What happened in the Vegetable Fund last year?

Annual Report 2020/21

Hort Innovation
Strategic levy investment

VEGETABLE FUND

About Hort Innovation and the Vegetable Fund

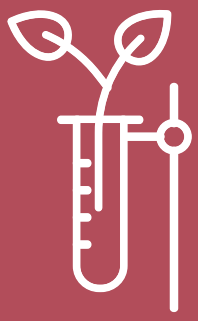
Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australia's horticulture sector. We work closely with industry to invest the vegetable R&D levy, together with Australian Government contributions, into key initiatives for growers, through the Vegetable Fund. We're extremely proud of the work we do to help drive productivity, profitability and demand for vegetable growers, and for the horticulture sector at large.

Throughout another challenging year for the horticulture sector, activity in the Vegetable Fund remained strong. Read on for an overview of what was delivered.

We also encourage you to download a copy of the overarching Hort Innovation Annual Report 2020/21 at www.horticulture.com.au/annual-report-portal to better understand how Hort Innovation worked for the benefit of the horticulture sector during the year.

In this report...

Vegetable Fund snapshot 2020/21



$14.3M

invested in R&D

58

active R&D investments

$10.02M

in levies collected

by the Government and passed on to Hort Innovation for investment

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35%

35 per cent of Australia's vegetable production volume goes to processing and 17 per cent is sent to the foodservice sector (down this year due to COVID-19)

16.5%

In the five years to 2019/20, vegetable crops with the highest annual growth rate in value were asparagus (16.5 per cent increase), garlic (15.5 per cent increase) and pumpkin (13.1 per cent increase)

37.1%

Vegetable crops with the highest share of production volume exported in 2019/20 were asparagus (37.1 per cent), carrots (35.1 per cent) and celery (8.3 per cent)

These facts and more can be found in the Australian Horticulture Statistics Handbook, which is delivered by Hort Innovation each year. The handbook is packed with horticulture statistical information and analysis for some 75 categories, for use by individual industries and the wider sector. The 2019/20 edition was released in early 2021 and features an interactive dashboard format for desktop users. See **www.horticulture.com.au/horticulture-statistics-handbook**.

Just some of the things delivered for you during the year

A host of resources on how to use cover cropping to manage intensive vegetable growing soils – access these materials at hortinn.com/cover-cropping

Preparation support for pest incursions such as fall armyworm and serpentine leafminer, including emergency minor use permits and longer-term investments to bolster the horticulture sector's response

The industry communications program plus nationwide VegNET program to support growers in accessing information and adopting best practice on-farm

Vegetable Harvest to Home dashboards providing regular household purchase data and insight reporting, at www.harvesttohome.net.au

Continued export development work to prepare the industry to take advantage of export opportunities. See p13 for more details.

The Good Mood Food across-horticulture campaign to support industries through the effects of another challenging year – see www.horticulture.com.au/the-good-mood-food*

