



IPDM UPDATE

Robert Spooner-Hart

**Hort
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OLIVE IPDM PROJECTS

- 2001-2004 Sustainable pest and disease management in Australian olive production
- 2007 Field Guide to Olive Pests, Diseases and Disorders in Australia
- 2009-2013 Evaluation of key chemicals for pest and disease management in the olive industry (with IPDM focus)
- 2017-2020 An integrated pest and disease management extension program for the Australian olive industry



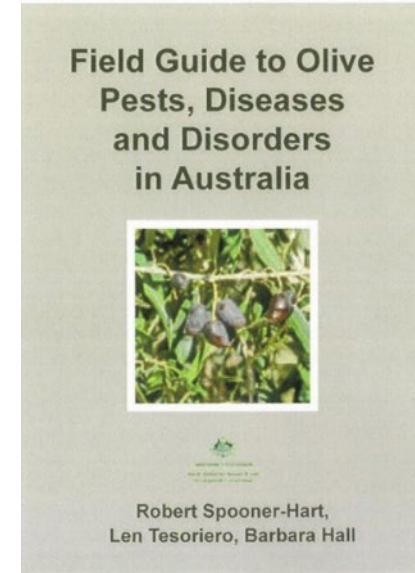
Sustainable Pest and Disease Management in Australian Olive Production





A report for the Rural Industries Research and Development Corporation

by Robert Spooner-Hart

June 2005

RIRDC Publication No 05080
RIRDC Project No UWS-17A



PEST STATUS	SCORE	KEY STATES	
<p>1. Black scale/ Ants</p>	<p>602</p>	<p>All</p>	
<p>2. Olive lace bug</p>	<p>211</p>	<p>NSW, Qld, WA, Vic (SA, Tas)</p>	
<p>3. Weevil/ Curculio beetle</p>	<p>49</p>	<p>WA, SA, Vic</p>	
<p>4. Others: Grasshoppers, Rutherglen bug, Qld and Med Fruit fly</p>			

PLANT PATHOGENS AND DISORDERS

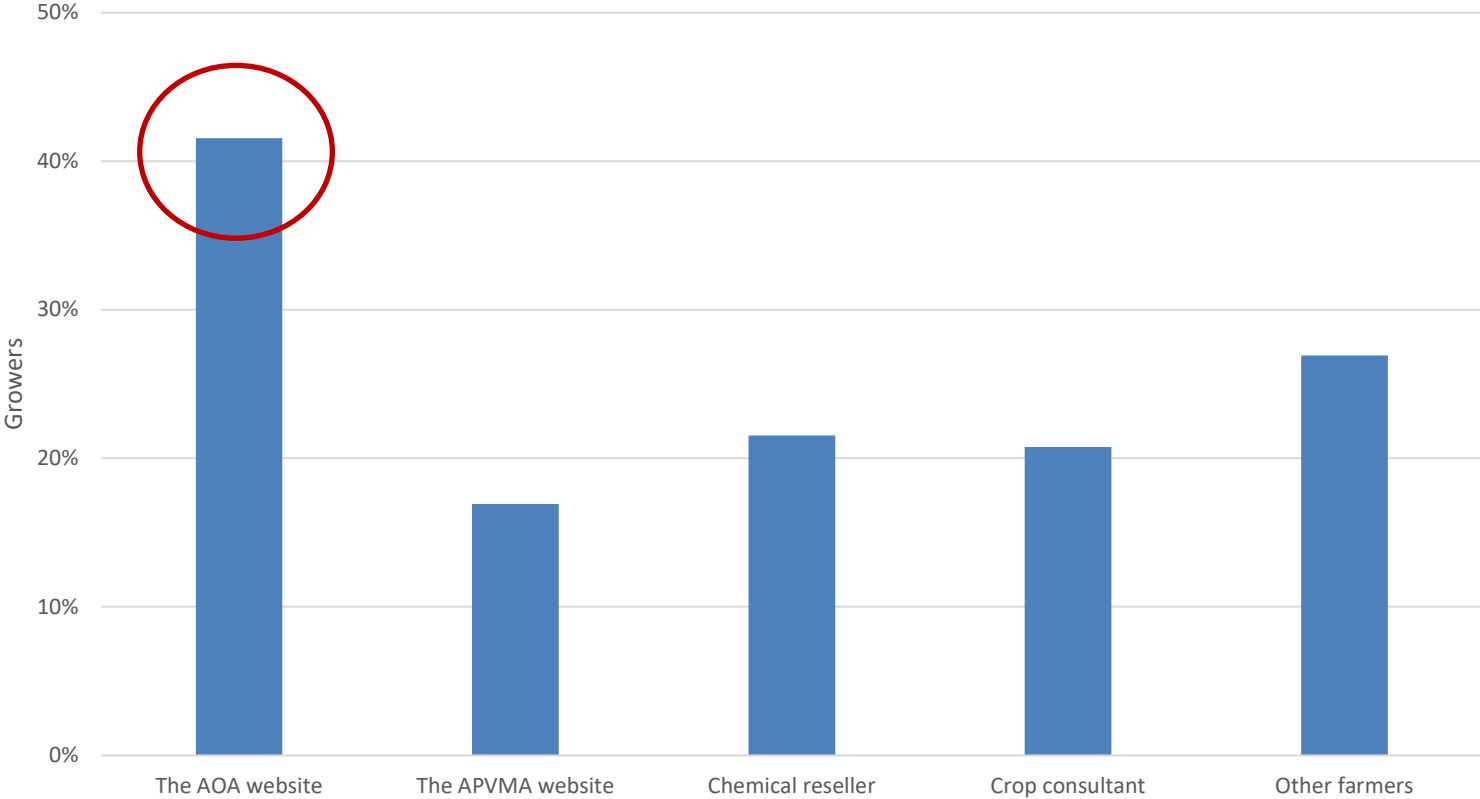
DISEASE STATUS	SCORE	KEY STATES
1. Anthracnose	267	All except Tas
2. Peacock spot	139	Tas, NSW, SA, Vic
3. Dieback	102	Qld, NSW, WA
4. Phytophthora/ Verticillium wilt	62 60	NSW, Vic, SA, WA
5. Others: Cercospora/ Grey mould, Olive knot		



