



Lowbush Blueberry Fact Sheet

Monilinia Blight of Lowbush Blueberry

Introduction

Monilinia blight or mummyberry, caused by the fungus *Monilinia vaccinii-corymbosi* (Reade) Honey, is common in many blueberry production areas of the Province. It can be especially destructive in seasons where there are extended wet periods for several weeks following bud break. Fields with heavy soil types and/or poor drainage appear to be more prone to the disease (Fig. 1). The following information should help the grower recognize and control the disease.



Fig. 1 - A field severely infected with Monilinia Blight.

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) are produced on the midrib of infected leaves and at the base of infected blossoms (Fig. 2). Several weeks before harvest infected fruit shrivel, harden, and turn salmon in colour (Fig. 3). The blueberry skin eventually becomes silver in colour and is sloughed off, exposing a hard, black fungal mass called a mummy berry.



Fig. 2 - Leaves and flower bud infected with Monilinia.



Life Cycle

The fungus overwinters in fields as infected berries (mummy berries) from a previous crop. During bud break, mummy berries germinate to produce small cup-like structures (apothecia) that produce primary spores (ascospores) (Fig. 4). Under favourable weather conditions (wet), infection occurs if vegetative (leaf) buds and floral buds are at a susceptible stage of development. Once ascospore infection has occurred, disease symptoms become evident in 10-20 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 fruit are almost mature. They then drop to the ground, completing the life cycle (Fig. 5).



Fig. 3 - Blueberry fruit infected by *Monilinia*

Epidemiology

Blueberry buds become susceptible to infection when vegetative buds are 2-5 mm green tip (V2) (Fig. 6) and when bud scales are separating on flower buds (F2) (Fig. 7). Wetness duration and temperature have a profound effect on infection. See Table 1. Field frost for even one 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 wetness durations and high temperatures are required.

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 about a two-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.



Fig. 4 - Black mummy berry with several brown apothecia or cups which produce ascospores



INFECTION CYCLE OF MONILINIA BLIGHT

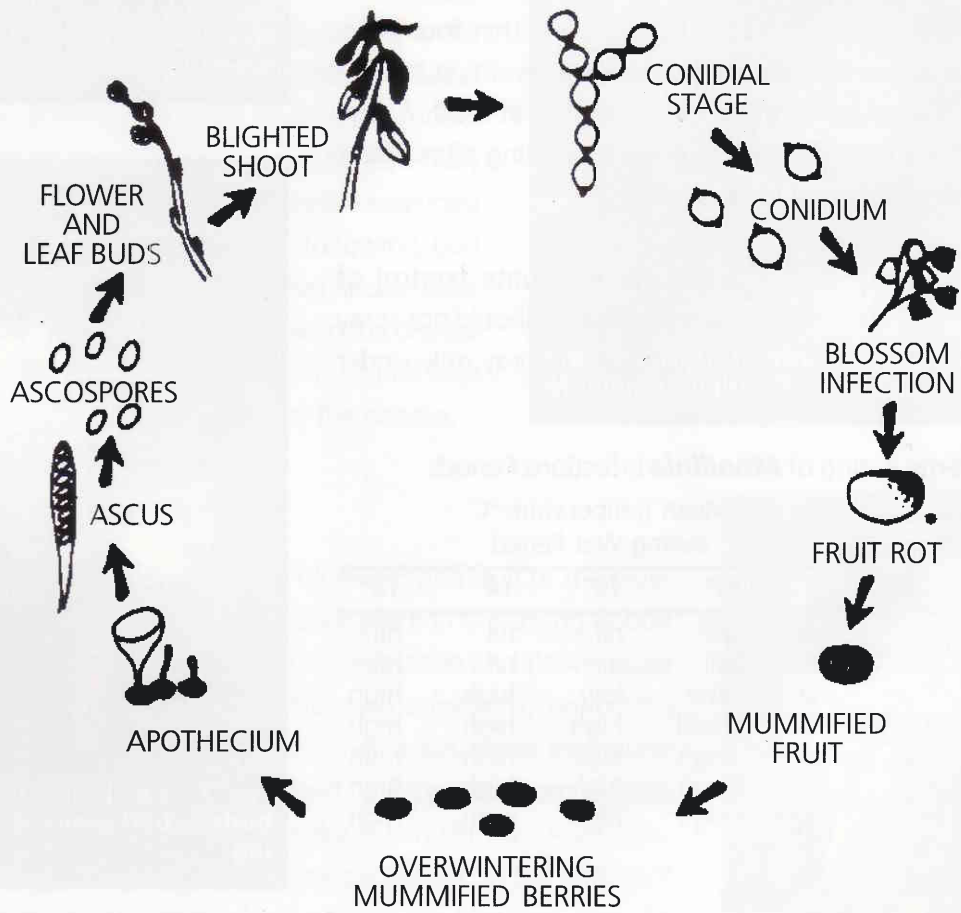


Fig. 5 - Infection cycle of Monilinia.

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 40-50% of buds have reached stage V2 (leaf buds 2-5 mm green tip) and F2. A second application is applied 7-10 days later. An alternative strategy has been developed using the temperature and leaf wetness duration table. When 40-50% of the leaf buds reach V2 and F2, growers keep track of temperature and wetness durations. Once temperature and leaf wetness duration requirements (within 4 days of a frost) have been met for a moderate-high infection in Table 1, then a fungicide must be applied within 72 hours from the start of the wet period. If a frost has not occurred within four days, risk is greatly reduced; spray only when the severity is high in the table. The second application is applied at least 7 days later when there is a moderate-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.

Table 1. Severity Rating of **Monilinia** Infections Periods

Wetness Duration (hours)	Mean Temperature °C during Wet Period				
	2°	6°	10°	14°	18°
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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Fig. 6 - V2 stage of vegetative (leaf) buds = 2-5 mm green tip



Fig. 7 - F2 stage of flower buds = bud scales separating

