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How to Recognize and Control

Black Knot of Plum and Cherry

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BLACK KNOT is caused by a fungus *Dibotryon morbosum*. This fungus attacks American, European and Japanese varieties of cultivated plums and prunes. To a lesser extent, it strikes sweet and sour cherries. It is found throughout Michigan, especially in home orchards and in wild plum and cherry thickets. In commercial orchards, black knot is controlled by pruning and spraying.

Black knot strikes woody parts of the tree. It is found on twigs, limbs, and sometimes on trunks. By gradual girdling, the fungus can kill a twig or limb beyond the knot, thus reducing the yield.

SYMPTOMS

The common name, "Black Knot," describes this disease. Its first symptoms are small, light-brown swellings on the twig or branch in the first fall or spring after infection (Fig. 1). In the second year, these swellings enlarge. An olive-green, velvety growth soon covers the surface. This green soon disappears and the knots become darker.

Fig. 2. By the second fall, the fungus knots are coal-black and hard.

Fig. 1. These plum twigs show typical small, light-brown swellings during the first fall.

By the second fall, the knots are coal-black and hard (Fig. 2). These knots vary in size, location and shape. Very often, the knots blend to form larger ones.

LIFE CYCLE

This fungus spreads by spores, which germinate and infect the current year's twigs directly or through wounds. Infection takes place in a short time, usually between *bud break* and *shuck split*.

After infection, a light-brown swelling develops late that same year or the following spring. The next year, the swelling produces spores on its olive-green surface. During April, May and early June, winds and rain spread the spores to twigs on the same tree or to trees nearby. The spores germinate and infect young twigs.

By the second winter, these knots are coal-black. Fruiting structures exist under the surface of the knots. These structures contain many sacs which hold the spores. The spores are ripe when the trees resume growth in the spring. During rainy weather, the spores are discharged into the air and are carried by air currents to new growth. This discharge of spores can occur in April, May and early June.

Spores come from two sources: (1) young knots covered with olive-green, velvety growth; (2) older, coal-black knots.

The knots will extend their growth year after year. Eventually, they will girdle the branch and kill it above the knot.

CONTROL

Black knot control consists of (1) eradication by pruning and burning and (2) protection by spraying. Spray alone will not control this disease.

If a tree is covered with knots, it is better to destroy it than to attempt treatment (Fig. 3).

PRUNING

Since each infection is localized, you can control this disease by cutting off twigs and branches several inches below the last visible signs of the knot. Do this during the dormant period.

On large main branches and trunks, cut the knots out with a knife or chisel. Include 1 inch of healthy bark around the knot in these cuts. Cover the wound with a grafting compound. Check your trees in April and June for knots missed during pruning.

Destroy any nearby wild plum and cherry trees that are harboring this disease.

BURN ALL CUTTINGS OF INFECTED PARTS BEFORE APRIL 1. Spores can develop and spread from the knots even after you have removed them from the tree.

Fig. 3. It is better to destroy a tree that is this badly infected than to try to control the black knot.

SPRAYING

Correct timing and thorough application of the following sprays is essential.

Time of Application	*Material*	*Amount to Mix with water to make:* 1 gallon spray	100 gallons spray
Dormant to delayed Dormant	Liquid Lime Sulfur	1½ cups	10 gallons
	or		
	Dry Lime Sulfur	½ cup	—
	or		
	Zineb	2 tbsp.*	2 pounds
Pink	Zineb	2 tbsp.	2 pounds
Bloom	Zineb	2 tbsp.	2 pounds
	or		
	Liquid Lime Sulfur	6 tbsp.	2 gallons
	or		
	Dry Lime Sulfur	8 tbsp.	—
Shuck Split	Same as bloom schedule.		

For trees or orchards with a history of severe black knot, use the following additional sprays.

First Cover (10 days after Shuck-Split)	Zineb	2 tbsp.	2 pounds
Second Cover (10-14 days after first cover)	Zineb	2 tbsp.	2 pounds

*tbsp. = tablespoonful

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