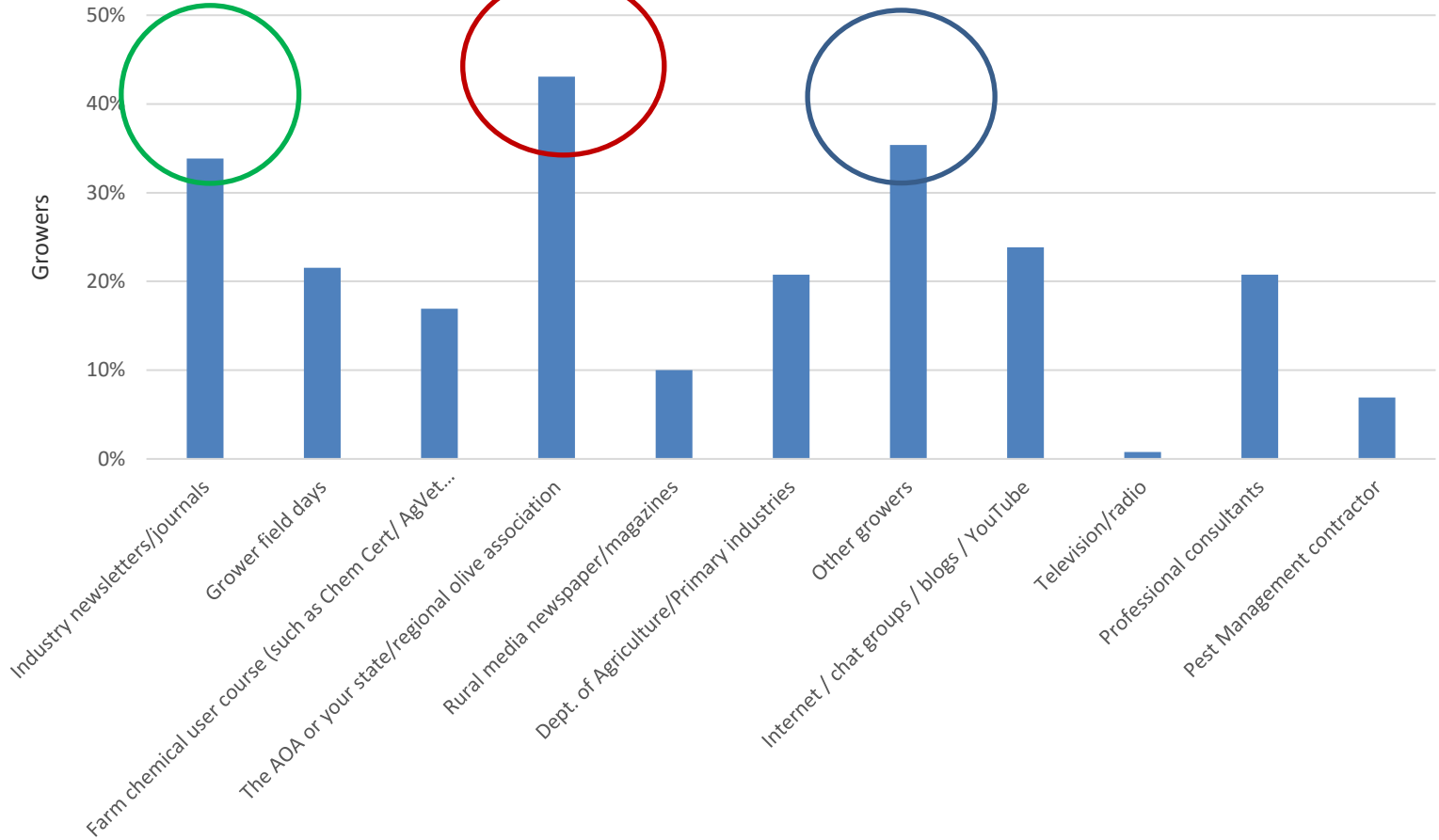
IMPORTANCE OF PESTICIDES	% Growers
Very important-main control	34
Quite important	32
Relatively unimportant	16
Not used at all	15
PESTICIDE APPLICATION METHODS	Air blast 41% Hand held application/wand 36% Boom sprayer 18.5 %