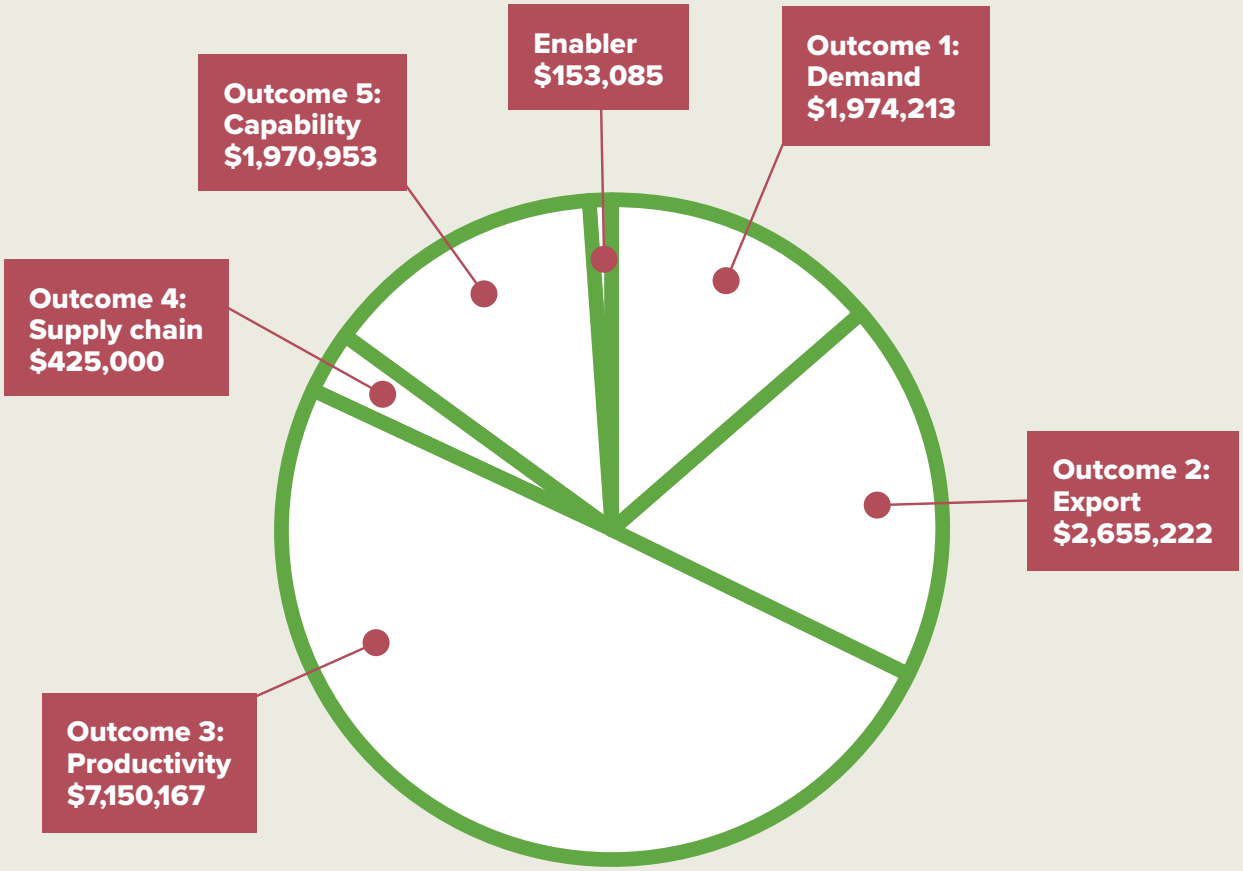
Investments in the Hort Frontiers strategic partnership initiative to address longer-term and often complex issues and opportunities critical to the future of Australian horticulture – see www.horticulture.com.au/hort-frontiers*

Projects supported by grants secured by Hort Innovation, ranging from cross-sector Rural R&D for Profit initiatives to horticulture-specific work to aid in access to crop protection products – see the Hort Innovation Annual Report 2020/21 for more*

You can visit www.horticulture.com.au/vegetable at any time to access information on new, ongoing and completed projects, and to download resources produced by levy investments such as fact sheets and guides.

*These initiatives were delivered outside of the Hort Innovation Vegetable Fund and, in most instances, did not involve the industry levy

Here's what your fund invested in over the year



Investments that are specific to the Hort Innovation Vegetable Fund are guided by the vegetable Strategic Investment Plan (SIP). The SIP features priority outcome areas that have been identified and agreed upon by the industry, and Hort Innovation works to invest in R&D initiatives that are aligned to these.

In the above chart, you can see how project expenditure in the Vegetable Fund during 2020/21 was aligned to the SIP. Each project has been allocated to a SIP outcome based on its primary objective.

Expenditure on projects classified as 'enabler' support the broader delivery of the industry's strategic investment plan, such as impact assessments.

Which projects were in each of the SIP outcome areas?

