

Black Knot

Although plant diseases are not on very many people's minds at this time of the year, there is one that you can, and should, be managing right now. This disease is one of the most commonly seen fungal diseases of trees in the Marinette County area and affects any of the prunus species - cherry, choke cherry, and plums.

The disease I refer to is black knot, so named because of the conspicuous black galls (knots) that the disease causes on affected trees. These knots start out very small, but can become very large, fully encompassing major branches or even main trunks. It is most commonly seen on smaller branches and twigs, because of the fact that it is easier for the fungal spores to infect smaller branches. However, the disease can quickly spread from an initial infection, both by rain-splashed spores to other branches, and up or down branches via hyphal growth in the wood.

The fungus causing the disease is called *Apiosporina morbosum* and it survives the winter in the knots on infected trees. Spores are released from these galls in late spring/early summer during warm (55-77 degrees), wet periods. The spores germinate and produce hyphae which invade the tree and cause gall formation to start by disrupting normal cellular division. What forms is essentially a tumor, composed of both excess tree cells and fungal hyphae. This knot grows sufficiently to be readily visible by fall. After the first winter, knots form a layer of cells on which perithecia develop and form spores, which can then be released during favorable weather conditions.

The knots start out as light brown or greenish swellings on the branch which darken as they age and grow. Most often, the knot will be growing mostly on one side of the branch, although they can encircle them, as well. A very typical problem that black knot causes is re-directing of branches, as the knot's growth causes bending of branches to occur. This further adds to the unsightliness of the disease. Although called black knot, the knots will often appear whitish or even pink due to secondary fungal infections.

The disease causes tree disfiguration, increases the likelihood of other insect and disease pest invasion, and kills twigs, branches, or even the entire tree if left unmanaged. There are some black knot-resistant cherry and plum species and varieties. Choosing resistant varieties for new plantings is the only sure-fire way to avoid the disease.

Managing the disease on susceptible trees involves physical pruning as the primary (or only) effective method. The use of fungicides is generally ineffective against this disease and is not recommended. The only exception would be the use of lime sulfur on trees which have been correctly pruned. Lime sulfur needs to be applied very thoroughly prior to bud break and can help reduce new infections, but will not prevent them.

Pruning and removal of wild species' plants are the only effective tools to fight the disease, although laborious. You should remove all knots on infected trees during the winter, removing at least 8 inches of branch below the knot, and burn or bury them. Properly disinfect your pruning tools with a 10% bleach solution between cuts, as well. Where feasible, removal of susceptible species from within a 500 foot ring of valuable trees will help reduce disease incidence, as well. However, realize that wild trees in this genus are literally everywhere in our area and you will not be able to completely eliminate inoculum.