

# Olive Disease Management Fact Sheet

## Anthracnose

Anthracnose is a major disease of olive fruit in New Zealand. It is considered the most important fungal disease of olive fruit world-wide.

### Description of the Pathogen

The fungus that causes this disease forms unicellular, hyaline, elliptical conidia arising from small blister-like acervuli which can be visible on the fruit. The conidia can remain viable for a year inside mummified fruit which may be the primary inoculum source. Dissemination is by leaf wetness and water splash (heavy dew or rain) which facilitates the separation of the conidia from their fruiting body. The conidia always need free water to germinate. <sup>[1]</sup>

Infection can take place between 5 and 30 degrees C. The conidia persist and sporulate in mummified fruit.



<https://www.australianolives.com.au/assets/files/pdfs/aoa-forms/Members%20Lounge/Anthracnose-in-olives-symptoms-disease-cycle-and-management.pdf> <sup>[2]</sup>

<http://olivediseases.com/media/Olive-diseases-in-Australia-Power-point-presentaion-copy2.pdf> <sup>[3]</sup>

### Symptoms of Fruit Infection

Normally infection starts at the tip of the fruit where free water accumulates. As the disease progresses all or part of the infected fruit starts to rot. In favourable conditions (warm and wet) a large number of acervuli develop on the skin of the olive and a slimy redish substance that contains conidia is formed inside. This colouring is what leads to the common name of “soapy olive” in Spanish. Infection on branches and shoots have been recorded in some areas with ensuing defoliation and die-back of the tree. <sup>[1]</sup>



## Tree Health

Infection of Anthracnose can over-winter on mummified fruit. Infection of the olive flower can be observed as a browning of petals and stalks that become desiccated then dry and falls off. When conditions are ideal this infection moves from the flowers into the branches and leaves. Trees infected by anthracnose can also show chlorosis (which is a yellowing of the leaf) followed by defoliation and dieback of twigs and branches.

The severity of the infection increases with the duration of the wet period. Field trials show that anthracnose epidemics progress faster in super high density planting (1900 trees per ha) than in conventional densities of 200-800 trees per hectare. <sup>[4]</sup>

## Management Strategy

Anthracnose infection occurs at two critical times. First, during the flowering period and the second period beginning as fruit begin to ripen for harvest

The recommendation is to spray with a fungicide called Protek, which has Carbendazim as the active ingredient. **This should be applied along with Manzate.**

You should be able to buy this product from your local Horticulture branch or other horticultural suppliers. <https://www.horticulture.co.nz/151/contact-us/horticulture-branch-details>

Whilst the product is not licenced for use on olives in New Zealand it is used by other fruit crops in New Zealand, destined for both local and international markets.

The spray regime is as follows.

1. Apply the first spray when the flower buds begin to open on your earliest flowering variety
2. Apply the second spray 10 days later
3. Apply the third spray a further 10 days later and this should cover off the latest flowering variety.

**The recommended application rate is 1 litre per hectare mixed with 1,000 litres of water or 100ml per 100 litres of water.**

Note that this is different to the on label directions for other stone fruit but because of resistance issues, this is the latest recommended application rate. At typically \$170 for a ten litre container, this is still a very cost effective remedy.

The label also states to apply no more than twice a season. However the recommendation to apply three times is because many growers have different varieties mixed throughout their groves, which flower at different times. If you are able to clearly identify your varieties and their flowering times you will only need to do two applications as follows.

1. Apply the first spray when the flower buds begin to open
2. Apply the second spray 10 days later.

It is important to recognise that a preventative spray programme is only protective if it is applied to achieve whole leaf surface coverage, both upper and lower surfaces, prior to an infection event.

Anthracnose in olive flowers and shoots:



Fresh Anthracnose on flower buds – November 2017

Literature Cited:

[1] Olive Pest and Disease Management, Manuel Civantos Lopez-Villalta, IOOC

[2] Dr Vera Sergeeva, University of Western Sydney, Centre for Plant & Food Science

[3] Dr Vera Sergeeva, [www.olivediseases.com](http://www.olivediseases.com)

[4] Effect of Temperature, Wetness Duration and Planting Density on Olive Anthracnose Caused by *Colletotrichum* spp. Juan Moral, Jose Jurado-Bello, M. Isable Sanchez, Rodrigues de Oliveira and Antonio Trapero

# Olive Disease Management Fact Sheet

## Cercospora

Cercospora is a major leaf disease of olives and in New Zealand is a serious defoliating disease.

### Description of the Pathogen

The fungus that forms this disease is *Cercospora cladosporioides*. The conidia are narrow and elongated and have a variable number of septa. In arid conditions infection occurs principally in autumn. Conidia are spread from leaf to leaf by free water (dew and rainfall) splash and preferentially infects young leaves. Spores are produced at temperatures between 12 and 28 degrees. [1]

In arid climates Autumn is the wet season. In New Zealand we have no specific wet season and infection can occur at any time throughout the year. The vector for spread of Cercospora spores is leaf wetness (dew and rainfall).