Outcome 1: Demand

Increased demand and value of the domestic vegetable industry through improved grower knowledge of the market, product differentiation, increased food service revenue, improved food safety and increased consumer knowledge

Project title and code	2020/21 investment	Status	More information
Vegetable cluster consumer insights program (MT17017)	$766,086	Ongoing	hortinn.com/mt17017-vegetable
Improving safety of vegetable produce through on-farm sanitation, using electrolysed oxidising (EO) water (VG15068)	$277,606	Completed	hortinn.com/vg15068
Removing barriers of food safety certification for vegetable exporters through GLOBALG.A.P. co-certification (VG16019)	$24,675	Completed	hortinn.com/vg16019
Pathogen persistence from paddock to plate (VG16042)	$166,246	Completed	hortinn.com/vg16042
Tools and interventions for increasing children's vegetable knowledge (VG16064)	$739,600	Ongoing	hortinn.com/vg16064

Outcome 2: Export

Export markets grown through increased understanding of opportunities available, improved market access, improved export capabilities, improved reputation and competitive advantage

Project title and code	2020/21 investment	Status	More information
Essential market access data packages (MT14052)	$15,739	Ongoing	hortinn.com/mt14052
Taste Australia Retail Program (AM17004) (MT18017)	$118,367	Ongoing	hortinn.com/mt18017
Parasitoids for the management of fruit flies in Australia (MT19003)	$23,406	Ongoing	hortinn.com/mt19003
Horticulture trade data (MT19005)	$5,821	Ongoing	hortinn.com/mt19005
Management strategy for serpentine leafminer (MT20005)	$110,000	Ongoing	hortinn.com/mt20005

Continued

Outcome 2: Export (continued)

Project title and code	2020/21 investment	Status	More information
Vegetable industry export program (VG16061)	$1,780,775	Ongoing	hortinn.com/vg16061
Export facilitators (VG16085)	$482,785	Ongoing	hortinn.com/vg16085
Alternative disinfestation for market access for crops affected by tomato potato psyllid (VG17015)	$118,329	Ongoing	hortinn.com/vg17015

Outcome 3: Productivity

Increased farm productivity and decreased production costs through better utilisation of resources, adaptation to climate, reduced impact of pests and diseases and better utilisation of advanced technologies on the farm

Project title and code	2020/21 investment	Status	More information
SITplus: Port Augusta QFLY SIT factory pilot operation (FF18003)	$71,429	Ongoing	hortinn.com/ff18003
RD&E program for control, eradication and preparedness for vegetable leafminer (MT16004)	$343,476	Completed	hortinn.com/mt16004
National tomato potato psyllid program coordinator (MT16018)	$52,809	Completed	hortinn.com/mt16018
National tomato potato psyllid and zebra chip surveillance (MT18008)	$26,335	Ongoing	hortinn.com/mt18008
Generation of data for pesticide applications in horticulture crops 2019/20 (MT18018)	$125,104	Ongoing	hortinn.com/mt18018
Field-based testing for fall armyworm (MT19014)	$51,600	Ongoing	hortinn.com/mt19014
Improving soilborne disease diagnostic capacity for the Australian vegetable industry (VG15009)	$230,200	Completed	hortinn.com/vg15009
Sowing success through transformational technologies (VG15021)	$159,600	Completed	hortinn.com/vg15021
Investigating novel glass technologies and photovoltaics in protected cropping (VG15038)	$42,246	Ongoing	hortinn.com/vg15038-and-vg16070
Review of the national biosecurity plan for the vegetable industry (VG15065)	$1,319	Ongoing	hortinn.com/vg15065
A strategic approach to weed management for the Australian vegetable industry (VG15070)	$180,060	Completed	hortinn.com/vg15070
Vegetable industry minor use program (VG16020)	$14,150	Ongoing	hortinn.com/vg16020

Continued

Outcome 3: Productivity (continued)

