R&D INSIGHTS
THE LATEST UPDATES ON R&D WITHIN THE OLIVE INDUSTRY | DECEMBER 2024

R&D Insights contains the latest levy-funded R&D project updates, research findings and related industry resources, which all happen under the Hort Innovation Olive Fund.

Hort Innovation partners with leading service providers to complete a range of R&D projects to ensure the long-term sustainability and profitability of the olive industry.

The Hub aims to ensure that Australia has the capacity and capability to respond effectively to biosecurity incidents like an incursion of Xylella fastidiosa, so that we never see our groves transformed to this. Image: Rodrigo Krugner, USDA.

National Biosecurity Training Hub boosts preparedness and response capabilities

Plant Health Australia (PHA), the Queensland Department of Agriculture and Fisheries, Agriculture Victoria, New South Wales Department of Primary Industries, and Animal Health Australia, have partnered to create the National Biosecurity Training Hub - Australia's first one-stop online shop for biosecurity training. The Hub currently features 64 online training courses, with plans for continuous expansion.

PHA's General Manager, Emergency Response, Dr Susanna Driessen said the need to preserve and protect Australia's plant, animal and marine life means an ongoing demand for training resources to support biosecurity preparedness and response activities, and to ensure that the necessary skills and knowledge are in place to respond to and manage biosecurity incidents.

"Pressure on Australia's biosecurity system requires an increased need for governments and industry to work together," she said.

"That collaborative approach in turn highlights the need for accessible online training resources, to ensure we can meet the rising demand for expertise and knowledge, and have the capacity and capability to respond effectively."

Central resource database

The National Biosecurity Training Hub offers a central location with a database of biosecurity training resources. The Hub unifies and streamlines training to facilitate national visibility of biosecurity-related training resources across government, industry and community in a single location, making them more accessible and reducing the duplication of effort and costs associated with developing and delivering biosecurity training.

Multi-level information, easy navigation

The Hub's centralised platform contains training resources across all areas of biosecurity, from prevention

The 15-minute Come clean, stay clean, go clean course sets out simple biosecurity measures for others visiting your property.

and preparedness to response and recovery. Users have access to the latest training materials and courses, made available by a number of providers and suited to various user groups, involvement levels and skill sets.

Designed with learners in mind, the Hub is easy to navigate: the library of plant, animal and aquatic biosecurity training is searchable using a topic, keyword, location and preferred method of delivery. Also by user group, with recommended resource lists for Government, Industry, Producers, Public, Researchers and Vets.

A search of the 'Producers' category highlights 35 courses covering a multitude of industries and activities, with a number particularly relevant for olive growers. For example:

Plant Surveillance is a 30-minute online course provided by PHA and covers:

- why surveillance is important;
- the difference between general and specific surveillance;
- what needs to be considered when designing a surveillance activity;
- the records that should be collected when conducting surveillance.

Growers - Pest Reporting and Responses is a 60-minute online course, also provided by PHA. It highlights how to report plant pests in Australia and what might happen in response to a plant pest detection, covering:

- the benefits of biosecurity;
- the possible impacts of pests;
- biosecurity practices on your property;
- what to do if you find an unusual pest or symptom;
- the joint response from government and industry to a pest.

Information for visitors

There's also a great short course you can share with people planning to visit your property, highlighting what they can do to ensure they're not either bringing unwanted pests, diseases and weeds with them, or taking anything present on your property onto another they visit next.

Come clean, stay clean, go clean - when visiting farms is provided by Agriculture Victoria and takes just 15 minutes to complete. Prompting both awareness and action, it provides user-friendly information about how to visit farms in a safe, biosecure manner and help protect Australian agriculture.

The course covers:

- best practice procedures to consider when planning to visit a farming property;
- best practice procedures to consider when entering a farming property;
- best practice procedures when exiting a property;
- steps for cleaning your footwear.
- contents for your biosecurity kit.

Remember that people, vehicles and equipment are all potential biosecurity risks when they enter your property. Send the link and ask planned visitors to take a look - if we all do it, we'll make a big impact in increasing awareness around the importance of biosecurity in protecting our farms and livelihoods.

Find out more

Access the National Biosecurity Training Hub and information about the learning opportunities now on offer at *www.biotraininghub.com.au*.

