

Botrytis Management in Production Nurseries

Commonly known as grey mould, *Botrytis* is an opportunistic pathogen that often exists on dead and decaying organic matter. In cool, humid or wet conditions, it can cause leaf spots and blights, flower rot, damping off and stem dieback, sometimes causing substantial losses. Damage can often appear similar to many other diseases caused by other pathogens. There are about 30 species in the genus *Botrytis*, the most common being *Botrytis cinerea*, the causal agent of grey mould disease on a broad range of nursery, fruit and vegetable crops. It is a fungal pathogen that kills susceptible host tissue and then obtains its nutrients from the decayed or dead matter.



Primrose flower blight caused by *Botrytis*

HOSTS AND DISEASE SYMPTOMS

Diseases caused by *Botrytis*, especially *B. cinerea*, are among the most common and widely distributed diseases of ornamental, fruit and vegetable crops. *B. cinerea* has a broad range of hosts of over 1400 plant species including many economically important horticultural and production nursery crops. It is capable of infecting seedlings, mature plants and post-harvest crops. A wide variety of hosts are greatly affected by this fungal plant pathogen which includes vegetables crops (e.g. lettuce, broccoli, and beans),

ornamental crops (e.g. African violet, azalea, begonia, camellia, Geraldton wax, geranium, gladiolus, lisianthus, protea and rose), fruit crops (e.g. grapes, strawberry, blueberry and raspberry) and many, many others.

Typical symptoms of *Botrytis* include fuzzy grey fungal growth on dying plant tissue. It may also cause blights, spots, blotches, wilts, cankers, damping-off, fruit rot and stem rot. Fungal growth sometimes can cover infected plant parts thickly but sometimes may cause leaf spots without this

growth. Infected twigs can dieback, and have a collapsed/wilted, watery-soaked and blotchy brown appearance on leaves, as well as on fruits. When fungal growth occurs, it is made up of many thousands of tiny spores that can cause a 'cloud' of spores to be released that may spread disease. Seedlings are commonly infected by the adjacent infected plants, particularly when plants are injured.

In addition, small, black resting structures known as sclerotia may be evident on dead plant. If present on seed, sclerotia may infect subsequent seedling. Sclerotia are hardy and can remain dormant for years allowing it to survive and reinfect susceptible hosts in the future.

In some cases, *Botrytis* can produce crown rot. In general, this occurs in cases of severe infection when leaves have died, fungal growth has moved down stems and into the crown or corm. This is known to occur on a range of crops including strawberry, gladiolus, lettuce and others. Grey mould can develop on nursery stock on flowers and leaves during transit, particularly if they remain wet for long periods. Likewise, *Botrytis* can cause rot of post-harvest fruit and vegetables during storage and transit.

LIFE CYCLE

Botrytis is favoured by cool and humid conditions, preferring greater than 90% humidity and temperatures between 18–24°C. It can produce copious volumes of spores (conidia) that spread in the wind and water splash. Spores can germinate and reinfect plant material with sufficient moisture on the surface.

Dead, decaying, damaged or weak plant tissues are prone to infection by *Botrytis* and will likely be colonised first under favourable conditions. Once infection has begun, it is more likely to move into nearby healthy tissue. Resting structures called sclerotia may be produced on infected tissue that can remain dormant for years on dead plant tissues, debris, and on the soil. Upon favourable conditions, sclerotia may produce a different type of spore that can germinate, grow and restart the life cycle.



Dieback in Lavender with obvious *Botrytis* fungal growth.



Paper daisy with advanced stem rot covered with *Botrytis* fungal growth that caused severe wilting and defoliation.



Avocado seed infected with *Botrytis* showing black sclerotes (left) and internal decay of seeds.



Close up of dark, *Botrytis* fungal growth and flower-like clumps of spores at the ends.

DISEASE MANAGEMENT

CULTURAL CONTROL

Management of *Botrytis* is most successful by modifying growing conditions and having high health hygiene practices. Fungicides should be a minor part of management of *Botrytis* as fungicide resistance occurs readily. Good cultural practices passively prevent *Botrytis* and many other diseases from becoming established, reduce infection rate and will allow for more successful management actions.

Monitor plant health regularly, increasing monitoring effort on high-risk plants during cool, humid conditions. In many cases characteristic fluffy grey fungal growth can be observed with a hand lens and can provide a strong indication that you are dealing with *Botrytis*. If in doubt, send a sample to a diagnostic laboratory to confirm. All production nurseries receive 6 free samples at [Grow Help Australia](#) per calendar year until the end of 2025, funded by the Nursery Levy, Hort Innovation and Queensland Department of Primary Industries. It is likely that this funding will continue until 2030.

Best management practices that will help prevent and reduce *Botrytis* include the following actions.

- » Reduce humidity inside the nursery.
- » Reduce leaf wetness as much as possible.
- » If possible, use sub-surface irrigation or drip irrigation rather than overhead watering and misting.
- » If overhead irrigation is required, schedule to minimise the amount of time that leaves are wet.

- » Improve air circulation around plants by adequately spacing plants. Do not overcrowd plants. Grey mould thrives in shaded and crowded plantings and in areas with poor circulation.
- » Leaf wetness, humidity and temperature sensors can be used to help monitor conditions favourable for infection as a basis for the timely application of fungicides if they are required.
- » Manage other sources of damage, such as those caused by insects, mites, non-pathogenic disorders as well natural flower senescence.
- » Flowers and foliage should be kept dry before packing and shipping.
- » Use disease-free seed and mother stock plants. Propagating from plants infected with diseases is likely to lead to high levels of infection. Manage mother stock proactively with greatest attention given to mother stock several months or weeks prior to taking cuttings.
- » Handle all plants carefully during transplanting to avoid any damage.
- » Avoid growing highly susceptible plants during conditions that favour disease development.
- » Provide optimal nutrition; stressed plants favour infection.
- » Remove infected unsaleable plants or prune out infected plant tissue promptly and hygienically.
- » Do not discard infected plants or plant tissue in compost heaps on site. Discard hygienically by bagging and deep burial, e.g. most council waste services.