Project title and code	2020/21 investment	Status	More information
Novel topical vegetable, cotton virus and whitefly protection (VG16037)	$567,896	Ongoing	hortinn.com/vg16037
Vegetable agrichemical pest management needs and priorities (VG16060)	$94,208	Completed	hortinn.com/vg16060
Field and landscape management to support beneficial arthropods for IPM on vegetable farms (VG16062)	$181,111	Completed	hortinn.com/vg16062
The EnviroVeg Program 2017 – 2022 (VG16063)	$102,626	Ongoing	hortinn.com/vg16063
Optimising cover cropping for the Australian vegetable industry (VG16068)	$228,159	Completed	hortinn.com/vg16068
Research and operations to trial innovative glass and photovoltaic technologies in protected cropping (VG16070)	$130,000	Completed	hortinn.com/vg15038-and-vg16070
Soil wealth and integrated crop protection – phase 2 (VG16078)	$550,987	Ongoing	hortinn.com/vg16078
Area wide management of vegetable diseases: viruses and bacteria (VG16086)	$3,313,094	Ongoing	hortinn.com/vg16086
National Vegetable Protected Cropping Centre (VG17003)	$400,000	Ongoing	hortinn.com/vg17003
Internal fruit rot of capsicum (VG17012)	$97,000	Ongoing	hortinn.com/vg17012
Vegetable Strategic Agrichemical Review Process (SARP) report updates (VG18004)	$59,000	Ongoing	hortinn.com/vg18004
Co-developing and extending integrated Spodoptera frugiperda (fall armyworm) management systems for the Australian vegetable industry (VG20003)	$127,759	Ongoing	hortinn.com/vg20003

Outcome 4: Supply chain

Increased supply chain integration and development through improved supply chain management, development of collaborative models and partnerships

Project title and code	2020/21 investment	Status	More information
Stingless bees as effective managed pollinators for Australian horticulture (PH16000)	$425,000	Ongoing	hortinn.com/ph16000

Outcome 5: Capability

Improved capability of levy payers to adopt improved practices and new innovation through improved communication and extension programs, grower innovation support, professional development and workforce building programs, and through improved farm management and information systems

Project title and code	2020/21 investment	Status	More information
Masterclass in Horticultural Business (LP15001)	$50,000	Ongoing	hortinn.com/lp15001
Leadership Development Program (MT18016)	$16	Completed	hortinn.com/mt18016
Nuffield Scholarship (VG14065)	$53,000	Ongoing	hortinn.com/vg14065
National vegetable industry communications program (VG18000)	$592,134	Ongoing	hortinn.com/vg18000
Extension strategy for the Australian vegetable industry (VG18003)	$(5,125)	Completed	hortinn.com/vg18003
Digitisation of East Gippsland Vegetable Innovation Days (VG19001)	$15,000	Completed	hortinn.com/vg19001
VegNET – Bowen Gumlu & Far North Queensland (VG19008)	$115,862	Ongoing	hortinn.com/vegnet-2020-21
VegNET – Wide Bay Burnett (VG19009)	$115,862	Ongoing	hortinn.com/vegnet-2020-21
VegNET – Southern Queensland (VG19010)	$77,241	Ongoing	hortinn.com/vegnet-2020-21
VegNET – NSW (VG19011)	$113,320	Ongoing	hortinn.com/vegnet-2020-21
VegNET – Victoria (South-East, West and Northern Regions) (VG19012)	$115,862	Ongoing	hortinn.com/vegnet-2020-21
VegNET – Gippsland (VG19013)	$115,862	Ongoing	hortinn.com/vegnet-2020-21
VegNET Tasmania (VG19014)	$115,862	Ongoing	hortinn.com/vegnet-2020-21
VegNET SA (VG19015)	$115,862	Ongoing	hortinn.com/vegnet-2020-21
VegNET – WA (VG19016)	$115,862	Ongoing	hortinn.com/vegnet-2020-21
VegNET NT (VG19017)	$115,862	Ongoing	hortinn.com/vegnet-2020-21
Training in the development and delivery of innovative vegetable E&A regional plans (VG19018)	$51,600	Ongoing	hortinn.com/vegnet-2020-21
Annual Vegetable Industry Seminar (VG20000)	$96,870	Ongoing	hortinn.com/vg20000