SOURCES OF PESTICIDE ADVICE



SOURCES OF IPDM INFORMATION



10 IPDM FIELD DAYS HELD

Marulan (NSW) 10 Aug 2018

Lovedale (NSW) 12 Aug 2018

Perseverance/Toowoomba (QLD)
3 Nov 2018

Pomonal/Grampians (Vic) 16 Nov 2018

Roseworthy (SA) 24 Nov 2018

Launceston (TAS) 1 Dec 2018

New Norcia (WA) 15 Feb 2019

Margaret River (WA) 17 Feb 2019

>270 growers attended, with numbers ranging from 12 to 41. Participant feedback very good.



MASTER CLASS SEPT, 2019

Presentation of tutorial on olive pests and diseases



Master Class participants inspecting samples of anthracnose on olive fruit with Plant Pathologists Len Tesoriero and Barbara Hall during laboratory session



WEB-BASED TUTORIALS

To provide up to date information, a brief self-assessment of knowledge, as well as questions to prompt changes to /improved practices by growers as a result of completing the tutorial

There are 9 tutorials covering a range of topics

They are available 24/7 on the AOA's open-access website, [OliveBiz](#)



PRINCIPLES AND PRACTICES OF INTEGRATED PEST AND DISEASE MANAGEMENT

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MONITORING FOR PESTS AND DISEASES IN OLIVE GROVES

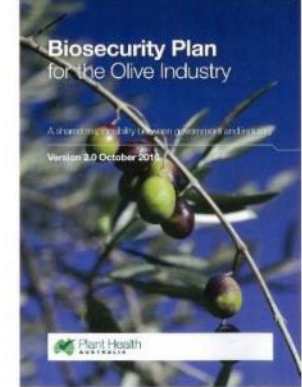
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BIOSECURITY, INCLUDING PESTS & DISEASES NOT PRESENT IN AUSTRALIA

Robert Spooner-Hart, Len Tesoriero, Craig Elliot





BLACK SCALE

Robert Spooner-Hart, Andrew Beattie,
Phuong Sa





OLIVE LACE BUG

Robert Spooner-Hart

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APPLE WEEVIL

With a note on garden weevil



Department of
**Primary Industries and
Regional Development**



Stewart Learmonth, DPIRD WA

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OLIVE ANTHRACNOSE

Len Tesoriero

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PEACOCK SPOT

Len Tesoriero

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CERCOSPORA LEAF MOULD

**also called Cercospora Leaf Spot,
Cercosporiosis or Cercosporiose**

Len Tesoriero



FLYERS

Nine electronic copy “flyers” have been produced

One-two page summaries of most of the tutorial information; additional flyer on registered pesticides

Available to olive growers and advisors/consultants/pesticide suppliers via OliveBiz

Access to e-copies as well as downloading and printing of hard copies for distribution

BLACK SCALE, *Saissetia oleae*

Adult Size: 3–5 mm

Biology and damage: This species is widely distributed in Australia. First generation crawlers normally emerge in late spring-early summer, earliest in the north. Two or three generations occur per year, with more in northern parts. Hot, dry weather reduces the survival of crawlers. Scales attack leaves and twigs, resulting in leaf drop, reduced tree vigour and twig dieback in heavy infestations. Ants and sooty mould are commonly associated with the production of honeydew by adults and nymphs of black scale. The movement of ants up a trunk is indicative of active black scale in the tree, even if the scales are not obvious.



Major natural enemies: Black scale has many natural enemies that can play an important role in its management in olive groves. These include small parasitic wasps such as *Metaphycus* spp. and *Scutellista caerulea*; ladybirds, lacewing larvae and the scale-eating caterpillar. Parasitised scales may show exit holes once the wasps have emerged.

