R&D. Under the new vegetable industry Strategic Investment Plan (SIP), levy funds are invested in three pillars; Consumer Alignment, Market and Value Chain Development and Farm Productivity. These pillars underpin our new investment strategy which is to grow the size of the pie for vegetable growers by increasing consumption in Australia and exploring overseas markets.

One of the things that I've heard growers around the country ask is: "What are we getting from our levy dollar?" That's a fair question to ask, especially as it's our money being spent on R&D and we want return on investment. That's why this booklet has been commissioned - to show levy payers how their money has been invested and outline some of the levy payers that are benefitting from these R&D projects. Enclosed are a series of projects, some from the new SIP and some projects from the previous VegVision strategy. As we get further into the new SIP, more stories will be based on projects from our new investment pillars.

Another question I'm asked is: "How do I get involved?" If you are a levy payer there are a number of opportunities for you to get involved and steer the investment of the vegetable levy. Our Design Teams are made up of growers and are charged with developing project ideas to invest in. This makes the investment of levy funds entirely grower driven and is an investment scheme unlike any other in horticulture. It's up to us to drive investment of the levy and it can't be done from the sidelines - if we want to see the levy spent in the right places, we all need to be involved.

I am the Chair of the Vegetable Industry Advisory Committee (IAC), and I am also a sweetcorn grower from Bathurst, New South Wales. My fellow growers on the Vegetable IAC scrutinise and vet carefully all projects that are submitted to the committee. We want to ensure that levy payers have the best return on their investment and that projects we invest in contribute to the growth of our industry. I hope this book of success stories highlights the value of this investment, and I encourage you all to become involved with the process.

Yours sincerely,
Jeff McSpedden
Chair of the Vegetable IAC

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Available free to vegetable levy payers, this telephone-based service provides general agronomic advice from highly trained and experienced agronomists, including:

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- Seed / genetic selection
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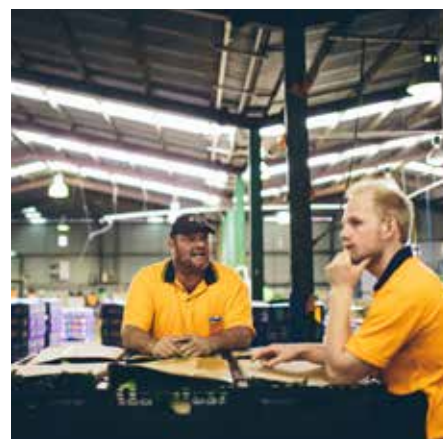
This project has been funded by HAL using the National Vegetable Levy and matched funds from the Australian Government.



Horticulture Australia

ADAM SCHREURS

Beneficial practices



Growers can now benefit from the increased understanding gained from an examination of the effects of 24 common pesticides on key beneficial species used in Integrated Pest Management (IPM). Victorian grower Adam Schreurs' (of J & JM Schreurs and Sons) operations use IPM broadly and this project has extended his understanding of the treatments he can apply to his crops which will have minimal effects on the beneficial insects used.

"Selective insecticides can be a fantastic tool for IPM practitioners but single applications of many insecticides can have a moderate or high toxicity to beneficial species, so should be used cautiously," he said. "Within our own operations, we have managed to keep populations of beneficial insects at a much higher level than prior to the study, which is a desirable outcome."

"The research insights led us to realise we were previously applying a broad spectrum pesticide, which in turn were harming the beneficial insects in our crops. We have challenged the status quo and changed our practices when it comes to managing crop protection, chemical selection and usage," Mr Schreurs said.

Project Leader Dr Paul Horne and his research team examined the effects of 24 common pesticides on key beneficial species used in IPM. The project used laboratory bioassays to assess the survival and mortality of insects and mites treated with pesticides

and longer-term studies investigated whether some pesticides affected reproduction in select species.

"IPM programs in crops require knowledge of how to best preserve beneficial insects while reducing the use of harsh chemicals," Dr Horne said.

"Being mindful of the current need for more research in this area, our project aimed to improve awareness that successful IPM relies heavily on pesticide applications that cause minimal disruption of biological control agents."

