
Monilinia Blight of Lowbush Blueberry

Introduction

Monilinia blight, or mummy berry, is caused by the fungus *Monilinia vaccinii-corymbosi* (Reade) Honey. It is common in many blueberry production areas of the Province and can be especially destructive in seasons characterized by extended wet periods for several weeks after bud break. Fields with heavy soil, or poor drainage, are more prone to the disease. The following information should help the grower recognize and control the disease.

Infected field

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Symptoms

Monilinia blight infects leaves, blossoms and fruit of the blueberry plant. The first infections take place in the spring at bud break. Young green tissues of the vegetative and flower buds are infected. Several weeks after bud infections, symptoms appear as water soaked or dark brown areas along the midrib and veins of leaves, which soon wilt. Infected blossom clusters become dark purple-brown in colour, and shrivel. A whitish-grey growth of spores (conidia) is produced on the midrib of infected leaves and at the base of infected blossoms.

Infected leaves and flower bud

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Several weeks before harvest, infected fruit shrivel, harden, and turn salmon in colour. The blueberry skin eventually becomes silver in colour and is sloughed off, exposing a hard, black fungal mass called a mummy berry.

Infected blueberry fruit

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Life Cycle

The fungus overwinters in fields as infected berries, known as mummy berries, from a previous crop. During bud break, these mummy berries germinate to produce small cup-like structures (apothecia) that produce primary spores (ascospores).

Mummy berry with apothecia

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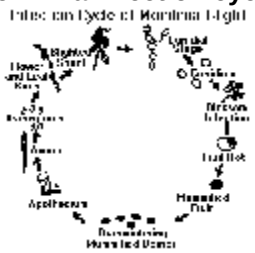
Under favourable weather conditions (wet) infection occurs if the vegetative or leaf buds and floral buds are at susceptible stages of development. Once ascospore infection has occurred, disease symptoms become evident in 10 to 20 days.

Secondary spores (conidia) are produced on this infected tissue and are carried by wind and pollinating insects to blossoms where infection occurs. Infected blossoms

and fruit remain symptomless until the fruits are almost mature. They then drop to the ground, completing the life cycle.

Monilinia infection cycle



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Epidemiology

Blueberry buds become susceptible to infection when vegetative buds are 2-5 mm green tips (V2) and when bud scales are separating on flower buds (F2). The duration of wet periods and temperature have a profound effect on infection. Field frost, for even an hour, dramatically increases the susceptibility of buds to infection. The increased susceptibility lasts for approximately 4 days after the frost. Infections do occur without frost but levels are much lower and longer duration of moisture and high temperatures are required.

V2 (vegetative buds)

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In Nova Scotia, mummy berries form apothecia during late April. Mature cups and ascospores are usually present just prior to bud break. Ascospore infections take place for a two to three week period in early May. Monilinia blight is more serious in wet weather and in fields that are poorly drained. The practice of burning lowbush blueberries helps destroy mummy berries. Flail mowing does not destroy mummy berries and therefore generally results in increased levels of disease.

F2 (flower buds)

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Control Strategy

The decision to spray for Monilinia blight depends almost entirely on the past history of blight in a particular field. If growers have experienced a problem with blight in the past, they should apply controls. The first fungicide spray should be applied when 40 to 50% of buds have reached stage V2 (leaf buds 2-5 mm green tip) and F2. A second application is applied 7 to 10 days later.

An alternative strategy has been developed using the temperature and leaf wetness duration table which rates the severity of Monilinia infection periods. When 40 to 50% of leaf buds reach V2 and F2, growers keep track of temperature and wetness durations. Within 4 days of a frost, if temperature and leaf wetness duration requirements have been met for a **moderate to high infection** in the table, a fungicide must be applied within 72 hours from the start of the wet period.

If a frost has not occurred within four days, the risk is greatly reduced; spray only when the severity is high in the table. The second application is applied at least 7 days later if there is a moderate to high severity rating after a frost or a high rating when no frost occurs.

Good spray coverage is essential for adequate control of Monilinia blight. Growers using mist blowers should not spray swaths of more than 15 meters (50 feet). Spray only under calm wind conditions.

Severity Rating of Monilinia Infection Periods

	Mean Temperature ºC During Wet Period				
Wetness Duration (hours)	**2º**	**6º**	**10º**	**14º**	**18º**
2	nil	nil	nil	nil	nil
4	nil	nil	nil	nil	nil
6	nil	low	low	high	high
8	nil	mod	high	high	high
10	mod	high	high	high	high
15	mod	high	high	high	high
24	high	high	high	high	high

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