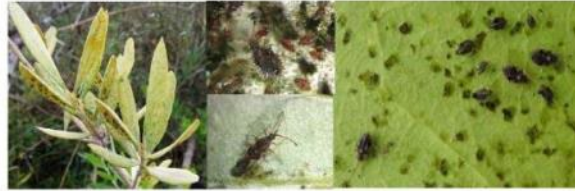
Management: If required, black scale can be targeted by judicious use of spray oils or insect growth regulators. Sprays need to be targeted at crawlers and young nymphal stages, so timing is critical for effective management. This makes monitoring for crawler development important. Opening up tree canopies exposes crawlers to greater likelihood of dehydration, and also to access by sprays targeted against them. Management of black scale will reduce ant problems, and vice-versa.



OLIVE LACE BUG, *Froggattia olivinia*

Size: Adults 3 mm

Biology and damage: An Australian native species recorded in NSW, Qld, Vic, SA, WA and most recently Tas. Adults are mottled brown. There are two to four generations per year. Spiny nymphs occur in clusters on undersides of leaves; the first generation commonly emerge from leaves in spring. All stages attack leaves with piercing mouthparts, causing yellow spotting. Black tar spots occur on undersides of leaves. Leaf drop and twig dieback may occur in severe infestations.



Natural enemies: Few have been recorded; green lacewings have been observed preying on lace bug nymphs, and spiders on adults and birds may also be predators. The native green lacewing *Mallada signata* is commercially available, and some growers have released it in their groves.

Management: If required, lace bug can be targeted by judicious use of insecticides. Several, including pyrethrum and potassium soap may be organically acceptable inputs. Sprays need to be targeted at young nymphal stages, so monitoring for nymphal hatch of especially the first generation in spring is important. Opening up tree canopies exposes nymphs to greater likelihood of dehydration, and also to access by sprays targeted against them. Stressed trees are more susceptible to lace bug attack, so maintaining healthy trees assists in management of this pest.



WEEVILS

APPLE WEEVIL, CURCULIO BEETLE (*Otiorhynchus cribricollis*) in inland NSW, SA & WA
GARDEN WEEVIL (*Phlyctinus callosus*), mainly in WA

Size: 7–9 mm

Biology and damage: Apple weevil is the major weevil pest in olives. Adults are nocturnal and flightless, emerge from the ground in summer and climb trees to chew leaf margins, creating a typical scalloped appearance. Severe infestations can damage growing tips, and reduce yield, especially in young trees. The soil-dwelling legless white-bodied larvae may feed on plant roots, but there are no reports of serious damage to olives.



Apple weevil damage

Apple weevil larva (top) and adult

Apple weevil fibre trap

Management: Check new plantings for leaf and stem feeding. Confirm whether these weevils are the cause by observations at night or by digging around the base of trees during the day. Butt sprays of a permitted insecticide can be used. An effective alternative to insecticide is the use of either a sticky or a fibrous barrier applied to the tree trunk. In the latter case, apple weevils become enmeshed in the fibres. Sticky material such as polybutene will help exclude garden weevil adults but not apple weevil. It is phytotoxic to olive trees and needs to be placed on a substrate such as plastic.

Poultry, including guinea fowl have been reported to contribute to garden weevil control in orchards and vineyards.

OLIVE ANTHRACNOSE

Caused by certain species of the fungus *Colletotrichum* - sometimes referred to as species complexes of *C. acutatum* and *C. gloeosporioides*.

Biology and damage

Anthraco­nose is a globally important disease of olives - and many other fruit and vegetable crops. Olive losses are due to reduced yields and poor oil quality. *Colletotrichum* spp. can survive on plant surfaces without infection - called epiphytic survival. Infected shoots, stems and leaves can be symptomless. In wet weather disease symptoms develop - drying and wilting of leaves, defoliation, and dieback of branches. Severe infection can cause reduced tree vigour. Spores spread with rain splash while insects may also passively spread spores on their bodies. Infection of flowers and young fruit occurs in spring (optimum temperatures 17-20°C) in wet conditions (up to 48 hr). Fruit infections are superficial and remain dormant - latent infections. In wet autumns and as fruit ripen, sunken lesions develop and masses of conidia (spores) form – seen as greasy pink, orange or brown areas on the fruit surface – called 'soapy olive or soapy fruit'.



Management

Prune to remove infected branches and to open tree canopies to air & sun. Remove or cover dropped leaves and fruit with compost; remove mummified fruit on trees. Timing fungicide applications is important - preventative treatments in winter; and preventative or eradicated products in spring, summer and autumn - depending on occurrence and duration of wet weather. Grow less susceptible varieties. Harvest fruit early, particularly if wet weather is expected or occurs near ripening. Balance plant nutrition – avoid excess nitrogen and ensure calcium levels are adequate. Note calcium becomes unavailable to plants under very wet or dry soil conditions – so regular watering or good drainage are important when fruit are developing to prevent deficiency.

