

PLANT DISEASE CONTROL NOTES

EXTENSION DIVISION • VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

FRUIT DISEASES

DISEASES OF PLUMS AND PRUNES AND THEIR CONTROL IN VIRGINIA

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The principle diseases of plums and prunes are black knot, brown rot and bacterial spot (bacteriosis).

BLACK KNOT. - Black knot is the most conspicuous disease of plum, prune and cherry trees. Most commercial and home-fruit growers, at one time or another, have observed the black warty growth on twigs and branches of plum and cherry trees. Trees infected with black knot become almost worthless after a few years, if no control practices are used. Twigs and branches may be girdled by the infection and with a large number of infections per tree the trees go into a general decline.

Black knot is caused by a fungus called Dibotryon morbosum. It attacks many species of wild and cultivated plums and cherries including American, European, and Japanese varieties of plums, Damson Plum, and prunes and both sour and sweet cherries. The disease was first described in 1821 from specimens collected in Pennsylvania. It now is distributed generally throughout North America and seems to be more destructive in the northern section of the country. The disease is destructive and widespread in Virginia.

SYMPTOMS: Infection occurs primarily on wood of the current season's growth. The infections are caused by small (microscopic) spores which attack the tree from bloom through late May to early June depending on the climatic conditions. The first evidence of the disease is a swelling of the infected twigs or branches during the late summer or fall of the year of infection. Ordinarily, the infected area swells rapidly and the bark is ruptured the following spring. The infection continues to develop throughout the second growing season



Black knot on cherry.

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and the life cycle is usually completed during the second spring after infection with the production of small spores (seed), called ascospores, which may start new infection centers. The elongated black swelling may be from less than an inch to more than a foot in length. The malformation may encircle the entire branch, but is usually one-sided. The cankered areas are greenish when they are first formed, but become black with age. Branches not killed by the disease may be killed by insects that enter the infected area. Infrequently twigs or branches are deformed and turn right angles at the point of infection.

Generally, black knot is of minor economic concern in well-managed orchards. The major loss is in home orchards that are unsprayed and poorly managed.

SANITATION is extremely important in controlling black knot. All the knots on small twigs and branches should be pruned out during the dormant season and burned. The cuts should be made 4" below the knots. Knots on one side of large limbs that need to be saved can be removed by cutting out the diseased area down to the wood and for a distance of 4" above and below the swellings. When knots are removed from a limb, the wound area should be painted with a good asphalt or oil base paint. Close observation should be made annually during the pruning season to detect and remove any new black knot infections. It is a good practice to destroy wild plum and cherry trees near cultivated ones since wild trees harbor the disease. Pruning alone, however, is not adequate control of the disease. The use of a fungicide spray program (see section on recommended chemical control) along with the sanitation program will usually give good control of black knot.

BROWN ROT. - Brown rot, caused by the fungus Monilinia fructicola, is particularly destructive on some susceptible varieties of plums. The fungus attacks blossoms and fruit. Some of the Japanese varieties are extremely susceptible to blossom blight. Blossom blight infections may serve as a source of inoculum for the fruit as it approaches maturity. Thus, the disease should never be permitted to become established in the trees. For a more complete description of the brown rot disease, see Virginia Cooperative Extension Service CS 102 entitled "Brown Rot of Peach and Nectarine and Its Control". For control of brown rot, see section on recommended chemical control.

BACTERIAL SPOT. - This disease is caused by a bacterial organism, Pseudomonas pruni. It overwinters in twig lesions that are usually not observed until after the bacteria ooze out in the spring. The bacterial ooze, from the water-soaked, slightly darkened blisters, usually starts about petal-fall. If the weather conditions are favorable, however, it may start earlier. The bacteria also are reported to overwinter in the buds. The disease may occur on foliage, fruit, and young twigs and is spread chiefly by windblown rains. The loss of infected fruit is usually the grower's principal concern, but the devitalization of trees as a result of early and frequent defoliation may be equally important.

Some varieties of plum are highly susceptible to bacteriosis. No satisfactory control program has been developed for this disease. The removal of highly susceptible varieties is recommended. This will remove a source of infection which may spread to other plums and peaches.

RECOMMENDED CHEMICAL CONTROL

Pre-blossom and late full bloom. - Apply one of the following fungicides immediately before blossoms open and at late full bloom for brown rot control. For all treatments on plums and prunes, apply 200 to 300 gals of spray per acre, depending on tree size and weather conditions.

CAPTAN: Use 2.0 lbs captan 50% WP per 100 gals of spray. The residue tolerance for captan is 50 ppm.

Post-bloom sprays. - Apply petal-fall spray as soon as petals have fallen; shuck-split one week after petal-fall; shuck-fall one week after shuck-split; first cover one week after shuck-fall; second cover one week after first cover, for brown rot control.

CAPTAN + ZINEB: Use 1 lb captan 50% WP plus 1 lb zineb 75% WP per 100 gallons of water through the first cover spray. Allow 30 days from last captan plus zineb spray to harvest. The residue tolerance for captan is 50 ppm and 7 ppm for zineb. Zineb is not registered for dried prunes.

Pre-harvest and harvest. - CAPTAN: Use 2.0 lb 50% captan WP per 100 gals of spray. Apply the spray one week before harvest and during harvest if brown rot is prevalent or the harvest period is prolonged. The residue tolerance for captan is 50 ppm.

In orchards where plums, prunes, and peaches are interplanted, 2.0 lbs captan 50% WP per 100 gals of spray is a satisfactory fungicide for these fruits.

ALL SEASON PROGRAM AS DESCRIBED ABOVE

BENOMYL (BENLATE): Use 0.5 lb Benlate 50% WP per 100 gals of spray. Apply before blossom opens, late full bloom, petal-fall, shuck-fall, 10-days later and again 1 week before harvest. Can apply during harvest if needed. The residue tolerance is 15 ppm. Do not graze treated areas.

**NOTE: There are no pesticide chemicals registered for control of black knot. If a good program for brown rot control is followed as suggested above, black knot will usually not be a problem.*

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KEYS TO PROPER USE OF PESTICIDES

1. Read the label on each pesticide container before each use. Follow instructions to the letter; heed all cautions and warnings, and note precautions about residues.
2. Keep pesticides in the containers in which you bought them. Put them where children or animals cannot get to them, preferably under lock and away from food, feed, seed, or other material that may become harmful if contaminated.
3. Dispose of empty containers in the manner specified on the label.

SEE YOUR DOCTOR IF SYMPTOMS OF ILLNESS OCCUR DURING OR AFTER USE OF PESTICIDES.