SMALL FRUIT CROPS

CORNELL COOPERATIVE EXTENSION

IPM Integrated Pest Management

Disease Identification
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Mummyberry Disease

Monilinia vaccinii-corymbosi (Reade) Honey

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Mummyberry is perhaps the most common disease of blueberries in North America. Its severity varies greatly from year to year depending on weather conditions. Crop losses can be significant in years with rainy springs. Mummyberry does not occur on all blueberry farms in New York, but it is likely to become an increasingly important problem as acreage planted to blueberries in the state expands.

Symptoms

Mummyberry has two distinct phases: shoot blight and a hard rot of the fruit. Symptoms of shoot blight become evident a few weeks after bud break but often are inconspicuous and easy to overlook. New leaves or shoots that become infected wilt and die quickly, turning dark brown (figs. 1 and 2). Under wet or humid conditions, blighted tissues may be covered by a light gray or cream-colored powdery mold (fig. 3, arrow).

Infections in fruit do not become apparent until healthy berries start to ripen and turn blue. At that time, infected berries ("mummyberries") shrivel, become whitish pink or salmon in color (fig. 4), and fall to the ground. When such berries are cut open with a knife, it will be evident that all or part of the fruit has been replaced by the mummyberry fungus (fig. 5). Infected berries that fall to the ground become pumpkin-shaped as they continue to shrivel and finally turn dark brown.

Causal Organism and Disease Cycle

Mummyberry disease is caused by the fungus *Monilinia vaccinii-corymbosi,* which infects only cultivated blueberries and a few closely related wild blueberry species. Mummyberry is usually introduced from infected nearby plantings or from wild blueberries in adjacent woods.

Once established in a planting, the mummyberry fungus overwinters in the mummified fruits that fall to the ground at harvest time. Under moist conditions in the early spring, the fungus forms small mushroomlike fruiting bodies (fig. 6) from the mummies that have remained on the soil surface. These fruiting bodies, called apothecia, continue to develop when conditions are favorable—activity is very slow at 50° F (10° C) or lower, but 61° F (16° C) is optimal—and eventually form sacs of spores, called asci. Asci begin to discharge their infective ascospores about the time green tissue first emerges from the buds of the blueberry plants. Ascospores are discharged for about 4 to 5

weeks, usually reaching a peak about 2 weeks after bud break. These spores are distributed by wind currents during dry periods of the day, and those that land on emerging leaves can germinate and infect if the leaves become wet from rain or dew. For infection to occur, leaves must remain wet for about 6 to 12 hours at the optimal temperature of 59° F (15° C) and somewhat longer at lower temperatures.

