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After the Flood

AGRI-VIEWS

by Chuck Otte, Geary County Extension Agent

Eventually the rain will return to normal levels as will the rivers and lakes. We don't know when it will stop raining, but even if it were tomorrow it'll take several weeks for the water everywhere to recede so things can dry out and we can start to evaluate damage to plants and vegetation. We saw this in 1993 and to a lesser extent at various times in years in between. Whether it's vegetation around Milford Lake or just in your own yard where water stood for days or weeks, there will be impacts, some of which may not show up for weeks or months or even until next year.

When soil becomes saturated with water the water displaces all the air, or oxygen that is normally there. Soil is composed of solids and voids. The solids are the sand, silt, clay and organic matter that comprises soil. The voids, under perfect conditions, are filled half air and half water. It rains or we irrigate, the water soaks in and for a short period of time there is very little air. The water is used by plants or it soaks below the root zone, the voids start to become more air than water and then we repeat the cycle.

Roots need oxygen to live and carry on their function. When soil is saturated, and that doesn't have to be standing water, the roots run out of oxygen within about 48 hours and start to go under stress. If you've ever seen plants standing in water turn a pale green and then yellow and then die, it's because the roots died from lack of oxygen. Some plants have the ability to move oxygen from their leaves down to the roots. Some plants, like rice, do this very well, other plants do it very poorly.

The US Forest Service has developed a list of what tree species do well under flooding and which ones don't. Species like silver maple, ash, hackberry, sycamore, cottonwood and bald cypress handle flooding very well. These species have been known to survive one whole growing season under flooded conditions. Honeylocust, bur oak and elm can probably survive 30 consecutive days or flooding. However, redbud, mulberry, walnut and most evergreens are not very tolerant and even just a week to ten days of flooding can cause problems.

Now, there are flooding conditions, where you have a few inches or feet of standing water for periods of time, and then there is inundation where all or part of a tree goes under water. This is a different type of stress and if an entire tree goes under water, there is a strong likelihood that it will be hurt. After the 1993 flood I saw a lot of cottonwoods die that had been ½ submerged for 6 to 10 weeks. An interesting observation of these trees occurred a couple of years after 1993 when the tops started breaking out of these dead trees and invariably the breaks occurred right around the high water mark!

There's no way to predict that any given tree will live or die following inundation. Poison ivy defies logic and vines that were submerged for 3 months in 1993 were leafing out ten days after coming out of the water. Some shrubs will survive, some won't. What you will see is a large bathtub ring or dead zone once the lake goes down. Grasses can not survive very long submerged. There'll be a lot of replanting of grass. If the water goes down by mid July we may see a lot of weeds sprout and grow. But if it's later the areas will be quite devoid of plant life until 2020. Floods and droughts both have long tails. Much of the damage will be seen fairly soon. Other damage will sneak in slowly long after the flood is gone.

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