CERCOSPORA LEAF MOULD

(also called Cercospora Leaf Spot, Cercosporiosis or Cercosporiose)

Caused by the fungus *Pseudocercospora cladosporioides*

Biology and damage

It 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 – younger leaves are most susceptible. The optimum temperature for spores to germinate is between 15-25°C (average 22°C). There can be a long latent period before symptoms develop – up to 11 months! – it depends 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. It can rarely cause a fruit infection – small (<5mm) sunken grey-brown spots – although spots may be larger in some varieties, darker and not sunken.



Yellow infected leaves are easily dislodged when touched



Lead-grey fungal growth on leaf under-surface

Management

Remove or cover dropped leaves with compost, or shred leaves and apply N fertiliser to hasten breakdown in winter. Prune branches to open the tree canopy to air/sun. Timing is important for fungicide applications in winter & 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). Some olive varieties are more tolerant to this disease – e.g. *Arbequina* and *Picual*. Some olive varieties are very susceptible – e.g. *Hojiblanca*.

PEACOCK SPOT (Olive Leaf Spot)

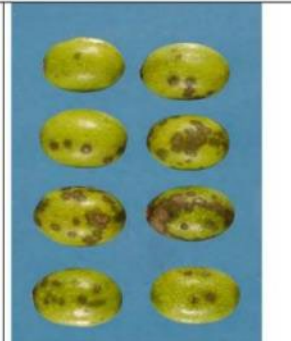
Caused by *Fusicladium oleaginum* (*Spilocaea oleaginea*)

Biology and damage

Occurs worldwide and is the most common disease of olives. 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 & spring during wet weather (optimum temperatures 15-21°C, >98% Relative Humidity and a wet leaf surface for 1-2 days). Spores cannot germinate >25°C. 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 & with insects such as bookworms (Order *Psocoptera*) which live in leaf litter & on leaves. Olive varieties differ in susceptibility – e.g. *Hajjiblanca*, *Picual*, *Arbequina* & *Manzanillo* are more susceptible; *Lecchino* is more resistant.



Spots can develop a dark outline, concentric markings or a yellow halo. Infected leaves yellow before dropping.



Under moist weather conditions developing fruit can also be infected – although this isn't common

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 & spring). Grow tolerant olive varieties. Maintain balanced plant nutrition in spring – high nitrogen and low potassium levels in leaves favour infection.

OLIVE WOOD ROT AND DIEBACK

Infections by a wide range of plant pathogens or certain physiological disorders can cause dieback of olive tree branches or trunk rots that may result in tree death. Unfortunately, symptoms of the various diseases and disorders can look very similar requiring laboratory testing and sometimes extensive investigations of root systems, soil conditions and weather records to determine if any particular pathogen or otherwise was the primary cause. The situation is further complicated by the fact that many common fungi and bacteria can be residents in or on woody plant tissue and only cause diseases when plants are stressed or where wounds allow their entry. In recent years there has been an increased awareness of these types of diseases particularly in European and American olive production. Following are key fungal pathogens that have been described as causing dieback diseases of olives overseas: *Neofabraea*, *Neofusicoccum*, *Cytospora* and *Diplodia* spp. Similar fungal species are known to occur in Australia but they have not been systematically studied on olives. In addition, the bacterial pathogen *Xylella fastidiosa* can cause dieback and tree death overseas and is described separately in a biosecurity flyer. Frost and sun scald can be particularly damaging to young trees while wounds from pruning, shaking, herbicides, mechanical weed controls and animal grazing can be important entry points for opportunistic pathogens.

Following is a list of fungi and bacteria (in addition to fungi causing Peacock spot, Anthracnose and *Cercospora* leaf mould which are described in separate flyers) found associated with branch dieback and trunk rots in Australia:

Disease	Pathogen	Symptoms
Trunk and stem dieback	<i>Botryosphaeria</i> sp.	Stem cankers and dieback
White wood rot	<i>Pycnoporus coccineus</i>	Trunk rot with orange bracket fungus
Charcoal rot	<i>Macrophomina phaseolina</i>	Root rot and seedling dieback
Phytophthora rot	<i>Phytophthora</i> spp.	Root and/or trunk rot
Rhizoctonia rot	<i>Rhizoctonia</i> spp.	Root rot and seedling dieback
Verticillium wilt	<i>Verticillium dahliae</i>	Root rot and branch dieback
Bacterial shoot blight	<i>Pseudomonas syringae</i>	Shoot dieback
Bacterial trunk rots	<i>Pseudomonas</i> spp., <i>Xanthomonas</i> spp., <i>Ralstonia solanacearum</i>	Wound cankers, trunk rot and dieback

Management

Prune branches during dry weather conditions to allow wound sites to dry and callus. Pruned branches should be removed – they can be mulched and composted. This is particularly important if *Verticillium* wilt has been detected since this fungus can be present in small branches and twigs. Ensure mechanical shakers are not damaging trunk tissue during harvest. Protect young trees from sun scald and frost injury. Ensure soil drains freely to avoid waterlogging and subsequent root pathogen infections.