Olive Fund 2023/24 data released

Transforming Australian production dollars into tangible outcomes, the Olive Fund is the driver of industry R&D. Managed by Hort Innovation, the Olive Fund enables the investment of the olive levy and Australian Government contributions into initiatives to assist growers increase productivity and profitability. The end aim is to ensure the viability and growth of the Australian olive industry now and into the future.

Investments are guided by the Olive Strategic Investment Plan (SIP) and Annual Investment Plan (AIP). The SIP provides an overarching roadmap for industry investment to follow, and the AIP details how levy dollars will be spent each year to achieve industry goals.

Every levy dollar paid is hard-earned by you, our producers, so it's important we all know how levy contributions are being used and what they're achieving for the industry. Hort Innovation has previously produced annual reports for each industry levy it manages, providing project information from across the previous year; last year it produced a single consolidated report on Hort Innovation-managed levy R&D investment with a dedicated snapshot for each industry.

2022/23 Olive Fund investment activity snapshot	
Levy collected in 2023/24:	$366,000 (2022/23 = $309,110; 2021/22 = $399,228)
Fund expenditure in 2023/24:	$413,000 (2022/23 = $420,600; 2021/22 = $256,193)
Fund activity 2023/24:	11 investment projects

No physical report was prepared this year, with the data and information instead made directly available through the Olive Fund page on the Hort Innovation website.

Olive Fund key figures

Here's a snapshot of the Olive Fund investment activity for the 2023/24 financial year.

A total of $366,000 of levy funds were collected, an increase of $57,000 from 2022/23 and $33,000 less than 2021/22.

Fund expenditure over the year was $413,000, slightly lower than the $420,600 in 2022/23 and substantially higher than 2021/22's figure of $256,193.

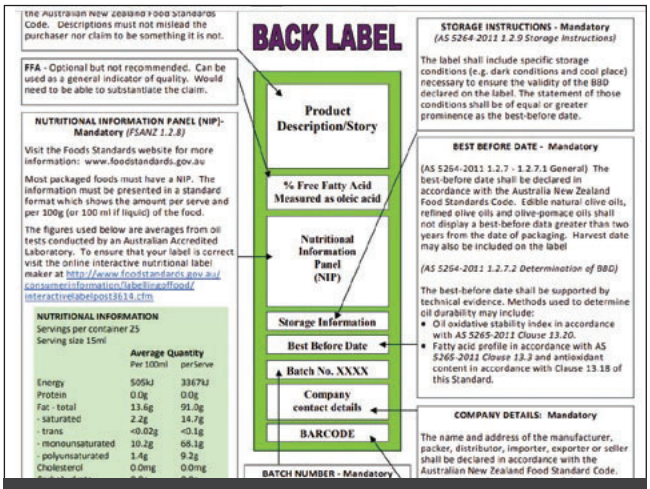
That expenditure funded 11 investment projects, some ongoing and others now completed. Here's an overview, with brief descriptions of each project.

2023/24 active R&D projects

Funded projects during the 2023/24 year, including multi-industry (MT/ST) investments, were:

- *Olive industry communications and extension program* (OL22000) - ongoing: delivering *Grove Innovation newsletters, R&D Insights*, field days, best practice workshops and more;
- *Increasing awareness of health benefits of Australian olive products* (OL22001) - ongoing: providing evidence-based health information and educational resources about olive products to health professionals and the olive industry, via the Olive Wellness Institute, with the aim of increasing demand for Australian olive products within Australia and overseas.

R&D extension project outcome: Industry field days.



R&D project underway: Olive oil quality monitoring.

Access current and historical data and reports

Hort Innovation's Company 2023/24 Annual Report is available to download from the Hort Innovation Annual Report Portal - ***www.horticulture.com.au/annual-report-portal***, along with Company Annual Reports from 2015/16 to date.

No Olive Fund Annual Report was compiled for 2023/24, however reports from 2017/18 through to 2022/23 can also be accessed on the portal.

And if you want to know more about the practicalities of the Olive Fund, there's an overview of how it works and how it's managed in the Growers section of the Hort Innovation website: navigate to the Olive Fund page and you'll find the Fund Management dropdown in the top menu.

You can also access information on both ongoing and completed Olive Fund R&D projects under the Your investments dropdown, along with an investment expenditure analysis showing how Olive Fund investments are tracking against the industry's Strategic Investment Plan (SIP).

