

vegenotes





VG16024 – GAP ANALYSIS AND ECONOMIC ASSESSMENT FOR PROTECTED CROPPING VEGETABLES IN TROPICAL AUSTRALIA

FACILITATORS

Project VG16024 was completed by the Queensland Department of Agriculture and Fisheries.

INTRODUCTION

Protected cropping of vegetables in Australia is largely located in temperate climate regions, however there are opportunities for growers in the northern tropics to benefit from technologies that mitigate risks associated with climate variability and assist in accessing markets.

Evidence from overseas and previous research by the Department of Agriculture and Fisheries in north Queensland suggests that protective cropping technologies are a cost-effective way for growers to mitigate the effects of extreme temperature, rainfall, changes in humidity, wind, solar radiation and pest and disease pressures, which can negatively impact yield, quality and consistency of supply.

ABOUT THE PROJECT

Project VG16024 aimed to increase awareness and information about protected cropping technology and associated opportunities for vegetable growers based in northern Australia.

Vegetable production in the tropics is predominantly field-based, however a small group of growers producing high-value vegetable crops using protected cropping systems has emerged.

Recognising the potential for this industry to expand and drive an increase in regional production, researchers from the Queensland Department of Agriculture and Fisheries undertook a gap analysis and economic assessment of the opportunities and challenges associated with the growth of a protected cropping industry across four regions in northern Australia – Burdekin, Atherton Tablelands, Bundaberg and Carnarvon.

The objectives of project VG16024 were to identify knowledge and information gaps regarding protected cropping systems; determine the vegetable crops, structures and locations most suited to protected cropping in tropical Australia; and understand the economic viability of this production model for the northern vegetable industry.

MAJOR FINDINGS

To better understand the level of knowledge and understanding within the growing community, the research team conducted a series of targeted discussions with key growers in the four regions.

“It became clear that there were a number of misconceptions about the suitability of protected cropping technology for tropical environments. Many assumed that it was only used to protect against cold or that greenhouse structures couldn’t provide benefits in tropical regions of Australia,” Project Lead Elio Jovicich said.

“But once we started the discussion, we were able to open up the conversation about other benefits that could arise from protected cropping technologies.”

The research team collaborated with growers who were already using protected cropping to help communicate its benefits.

“Sharing information and experience was a very important component of the project. By visiting demonstration sites, growers were able to see the benefits and the challenges of adopting protected cropping technologies. It’s a far more intensive system than field-growing, but they could see how they could get greater yields per square metre, and how they could better control the quality of their produce, with little or no wastage,” Elio said.

The project discussed different protected cropping structure designs (e.g. high tunnels, passively ventilated greenhouses, retractable roof structures and net houses), comparing their advantages and drawbacks. Capsicum, cucumbers, melons and eggplants were given as examples of vegetable crops suited to protected cropping in warm climates. Yields were provided for these crops as well as estimates of production value.

A preliminary economic analysis was carried out for hypothetical production of capsicum crops in different protected cropping scenarios. Under the protective structures, preliminary results suggested that protected cropping could be a viable business opportunity for growers in the tropics.

Project team members also visited an extensive area with diverse protected cropping technologies in north-west Mexico, where commercial and R&D protected cropping sites are tailored to warm environments.

“I think it was great for the growers to see how other parts of the world have adopted this technology successfully, and how they could replicate this locally in terms of yield and product quality,” Elio said.

CONCLUSION

The final report informs growers and other stakeholders of the feasibility and early economic credentials of technologies that are currently used to a very limited extent.

“It is likely that in the near future protected cropping technologies will become standard vegetable production systems that will complement outdoor production in the warm regions of Australia, so it is important that growers in these regions become more aware about what technology options exist,” Elio said.

“After reading the report, our hope is that growers feel empowered to have more specific conversations about how they might transition from field growing to a protected cropping system. By completing this report, we’ve tried to share as much information and experience as we can to help guide discussion and allow growers to explore opportunities that complement their existing production systems.”

ACKNOWLEDGEMENTS

This project is a strategic levy investment under the Hort Innovation Vegetable Fund.

VG16024 was funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.



VG16011: IMPROVING PROCESSING VEGETABLE YIELDS THROUGH IMPROVED PRODUCTION PRACTICES

FACILITATORS

Project VG16011 was completed by the Tasmanian Institute of Agriculture and Applied Horticultural Research in collaboration with Simplot Australia.

INTRODUCTION

The processed vegetable industry is a significant contributor to the Tasmanian economy, and rising demand from Australian consumers to buy Australian-grown products has created opportunities for Tasmanian growers to boost production.

Recognising the growing market demand for processed vegetables in Australia, Simplot Australia has set ‘2020 Targets’ for key frozen vegetable processing crops, including broccoli, cauliflower, carrots, beans and sweet corn. With the local industry facing significant global competition, there is a drive to identify ways in which local growers can achieve greater crop productivity to meet this growing demand.

ABOUT THE PROJECT

Through project VG16011 – *Improving processing vegetable yields through improved production practices*, researchers from the Tasmanian Institute of Agriculture (TIA) and Applied Horticultural Research (AHR), in collaboration with Simplot Australia, set out to learn what practices were being implemented by leading processing vegetable growers to increase the quality and yields of key frozen vegetable processing crops. The research also sought to identify gaps in knowledge, with a view to help growers achieve greater productivity through future research.