Likely sun scald injury on young olive stem



Bacterial infection of olive stem



Phytophthora rot of young olive stem



Brown vascular tissue caused by *Verticillium dahliae* infection

EXOTIC PESTS AND DISEASES OF OLIVES

There are many pests and diseases both of olives and other crops overseas that are potential threats to the olive industry. The Biosecurity Plan for the Olive Industry (Version 2.0 – 2016) ([link](#)) lists five High Priority pests:

1. Olive fly (*Bactrocera oleae*). Olive fly is the most important pest of olives worldwide. It is widely distributed in the Mediterranean basin, northern and southern Africa, Western Asia, including India and Pakistan, and Northern America (California and Mexico). The female lays eggs in fruit, often when it is green, and developing larvae (maggots) burrow, usually causing fruit drop. Pupation commonly occurs in fruit. Adult flies resemble Queensland Fruit Fly, but have black markings on their wing tips.

2. Olive moth (*Prays oleae*). Olive moth is widespread in Mediterranean countries including northern Africa, and other European locations. The only host is olive and close relatives. Adult moths are silvery grey, and have long antennae. Green or light brown larvae can grow to 8 mm. The pupal stage is protected by loose silk webbing. There are normally 3 generations per season, attacking flower buds and flowers, fruit and leaves, respectively. Damage symptoms include frass (faecal pellets and webbing), or leaf mining.



3. Leaf scorch (*Xylella fastidiosa* subsp. *multiplex* (with vectors)) and 4. Olive quick decline (*Xylella fastidiosa* subsp. *pauca* (with vectors)). The bacteria live in the plant xylem (water-conducting) vessels inhibiting the uptake of water and nutrients which leads to disease symptoms that look like water stress – called leaf scorch. A particular strain of *X. fastidiosa* subsp. *pauca* causes trees to dieback - killing them – called Olive Quick Decline Syndrome (OQDS). OQDS was first reported in olives in southern Italy in 2013, but has since been reported more widely, including in Brazil. Most introductions of *X. fastidiosa* occur with the movement of infected plant material. Once present, xylem-feeding insect vectors are the primary pathway by which the disease spreads.

5. Verticillium wilt (*Verticillium dahliae* (exotic defoliating strains)) One strain of this soil-borne fungus has been distinguished as the 'defoliating strain' (DS) on cotton in the USA. It causes wilt and death of olive trees in California and parts of Europe. Leaves in infected trees can drop when green or turn brown - often with a downward rolling along leaf margins – symptoms appear from autumn to late spring. Only some limbs or branches of a tree may be affected, giving the tree a patchy or one-sided appearance. Trees (particularly younger ones) often die or linger with reduced vigour.



If you suspect a new pest, call the Exotic Plant Pest Hotline on 1800 084 881

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OLIVE
FUND

This project has been funded by Hort Innovation using the olive research and development levy, co-investment from the Australian Olive Association and Western Sydney University and funds from the Australian Government.
For more information on the fund and strategic levy investment visit horticulture.com.au

REVISED FIELD GUIDE TO OLIVE PESTS, DISEASES AND DISORDERS

- Information updated and extended including revision of Australian information
- Inclusion of new exotic pests and diseases (e.g., Xylella, Verticillium wilt (Defoliating strain))
- Increased number of images
- Electronic format
- Available on [OliveBiz](#) website

Field Guide to Olive Pests, Diseases and Disorders in Australia



Robert Spooner-Hart, Len Tesoriero,
Barbara Hall, Stewart Learmonth

BEST PRACTICE MANUAL

- Alternative extension tool to the web-based tutorials and flyers
- Contains explanatory information on IPDM strategies, enabling more informed decisions
- Includes section on pesticide selection and application
- Available on [OliveBiz](https://www.olivebiz.com.au) website

OLIVE IPDM BEST PRACTICE MANUAL



Robert Spooner-Hart & Len Tesoriero

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CHANGES IN GROWER KNOWLEDGE/PRACTICE		BASILINE SURVEY % GROWERS	END OF PROJECT SURVEY % GROWERS
PRODUCTION STATUS	Oil	62	51
	Oil and table	32	38
	Table only	6	9
ORGANIC PRODUCTION STATUS	Registered organic/in conversion	9	22
	Not organic, but interested	20	46
MAJOR ARTHROPOD PESTS	1	Black scale/ants	Black scale/ants
	2	Olive lace bug	Olive lace bug
	3	Weevils	Weevils
	4	Others: Grasshoppers, Rutherglen bug, Qld Fruit fly	Others: Grasshoppers, Rutherglen bug, Qld Fruit fly
MAJOR DISEASES	1	Anthracnose	Anthracnose
	2	Peacock spot	Cercospora leaf mould
	3	Dieback	Peacock spot
	4	Phytophthora/ Verticillium	Dieback