- *Olive industry minor use program* (OL16000) - ongoing: supports applications and renewals of minor use permits for the olive industry, providing industry access to safe, relevant and effective chemicals to manage pests, weeds and diseases.
- *Regulatory support & response co-ordination* (MT20007) - ongoing: providing the Australian horticulture industry with key information regarding domestic and international pesticide regulation, including Ag Chemical Updates.
- *Improving preparedness of the Australian horticultural sector to the threat potentially posed by Xylella fastidiosa (a severe biosecurity risk)* (MT17006) - completed: supported the role and activities of a national Xylella co-ordinator, including developing R&D priorities and incursion protection projects, through the Plant Biosecurity Research Initiative (PBRI).
- *Fund Annual Reports 2021/22* (MT22000) - completed: compiling of annual Olive Fund annual report.
- *Fund Annual Reports 2022/23* (MT23002) - completed: compiling of annual Olive Fund annual report.
- *Strategic Agrichemical Review Process (SARP) 2023 updates* (MT23001) - ongoing: provides an updated view of current priorities and gaps regarding pest, disease and weed control, to assist with ensuring availability of and access to effective chemical controls to address needs and gaps via chemical registrations or APVMA minor use permits.
- *Consumer Behaviour Retail Data* (MT21004) - ongoing: providing regular consumer behaviour data and insight reporting to a range of industries, through the Harvest to Home platform.
- *Horticulture impact assessment program 2020/21 to 2022/23* (MT21015) - ongoing: evaluating and providing insights into the impact of Hort Innovation-managed R&D investments.
- *Consumer usage & attitude research program* (MT21202) - ongoing: providing a category tracking service to allow various horticultural categories to better understand consumer usage and attitudes and the effectiveness of marketing campaigns.
- *Olive oil quality monitoring program* (OL23002) - ongoing: monitors olive oil quality to improve consumer confidence in Australian olive oil products and protect olive grower returns by determining compliance with the *Australian Standard AS5264-2011 for Olive oils and olive-pomace oils* minimum quality parameters for each grade of olive oil and identification of brand owners who are not compliant and need assistance.

There's more detail on these and other new, ongoing and completed projects available via the Olive Fund information page on the Hort Innovation website - *www.horticulture.com.au/olive*.

Pruning, nutrition crucial for leaf pathogen management

In the September edition, the pest and disease management spotlight shifted from critters (Black Scale, Olive Lace Bug) to Anthracnose, a long-standing scourge in olive groves. With ongoing unseasonal rainfall occurring in most growing regions, we're continuing our IPDM resource focus with two increasingly common fungal diseases, Peacock Spot and Cercospora Leaf Mould.

Peacock Spot and Cercospora Leaf Mould have both been present in olive groves for many years. Both are significant fungal leaf diseases and Peacock Spot is considered the most widespread fungal pathogen worldwide.

They're not as 'sexy' as some diseases, though, and not as well studied.

Another issue with their management is that the two diseases occur under similar weather conditions, and their symptoms often aren't as dramatic as some olive pests and diseases.

Not well differentiated

While they're unlikely to kill a healthy tree, they impact tree vigour and fruit quality, so they're not

"Monitoring is key, keeping track of rainfall, humidity and temperatures, and applying targeted fungicide sprays at the appropriate risk times,"

generally 'stand up and take notice' conditions, olive industry pest and disease expert Dr Robert Spooner-Hart said.

"And as they often occur around the same weather conditions, it means they haven't been well differentiated by the industry until recently."

Disease expert Dr Len Tesoriero confirmed that the recommended management is the essentially the same for both infections.

"But it is still important for growers to be able to differentiate between them. This can assist with fine-tuning management practices, guide varietal choices for new or replacement plantings, and also generate important industry data on their occurrence and management," he said.

Distinguishing symptoms

Leaf yellowing is one of the primary markers of both infections,

PEACOCK SPOT (aka Olive Leaf Spot), Caused by the fungus *Fusicladium oleaginum (Spilocaea oleaginea)*.

Biology and damage

Occurs worldwide and is the most widespread fungal pathogen of olive trees. This disease is common in regions that experience wet and humid spring conditions, particularly coastal and warm temperate regions of Australia.

