

Mummy Berry

Monolinia vaccinii-corymbosi

A BC Small-Scale Farmer's IPM Guide- *Guide series, March 2021*

Mummy berry (*Monolinia vaccinii-corymbosi*) is a fungal disease in blueberries. Its development depends on the presence of the pathogen and the growth stage of the plant, which varies between blueberry varieties. There are two distinct infection periods: primary infection at budbreak, and secondary infection at flowering. This manual contains integrated pest management (IPM) guidelines geared towards small-scale production, but they are applicable to any operation wanting to improve pest identification, monitoring and management.

Identification

Mummy berries

- White to brown shrivelled berries which look “mummified” with pumpkin-like ridges.
- Fruiting bodies grow out of the mummies as brown tubular structures with cups on the ends, from which spores are released.



Primary infections

- Infected leaf shoots and flower clusters droop, petioles are covered in a thick tan-grey fuzz.
- Leaves also turn brown, radiating from the petiole.

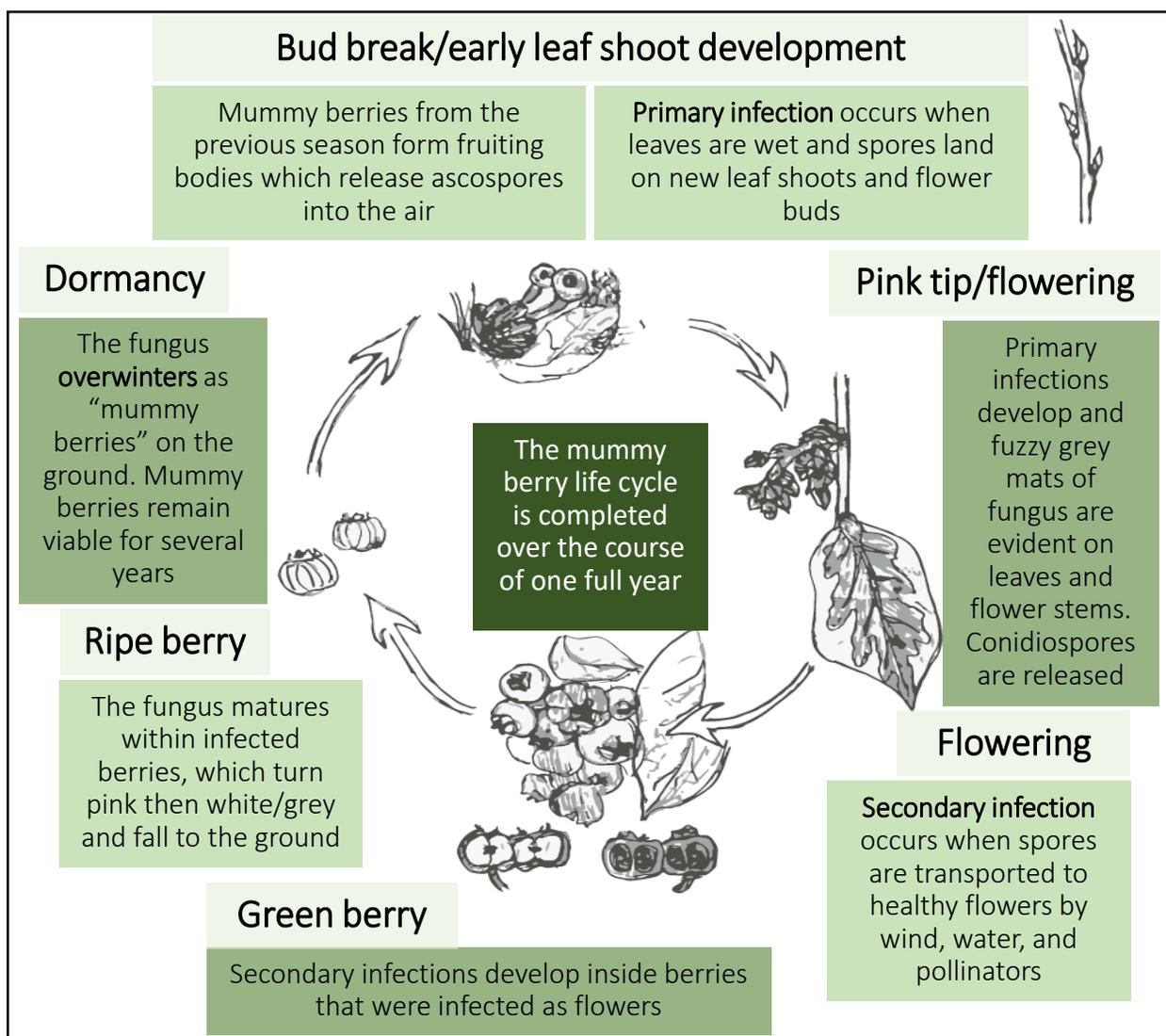


Secondary infections

- Berries turn tan-white from the inside and prematurely turn orange-pink. When split open, corky white fungal segments are revealed inside.
- Eventually berries turn white, harden, and fall off the plant.



Lifecycle



How to Monitor

Shoot growth

- Starting in mid-February, inspect blueberry bud development weekly for susceptible tissue.
- Leaf shoots become susceptible to primary infection at an average of 2-5 mm of new green leaf tissue.



Fruiting bodies

- Collect mummy berries in late summer and place in-field in a protected spot.
- When temperatures are above 10°C in February/March, monitor berries for timing of fruiting body development and spore release.



Primary infections

- During bloom, look for symptoms of mummy berry infections on the bushes.
- Monitor for timing of primary infections and track infection severity.