		BASELINE SURVEY % GROWERS (2017)	END OF PROJECT SURVEY % GROWERS (2020)
PRODUCT STATUS	Oil	62	51
	Oil and table	32	38
	Table only	6	9
ORGANIC PRODUCTION STATUS	Registered organic/in conversion	9	22
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MAJOR DISEASES	1	Anthracnose	Anthracnose
	2	Peacock spot	Cercospora leaf mould
	3	Dieback	Peacock spot
	4	Phytophthora/ Verticillium	Dieback

	BASELINE SURVEY % GROWERS	END OF PROJECT SURVEY % GROWERS
PESTICIDE USE AS IMPORTANT STRATEGY	66	70
GOOD KNOWLEDGE OF IPDM	30	52
CONFIDENT IN IDENTIFYING KEY INSECT PESTS	80	93
CONFIDENT IN IDENTIFYING KEY DISEASES/DISORDERS	62	88
CONFIDENT IN IDENTIFYING BENEFICIAL SPECIES	40	54
MONITOR GROVE FOR PESTS AND DISEASES	80	93
HAVE VEHICLE WASHDOWN FACILITY	51	71
HAVE FARM BIOSECURITY PLAN	18	34
HAVE READ OLIVE BIOSECURITY PLAN	12	45

INDUSTRY ENGAGEMENT WITH PROJECT OUTPUTS

NUMBER OF HITS	URL	OUTPUT
314/ 547	/ipdm-project-outputs/	IPDM Output Home Page
148/ 248	/ipdm-revised-field-guide/	Field Guide
116/ 209	/ipdm-best practice-ipdm-manual/	Best Practice Manual
110/ 200	/ipdm-online-tutorials/	Tutorials Home Page
104/ 216	/ipdm-flyers/	Flyers Home Page
126/ 261	/webinar-ipdm-project-resources/	Webinar on Outputs
48/ 66	/ipdm-project-resources-now available/	Grove Innovation Article (15 Sept 2020) on IPDM Outputs

Metrics Period: 1 Sept - 19 Oct 2020/ -13 Sept 2022

CHEMICALS REGISTERED OR LEGALLY PERMITTED FOR USE AGAINST KEY OLIVE PESTS AND DISEASES 9/22

TARGET PEST OR DISEASE	ACTIVE CONSTITUENT	MoA GROUP (I)nsecticide (F)ungicide	PRODUCT(S)	REGISTERED OR PERMIT	CONDITIONS OF USE
Ants	Pyriproxyfen	7C (I)	DISTANCE PLUS ANT BAIT®	Registered	Max 3 applications/season, min 3 months apart between each one. No WHP.
	Chlorpyrifos	1B (I)	various	PER14575 Until Mar 2025	Max 2 applications /season. No WHP, but no grazing (Ground, butt treatments only).
Black scale	Emulsifiable Botanical Oil	9B (I)	ECO-OIL® MITICIDE/ INSECTICIDE BOTANICAL OIL CONCENTRATE, POOP®	Registered	No WHP.
	Paraffinic oil, Petroleum spray oil	9B (I)	isoCLEAR HPO, TRUMP®, SACOA BIOPEST®	Registered	WHP 1 day.
	Pyriproxyfen	7C (I)	ADMIRAL®, various others	Registered	Max 2 applications /season. WHP 7 days.
	Acetamiprid and Pyriproxyfen	4A (I) 7C (I)	TRIVOR®	PER 89943 Until 31 Jan 2024	Max 2 applications/season. WHP 28 days.
Olive lace bug	Clothianidin	4A (I)	SAMURAI®	PER14897 Until Mar 2023	1 application/season. Add MAXX Organosilicone surfactant. WHP 56 days.

	Potassium soap		NATRASOAP®	PER14414 Until Sep 2023	Apply 2 treatments 7–10 days apart. Organically acceptable. No WHP.
	Dimethoate	1B (I)	ROGOR®, various others	PER13999 Jul 2026	Until Max 4 applications/season. 2 sprays, 7–14 days apart. Not to be used for table olives. WHP 6 weeks.
	Esfenvalerate	3A (I)	SUMI-ALPHA FLEX®, various others	Registered	Max 4 applications/season to fruiting trees, ≥ 14 days apart. WHP 14 days.
	Pyrethrins	3A (I)	PYGANIC, and others	PER81870 Oct 2024	Until Max 6 applications/season, ≥ 14 day re- treatment interval. Use different MoA product after 2 applications. WHP 1 day.
	Acetamiprid and Pyriproxyfen	4A (I) 7C (I)	TRIVOR®	PER 89943 Until 31 Jan 2024	Max 2 applications/season. WHP 28 days.
	Flupyradifurone	4D	SIVANTO PRIME®	Registered	Max 2 applications/year, at least 2 months apart. WHP 14 days
Green vegetable bug, Rutherglen bug	Dimethoate	1B (I)	ROGOR®, various others	PER13999 Until Jul 2026	Max 4 applications/season. 2 sprays 7–14 days apart. Not to be used for table olives. WHP 6 weeks.
Weevils	Alpha- cypermethrin	3A (I)		PER14791 Until Nov 2026	Max 2 applications/season to trees of fruit bearing age. No WHP, but no grazing (Ground, butt treatments only).

