

Facilitators

Project VG13075 was undertaken by Applied Horticultural Research.

Major findings

Project VG13075 aimed to evaluate a range of low-cost protected cropping options and demonstrate each method's suitability for use by vegetable growers. The project found that there are benefits and drawbacks to the three low-cost protection methods investigated – shade structures, wind breaks, and floating row covers – and that this differs by weather and crop type.

"Under cold conditions, floating row covers made with fleece can provide major benefits, including protection from frosts or, in warmer regions, improved germination and growth during the winter months," a member of the project team, Adam Goldwater, said.

Floating row covers of the netted type had the potential to improve yield and quality during the summer months. Plant growth was often enhanced, sunburn prevented, and temperatures reduced. Netted covers were also able to protect capsicum and chilli crops from Queensland fruit fly.

In terms of shade structure, netted shade structures were found to protect crops from sunburn and to reduce moisture stress. However, Mr Goldwater noted that the same level of shading is not necessarily appropriate for all crops, or for use at all times of the day or year.

In contrast, retractable roof structures can manage ventilation and shading to keep plants within an optimal environment at all times. The project found that capsicums grown under a retractable roof structure were significantly larger and healthier than those grown outside.

One surprising finding that Mr Goldwater advised growers to be aware of was that, in some cases, floating

row covers – which were marketed for protection against insect pests – actually increased pest populations.

"The very fine meshed nets allowed populations of aphids to rapidly increase. This is likely the result of the fine mesh acting as a physical and visual barrier against predators and parasitoids," Mr Goldwater said.

The project team first reviewed numerous low-cost protective methods and determined that those with the most potential were shade structures, wind breaks and floating row covers. These three options were then field tested on a large number of growing sites around Australia.

"Trials were conducted in many of the major centres for vegetable production, including Carnarvon, Darwin, Tolga, Bundaberg, Stanthorpe, Sydney basin, Robinvale, Bairnsdale, Werribee and Adelaide Hills," Mr Goldwater said.

"Common crops in those regions were selected for testing with the protective options, across a range of seasons during which adverse weather conditions were likely to affect production. Both leafy and fruiting vegetable crops were evaluated."

At harvest, yield and quality were evaluated, both for crops within and outside the protected areas. Insect populations were estimated, and in some cases, storage life was assessed.

Recommendations

Based on these findings, Mr Goldwater made several recommendations to growers.

"Floating row covers are most useful for crops that do not require regular access. Sprays and irrigation can penetrate the covers, but regular removal for harvest or other crop work is impractical," he said.

"Frost cloths work best on low-growing, leafy crops when the weather is cold. The results from this project can certainly help growers produce out of season,

bring in a crop earlier, or perhaps just act as 'insurance' against cold weather events. The lightest fabrics, which are also the cheapest, were sufficiently durable and gave results as good as, or better than, the more heavyweight fleeces."

Mr Goldwater also noted that further research is needed in several areas. Firstly, to address issues with re-use or recycling of floating covers, as none of the materials tested were biodegradable, and most were unusable after several crops.

Secondly, further investigation into the use of fleece materials is necessary. This is to determine the responses of different crops, temperature limits for effective use and how to optimise application time. Additionally, the impact of floating row covers and shade materials on pest management practices also needs to be investigated.

Background

Increased climate variability is a major threat to the Australian vegetable industry, as identified in a review by Applied Horticultural Research (VG12014). Extreme weather events such as heatwaves, heavy rain, unseasonal frosts and hail can cause significant damage to crops, resulting in reduced quality or even total crop write-off.

Technological solutions such as high-tech greenhouses can be used to protect crops, providing a level of control and certainty. However, such solutions are costly and, for many vegetable crops, are not justified by the returns.

Acknowledgements

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Further information

The project report, trial results and a fact sheet entitled *Blankets for vegetables: Using frost cloth to protect plants from weather* are available on the AHR website: ahr.com.au.

