# Efficiency Management consolidated list

The following list has been developed by AUSVEG SA with support from Hort Innovation and the VegNET SA program to support SA growers to access resources available to assist in their businesses.

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# Important programs and contacts

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| **Title** | **Description** | **Expert contact** | **Link** |
| **Adoption of precision systems technology in vegetable production (VG16009)** | From 2016 to 2020, this investment supported the vegetable industry in adopting precision agriculture technologies through the establishment of case-study farms in each state for research and extension – including training events and field days – and delivery of a suite of communication materials to showcase potential applications of relevant technologies. | The Queensland Department of Agriculture and Fisheries | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg16009/> |
| **Fight food waste CRC** | South Australia’s success in getting the proposed Fight Food Waste Cooperative Research Centre (CRC) funded was a much-welcomed outcome for former South Australian Research and Development Institute (SARDI) project director Dr Steven Lapidge. | Fight food waste08 8313 3564enquiries@fightfoodwastecrc.com.au | <https://www.pir.sa.gov.au/primary_industry/aginsight/news_feed/turning_australias_food_waste_into_profit> |
| **Food technology program** | South Australian food businesses can access a free day’s service to improve their food product through the Food Technology program.The program’s food technologists have a proven track record of providing practical scientific and technical assistance to benefit the industry. | Sarah CornishPhone: 08 8429 2908Mobile: 0435 307 004e-mail: SARDIFoodInnovations@sa.gov.au | <https://www.pir.sa.gov.au/food_and_wine/food_innovation/food_technology_program> |
| **Waste and resource management support for local governments** | The development of effective waste and resource management strategies is a key priority for many organisations, particularly local governments. RMCG’s team of environmental consultants have strong skills and experience in this area, referencing three key principles to develop targeted strategies for our clients. | Morag Anderson: moraga@rmcg.com.au, 0438 343 008 | <https://www.rmcg.com.au/case_study/2123/> |
| **National Scheme to tackle plastic waste in agriculture** | A new initiative funded by the Federal Government’s National Product Stewardship Investment Fundis set to dramatically reduce plastic waste in agriculture and develop this waste into other resourcesunder the National Waste Policy.  | Dr Anne-Maree Boland, Managing Principal, RMCG, 0427 679 042, anne-mareeb@rmcg.com.auScott Wallace, Hort360 Manager, Growcom, 0408 135 002, swallace@growcom.com.au | <https://www.rmcg.com.au/new-scheme-to-tackle-tough-problem-of-plastic-waste-in-agriculture/> |
| **Cost-effectiveness of robotics technology in Australian horticulture** | RMCG is working with the world-leading Australian Centre of Field Robotics at the University of Sydney to explore the commercialisation potential of automated robotics on vegetable farms. The work, for Horticulture Innovation Australia (HIA), will run over five years in which a range of innovations associated with remote sensing will be developed, tested, and explored for commercialisation potential. Our work focuses on the financial business case to growers of different robotics service offerings, including automated weeding, crop intelligence, foreign body detection, precision irrigation and fertiliser application. | carll@rmcg.com.au 0419 622 393 | <https://www.rmcg.com.au/case_study/cost-effectiveness-of-robotics-technology-in-australian-horticulture/> |
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## **Important Resources and Projects**