Financial operating statement

Vegetable Fund
Financial operating statement 2020/21

	R&D ($)	Total ($)
	2020/21 July – June	2020/21 July – June
OPENING BALANCE	**1,022,495**	**1,022,495**
Levies from growers (net of collection costs)	10,024,381	10,024,381
Australian Government money	8,338,711	8,338,711
Other income*	34,818	34,818
TOTAL INCOME	**18,397,910**	**18,397,910**
Project funding	14,304,485	14,304,485
Consultation with and advice from growers	22,856	22,856
Service delivery	2,118,748	2,118,748
TOTAL EXPENDITURE	**16,446,089**	**16,446,089**
Levy contribution to across-industry activity	–	–
CLOSING BALANCE	**2,974,316**	**2,974,316**
Levy collection costs	220,236	220,236

* Interest, loyalties

Levy collection costs – These are the costs associated with the collection of levies from industry charged by Levy Revenue Services (LRS)
Service delivery – Also known as Corporate Cost Recovery (CCR), this is the total cost of managing the investment portfolio charged by Hort Innovation

Making sure that levy investment decisions align with industry priorities

What will be the Vegetable Fund's focus over the next five years?

The vegetable Strategic Investment Plan (SIP) was created in 2021 to reflect current priorities for the vegetable industry. This involved extensive consultation with vegetable growers and industry stakeholders, including AUSVEG. The SIP is the roadmap that helps guide Hort Innovation's oversight and management of individual levy industry investment programs.

The vegetable SIP lays the foundation for decision making in levy investments and represents the balanced interest of the particular industry from which the levy is collected. The most important function of the SIP is to make sure that levy investment decisions align with industry priorities.

The vegetable SIP identifies four outcome areas that will contribute to the productivity and profitability of the vegetable sector. They are:

- Industry supply, productivity and sustainability
- Demand creation
- Extension and capability
- Business insights.

What projects will the fund be investing in next year?

The vegetable Annual Investment Plan (AIP) 2021/22 will detail how levy funds will be spent over the 12-month period. Investment decisions will be guided by the industry SIP and prioritised based on potential industry impact, as well as availability of levy funds.

The AIP is developed by Hort Innovation, and is informed by the SIP and industry consultation, including collaboration with AUSVEG. The AIP is then discussed with the industry SIAP for feedback and prioritisation. All investments will need to link to the industry's SIP by addressing a minimum of one KPI against a strategy under one of the four outcomes.

Annual Investment Plans will be published each year over the lifespan of the SIP and industry stakeholders will be advised via established communication channels.

Hort Innovation will continue to report on fund performance regularly, with more focus on reporting on outcomes and the impact of investments.

When available, you can visit www.horticulture.com.au/vegetable-fund-management to view both documents and get a full picture of how your levy will be invested over the next five years.

Cover crops: a “game-changer” for growers

This investment has shown that cover crops are one of the most useful tools for managing intensive vegetable-growing soils, improving soil health, and increasing productivity.

The challenge

As evidence of the usefulness of cover cropping mounts, so too does Australian vegetable growers’ eagerness to harness it for local conditions.

Meet Darren

Vegetable and potato grower and Managing Director of Tasmania’s MG Farms, Darren Long, believes the advancements made in cover cropping as part of this project have been the single most important change to farming he’s seen in 30 years. “It’s an absolute game-changer,” he says. “Growers need a full suite of approaches, and although there will always be a need for traditional methods, this new research gives growers the ability to improve on-farm productivity and sustainability.”

Darren Long, vegetable and potato grower, Tully, Queensland

“The ultimate aim is to be farming smarter and using cover crops to improve the overall health of our soils and the soil structure. There is a strong focus on how cover crops are grown and incorporated into the soil using a variety of low impact machinery with minimal passes. The reduction in chemical use isn’t necessarily the main point, but is a bonus of cover cropping done right.

“Personally, I’ve invested almost 15 years of trial and error into cover cropping, having worked closely with other organisations to get to the stage we are at now so that as a whole industry we can share the benefits.

“The biggest learning curve that growers are getting out of the project’s research is what’s available and what’s beneficial to the soil, how it works and the different types of root systems – the exposure to all of these new cover crops takes out the guess-work. We can access material where the research tells us the companion plants that work well, which means we don’t have to guess what will or won’t work.”

