



How to Recognize and Control Black Knot

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Black knot, caused by the fungus *Dibotryon morbosum*, attacks American, European, and Japanese varieties of cultivated plums and prunes as well as wild cherries and plums. Cultivated sweet and sour cherries are rarely attacked. It is found throughout Michigan in commercial and home orchards and in wild plum and cherry thickets.

Black knot strikes woody parts of the tree, which includes twigs, limbs, and sometimes, the trunks.

SYMPTOMS

The common name, "black knot," describes the main symptom of the disease. The initial symptoms are small, light-brown swellings at the base of leaves, on fruit spurs, and terminal shoots. These appear within the first year after infection (Fig. 1). These swellings enlarge and develop an olive-green growth over the surface. The green color disappears and the knots become coal black and hard (Fig. 2). The knots vary in size, location, and shape, often coalescing to form larger knots on the branch (Fig. 3).

LIFE CYCLE

Black knot infections are initiated by spores (seeds) which germinate and infect the current year's growth. Infection can occur from the green cluster stage of bud development until tree growth ceases in June. At green cluster, the terminal and lateral leaf buds show $\frac{1}{4}$ to $\frac{1}{2}$ inch of new growth and the blossom buds are exposed but tightly grouped and with short stems.

After infection, a light brown swelling develops during the same year or the following spring. The swelling turns olive green and produces spores within one to two years after infection.



Fig. 1. The swelling at the base of the leaf node is the first symptom of a black knot infection.



Fig. 2. An active Black Knot. Beginning in the early spring, ascospores are produced from the surface of the knot.

Fig. 3. A plum tree showing severe infection of black knot.



Fungus fruiting bodies develop along the surface of the knots. These structures contain many sacs (asci) which hold the spores (ascospores) of the fungus. The spores are mature when the tree resumes growth in the spring. During rainy weather, spores are discharged into the air and carried by air currents to the new growth. If the trees remain wet long enough, infection will occur. Spore discharge may continue through early June.

CONTROL

Since the knots are localized, the disease can be controlled by cutting off twigs and branches several inches below the last visible signs of the knot. This should be done during the dormant period (winter).

On large, main branches and trunks, knots should be cut out with a knife or chisel. One inch of healthy bark around the knot should be included in these cuts. Taper the cuts to a point at each end to promote healing.

Any nearby wild plum and cherry trees harboring the disease should be destroyed.

BURN ALL PRUNINGS OF KNOTTED PARTS BEFORE THE TREES BREAK DORMANCY IN THE SPRING. Spores can develop and spread from knots left on the ground or in brush piles.

Chemical control procedures are as follows: $\frac{1}{2}$ Tablespoon *Benlate* plus $1\frac{1}{2}$ Tablespoons *Captan* per gallon of water. Apply the first spray at the early bloom stage (green cluster) and repeat at 7-10 day intervals until mid-June.

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