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| **Title** | **Description** | **Expert contact** | **Link** |
| **Pilot-scale production of enhanced-value anaerobic digestion waste-derived bioproducts on the Darling Downs** | ​As a result of population growth, volumes of biodegradable wastes including food and wastewater sludge will continue to increase in Australia. Disposal of these to landfill is not sustainable from either an environmental or resource-recovery perspective and anerobic digestion is recommended. | Fight food waste08 8313 3564enquiries@fightfoodwastecrc.com.au | <https://fightfoodwastecrc.com.au/project/pilot-scale-production-of-enhanced-value-anaerobic-digestion-waste-derived-bioproducts-on-the-darling-downs/> |
| **Toolbox for Greenhouse Construction and Safe Operation** | RMCG in conjunction with Osborn Consulting Engineers designed the Toolbox for Greenhouse Construction and Safe Operation to provide a comprehensive approach to planning, design, and prevention measures to consider when establishing or expanding a greenhouse operation. The toolbox provides information based on a particular farm activity or issue including:General farm management practicesGovernment approval processSafe operations management practicesInfrastructure requirementsAccess and egressOther issues and common grower concerns | carll@rmcg.com.au 0419 622 393anne-mareeb@rmcg.com.au 0427 679 042 | <https://www.rmcg.com.au/case_study/toolbox-for-greenhouse-construction-and-safe-operation/> |
| **Confirmation of ultra-filtration as a viable low-cost water disinfection and nutrient solution recycling option (VG13052)** | Despite the well‐established productivity and efficiency dividends of closed hydroponics, in which nutrient solution run‐off is reused, more than half of Australia’s hydroponic vegetable growers don’t use a closed system. There are a number of reasons for this, with the most common barrier being an increased risk of disease from recycling nutrient solution, with around two-thirds of common vegetable pathogens spread in water. | Jeremy Badgery-ParkerPrimary Principles0412 819 465 | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg13052/> |
| **Increasing energy efficiency and assessing an alternate energy option for Australian protected cropping (VG09124)** | With rising energy prices and an imperative to reduce carbon dioxide emissions, growers are seeking lower energy solutions for greenhouse production. This project, which ran from 2010 to 2013, sought to advance energy efficiency for growers, including evaluating lower energy heating technology for greenhouses. | Joshua JarvisNSW Department of Primary Industriesjoshua.jarvis@dpi.nsw.gov.au | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg09124/> |
| **Production of fish feed from vegetable waste (VG13050)** | This project investigated the feasibility of using vegetable wastes to grow insect larvae that could in turn be used as feed for use in aquaculture. As consumption of fish and seafood in Australia grows, there is a need for the aquaculture industry to turn to efficient alternative food sources and meal made from insect larvae has been proposed, since insects are high in protein and fat, can be reared on waste products, and are part of the natural diet of some farmed fish species. | Dr Jenny Ekman, Applied Horticultural Research Pty Ltdjenny.ekman@ahr.com.au+61 2 8627 1040  | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg13050/> |
| **Biogas generation feasibility study (VG13049)** | There is significant interest within the vegetable industry in maximising efficiency and productivity across the production process, including maximising value from waste. Previous analysis has suggested that generating biogas from on-farm vegetable waste could be a cost-effective option for vegetable farms. | RMCG Telephone: (02) 8295 2300 | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg13049/> |
| **Scanning technologies for horticulture packhouses (ST19022)** | This short investment, which ran during 2020, investigated the potential of scanning technologies in horticulture packhouses to detect pests and disease organisms of relevance to market access. This knowledge will help to maximise market access opportunities by having technology in place to adequately demonstrate to export regulators that Australian produce is free of pest and diseases of market access concern. | The New Zealand Institute for Plant and Food Research Limited+64-99257000 | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/st19022/> |
| **On-farm power generation - options for vegetable growers (VG13051)** | With the price of electricity rising, vegetable producers face growing costs across the production space, including from irrigation, heating and cooling processes to powering processing and packing plants. At the same time, some renewable energy sources are becoming significantly cheaper to install, which, together with incentive schemes on offer, have made them more appealing. | Gordon Rogers (02) 9527 0826 or gordon@ahr.com.au | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg13051/> |
| **Optimising benefits of vermiculture in commercial-scale vegetable farms (VG15037)** | Earthworms are known to be an indicator of healthy soil function. However, there has been limited research into how commercial vegetable farming practices impact on earthworm activity levels and how earthworms can potentially contribute to farm productivity. | Bill Grant on 0407 88 2070 or email bill.grant@blueenvironment.com.au | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg15037/> |
| **Novel glass projects (VG15038 and VG16070)** | The two ongoing investments Investigating novel glass technologies and photovoltaic in protected cropping (VG15038) and Research and operations to trial innovative glass and photovoltaic technologies in protected cropping (VG16070) are collaborating to improve energy-efficient design and energy use in greenhouses.The projects have a focus on the use of ‘smart glass’, semi-transparent photovoltaic glass (STPVG) and solar thermal collector technologies (STC). They will deliver a reliable and comprehensive evaluation of and guide to using these innovative technologies for the Australian vegetable industry. | Baohua JiaProfessor, Founding Director, Centre for Translational Atomaterialsbjia@swin.edu.au+61 3 92144819 | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg15038-and-vg16070/> |
| **Vision systems, sensing and sensor networks to manage risks and increase productivity in vegetable production systems (VG15024)** | This collaboration, which ran from 2016 to 2018, brought together expertise in engineering, robotics, machine learning, plant pathology and agronomy to investigate application of vision systems, hyperspectral imaging and wireless sensor networks in horticulture. The research involved experts from the Queensland Department of Agriculture and Fisheries (DAF), the Queensland University of Technology (QUT) and the CSIRO. | Sue Heisswolf – Bowen 07 4797 9744David Carey – Gatton 0467 746 302 | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg15024/> |
| **Creating value from edible vegetable waste (VG15076)** | This investment, which ran from 2016 to early 2019, investigated potential ways to gain value from vegetables that would otherwise be lost to the supply chain due. The project had a focus on brassica vegetable and carrots, and was responsible for the highly publicised idea of ‘broccoli lattes’, made using a high-nutrient processed broccoli powder.  | Dr Dianne GlennSydney: +61 2 9576 7771Brisbane: +61 7 3121 3183Melbourne: +61 3 9097 1619Mobile +61 411 216 929 | <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg15076/> |
| **Recycled organics compost for vegetable growers** | Recycled organics are compostable organic materials, including garden organics, food waste, residual wood and timber. Recycled organics compost is derived from shredding and stockpiling these green wastes for up to six months before being screened to remove contaminants and create a compost high in organic matter, essential nutrients and beneficial bacteria.  | [Gordon Rogers, AHR on (02) 9527 0826 or gordon@ahr.com.au](https://www.soilwealth.com.au/subscribe.asp?loc=/imagesDB/news/RecycledOrganicCompostFactsheet.pdf) | <https://www.soilwealth.com.au/resources/fact-sheets/soil-nutrition-and-compost/recycled-organics-compost-for-vegetable-growers/> |
| **Vegetable grower innovation showcased in South Australian case studies** | A new series of ‘Sustainable Success Stories’ from the South Australian vegetable industry showcase how local leaders are engaging with industry-led programs to overcome farm challenges and improve their sustainability. Take a look at the five case studies below.  | [Gordon Rogers, AHR on (02) 9527 0826 or gordon@ahr.com.au or Anne-Maree Boland, RMCG on (03) 9882 2670 or anne-mareeb@rmcg.com.au](https://www.soilwealth.com.au/contact/)  | <https://www.soilwealth.com.au/resources/case-studies/vegetable-grower-innovation-showcased-in-south-australian-case-studies/> |