Black-knot of Plums

Most Indiana fruit growers, both professional and amateur alike, have at one time or another observed the black, knot-like, warty growths that often occur on plum and cherry trees. Annually these growers ask, "What is this destructive growth that slowly strangles the productive life of plums and cherries, what causes it, and how may it be prevented?"

This condition, known as black-knot of plums, or plum-wart, is one of the most common stone fruit troubles in America. It affects both wild and cultivated forms of cherries and plums, although in general, plums suffer more from the growth than do cherries.

The Appearance of Black-knot

Black-knot first appears in the fall as a small swelling on a twig or branch of the susceptible plum tree. The first small black-knots may appear in the crotches of older limbs, on small fruit spurs, in the crotches of younger branches, and near the tips of the twigs. The following spring, these small black-knots enlarge greatly in size, the bark appears to rupture, and sometime in June, becomes pulpy in consistency, and the surface of the new gall becomes covered with a velvety green growth.

As the summer progresses, the green color of the young black-knot gradually fades, turns darker in color, and by fall has become hard, brittle and black in color. Every season the black-knot enlarges, generally growing along the infected twig or branch, but will rarely girdle the infected branch completely. Black-knot galls may vary on a single tree from a few inches in length to extensive galls over 12 inches long.

Black-knot is a disease of plums and cherries that attacks only the woody parts of
the tree. Smaller twigs, when infected, generally die within a year after the attack, but larger branches usually resist the attack of the black-knot fungus for several years before succumbing. The trees seem to decline as the severity of black-knot increases. Thus, black-knot appears and quickly spreads over the entire tree, slowly weakening the tree until it loses its productivity and eventually dies.

The Cause of Black-Knot

Black-knot is caused by a fungus that has been given the name of Dibotryon morbosum. This fungus, like other common fungi, propagates itself by seeds or spores. In the spring, spores are produced on the surface of the black-knot, and these may be discharged for several weeks. The spores are carried by wind to the surface of the young trees where they penetrate the bark and produce primary infections which are not visible until fall when they appear as small swellings.

During the late spring and early summer, more black-knot-producing spores are liberated from the surface of the younger galls. The velvety, olive green appearance of the young galls in the early summer is due to the development of a spongy, spore-producing layer of the black-knot fungus. These "summer spores" are produced in great numbers and are also capable of starting more black-knot infections.

Furthermore, the black-knot fungus is perennial within the tissues of old galls, pushing out a little further every year like the underground roots of the common quack-grass weed. Every year a black-knot gall extends a little further along the infected twig or branch.

Black Knot Control

Perennial black-knot cankers are a constant source of spores that may cause new infections. For this reason, the elimination by pruning of all black-knot cankers as soon as they appear is the first step in preventing serious damage.

A plum or cherry tree badly infected with black-knot should receive a dormant spray (applied in late spring before buds start to swell) of 8-8-100 bordeaux mixture (8 pounds hydrated lime, 8 pounds copper sulfate in 100 gallons of water). To this should be added 2 gallons of 3 per cent dormant oil. Home fruit growers may use ready prepared bordeaux mixture at dormant strength.

The above spray should be followed by an application of liquid lime sulfur, at a strength of 4 tablespoonsfuls in 1 gallon of water. (If dry lime sulfur is used, add 3 tablespoonsfuls to 1 gallon of water).

Liquid lime sulfur may be substituted for the dormant bordeaux if desired, using 2 cupfuls in 1 gallon of water.

The use of a "General-Purpose" spray containing zineb, or zineb 75% WP alone at 2 pounds in 100 gallons of water, will also help to keep black-knot under control. Sprays should be applied at green tip, bloom, petal fall and shuck fall, with two additional sprays at 10-day intervals.