Infection of leaves occurs mostly in winter and spring during wet weather (optimum temperatures 15-21C, >98% Relative Humidity and a wet leaf surface for 1-2 days). Spores cannot germinate at >25C. Infections can remain dormant until autumn if conditions are dry - called a 'latent infection'.

After periods of wet weather lesions develop and conidia (spores) form on the leaf surface. Spores spread with water splash and by insects such as bookworms (***Order Psocoptera***) which live in leaf litter and on leaves.

Olive varieties differ in susceptibility - e.g. Hojiblanca, Picual, Arbequina and Manzanillo are more susceptible; Leccino is more resistant.

Management

Prune branches to open tree canopy to air and sun.

Remove or cover dropped leaves with compost, or shred leaves and apply N fertiliser to hasten breakdown in winter.

Timing is important for fungicide application when wet weather is expected (especially in late winter and spring).

Maintain balanced plant nutrition in spring: high nitrogen and low potassium levels in leaves favours infection.

Grow tolerant olive varieties (see above).

Tesoriero said, however there are recognisable symptoms of each which help with correct identification of the pathogen present.

"'Peacock spot' refers to the typical circular leaf spots typical of that infection which resemble the dark markings of male peacock tail feathers," he said.

"And while the initial symptoms can be difficult to distinguish - whitish or pale grey circular spots on the upper leaf surface - the spots can develop a more obvious dark outline, concentric markings or a yellow halo.

"With Cercospora the yellowing leaves may have dead brown areas, and will be found mostly in the inner or lower parts of the canopy. There's also a diffuse lead-grey mould which develops on the underside of the leaf, which is generally more visible on young leaves."

Grove management the key

As with most pest and disease issues in olive groves, Spooner-Hart said that regular grove management utilising IPDM practices can minimise these and other fungal infections.

"Monitoring is key, keeping track of rainfall, humidity and temperatures, and applying targeted fungicide sprays at the appropriate risk times," he said.

"Along with pruning for maximal sunlight access and air flow, and maintenance of balanced nutrition, it is relatively easy to keep leaf pathogens in check and trees healthy."

Olive industry IPDM resources

Growers impacted by Peacock Spot or Cercospora can access a wealth of information on prevention and management in the industry IPDM (integrated pest and disease management) resources available on the OliveBiz website - *www.olivebiz.com.au*, including:

- **IPDM Flyers** - summaries of information on major olive pest and disease topics: *Black scale, Olive lace bug, Weevils, Anthracnose, Peacock spot, Cercospora leaf mould, Olive wood rots and dieback, Exotic*

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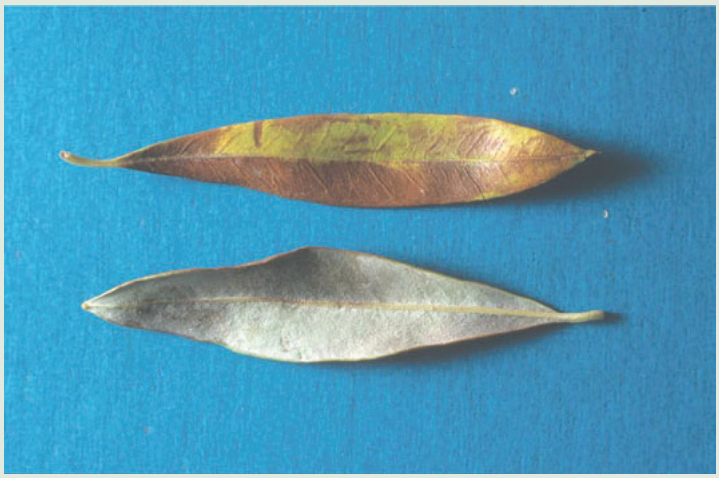
pests and diseases, and *Current chemical options for key pests and diseases*.

- **IPDM Online Tutorials** - 10-15 minute tutorials on *IPDM, Monitoring, Biosecurity, Black scale, Olive lace bug, Apple weevil, Anthracnose, Peacock spot* and *Cercospora leaf spot*.
- **Revised *Field Guide to Olive Pests, Diseases and Disorders*** - Australian plus new exotics, to assist in identification of pests, diseases and disorders, and beneficial natural enemies.
- **Best Practice IPDM Manual** - information on IPDM strategies, including pesticide selection and application.
- **IPDM Videos & Presentations** - information and experiential learning from the AOA's 2018 Integrated Pest & Disease Management workshops, focused on *Black scale, Olive lace bug and Anthracnose*.