Space plants adequately to increase ventilation, particularly for high risk plants like poinsettia.



Dead plants should be removed from the growing area promptly

CHEMICAL CONTROL

Use of fungicides against *Botrytis* is common in production nurseries, particularly on susceptible crops during high-risk periods. *Botrytis* is known for its ability to develop fungicide resistance with formal resistance management strategies available for ornamental crops, strawberry, grape and tomato at [Crop Life Australia](#). Do not solely rely on the use of fungicides to manage *Botrytis*. Any fungicides that are applied will be more effective if cultural and hygiene practices recommended above are practiced continually.

Leading up to known high risk periods (during cool, humid/wet conditions), it is recommended to apply protectant products to protect healthy plants. Some protectant products have many modes of action against fungal pathogens (mode of action groups M1, M2, etc) and have reduced rates of fungicide resistance development.

If infection has occurred that has begun to cause damage, it is recommended to remove as much dead and decaying organic matter from the growing area as possible before applying systemic or translaminar products that have eradicator or curative properties. These products do not cure plants but have greater ability to reduce leaf spot pathogens causing symptoms. Refer to the factsheet for more information on [managing fungicide resistance and fungicide mode](#).

Table 1 summarises the registered products and minor use permits available for use against *Botrytis* in production nurseries. In general, it is recommended to use the recommendations provided by [CropLife Australia on management of Botrytis](#). They indicate the number of times each product should be used per season according to their mode of action group. Generally, this allows 1–3 applications per season for groups 2–17 and not to apply more than two consecutive sprays of these products.



Leaf spots and dieback caused by *Botrytis* may not always have obvious fungal growth (taro leaf spots – top, raspberry dieback – bottom).

HOW HAS THIS FACTSHEET HELPED YOU?

Please take a [2 minute survey](#).



FURTHER READING

- » [Leaf spot management plan](#)
- » [Preventing disease factsheet](#)
- » [Grow Help Australia disease diagnostics](#)
- » [Pest ID tool for more photos](#)

TABLE 1. PRODUCTS REGISTERED FOR USE AGAINST *BOTRYTIS* RELEVANT TO PRODUCTION NURSERIES (CURRENT AUGUST 2025). NOT ALL ACTIVE INGREDIENTS LISTED ARE REGISTERED IN ALL STATES AND OR ON ALL NURSERY PLANTS. ALWAYS ENSURE YOU READ THE LABEL AND CHECK THAT IT FITS YOUR EXACT SITUATION.

MOA GROUP	ACTIVE INGREDIENT	EXAMPLE TRADE NAME	LABEL OR PERMIT COMMENTS	MOBILITY (CTS) ¹	ACTIVITY (PCE) ²
2	Iprodione	Rovral	Ornamentals and selected fruit and vegetable crops, labels vary	T	P, C, some E
7	Boscalid	Filan	Nursery stock and ornamentals (including non-food) — PER91751	C, T	P (some C)
9	Pyrimethanil	Protector	Ornamentals, labels vary	C, T	P (some C)
3 + 11	Tebuconazole + Trifloxystrobin	Dedicate	Ornamentals	T, S + T	P, C, E + P, C
7 + 11	Boscalid + Pyraclostrobin	Pristine	Nursery stock and ornamentals (including non-food) — PER91751	T + T	Both P (some C)
11	Azoxystrobin	Amistar	Non-food nursery stock and ornamentals	C, S	P, some C
9 + 12	Cyprodonil + Fludioxonil	Switch	Non-food nursery stock and ornamentals	T, S + C, T	P, C + P
12 + 7	Fludioxonil + Pydiflumetofen	Miravis Prime	Non-food nursery stock PER95487	C, T + S	P + P (some C)
17	Fenhexamid	Imtrade Jigsaw	Nursery stock and selected fruit and vegetable crops	C, T	P, some C
19	Polyoxin-D Zinc Salt	Intervene	Non-food nursery stock — PER94353	C, T	P
M3	Mancozeb	Imtrade Mancozeb	Non-food nursery crops PER91756	C	P
M4	Captan	Captan	Exotic pine, hoop pine, and eucalypt nursery plants in Qld only PER81644	C	P
M5	Chlorothalonil	Whack, Sipcam Echo, Bravo Weather Stik,	Ornamentals and other selected crops. Labels vary.	C	P
BM02	<i>Bacillus amyloliquefaciens</i>	Serifel	Nursery stock and ornamentals (including non-food) — PER91751	C	P
–	<i>Aureobasidium pullulans</i>	Botector	Nursery stock and ornamentals (including non-food) — PER91751	C	P
–	Didecyl Dimethyl Ammonium Chloride (DDAC)	Sporekill	Non-food nursery stock seeds, cutting dip treatment and soil drench PER92498	C	P

¹ C = contact, T = translaminar or locally systemic, S = systemic Mobility descriptors are separated by a comma if products have multiple traits, e.g. C, T indicates the product is both contact and translaminar.

² P = protectant, C = curative, E = eradicator; refer to the [fungicide resistance management](#) factsheet for more information on these terms. Where products have multiple modes of activity separated by a comma, both apply to the product. P, C indicates that it has protectant and curative properties.

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