Fungi that Take Advantage of Stressed Trees
By: Kelly Feehan, Extension Educator
Release: Week of June 26

Verticillium wilt and cytospora canker are fungal diseases healthy trees and shrubs usually resist. When plants are stressed, these fungi can take advantage and cause infections. Unfortunately, once a plant is infected there is no fungicide control for either disease.

Trees are stressed by many factors. Currently they are heat and drought stressed. Other stress factors include planting too deep, girdling roots, excessive nitrogen fertilizer, overwatering, weather extremes and more.

We are seeing branch dieback from verticillium in maples, catalpa, smoke tree, burning bush and barberry, but many trees and shrubs are susceptible. We are also seeing an increase of cytospora canker on spruce.

Verticillium is present in soil. It appears to remain dormant and then attack stressed trees. The fungus infects through roots, often via wounds. As fine roots grow through soil, wounds occur as roots run into rocks, hard clods or other objects. Cutting roots or hitting them with lawn mowers also creates wounds.

Once infected, verticillium clogs a tree's xylem which is the portion of the trunk that transports water from roots to foliage. Leaves wilt and turn brown and branches die from a lack of water.

Verticillium typically kills a tree or shrub slowly over time. It is possible for plants to recover if provided correct watering and mulching and exposed to fewer environmental extremes. Dead branches need to be removed.

Applying fungicides to soil or plants provides no control. If a tree or shrub is suspected of having wilt, provide recommended care. If a plant is removed due to verticillium, replace it with one that is not susceptible. Resistant plant lists are available online or from Nebraska Extension.

Cytospora canker in spruce is even more common. Colorado blue spruce are infected more often than other types of spruce. This is likely due to heat and drought stressed or spruce growing in excessively irrigated and fertilized lawns.

Colorado blue spruce is native to higher elevation areas of Colorado where temperatures remain cooler. Conditions are often dryer as well. Spruce growing in lawns kept lush with frequent irrigation and fertilization are often stressed, setting them up for infection.

Cytospora causes cankers on individual branches or the trunk. The fungus grows in the cankered area preventing flow of water or movement of photosynthates through the infected area. If a canker is on the trunk, spruce die from the top down. If on branches, individual branches die.

As with verticillium, fungicides will not prevent or kill Cytospora. To help a tree slowly recover, best management practices can be tried.

Correct tree watering is moistening soil 8 to 10 inches deep from about one foot away from the trunk to well beyond the drip line, then allowing soil to dry before watering again. Correct mulching is placing a 2 to 4-inch deep layer of organic mulch, like wood chips, in a six-foot diameter ring around the trunk, without piling it against the trunk.

On fertilizing, most trees in Nebraska do fine without fertilization. Those growing in fertilized lawns are likely overfertilized so do not add insult to injury and fertilizer them anymore.