Working closely with vegetable processor Simplot Australia, the researchers set out to discover the practices enabling leading growers to achieve higher yields on their farms.

“The project was really about gaining a better understanding of what growers consider important to their business, and identifying those areas where research might be able to impact their production and allow them to achieve greater gains within their production systems,” TIA Industry Development Manager and Project Lead Sue Hinton said.

The research involved conducting in-depth interviews with a number of growers across a variety of crops to better understand their strengths and challenges, and gather information about where they felt they could benefit from future research.

“Working with Simplot, we contacted growers with an invitation to participate in the project. Participation was entirely voluntary, however we made it clear that this was an opportunity to help identify their most significant problems, and to influence the direction of future research,” Sue said.

“In general, we found that growers were very keen to participate; in some cases we gathered groups of growers to identify collective problems that they then reported back during the interviews.”

MAJOR FINDINGS

After the interviews were completed, the data was analysed to identify any opportunities for future research. The researchers found some consistent themes relating to specific crops.

“The spectrum of topics covered during the interviews was certainly broad but after analysing the results, we identified some common issues across growers. We then narrowed it down to those topics that we felt would make the biggest difference, keeping in mind the impact it would have across the different vegetable crops,” Sue said.

This led to the development of a series of fact sheets that growers can download from the TIA website. The fact sheets tackle five key issues impacting production in processing vegetables, and are a collation of existing research that growers can reference immediately. The topics include: winter crane fly (*Trichocera annulata*); irrigation management in sweet corn; Sclerotinia rot of green beans; optimising crop establishment in processing carrots; and maximising uniformity at harvest maturity in processing broccoli.

According to Sue, the next phase of the project will involve the establishment of on-farm trials that will look at ways to improve the productivity of the crop.

“If Phase Two of the project goes ahead, we’re looking at setting up some demonstration trials, and getting growers out on-site to have a look at what might be possible on their own farms. This is something that the dairy industry does really well, and it has the potential to drive some positive discussion around how to achieve real gains in yield in the paddock.”

CONCLUSION

Growers have responded well to the fact sheets, and Sue is optimistic that industry will support funding for Phase Two of the project.

She believes that the project is a great demonstration of industry collaboration and the power of supporting others to ensure a positive future of the industry as a whole.

“What was obvious throughout the project was the common desire for improvement, and the benefit of working collaboratively with the processing companies, as well as with other growers. It resulted in a proactive and positive discussion about how the industry can make the most of future opportunities.”

ACKNOWLEDGEMENTS

This project is a strategic levy investment under the Hort Innovation Vegetable Fund.

VG16011 was funded by Hort Innovation using the vegetable research and development levy, co-investment from the Tasmanian Institute of Agriculture and Simplot Australia and contributions from the Australian Government.



THE BOTTOM LINE: GAP ANALYSIS AND ECONOMIC ASSESSMENT FOR PROTECTED CROPPING VEGETABLES IN TROPICAL AUSTRALIA (VG16024)

Project VG16024 involved undertaking a gap analysis and economic assessment of the viability of protected cropping systems by vegetable growers in northern Australia, particularly in the regions of Burdekin, Atherton Tablelands, Bundaberg and Carnarvon.

The project discussed different protected cropping structure designs as well as vegetable crops that were suited to protected cropping in warm climates.

Vegetable growers who were interested in transitioning to protected cropping systems visited demonstration sites in Australia to see the technology in action and hear about the experiences of other growers.

The final report has received positive feedback from northern growers. It provides a solid starting point for any conversation about protected cropping and helps to increase understanding of the opportunities, benefits and challenges associated with the technology.

Growers are also encouraged to engage with other growers and research organisations that have experience with protected cropping in their regions.

FURTHER INFORMATION

For more information, please contact Elio Jovicich at elio.jovicich@daf.qld.gov.au

The final report for this project is available on InfoVeg. Readers can search 'VG16024' on the InfoVeg database: ausveg.com.au/infoveg/infoveg-database.

THE BOTTOM LINE: IMPROVING PROCESSING VEGETABLE YIELDS THROUGH IMPROVED PRODUCTION PRACTICES (VG16011)

Project VG16011 sought to identify the opportunities for processing vegetable growers to increase their production yields in response to growing consumer demand for Australian-grown frozen vegetables.

In-depth interviews with growers of processing vegetable crops unveiled the main issues impacting gains in production across five vegetable crops: broccoli, cauliflower, carrots, beans and sweet corn.

A series of five fact sheets has been developed to help growers access the latest established research into these five topics. They include: winter crane fly (*Trichocera annulata*); irrigation management in sweet corn; *Sclerotinia* rot of green beans; optimising crop establishment in processing carrots; and maximising uniformity at harvest maturity in processing broccoli.

If Phase Two of the project goes ahead, it will aim to establish on-farm demonstration trials to identify ways to improve crop productivity.

FURTHER INFORMATION

For more information, please contact Sue Hinton at sue.hinton@utas.edu.au. The fact sheets can be downloaded from the Tasmanian Institute of Agriculture website at utas.edu.au/tia/horticulture/vegetables/resources.

The final report for this project will be made available on InfoVeg in the coming weeks.

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Please contact Michelle De'Lisle at AUSVEG via email at michelle.delisle@ausveg.com.au or call 03 9882 0277 to submit topics for potential inclusion in future editions of *Vegenotes*.

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