The collaborative nature of the project is also something Darren finds particularly useful and says that by sharing information with other growers, the industry benefits as a whole. “I think the biggest advantage of the project’s cover crop coaching clinics and having the Hort Innovation projects is that we get to talk to other growers and see what’s working.”

Better still, the program’s having a beneficial effect on Darren’s bottom line. “The savings are at pack-out and reducing input costs to produce the crop, and we’re at a stage now where we don’t even use fungicides or insecticides, and we’re nearly at a point where we’re not using herbicides. Brassicas, or the other cover crops we use, are controlling our weed problem.”

The approach

The importance of cover cropping is increasing as vegetable farmers move to smarter, gentler, more biological approaches to soil preparation, crop protection and weed control – improving soils and soil structure. This new research project fills an important gap, bringing cover crop information together and modifying it specifically for the Australian vegetable industry.

The impact

This strategic, innovative work has revolutionised crop production for many Australian growers, transitioning orchards to intensive systems with higher yields and better profitability per hectare. This crucial research has also enabled growers to implement crop production methods that best support the use of on-farm automation and superior, tailored varieties.

> *"The ultimate aim is to be farming smarter and using cover crops to improve the overall health of our soils and the soil structure. The reduction in chemical use isn't necessarily the main point, but it a bonus of cover cropping done right."*

Darren Long, vegetable and potato grower, Tasmania

For more information, visit hortinn.com/vg16068

Project details

Optimising cover cropping for the Australian vegetable industry (VG16068)
Key research provider: Applied Horticultural Research
Start date: July 2017
Expected end date: July 2020
Estimated value for life of project: $1,140,813

Defeating the pests, bugs and diseases putting the squeeze on veggie productivity and profitability

Beginning in 2018, this investment is responsible for developing an 'area wide management' (AWM) strategy to address high-priority viral and bacterial diseases affecting vegetable crops.

The challenge

To maximise the productivity and profitability of Australian vegetable crops, growers need a strategy to identify and manage a broad range of pests and diseases. No single measure is likely to be effective alone and the best results will be achieved from integrating options appropriate to the crop and farming system.

The approach

There are two teams working on this project, one in NSW and one in Queensland, with the aim of investigating the most damaging bacterial and viral diseases of brassicas and cucurbits and delivering this information to industry levy payers to better manage diseases.

Thanks to this project, an area wide management strategy has been developed, identifying and tackling the most pressing viral and bacterial pests impacting Australia's vegetable crops. The strategy has also looked at pest management approaches to diseases transmitted by thrips, aphid and whitefly pests, and phytoplasmas transmitted by leafhoppers.

The project also tracks the prevalence of tomato potato psyllid (TPP), and collaborated with other TPP surveillance projects around the country to provide a more thorough picture of the problem.

The second major focus of the project is on managing foliar bacterial diseases. This has largely involved the development of rapid diagnostic tests for key bacterial and viral pathogens.

The impact

Most recently, the project team have produced a number of fact sheets detailing the symptoms, spread and control measures for viruses affecting various vegetable crops, which you can view here:

- Managing virus diseases on zucchini
- Viruses infecting brassicas
- Virus diseases of curcubits in Australia

Trapping of insect vectors that can carry diseases continues, with protocols for effective trapping now in place.

The next phase of the program will build on the extensive research already collected and analysed, ramping up pathology to identify diseases, working closely on the ground with AUSVEG – the industry representative body for vegetable and potato growers.

Research outcomes from the program are communicated to growers as they become available, via workshops and grower meetings, field days, industry journals, newsletters and fact sheets.

For more information, visit hortinn.com/vg16086

Project details

Area wide management of vegetable diseases: viruses and bacteria (VG16086)
Key research provider: The Queensland Department of Agriculture and Fisheries
Start date: January 2018
Expected end date: May 2022
Estimated value for life of project: $11,129,154

Growing Australian vegetable exports in an ever-shrinking shrinking world

With the pandemic placing extra stress on Australian vegetable exports, growers need more help than ever to build export capability and capacity, and to improve their export readiness. This investment gives vegetable growers the tools and techniques they need to grow during COVID.