A central component to project VG06087 was the production of a colour-coded chart on the variety of insecticides, fungicides and herbicides that were trialed and the effects they had on the invertebrates.

"By referencing this chart, growers can self-select the chemical most suited for their crop," Mr Schreurs said. "So, if we have an aphid problem in our celery or baby spinach, for example, we can opt for a softer chemical spray - one that will only target the aphid and not harm the beneficial insects."

"If compatible sprays are used that do not kill these beneficial agents then you will have both sprays and beneficial insects working for you. It's a matter of knowing what is in the crop before you can select the chemicals."

Today, Mr Schreurs' crops are monitored weekly to ascertain the situation regarding numbers and control given by control agents.

“ It’s a matter of knowing what is in the crop before you can select the chemicals. ”

Summary:

- **Consideration** of pesticide impacts on beneficial insects and mites in crops should be part of decision making for all spray applicators.
- **Application** of insecticides, as chemical control, should be used as a back up to other pest control strategies such as biological and cultural controls.
- **Selective** insecticides should be chosen whenever beneficial species are capable of exerting control pressure on pest species. To achieve this requires monitoring of crops and education on insect.
- **The pesticide charts** and information developed in this project should be consulted to help select the most appropriate pesticide for preserving beneficial species.

Facilitators:
Project VG06087 has recently been completed by Project Leader Dr Paul Horne and team from IPM Technologies Pty Ltd.



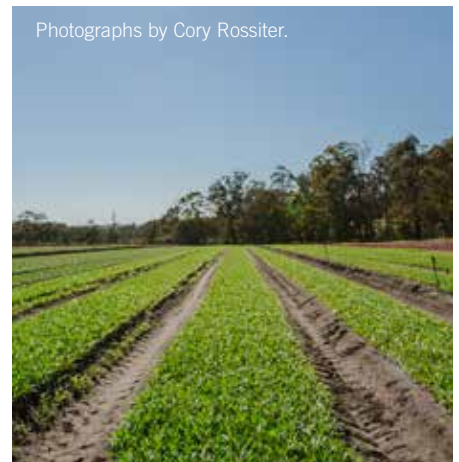
Photographs by Kristy van Eck.

COLIN BRITTON

Protecting profits



Photographs by Cory Rossiter.



A three-and-half-year program trialling the performance of floating crop covers used in the commercial production of baby-leaf lettuce has delivered positive results for Queensland grower Colin Britton and his research team at Britton Produce Pty Ltd.

“Field grown salad crops are naturally exposed to environmental pressures that potentially cause stress, damage and insect infestation over time,” Mr Britton said. “From an industry perspective, a cost-effective cover that helps to mitigate some of these pressures is valuable, especially as the modern consumer and retailer demand safe leafy salads that are free from contamination and blemish.”

For the purpose of the project, a wide range of commercially available crop covers were sourced locally and internationally and small-scale comparative trials were carried out in the southern Queensland and Granite Belt horticultural region.

The performance of the different covers was initially compared and measured against unprotected controls over a 12-month season against typical assessment criteria.

The two best performing crop covers were then selected for larger scale commercial plantings. “The crop covers were assessed according to leaf rub, bruising, number of insects present, physical damage, insect contamination and harvest yield,” Mr Britton said.

Mr Britton said the project added insights to how sensitive baby-leaf salad crops could be grown with enhanced protection against environmental impacts in a cost-effective manner.

He now uses crop covers extensively and notes a far greater demand for his superior produce. “Floating crop covers do not require expensive and inflexible rigid support frames, they are easy to apply and remove, and provide a very cost-efficient alternative to traditional production methods.”

“Since their implementation, we have found a wide array of advantages to their use, from greater water efficiency to less unwanted matter in the final vegetable product. The optimum crop covers can reduce harvested baby-leaf salad insect loads by 89 per cent or better. Meanwhile, during a typical crop cycle, chemical spray applications have been reduced by at least 50 per cent and wind-borne foreign body contamination was reduced to zero per cent for baby-leaf salads grown under the floating crop covers,” he said.

“In addition, we have reduced our irrigation water requirements through lower evaporative losses and in return, have generated much lower costs compared to traditional frame mounted overhead nets, plastic or glass.”

