The Plant Doctor's LANDSCAPE TIPS

By David L. Roberts, Ph.D, *Michigan State University*

Photo 1: Black knot obviously receives its name from the symptoms the fungus creates on twigs and branches of Prunus species. After infection in the spring, knots may not appear until 6-12 months when they appear as very small bumps. Eventually, the black knot tumors may attain over 12 inches in length and 1.5 inches in diameter.

Photo 2: To many, black knot may not be conspicuous during the summer months when foliage may hide the objectionable growths. The knots become quite visible in the fall and winter when the leaves have disappeared. Winter is probably the best time to prune out these knots to prevent further spread of the fungal disease.

Photo 3: Galls and knots are caused by a variety of agents. Insects cause many galls. In this photo of galls caused by disease agents, crown gall (left) is caused by a bacterium and is highly infectious and persistent. Gall Rust on pine (middle) is caused by a fungus. Black knot (right) is also caused by a fungus. Each type of gall has its own unique biological features and, hence, requires different management procedures.

BLACK KNOT OF PRUNUS

INTRODUCTION:

Black knot is a plant disease caused by the fungus, Apiosporina morbosa (syn.= Dibotryon morbosum). Black knot primarily affects plum, but other members of the stone fruits such as cherry, apricot, prune, peaches, and ornamental stone fruit trees as well as wild species (wild plum, chokecherry, etc.) may also be affected. For many susceptible plants the disease may be considered to be primarily cosmetic. However, on some plants in certain situations, the disease may cause branch death, severe tree decline and even tree death.

SYMPTOMS AND DISEASE CYCLE:

Black knot is one of the most easily diagnosed diseases. Black knot appears as irregular, elongated dark colored growths or tumors on twigs and branches of susceptible trees (Photo 1). The knots generally range in size from ½ to 1½ inches in diameter to over 12 inches in length. Black knot is most readily visible during the dormant season (fall and winter) when leaves do not hide what many consider to be hideous-looking growths. The development of knots on twigs and branches of trees disrupts the development of normal plant tissue; this disruption may lead to stress and/or death of the branch beyond the knot.

Spores of the fungus are generally released from the knots in the spring, when newly emerging twigs are highly susceptible. Symptoms of black knot infections may not become visible for more than 6-12 months after infection, when small bumps appear on infected twigs. Over time, the growths expand in size until they are quite conspicuous.

BLACK KNOT MANAGEMENT:

The primary control procedure for black is the cultural practice of pruning. Proper pruning not only removes the objectionable knot, but also removes the highly infectious fungus. "Proper" pruning is critical for best disease management practices. Prune only during dry conditions. Pruning during the dormant winter period is best to avoid accidental spread of the fungus and because the knots are most visible when foliage is absent. Because the fungus typically invades tissues beyond the black knot tumor, prune out the knots by cutting the twig or branch at least 2 inches, preferably 4 inches, below any visible signs of the knot. Because the knots can remain infectious for some time after they have been pruned from trees, knots should be burned, buried or removed from the site. To prevent possible spread by saws and pruners, it is advisable to sanitize the pruning utensils with a sanitizing agent between each cut.

For valuable plant situations, examine surrounding woodlots and forests for the presence of black knot on wild or escaped tree species. Managing or removing these trees may also be advisable to protect the landscape or fruit trees.

Consider the use of genetic resistance/susceptibility when planting trees of particular varieties. For example, the plum variety "President" has demonstrated good resistance to black knot; "Early Italian" and "Santa Rose" have shown moderate resistance; "Shropshire" and "Stanley" are very susceptible to black knot. Consult with your local extension educator or the World Wide Web for more information on resistance.

When purchasing Prunus sp. plants, thoroughly inspect them for the presence of any black knot; avoid plants or perhaps even avoid nurseries which exhibit any signs of black knot.

In very rare situations, especially commercial fruit production, fungicidal sprays applied in the spring may help reduce the incidence of new black knot infections on susceptible trees. It is important to note that sprays will not cause already present black knot to disappear. Sprays may help prevent new infections from occurring but the effectiveness of such sprays is suspect, particularly in landscape or homeowner situations.

For more information, please feel free to email me at robertsd@msu.edu or contact a professional plant health-care provider. The author, MSU or MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.