The challenge

With market closures, supply chain disruptions, and air and sea freight services ceased or heavily reduced due to COVID-19, Australian growers need more help than ever to get their produce to overseas markets.

Meet David

Founder of Austchilli and renowned Bundaberg farmer, David De Paoli, says, “We’ve got to act locally, but think globally. Whether it’s COVID, or a natural event going through a specific area, even though we are growing produce in Australia we are all intrinsically connected, whether we like it or not. We can’t take one size fits all approach.”

David believes Hort Innovation’s vegetable industry export program has allowed his business to meet these and other challenges, helping him to operate in a global market, giving him the tools to better understand his customers’ needs, and providing valuable research and export assistance.

“This program does a great job at marketing the Australian brand overseas and leveraging it to the benefit of our growers. While there’s a lot you can learn as you go, it’s good to have people there who can help you so that you make fewer mistakes along the way”.

The approach

While COVID-19 continues to severely limit activities at trade shows around the world, the program has doubled down on export readiness training for growers looking to improve export performance.

The *Export Fundamentals for Australian Fruit & Vegetable Growers: From Farmgate to International Markets course* contains 11 e-learning modules covering a broad range of topics relating to international trade for fresh produce. Topics include Export Planning, Export Documentation, Market Access, Market Entry Strategies, Freight & Logistics, Export Finance & Pricing.

The program has also worked closely with government to prioritise market access for Australian vegetable products.

The impact

Despite the many challenges posed by COVID-19, with the help of this program, Australian vegetable exports remained resilient. Pre-pandemic, this program ensured Aussie growers were front and centre at several major international trade missions and tradeshows. However, COVID has pushed many activities online, including increased resources and training opportunities for vegetable exporting growers.

> *"We've got to act locally, but think globally. Whether it's COVID, or a natural event going through a specific area, even though we are growing produce in Australia we are all intrinsically connected, whether we like it or not. We can't take one size fits all approach."*
>
> **David De Paoli, Founder of Austchilli and renowned Bundaberg farmer**

For more information, visit hortinn.com/vg16061

Project details

Vegetable industry export program (VG16061)
Key research provider: AUSVEG
Start date: April 2017
End date: June 2021
Estimated value for life of project: $8,365,398

Minor use permits

The Hort Innovation Vegetable Fund supports the submission of applications for new and renewed minor use permits for the industry, as well as data generation activities to support chemical permits and registrations, and strategic agrichemical reviews.

Together these efforts provide industry access to safe, relevant and effective chemicals for the management of pests, weeds and diseases.

Through the *Vegetable industry minor use program* (VG16020) levy funds and Australian Government contributions are used to submit renewals and applications for minor use permits for the vegetable industry as required. These submissions are prepared and submitted to the Australian Pesticides and Veterinary Medicines Authority (APVMA).

In 2020/21, more than 40 new permit and permit renewal applications were facilitated under VG16020, and at the time of writing there were close to 200 permits available to the industry.

You can access a table of all current vegetable minor use permits from hortinn.com/minor-use-vegetable, where you'll also find details of other activities and resources in the chemical space.