For more information, please contact Adam Goldwater at adam.goldwater@ahr.com.au or Gordon Rogers at gordon@ahr.com.au, or call the AHR office on (02) 8627 1040.



Fleece scene.



Lettuce under floating row covers.

VG17013 – Building the case to grow domestic demand for vegetables

Facilitators

Project VG17013 was undertaken by MCKINNA et al.

Major findings

A marketing opportunity lies in the fact that vegetable consumption by Australian consumers is well below recommended dietary requirements, with only four per cent of Australians eating the recommended daily intake.

Amid calls from industry to redirect some money from the R&D levy into marketing, project VG17013 set out to provide advice on whether investment in marketing would grow consumer demand for vegetables on the domestic market.

At the conclusion of the project, a business case was produced, supporting the proposal to transfer a proportion of the current R&D levy into a strategic marketing program.

“Desk research showed that a 10 per cent increase in vegetable consumption is possible,” project lead Dr David McKinna said.

“The economic modelling indicates that industry would get a huge return on a marketing investment – \$19 for every dollar invested. Now, there’s always an argument about whether the modelling is accurate but because the numbers are so overwhelming, even if it’s overestimating by half, it would still be a huge return.”

Rather than an advertising campaign, a comprehensive behavioural change campaign was recommended, which would focus on vegetables as a whole, rather than single commodities being promoted separately.

This is a different approach to the majority of horticulture advertising that has been done before, MCKINNA et al principal Catherine Wall explained.

“It’s different to things like the banana or ‘avo’ ads on television. What we’re proposing, based on the research, is a behavioural change campaign where you lift overall vegetable consumption,” she said.

“When you run a single commodity ad, sales peak in the short term, but with behavioural change campaigns, it’s about long-term communication to get people to change their habits.”

According to Dr McKinna, the key to this is to understand the blockers to vegetable consumption, as well as what drives consumption.

“All around the world they’ve tried to do this before with messages around nutrition. And our research shows that nutritional messaging won’t work, because people already know that vegetables are good for them. The reason they don’t eat more of them is actually because they’re not confident about buying them or cooking them,” he said.

The team recommends that the industry collaborates with other organisations and government to run a multi-touch point behavioural change campaign, incorporating activities such as recipe development, education and training. They propose that this is run for around 10 years, at \$10 million per year for the five to six years, to raise awareness, and then reduce it to \$6 million per year to maintain awareness nationally. Dr McKinna and Ms Wall propose a co-funding model, with government, supermarkets, supply chain and health organisations contributing.

The first stage of the project involved a comprehensive literature review, which looked at previous Hort Innovation reports as well as global research on agri-food marketing. Following this, the research team collaborated with Deloitte Access Economics and the Centre for International Economics

to produce economic modelling to show the potential impact of increased vegetable consumption.

A mock marketing strategy was also developed, demonstrating how marketing funds could be successfully utilised.

MCKINNA et al consulted with growers in key production areas of Australia to determine their interest in diverting some R&D levy funds to marketing. The team also consulted with experts in marketing and nutrition.

Next steps

The project concluded that a carefully-planned, well-executed and appropriately-funded marketing strategy, implemented over a number of years, will deliver a substantial and sustained increase in vegetable consumption. This increase, in turn, is likely to result in real economic benefit to vegetable levy payers with flow-on social and economic benefits to the community.

Dr McKinna said that support from growers for this proposal was almost unanimous.

“Growers believe that the R&D investment is reaching diminishing returns. In the early days, they had major breakthroughs, but those breakthroughs are no longer happening, and they’re spending a lot of money to get smaller results. The industry is saying that they’d rather spend their money on marketing and increase the demand.”

AUSVEG is working with health, nutrition and industry groups as part of a fruit and vegetable consortium to develop a business case for a national behaviour change campaign to lift vegetable consumption, and will provide regular updates to industry on its progress.



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Further information

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