K-STATE Research and Extension | Wildcat District

FOR IMMEDIATE RELEASE

For more information,
contact: Jesse Gilmore
Horticulture Agent, Wildcat Extension District
jr637@ksu.edu, (620) 724-8233

Water: The Root of Root Problems

If you've ever been interested in weather or meteorology, you should take a look into the Kansas Mesonet, a system which tracks weather data with 30+ stations spread out across the state. Our nearest station in Parsons shows that between May 1 and June 1, rainfall totaled 12.52" – over a quarter of our average annual rainfall inside the span of 30 days. This incredibly wet month laid the groundwork for some problems that people have begun seeing in their trees – but the problem actually lies beneath the surface.

This much water in the soil would cause saturation. Soil saturation is where all of the air that occupies the space between soil particles is instead filled with water. This is a problem because roots need oxygen not only to pull water and nutrients into the plant, but also for the cells to survive. With enough soil saturation, the root cells begin to die off. Some trees that are native to swampier conditions, like the bald cypress, can handle this saturation, but most trees with roots that have died off will really begin to suffer as the heat of the summer kicks into high gear. The damaged root system will try to bring in the water the plant needs, but fewer roots mean less capacity to take an already diminished amount of rainfall.

The result of this is the tree using the small amount of water it can take up to keep the trunk and anything close to the trunk alive. Unfortunately, this means that the outermost tips of the lower branches and large parts of the upper branches are left, quite literally, high and dry. Unfortunately, there's not much you can do for your plants outside of making the water they need available for the tree to take up with what roots they have left.

Once root injury occurs, the plant will become susceptible to pathogens that live in the soil. One problem I have seen in a few trees recently is verticillium wilt. This fungus is very common in the soil, and becomes more common the more wet it is. When roots die off from saturated soils, this provides an entrance for the fungus to get into the tree. As with all other wilts, the fungus lives in the plant tissue and plugs the tunnels water and nutrients travel up. This starves the tree canopy and kills the tree outright. Once verticillium becomes strong enough to where it is infecting and killing off trees, you will need to plant resistant species so that the problem does not happen again.

If you see dieback in your canopy, check first to see if your tree species is one that self-prunes or abandons lower branches. Ashes and oaks are two examples of trees where this is common. The tips of ash trees commonly die off before the tree will drop them in the late summer. As oaks get larger and the canopy gets thicker, the tree will abandon its lower branches for using resources more efficiently. Since these lower branches will not get enough sun to justify putting leaves on them, it doesn't. Because these branches are dead, they can be pruned to keep the canopy looking tidy. However, it's important to make sure that there aren't other explanations that could cause what you're seeing in your tree. Ashes may self-prune, but any potential decline could also be explained by an infestation of ash lilac borers, while oaks are hit hard by a complex of three leaf diseases around this time every year. If you have questions about weird problems in your plants, your local extension agent will be able to help you determine causes and potential solutions.

Verticillium wilt in a plum tree

For more information, contact Jesse Gilmore, Horticulture Agent at (620) 724-8233 or jr637@ksu.edu

# # #