For Release July 21, 2018

**Helping Trees and Shrubs Survive Drought**

AGRI-VIEWS
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We have been in a state of increasing drought for the past twelve months. Borderline adapted plants, like Bermudagrass, had extreme winter die out, because of the drought and resulting dry soils. Different woody perennial plants have varying tolerances to drought and heat. But all plants have limits and we could be starting to put some of our ornamental plants at risk unless action is taken soon.

Automatic sprinkler systems are good for lawns, because that's what they are designed for. But most of the time they are only keeping the top three to four inches of the soil wet and the grass plants are using most of that moisture before it gets down to the tree's roots. One of the big misconceptions about the root systems of trees is that they go deep into the soil. While some trees do have some deep anchor roots, most trees have a very shallow root system. A vast majority of the roots that trees depend on for water and nutrients are in the top 18 inches of soil. When we are in drought conditions we need to look at supplying water to the tree root zone basically from about four inches deep to 12 to 18 inches deep.

Lack of soil moisture coupled with the stress of above average temperature damages woody plants in several ways. Water is crucial within a plant for the myriad of biochemical pathways that produce all the food that the plant needs to live on. Additionally, water coursing through the system and evaporating out through tiny holes in the leaves also provides cooling for the plant. When it's hot and the plant can't move the normal amount of water through the system, the plant actually becomes hotter.

Continued stress of the plant predisposes it to insect and disease issues. Insects and pathogens that normally wouldn't attack a plant all of a sudden can get a foothold and add additional stress. Heat or drought alone may not be enough to kill the plant. But when you start to add in insects or diseases also attacking the plant, it can get to the point where it can't stay alive. Trees will start to shed leaves, reduce new spring growth, even start to kill off its own branches in an effort to shrink itself so it can support the living tissue that is left. To avoid extreme stress like this requires periodic watering.

I'm not a fan of root waterers, those devices you hook to your hose, and push several feet into the ground. It's far too easy to get these in too deep so that they are putting water below where it should be. It's also too easy to run these with too much pressure and actually create voids in the soil which can cause damage to any roots growing in that area. The better way is to use an open hose running at a fairly slow speed. You don't want water gushing all over the lawn and running away. You want a slow flow so that the water can sink in. This is a process that can easily take all day for one tree. Go out periodically and move the hose to different sides of the tree. You can even get one of the black soaker hoses and coil it around the tree.

Because of the different tolerances of tree species to drought some trees are at greater risk than others. The first trees I'd water would be spruces and pines. It's hard to know that an evergreen is in moisture stress because needles don't wilt! After that I'd focus on maples, especially red or sugar maples. Ash and elm tend to be more tolerant so move them down on the priority list. Last on the list would be junipers. They are some of our hardiest, but if it stays dry water them too. You can grow a nice lawn in a matter of weeks. Trees can take a lifetime though!

-30-