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## **DISEASE CONTROL FOR HOME BLUEBERRY PLANTINGS**

There are a number of diseases that occur in both commercial and backyard plantings of blueberry every year. The most common diseases of blueberry in Connecticut are mummy berry, Botrytis blight and berry rot, and Phomopsis twig blight. Occurrence of these diseases is usually dependent upon the weather and the development or phenology of the blueberry host. As a consequence, a program for disease management is often necessary in order to harvest a high percentage of useable fruit. In general, weather conditions early in the season greatly influence the occurrence and severity of these diseases. Consequently, these diseases are usually most difficult to control in years of prevailing wet, cloudy weather during the period of budbreak to bloom.

### ***I. CONTROL STRATEGIES:***

Blueberry diseases can be effectively managed through the combined use of culture, sanitation, resistance, and fungicide sprays. This integrated approach to disease control minimizes the reliance upon one type of control over the others and usually results in a high percentage of quality fruit.

#### **A. CULTURE-**

Cultural methods include maintaining plant vigor by proper planting, fertilizing, and pruning and by following general practices that help to minimize plant stress.

#### **B. SANITATION-**

Sanitation involves pruning and removing affected or dead portions of the bush and removing diseased foliage or fruit which are often important sources of inoculum for the next season.

#### **C. RESISTANCE-**

Resistance involves selection and planting of varieties with genetic resistance to specific diseases. This effectively reduces or eliminates occurrence of the disease in question.

#### **D. FUNGICIDE SPRAYS-**

Proper selection, timing, and application of these sprays are important. Thorough coverage of all parts of the bush is necessary and sprays should be applied until run-off. The fungicide label will contain information on plant hosts and diseases, dosage rates, days to harvest interval, and safety precautions.

## **II. COMMON DISEASES:**

### **A. MUMMY BERRY-**

Mummy berry, caused by the fungus *Monilinia vacinii-corymbosi*, is a disease which is becoming increasingly important in many areas of New England. The fungus attacks new growth, foliage, and fruit and can result in extensive losses. The disease cycle begins in spring when the fungus produces spores (ascospores) on mummified fruit from the previous season. These spores infect young tissues causing them to turn brown, wilt and die, often mimicking frost damage. As these infections become established, the fungus produces a second type of spore (conidia) which is spread by rain, wind, and pollinating insects to blossoms and other new tissues. The fungus grows in these tissues and invades the developing fruit. Infected fruit take on a characteristic salmon or creamy tan color by mid-summer and fail to ripen. These infected fruit shrivel and drop to the ground where they mummify and become the overwintering source of the fungus for the next year.

Fortunately, mummy berry is not a problem in all blueberry plantings. However, if it is present, control measures should be taken to avoid buildup of the fungus. Sanitation and culture are very important for disease control. If possible, rake and remove mummified berries from the vicinity of the planting. Alternative measures include covering fallen mummies with approximately 2 inches of soil or mulch or disking the soil beneath the planting to bury the mummies. These steps should be completed **before** budbreak. The blueberry varieties Jersey, Dixi, Darrow, Collins, and Bluetta are considered resistant and are therefore very effective for minimizing disease incidence. When the disease is severe and/or the weather is wet between budbreak and bloom, fungicide sprays are often necessary for effective disease management (refer to spray guide on page 4).

### **B. BOTRYTIS BLIGHT AND BERRY ROT-**

Botrytis blight and berry rot, caused by the fungus *Botrytis cinerea*, is a disease which is present every year but which is usually more serious during cool, wet weather. The fungus overwinters on dead twigs or in organic matter in the soil. In spring, it produces spores which attack new shoots and blossoms. Affected plant parts often appear water-soaked and turn brown; blighted blossoms cling to flower clusters. The berry rot stage appears on ripening fruit which had been infected earlier in the season. This disease is usually more serious after periods of rainy or foggy weather during blossom when infected twigs and blossoms become covered with the gray fuzzy mass of the fungus.

Control of Botrytis blight can be achieved by pruning and removing any dead twigs or branches during the dormant season. Cultural practices such as adjusting soil pH and avoiding over-fertilization (rapidly growing, over-fertilized shoots are prone to infection) help to minimize the effects of this disease. When the planting has a history of disease or when wet weather persists during bloom, fungicide sprays help to reduce the amount of infection (refer to spray guide on page 4).

### **C. PHOMOPSIS TWIG BLIGHT AND CANKER-**

Phomopsis twig blight, caused by the fungus *Phomopsis spp.* (including *P. vaccinii*), can be a serious disease if allowed to buildup in a blueberry planting. This disease is frequently more severe following winters characterized by excessive temperature fluctuations and

associated injuries. The fungus overwinters in cankers or dead twigs and produces spores in the spring, primarily during bloom. Rain is necessary for spore release and warm temperatures (70-80F) are favorable for infection. Symptoms first appear on smaller twigs but the disease can spread into larger branches and may even infect the crown. Younger tissues often do not show any symptoms at first, but may suddenly wilt and collapse in summer. The pith and wood of these infected twigs become discolored.

Since bushes which are weakened or predisposed by winter injury or are in poor vigor are vulnerable to attack by this fungus, measures to maintain optimum plant growth and vigor help to minimize the effects of this disease. In addition, all blighted or discolored wood should be pruned and removed from the vicinity of the planting during the dormant season or whenever newly infected tips appear. Some of the cultivars that appear to have some resistance are Bluejay, Jersey, Bluetta, and Darrow. Fungicide sprays during the growing season can provide some control. Additional sprays of lime sulfur, applied in late fall (after leaves drop) or as dormant, spring applications have been reported to reduce available inoculum. Pruning is still the key management tool.

### ***III. SPRAY GUIDE:***

#### **A. PESTICIDES-**

Several fungicides are effective for control of the common diseases of blueberry. These include:

1. **captan**- for some control of Botrytis blight and for control of mummy berry during bloom; some control of Phomopsis twig blight and canker;
2. **chlorothalonil**- moderate control of primary mummy berry infections; cannot be applied after bloom;
3. **fenhexamid**- new product that is very effective for Botrytis blight;
4. **lime sulfur**- mixed reports for control of Phomopsis twig blight and Botrytis blossom and twig blight; applications can be made in fall after leaves have dropped or as dormant, spring applications;
5. **triforine**- available until supplies run out since it is no longer manufactured; most effective compound for control of mummy berry from green tip to pink bud; should not be applied during bloom or anytime after; registered for **up to 3 applications** before bloom!
6. **ziram**- control of mummy berry during bloom

***CAREFULLY READ THE LABEL ON EACH PESTICIDE BEFORE USE !!!***

**B. SPRAY SCHEDULE-**

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<b><u>GROWTH STAGE</u></b>	<b><u>DISEASE</u></b>	<b><u>MATERIALS</u></b>
<b>DORMANT-</b>	Botrytis blight Phomopsis twig Blight	lime sulfur
<b>GREEN TIP-</b> new leaf buds showing 1/16th inch of green tissue	Mummy berry	triforine <sup>1</sup> or chlorothalonil
<b>PINK BUD-</b> blossom buds showing pink, just <u>before</u> bloom	Mummy berry  Botrytis blight	triforine <sup>1</sup> or captan or chlorothalonil captan, fenhexamid or chlorothalonil
<b>BLOOM-</b> whenever blossoms are open; apply every 7-10 days until petal fall especially during wet, cloudy weather	Mummy berry, Botrytis blight, and Phomopsis twig blight	captan or ziram

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<sup>1</sup> Available until supplies run out since it is no longer manufactured.