Mr Britton said in the test region, crop-growing times were reduced by up to 20 per cent during the cooler ambient periods.

“Because soil moisture levels are better retained during drier periods, protected crops required less irrigation. A significant advantage we have seen is the fact that the same section of crop cover can be used repeatedly, so purchase costs can be amortised over multiple seasons. This means growers can utilise their ground for much more of the calendar year, which in turn, represents greater value for money.”

Summary:

- **Floating crop covers** are highly effective at reducing insect infestation and insect damage in field grown baby-leaf salad crops and insect population reductions of 89 per cent has been demonstrated.
- **Floating crop covers** provide further benefits of excluding most wind-borne foreign body contamination, reducing ground moisture loss, providing a level of protection from weather induced damage and reducing the length of growth cycles during cooler winter and shoulder seasons.

*Facilitators:
Project VG09188 has recently been completed by Primary Investigator Colin Britton of Britton Produce Pty Ltd, Queensland, with assistance from colleague and Project Administrator Rob Munton of Food ProjX. Further information can be obtained from Colin by email: cbritton@halenet.com.au*



EDUARDO PENA

International know-how

Photographs by William Long.

A vegetable growers' study tour to Europe earlier this year provided field officer and produce manager Eduardo Pena, of Harvest Fresh Cuts, with an insight into the cutting-edge agricultural techniques and practices employed by overseas growers.

The tour, which spanned leading farming facilities in Israel, Germany and the Netherlands, also incorporated a visit to Fruit Logistica in Berlin, Europe's largest fruit and vegetable trade show.

Mr Pena, who applied for the study tour to broaden his existing grower networks, said the experience helped to facilitate his understanding of current industry trends.

"We were introduced to a wide range of new vegetable products, technologies and services considered 'international best practice' in Europe and the Middle East," he said. "Europe uses very different systems for vegetable production and has an advanced level of crop varieties."

“As a direct result of the first-hand knowledge he acquired while in Europe, Mr Pena has been instrumental in introducing new methods to improve his operations back at home. ”

"Based on this, I believe there is real opportunity for Australia to increase the value and reach of its agricultural products both locally and in overseas export markets."

Mr Pena said the majority of the farming operations visited shared similar features - they were compact and flexible, had low

running costs and delivered high production levels.

In particular, he said the "grow bag" technology implemented by Teshuva Agricultural Projects - based 35 kilometres north of Tel Aviv - demonstrated these qualities.

"Grow bag technology enables growers to fully control the nutrition and health of products since they are grown in an inert substrate. There are many advantages to using this system including relatively low investment, simplicity, weed control and flexibility - as you can plant straight after harvest and produce a better yield."

As a direct result of the first-hand knowledge he acquired while in Europe, Mr Pena has been instrumental in introducing new methods to improve his operations back at home. "A lot of my interest was focused on farming technologies and baby leaf lettuce varieties," he said. "After sharing my ideas and insights with my team at Harvest Fresh Cuts, one grower has bought a new harvester from overseas which allows him to harvest three times faster."

"The machinery is designed to suck crop residue that remains on the ground after harvest. This is ideal for Australia - not only for avoiding foreign bodies going into the harvested product but also blowing debris such as insects and dirt, which means that the consumer receives a cleaner product."

The connections Mr Pena forged on the tour have enabled him to work in partnership with other like-minded Australian growers on a commercial level.

He is currently liaising with a grower in NSW and is in negotiations to begin dealing with growers in South Australia.



Summary:

- **The study tour** provided participants with the opportunity to travel and learn about international agricultural techniques and approaches with growers and key industry contacts.
- **Today**, Mr Pena has a more sound understanding of how the industry is trending globally and has used the knowledge he acquired to introduce new products and machinery to improve his operations at Harvest Fresh Cuts.

TIM CARNELL

Linked into the value chain



Photographs by Cory Rossiter.

Tim Carnell is now better positioned to recognise the challenges and opportunities facing his family business, Kirra Pines Farming, since participating in a young vegetable grower group.