Secondary infections

- During green and ripe berry, look for pink or white pumpkin-shaped berries.



Hotspots

- Mummy berry often first shows up in one area in the field, which is called a 'hotspot'. Track these hotspots to target areas for intensified monitoring and management next season.

Presence/absence is key

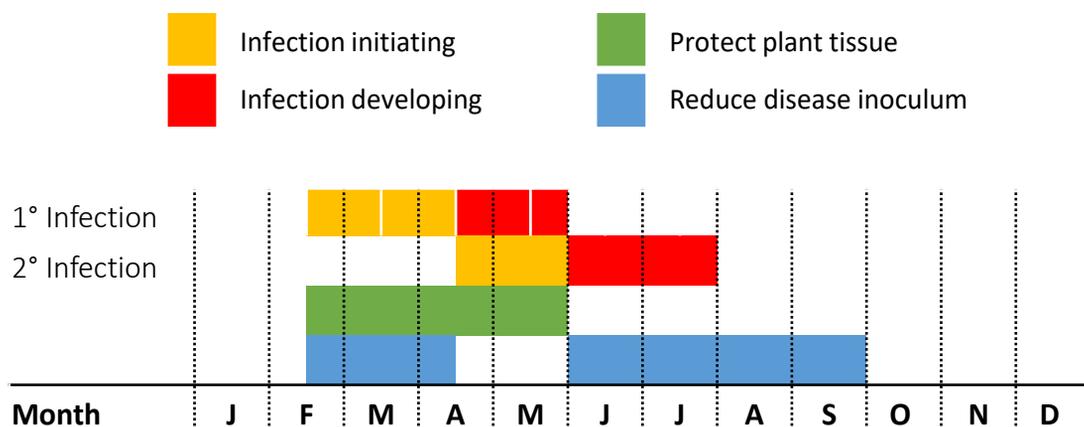
- While some regions have little to no mummy berry disease pressure, this disease can quickly become difficult to manage if left unchecked.

When to Act

If mummy berry is detected in your field, take action! Actions are focused on preventing the initiation of primary infections. This is achieved through a combination of:

1. reducing the presence of mummy berry spores (disease inoculum).
2. protecting susceptible tissue from existing spores.

Susceptible tissue is first present at 2-5 mm of new leaf shoot growth. The risk of mummy berry infection increases with increasing air temperatures and duration of leaf wetness.



How to Manage

Management options are listed by blueberry plant stage. Select as many actions from this list as possible based on what fits your operations.

Dormancy

- **Prune the bushes** to improve airflow between rows and plants.
Goal: reduce canopy humidity.
Timing: when bushes are fully dormant, approximately December to February.
- **Mulch the ground** beneath the bushes with 2-inches of sawdust.
Goal: reduce spore release in early spring by covering mummy berries. Fruiting bodies that form on overwintering mummy berries only grow up to 1-inch long and they need to be aboveground to successfully release spores into the wind.
Timing: apply 2-inches of mulch any time between end of harvest and early February.

Dormancy

Rake the ground beneath the bushes to disrupt mummy berry sporulation in the spring. A harrow or chains can also be dragged through the field after the fruiting bodies have developed.

- **Goal:** reduce spore release in early spring by
 1. Exposing fruiting bodies to freezing temperatures.
 2. Physically breaking apart fruiting bodies that would release spores.
- **Timing:** after fruiting bodies have begun development, typically February/March. Can monitor for fruiting body formation on mummy berries on the ground to inform timing. Spores are released when the tubular fruiting bodies form cups at the ends.



Bud break

Spray the canopy with a biofungicide or fungicide.

- Refer to the **BC Blueberry Production Guide** for the most current list of registered options for mummy berry. Always read the label before using any pesticide products.
- **Goal:** protect new growth from primary infections.
- **Timing:** first application at 2-5 mm new leaf shoot growth. Repeat the spray at least once, using a 7-14 day interval. Increased primary infection risk at 10°C and leaf wetness (rain or dew) for greater than 6 hrs, so aim to apply a spray prior to a forecasted rain event.



Bloom

- Spray the canopy with a biofungicide or fungicide.
 - Refer to the **BC Blueberry Production Guide** for the most current list of registered options for mummy berry. Always read the label before using any pesticide products.
- **Goal:** protect flower clusters from secondary infections.
- **Timing:** during bloom, following discovery of primary infections on leaves and flower clusters.



Green to ripe berry

- **Harvest mummy berries** directly from plants, or rake rows and collect mummy berries from within debris on the ground. Mummy berries must then be disposed of (burned or buried at 2-inch depth).

Goal: reduce overwintering inoculum for next season.

Timing: as soon as mummy berries are visible in berry clusters on the bushes, continuing alongside regular harvest. If raking, wait until the fall, well after all berries have fallen to the ground.



Seasonal

- **Keep rows and aisles clear of weeds**, mow back tall grass cover.

Goal: expose fallen mummy berries, increase efficacy of other monitoring and management activities, and improve air flow which may help reduce leaf wetness.



References and Links:

BC Production Guide – Blueberries

<https://www2.gov.bc.ca/gov/content/industry/agriservice-bc/production-guides/berries/blueberries>

BC Blueberry Council Field Guide – Mummy Berry

<https://fieldguide.bcblueberry.com/mummy-berry/>

Pacific Northwest Plant Disease Management Handbook – Mummy Berry

<https://pnwhandbooks.org/plantdisease/host-disease/blueberry-vaccinium-corymbosum-mummy-berry>

Oregon State University Extension – Mummy Berry Management in the PNW

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9117.pdf>



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