Where to find them

All of these - along with many more industry information resources and learning tools - are available on the AOA's OliveBiz website - *www.olivebiz.com.au*.

The IPDM resources and information referenced are part of the project *An integrated pest and disease management extension program for the olive industry* (OL17001), funded by Hort Innovation using the Olive industry research and development levy, and contributions from the Australian Government.



CERCOSPORA LEAF MOULD (aka Cercospora Leaf Spot, Cercosporiosis or Cercosporiose). Caused by the fungus *Pseudocercospora cladosporioides*.

Biology and damage

Cercospora is very common in Australian olive groves but rarely causes significant losses, particularly if tree health is maintained by optimising nutrition and irrigation.

It is a slow degenerative disease, often taking several years for trees to significantly decline. It can cause delayed fruit ripening and decreased oil yield.

Initial infections occur during late winter with rainy weather and younger leaves are most susceptible. The optimum temperature for spores to germinate is between 15-25C (average 22C). There can be a long latent period before symptoms develop - up to 11 months, depending on the weather.

A wet spring favours disease development. Rainy weather in late summer and throughout autumn favours spore formation and further spread to leaves and fruit.

Leaves turn yellow and may have dead brown areas, mostly in the inner or lower parts of the canopy. Infected leaves may drop. A diffuse lead-grey mould develops on the leaf under-surface, mostly visible on young leaves. In rare cases it can cause a fruit infection - small (<5mm) sunken grey-brown spots - although spots may be larger in some varieties, darker and not sunken.

Some olive varieties are more tolerant to this disease - e.g. Arbequina and Picual. Some olive varieties are very susceptible - e.g. Hojiblanca.

Management

Prune branches to open the tree canopy to air/sun.

Remove or cover dropped leaves with compost, or shred leaves and apply Nitrogen fertiliser to hasten breakdown in winter.

Timing is important for fungicide applications in winter and spring, and when rain expected in late summer.

Recent research in Europe found the biocontrol bacterium ***Bacillus subtilis*** was effective (various strains of this and similar bacteria were sprayed on trees at regular intervals through the year).

Research Recap

PROJECT NAME: *Increasing awareness of the health benefits of Australian Olive Products* (OL22001)

PROJECT AIM: To increase the use of olive products in the daily lives of consumers by equipping Australian health care, food service and culinary professionals with the knowledge they need to advise about their health benefits and uses.

Delivery is via the Olive Wellness Institute, a scientific repository on the nutrition, health and wellness benefits of olives and olive products.

The project's expanded focus has also ensured it provides relevant information and support tools to olive growers and processors in Australia to enable them to further increase awareness through their customers and networks.

KEY RESEARCH PROVIDER: Boundary Bend Olives

FUNDING: Hort Innovation Olive Fund

PROJECT TERM: Three years

PROJECT ENDS: July 2026 (current project phase)

OWI resource helps sort the EVOO from the rest

As industry members, we all know that (unfortunately) not all Extra Virgin Olive Oil (EVOO) is of high quality. In fact, there's some pretty dodgy stuff around - although luckily not as much here as in EVOO-scarce Europe.

We also know there are some simple 'rules' to follow when buying EVOO to ensure that the product you're purchasing is authentic and of a high quality. Buying Australian - even better, local - is a great start, of course. The others can be found on and in the packaging, including:

- extra virgin' declaration on the label;
- dark glass or other opaque, food-safe packaging;
- 'best before' and harvest dates;
- proof of Certification (preferably the *OliveCare® Australian Extra Virgin* logo)

Spreading the word

Not everyone is as clued up, though, so the Olive Wellness Institute has produced a great one-page guide on *How to look for a Good Quality Extra Virgin Olive Oil.*

Its simple, easy reference format makes it a great way to spread the word to consumers, to help them ensure they get the quality product they're looking for.

It's available for free download now on the Olive Wellness Institute's website - *www.olivewellnessinstitute.org*. Just type '*How to look for a good quality EVOO*' into the search bar and it'll take you to the download page.

Print a few for your farmgate shop or farmers market stall, and share the link with your networks to reference and share.