<http://olivediseases.com/media/Olive-diseases-in-Australia-Power-point-presentaion-copy2.pdf> [2]

### Symptoms of Fruit Infection

The symptoms of Cercospora on fruit are small necrotic indentations into the surface.



### Tree Health

Initially infected leaves do not look different to healthy leaves. Careful scrutiny reveals grey colouring on the underside of the leaf. The leaf then turns yellow and eventually falls off. Lead grey irregularly spaced spots can be seen on the lower surface of yellow infested leaves. [1]

The main damage caused by Cercospora is heavy defoliation caused by premature shedding of infected leaves. Often heavy infection of Cercospora occurs coincidentally with heavy infection of Peacock Spot. This combination results in poor crop production.





Cercospora on leaves

### Management Strategies

Cercospora infection occurs at any time during the year. In arid locations one application of fungicide in spring, followed by one application in late summer provides adequate control.

In New Zealand's maritime climate with irregular but frequent rainfall throughout the 12 month period we are recommending a spray programme of Mancozeb at a rate of 3kg per ha on a regular 20 day cycle, or after 20mm of rainfall, or any combination of days and rainfall that equal 20. This programme will be effective if applied with the understanding that application must be pre-emptive of wet events.

It is important to recognise that a preventative spray programme utilises the cheapest available protective fungicide. It is only protective if it is applied to achieve whole leaf surface coverage, both upper and lower surfaces, prior to an infection event.

#### Literature Cited:

[1] Olive Pest and Disease Management, Manuel Civantos Lopez-Villalta, IOOC

[2] Dr Vera Sergeeva, [www.olivediseases.com](http://www.olivediseases.com)



Fresh Cercospora on leaves

# Olive Disease Management Fact Sheet

## Peacock Spot

Peacock Spot is a major disease of olives in New Zealand. It is found in all olive growing regions of the world and in New Zealand is a serious defoliating fungus disease.

### Description of the Pathogen

The fungus that causes this disease is *Spilocaea oleagina*. It is a phycomycete that develops and forms colonies under the upper cuticle of the leaf. The mycelium grows moving towards the surface of the lesions which take on the typical concentric ring shape hence the name peacock spot. The biology of this fungi varies considerably from one region to another and from one year to the next as its development depends on a series of factors – humidity, temperature, leaf wetness (dew or rainfall) and cultural practice (pruning). Germination can occur between 0 and 28 °C. The average time needed for germination decreases as the temperature rises. Spores are viable for some months. They are spread almost exclusively by rain which is why successive infections occur in short time spans. The time elapsed between infection and the appearance of symptoms varies between 2 and 15 weeks depending on temperature, moisture and the age of the leaf. <sup>[1]</sup>

<http://olivediseases.com/media/Olive-diseases-in-Australia-Power-point-presentaion-copy2.pdf> <sup>[2]</sup>

### Symptoms of Fruit Infection

The symptoms of Peacock Spot on fruit are small grey spots dotted irregularly on the surface.



### Tree Health

This disease produces lesions on the upper leaf surface and occasionally on the leaf stalk, stem and fruit. Spots can be seen on the leaf surface in concentric circles varying in colour from brown to yellow, and green to black. <sup>[1]</sup>

Not all infected leaves fall from the tree and the disease survives on those leaves remaining on the tree. Infected leaves turn yellow (chlorosis) and prematurely fall from the tree. When significant defoliation occurs flowers fail to develop and/or small branches die. High temperatures (above 28 °C) restrict spore germination as do dry periods. <sup>[3]</sup>



Established Peacock Spot

### Management Strategy

High relative humidity and free water on the leaf play an important part in the development of this disease. It is advised to apply cultural practice that provides well aerated trees. This can be achieved firstly with contoured planting to encourage air drainage through the grove followed by selective pruning to avoid dense canopy. <sup>[1]</sup>

In arid locations one to two fungicide applications in spring, followed by one to two applications post harvest provides adequate control. **In New Zealand's maritime climate with irregular but frequent rainfall throughout the 12 month period we are recommending a spray programme of Mancozeb at a rate of 3kg per ha on a regular 20 day cycle, or after 20mm of rainfall, or any combination of days and rainfall that equal 20.** This programme will be effective if applied with the understanding that application must be pre-emptive of wet events.

It is important to recognise that a preventative spray programme utilises the cheapest available protective fungicide. It is only protective if it is applied to achieve whole leaf surface coverage, both upper and lower surfaces, prior to an infection event.

Premature defoliation after Peacock Spot leaf infection:



Literature Cited:

[1] Olive Pest and Disease Management, Manuel Civantos Lopez-Villalta, IOOC

[2] Dr Vera Sergeeva, [www.olivediseases.com](http://www.olivediseases.com)

[3] UCIPMZ Pest Management Guidelines; Olive UC ANR Publication 3452

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