The grower, from Stanthorpe in Queensland, recently attended a series of information seminars, study tours and value chain workshops centred on issues such as finance, crop protection updates and carbon pollution reduction schemes.

“The central objective of the project was to equip young growers with the skills and knowledge needed to run an agribusiness in today’s demanding business environment,” Mr Carnell said. “Enabling us to customise the seminars and workshops to suit our needs kept the information relevant and interesting.”

Mr Carnell said the opportunity to network among his peers and other members across Australian agriculture allowed him to gain an enhanced perspective of his own business.

“The main challenge in agriculture at present is the bottom line,” he said. “Shrinking profit margins and rising costs are the biggest concerns and this is creating a flow-on effect to virtually every other area of our business and the industry as a whole.”

“Therefore, exposure to other horticultural operations has enabled me to work with growers to supply new processing markets. Drawing off many years of experience from other growers lessens the burden of having to ‘reinvent the wheel’.”

Mr Carnell said the benchmarking workshops also gave him a better handle on measuring cost of production.

“This has helped me to identify where improvements can be made and has given me a greater insight into future investment within the business.”

Mr Carnell has since reviewed his labour management strategies and the machinery used in other growing districts.

Significantly, he has implemented new production methods on-farm involving grafted

tomatoes and capsicums.

Although still in its trial stage, Mr Carnell is hopeful that improved efficiency and increased productivity will be achieved.

“Higher costs mean we have to grow more with less, and grafting trials may allow us to fulfil this,” he said.

Mr Carnell said the information delivered at the various seminars informed the introduction of newer, more sustainable fertilisers and chemicals at the Kirra Pines Farming operation.

With more and more pressure being placed upon agribusiness in Australia, Mr Carnell is looking forward to the next round of similar projects.

“By assisting such grower groups, the knowledge base of the industry is able to grow,” he said.

Mr Carnell said he believed this would result in a more dynamic industry sector - one that is better placed to continue the production of the world’s best produce.



Summary:

- **Project VG09081** facilitated two young vegetable grower groups - one in the Darling Downs centred on Stanthorpe and the second, in the Lockyer Valley and West Moreton regions centred on Gatton.
- **The seminars** and workshops provided young growers the skills and knowledge required to manage an agribusiness in today’s industry.
- **Faced with a greater awareness** of challenges and opportunities facing his business, Mr Carnell has implemented new production methods on-farm to improve efficiency and increase productivity while managing costs.





JOE BOUSTANI

Growing the greenhouse



Photographs by John McRae.

Improved pest control, more efficient use of fertilisers and water resources, minimal product wastage and a cleaner, safer environment are among the benefits experienced by Joe Boustani since adopting IPM on his Rossmore farm. Since changing a number of aspects of his farming operations, the Sydney grower has significantly reduced the insect contamination of his hydroponic cucumber and tomato plants. This has also reduced the impact of pathogens on his crops, such as viruses and bacteria, which can be transmitted by insect hosts.

“Our objective was to control these problematic insects while minimising the use of chemicals - and we have been 100 per cent successful in doing this. By using IPM strategies, we have been able to come up with different ways to reduce the use of chemicals on our farm,” Mr Boustani said.

“Some of these strategies include regular crop monitoring programs, encouraging biological controls and removing and destroying any diseased plants. As a result, we’ve managed to save money, as the use of pesticides is costly, and we have a much broader variety of pest control options to consider in-field.”

“Today, our operations are more environmentally friendly and by managing insect contamination, we have been able to limit product wastage. We have also been able to create better working conditions inside the greenhouse and overall, safer and cleaner produce for consumers.”

Mr Boustani said the R&D studies emphasised the importance of preventive management through the use of stricter hygiene and sanitation standards.

“It’s important to have a good understanding of target pests, their lifecycle and the effects of pest damage on crops,” he said.

“A key aspect of my operations is to regularly monitor traps, assess the impact of these traps and then make a decision about pest control.”

“Growers can prevent insects such as whitefly, thrips, mites and aphids, from coming into contact with their crops by sealing off the greenhouse using a shed cloth and then cleaning the inside and outside of the greenhouse. It’s also very important to control and eliminate the plants that traditionally host these pests.”