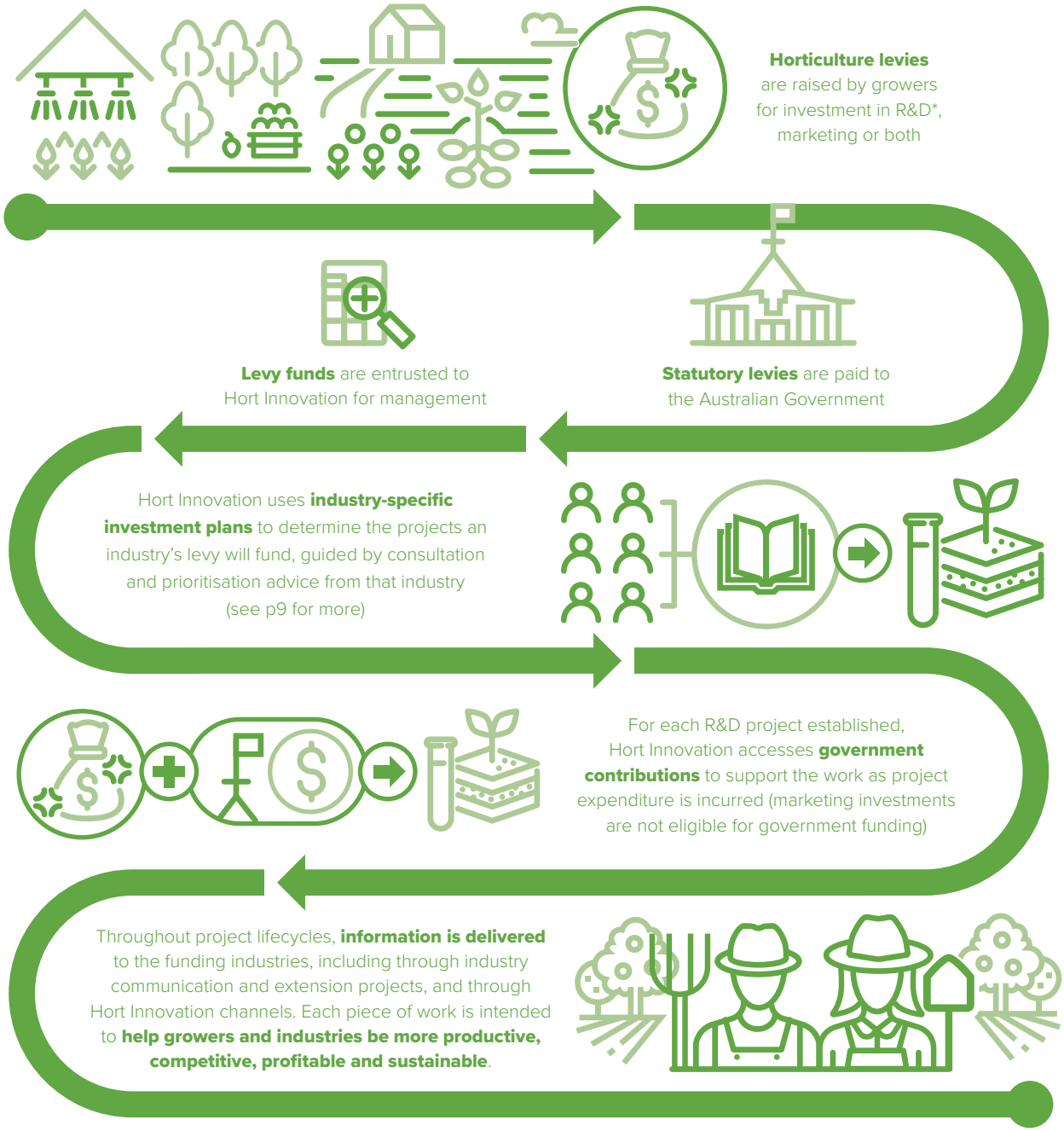
All current permits and the conditions of their use are also searchable at portal.apvma.gov.au/permits, while permit updates are circulated as they happen in Hort Innovation's *Growing Innovation* e-newsletter, which you can sign up for at www.horticulture.com.au/sign-up.

Keep up to date!

Find monthly minor use permit updates in our *Growing Innovation* e-newsletter. Sign up for free at www.horticulture.com.au/sign-up.

How strategic levy investment are made in the Vegetable Fund

The below diagram shows how Hort Innovation makes strategic levy investments on behalf of horticulture industries. The vegetable R&D levy was invested this way during the year, guided by the vegetable Strategic Investment Plan 2017-2021 and advice from the industry's investment advisory panel.



* Encapsulating extension and international trade

To learn more about funding specific to the Hort Innovation Vegetable Fund, visit www.horticulture.com.au/vegetable. During the year, other sources of funding were also used to support activities for the benefit of Australian horticulture, including grant funding secured by Hort Innovation, co-investment dollars brokered through our Hort Frontiers initiative and centralised strategic levy reserve.

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