

Tips & tricks on managing Botrytis in blueberries

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Botrytis causes blossom blight during the flowering period, & fruit rot during post-harvest handling and storage. Infections occur in the field during flowering, so the most effective time to implement controls is during flowering. The fungus survives as dormant mycelium or sclerotia (fruiting body) in fruit and other plant debris. Spores are spread by wind or water-splash.

Disease cycle

Botrytis survives in blueberry plants or plant debris. Spores are produced in the presence of moisture and carried by air currents and water-splash. Flowers, leaves, twigs and mature berries are all susceptible (Figure 1).

Flowers are most susceptible shortly after they open, although infection is possible earlier. Slow pollination and ageing flowers can favour infection.

Non-pollinated ovaries from which petals have shed are also highly susceptible to infection. They can remain attached for 10 days and become a source of secondary inoculum. The fungus can grow from these ovaries into the stalk to infect other flowers and fruit in the cluster. It can also grow into the stem causing twig blight.

Botrytis is present all the time, but causes serious losses when weather is wet and cool for several consecutive days. Infection is favoured by high relative humidity, fog and long wet periods. **Studies have found at 20°C, 6 hours of leaf wetness is required for infection.**

Green berries are not susceptible. Fruit infected during flowering, can rot during post-harvest storage and handling. Botrytis cinerea can grow at very low temperatures, making it difficult to control.

Botrytis is favoured by cool, wet conditions for several consecutive days. Flowering is the most critical time for infection.

Signs and symptoms

Infected flowers become brown. During wet conditions, the fungus may grow from the infected flowers into the main stem causing twig blight and killing all the flowers and berries above the infected stem. Young leaves are often infected through contact with infected flowers. Yellow lesions develop on infected young leaves and twigs, becoming brown, then grey as the disease progresses. Under high relative humidity or moisture, grey mycelium and spores form on infected leaves and flowers. Developing berries may also become infected, but the fungus usually lies dormant until after harvest. Post-harvest decay is the most severe expression of this disease. Infected berries shrivel and become covered in grey mycelium and spores.

Management

Cultural and physical

Prune plants annually to keep the canopy open and improve air circulation. This will help with drying when the plant has become wet from dew or rain. Avoid excessive use of nitrogen fertiliser in the spring because the Botrytis fungus will readily infect succulent green growth. Cool berries rapidly after harvest and use sulphur pads in stacked trays.

Biological

Botector® is a new biological fungicide that can be used on blueberries. It contains a naturally occurring fungus, *Aureobasidium pullulans*, that is commonly found in the environment. Botector works through competitive exclusion. It creates a physical barrier at potential infection sites, such as micro-scratches, excluding Botrytis from access to space and nutrients, where it could create an infection and start to impact on blueberry health and development.

Chemical

Apply fungicides as soon as flowers open, particularly if conditions are wet. Sprays during the non-production period can reduce the incidence of fruit rot by targeting the dormant fungus. Alternate and rotate chemical fungicides as resistance to fungicides is known to develop in Botrytis. The chemical treatment options for Botrytis in blueberries are outlined in Table 1.

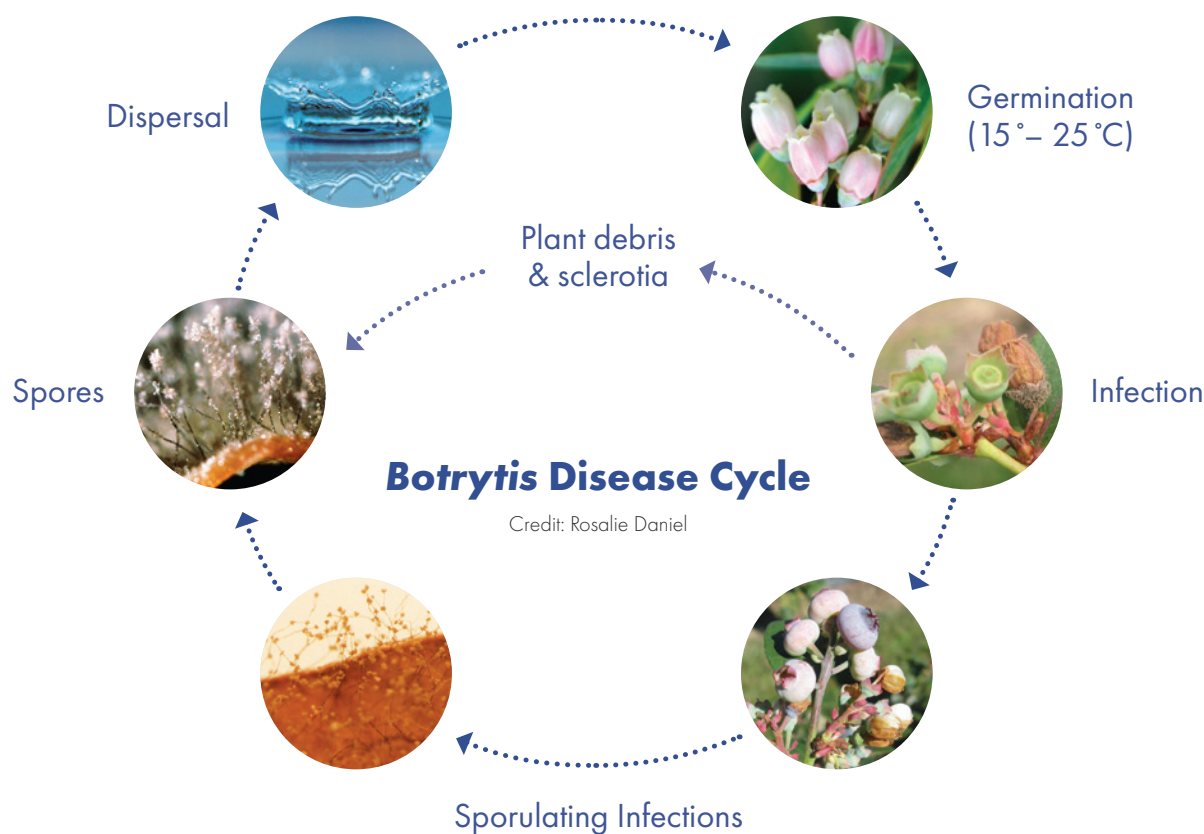


Table 1. Chemical treatment options for Botrytis in blueberries

Treatment	Fungicide Group	WHP Days	Remarks
Boscalid + Pyraclostrobin (Pristine®) PER82986	7, 11	3	Apply at early bloom or before flowers open. Additional sprays might be necessary if conditions favour the disease.
Botector®	NA	Not required when used as directed	
Captan PER13958	M4	1	Do not spray more than two consecutive sprays from the same chemical group. Apply every 10–14 days from flowering in rotation with products from other chemical groups.
Chlorothalonil PER14309	M5	28	
Cyprodinil + Fludioxonil (Switch®) PER84891	9, 12	7	
Fenhexamid PER86489	17	1	Scala at full strength will burn flowers and needs to be used before the early pink bud stage. Sulphur pads are used in packed trays to reduce the incidence of Botrytis.
Iprodione	B	1	
Pyrimethanil (Scala®) PER13958	9	1	
Sulphur dioxide pads PER13955	M	1	



Department of Primary Industries

The information contained in this article is based on knowledge and understanding at time of writing. All efforts have been made to provide the most current, complete and accurate information on these permits, however we recommend that you confirm the details of these permits at the following APVMA website: <https://portal.apvma.gov.au/permits>