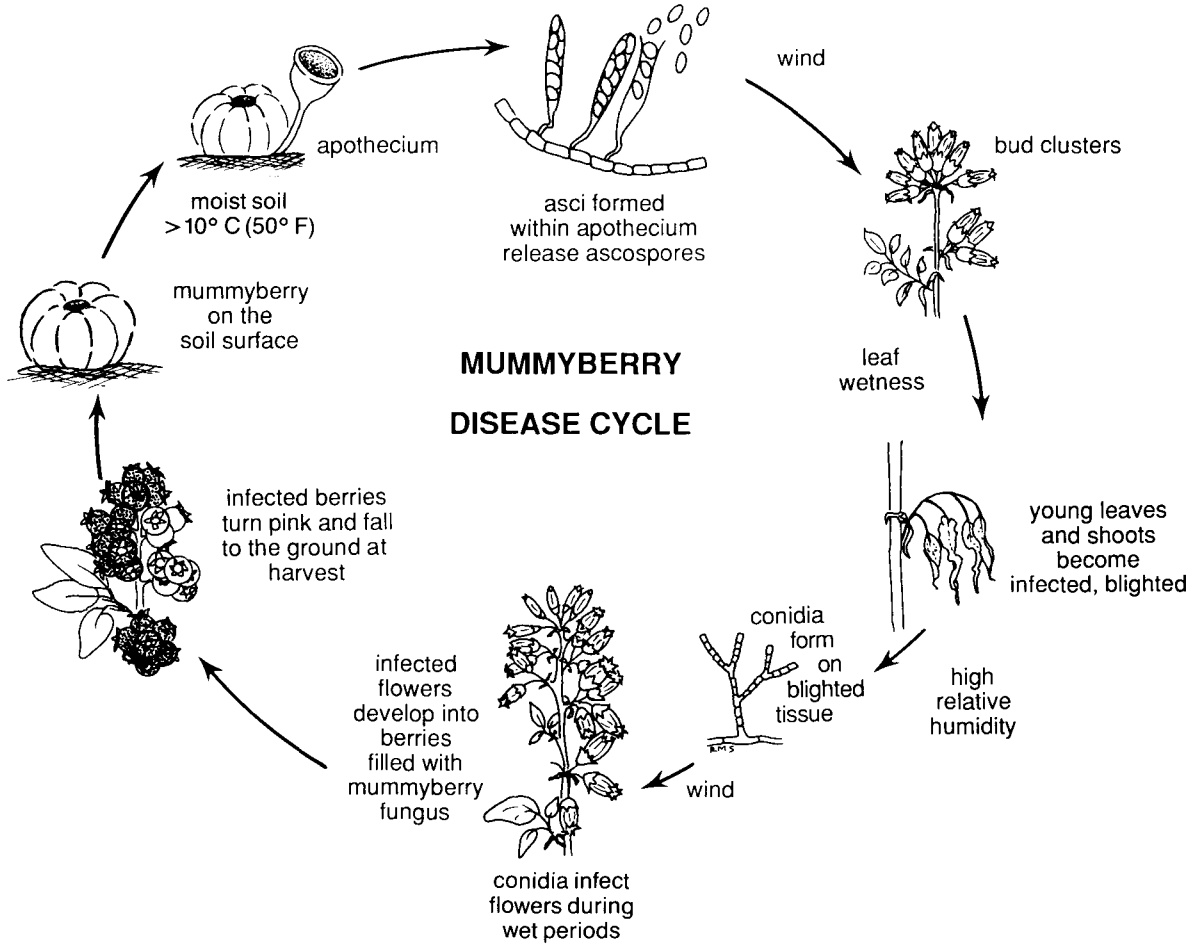
Once new leaves and shoots become infected, the fungus produces powdery, cream-colored spores called conidia on these infected tissues. Conidia are distributed to open flowers of the blueberry plant by wind or insects, which are attracted to sugars exuded by the blighted leaves and shoots. The conidia germinate, presumably during wet periods, and the fungus grows into the ovaries of the flowers, causing the seeds to abort. As infected berries develop, they become filled with growth of the fungus, turn pink, and drop to the ground, thus completing the disease cycle.

Control

Berries mummify only when flowers are infected by conidia, which themselves develop only as a result of shoot and leaf infections by ascospores. Therefore, the key to control of mummyberry disease is to prevent these shoot blight infections by interfering with the production of ascospores and applying appropriate fungicides when needed.

Cultivation of the ground beneath infected bushes before bud break will greatly inhibit the production of the mushroomlike apothecia, the source of infective ascospores. Relatively few apothecia are formed from mummies buried 1/2 inch (1.25 cm) beneath the surface, and none are formed from mummies buried 1 inch (2.5 cm) or deeper. Such cultivation may provide acceptable control in years when there are relatively few overwintered mummyberries because of little fruit infection the previous season or when spring weather is only marginally favorable for disease development.

Fungicidal control also may be necessary in springs when weather is favorable for development of shoot blight and may be particularly important if there was no cultivation or if significant levels of fruit infection occurred the year before. The number and timing of sprays should be based on the likelihood of disease as determined by weather conditions (temperature and wetness) and the relative quantity of overwintering mummyberries remaining on the soil surface. If the chance of heavy infection is great, fungicidal protection may be needed from bud break until bloom, whereas if there seems to be less likelihood of disease, a single spray 1 to 2 weeks after bud break—the period of greatest ascospore production—may suffice. Some fungicides can be used to protect flowers from infection by conidia, but these sprays will not be necessary if shoot blight infections are controlled. Check current recommendations for available materials and restrictions.



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