Mr Boustani said that growers should think carefully before resorting to the frequent use of traditional chemicals, as these are “not a sustainable or long-term solution and normally lead to resistance in pests”.

“Chemicals are not the only solution to pest control. In the past we used to calendar spray our crops once or twice but now we control the pests by using a predator or alternatively, we may trial the use of softer, reduced-risk chemicals before we turn to the more traditional chemicals.”

“At the end of the day, our goal is to produce quality products that meet the expectations of consumers.”

Summary:

- **Projects VG00069/VG05084 focused on characterising** the causal pathogens and developing management options to reduce losses to vegetable crops.
- **Trials into the control of the disease** were initiated to identify cultural, chemical and biological options.
- **The integrated management** of this disease can be achieved through hygiene and sanitation, temperature and moisture control, chemical use and microbial biological agents. This strategy will enable greenhouse vegetable producers to reduce crop losses and maximise efficiency on-farm.

PETER SCHREURS

Business environment



Photographs by James Vincent.

A decision to make his family-run farm more efficient and agriculturally sustainable was the driving force behind Peter Schreurs' implementation of the EnviroVeg program almost 13 years ago.

"One of our main goals in producing fresh vegetables is to work towards producing them using sustainable practice," Mr Schreurs said. "This means taking on all the information from conventional farming, organics, biodynamics, traditional and modern farming and applying this to our production fields."

"EnviroVeg is a way for growers to prove to the community and retailers that they are committed to producing high quality vegetables in a responsible environmental manner."

Under the EnviroVeg program, Mr Schreurs can easily audit the resources used in his farm's production processes to achieve optimum productivity and efficient use of land.

"The program operates as a self-assessment system which provides growers with the certainty that they are still benchmarking their practices," he said. "This then provides scope for highlighting areas of strength and improvements as well as outlining what they aim to be doing in the future."

Since adopting the program in 2000, Mr Schreurs has seen specific improvements in water treatment, fertiliser usage and energy management.

"A turning point for us was recognising that we can't farm blindfolded," he said.

"The EnviroVeg program has also made us very conscious of how we operate with the environment in mind. Specifically, we are conscious of the fact to use water wisely. It is important that our irrigation methods are efficient and that we monitor how much we irrigate so we don't exceed our requirements."

"In 2001 we lobbied to get Class A recycled water from Melbourne which is now used



across all areas of the property – from vegetable growing through to our packing shed. We also became very conscious of energy conservation. Rather than having all our pumps and dam irrigation systems operating from fixed motors, we made the change to variable speed motors."

"This is much more efficient and guarantees we are not wasting energy."

Mr Schreurs said the farm relied very little on chemical fertilisers and today utilised organic fertiliser and compost wherever possible.

"We are also maintaining a good balance of soil biology. This allows the organisms in the soil to convert nutrients from the green matter and garden to transfer into plant food."

The principles of the EnviroVeg program are also reproduced in the farm's physical structure.

"We are very open and accessible to schools and public organisations. We want the public to be educated about our policies," he said.

The Peter Schreurs and Sons Vegetable Farm is located at Devon Meadows, south of Melbourne.

The EnviroVeg program was initiated by the Executive Committee of the Vegetable Growers Association of Victoria in 1996 and commissioned in 2000. The program was funded by the National Vegetable Levy and was first trialled in Victoria before being launched in Australia-wide in 2003.



Summary:

- **EnviroVeg** is the vegetable industry's own environmental program developed specifically for vegetable growers.
- **EnviroVeg** assists growers by showing the community and consumers that Australian growers are producing high quality vegetables in a responsible environmental manner.
- **The program** identifies the farming practices already in place that have a beneficial environmental impact and allows them to be recognised and acknowledged nationally.
- **Peter Schreurs and Sons** Vegetable Farm implemented the Australian EnviroVeg program in 2000.
- **By adopting a "best practice"** philosophy, the farm has seen vast improvements in water treatment, fertiliser usage and energy management.

*Facilitators:
Project VG12008 was completed by the Vegetable Growers Association of Victoria and facilitated by Peter Cochrane, President of the Vegetable Growers Association of Victoria at that time.*