Anthracnose	Azoxystrobin	11 (F)	Various	Registered	Max 2 applications/season WHP 21 days.
	Metiram & Pyraclostrobin	M3+11 (F)	AERO®	PER14908 Until Jul 2024	Max 2 applications/season WHP 21 days.
	Mancozeb	M3 (F)	Various	PER88358 Until Jul 2023	Max 4 applications/season WHP 14 days
	Copper (cupric hydroxide, cuprous oxide, tribasic copper sulphate)	M1 (F)	Various	Registered	WHP 1 day Also for other fruit rots Generally organically acceptable
	Copper oxychloride	M1 (F)	Various	Registered	WHP 1 day Also for other fruit rots May not be organically acceptable
	Copper oxychloride + copper hydroxide	M1 (F)	AIRONE WG FUNGICIDE	Registered	WHP 1 day Also for other fruit rots May not be organically acceptable
Olive knot	Copper oxychloride + copper hydroxide	M1 (F)	AIRONE WG FUNGICIDE	Registered	WHP 1 day Also for other fruit rots
Peacock spot, Grey mould, Leaf spots	Copper (as for anthracnose)	M1 (F)	Various	Registered	WHP 1 day Generally organically acceptable
	Copper oxychloride	M1 (F)	Various	Registered	WHP 1 day May not be organically acceptable
	Copper oxychloride + copper hydroxide	M1 (F)	AIRONE WG FUNGICIDE	Registered	WHP 1 day Also for other fruit rots May not be organically acceptable
Phytophthora, Verticillium Wilt	Metham	8 (F)	KEN-PAM 423 fumigant	Registered	Pre-plant soil treatment. 14-30 day minimum interval between treatment and planting

Have you had olive bud mite in your grove?



Image: Junta de Andalucia

Hort Innovation are working on a data generation project for olives, evaluating the efficacy of Oberon miticide against olive bud mite. There are currently no registered/permited miticides for use on olives. They are keen to hear from growers who currently have olive bud mite in their grove, or have a history of olive bud mite, to be involved as trial sites.

Grower co-operators will be paid crop compensation for any olive trees used during the small plot trials. Any growers with experience of olive bud mite are asked to send details to the AOA at secretariat@australianolives.com.au.

Friday Olive Extracts 16/09/2022

Oberon miticide (active Spiromesifen 23 Insecticide/miticide)

Olive bud mite, *Oxycenus maxwelli* (Acari: Eriophyidae)

Size 0.1–0.2 mm

Biology and damage Bud mite was first detected in NSW in 2000, although is most commonly reported as a pest in WA. The mites feed on developing buds, shoots and leaves, causing malformations and shortening of internodes between young leaves ('witch's broom' effect). Most severe in young trees under conditions of warm temperature and high humidity.

Natural enemies Likely to be attacked by predatory mites (family Phytoseiidae) and small ladybirds (e.g. *Stethorus* spp.).



Olive bud mite damage, showing malformed growing tips

FROM THE FIELD GUIDE



Top Olive bud mites on young leaf (magnification 40×)
Bottom *Euseius elinae* mite, predator of eriophyid mites

RECENT IMPACTS OF La Niña ON PESTS & DISEASES

Denser tree growth and lack of open pruning **combined with** milder, wet conditions:

- increase survival of immature stages of olive lace bug and scale insects



- increase opportunities for establishment and spread of fungal diseases (foliar, anthracnose) and bacterial diseases (e.g., olive knot)
- exacerbate poor drainage, and encourage root diseases
- restrict effectiveness of chemical spray penetration and coverage



Images from Spooner-Hart et al. 2020 Field Guide



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SUSTAINOLIVE

Sostenibilidad del olivar mediterráneo

ÉCHALE UN OJO
A LA NUEVA
VENTANA DE
RECURSOS

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AGENDA

**2020
OLEA WORKING
GROUPS**
13/10 - 10/12

**2021
OLEA WORKING
GROUPS**
14/1 - 29/4

Moderator:
Nieves Muñoz García
OLEA Initiative Coordinator

#ujaoleainitiative

30TH APRIL 2021

Current Mediterranean activities are strongly focussed on Sustainable Production, Biodiversity (terrestrial and soil), and Ecosystem Services, and their assessment.

**Hort
Innovation**
Strategic levy investment

**OLIVE
FUND**

This project has been funded by Hort Innovation using the olive research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au

