

Problem: Flooding and Plants



Plants Affected: Various

Description: Waterlogged soils have had the oxygen pushed out that roots need to survive. Every living cell in a plant must have oxygen or it dies. Some plants have mechanisms to provide oxygen to the roots even under saturated conditions, but most of our vegetables and flowers do not. The longer these plants are subjected to saturated soils, the more likely damage will occur. Usually, as long as water drains within 24 hours, the impact on plant health is minimal. However, shallow, stagnant water under hot, sunny conditions can literally cook plants, reducing survival time to as little as a few hours.

Recommendations:

Vegetables: Is it safe to eat produce from a garden that has been flooded? Standing water should not cause a safety problem as long as the aboveground portions of the plant remain healthy. Do not use produce from plants that have yellowed. Also, using produce flooded with water contaminated with sewage (lagoon) or animal manure also can be dangerous. The safest approach is to discard garden crops that have been in contact with such water. Certainly, leafy vegetables should always be discarded. However, you can eat tomatoes, peppers, eggplants, sweet corn, squash, cucumbers, and similar vegetables that develop after the waters have subsided as long as the fruit is not cracked or soft. Always wash vegetables thoroughly before eating.

Flowers: Plants will usually survive at least 24 hours under flooded conditions. If water stands longer than 24 hours, plants may die outright or the lack of oxygen may encourage root rot diseases. Raising the level of soil in flower beds, even by a few inches, can help avoid damage in the years that follow.

Lawns: Under the cool conditions of early spring, turfgrasses often can survive several days of flooding. However, during hot, sunny conditions with shallow, stagnant water, lawns may be damaged quickly, sometimes in a few hours. This situation often occurs when shallow depressions in a lawn allow water to pool. Note such areas and fill in with additional soil once the waters have subsided.

Grass plants may not be able to take up the nutrients needed to maintain a good green color when there is too much soil water and may have a yellowish hue. Fortunately, this chlorosis will correct itself when soils dry. Plants should regain their color with a return to drier weather.

Trees: Trees differ markedly in their ability to withstand flooding. Some trees have mechanisms in place to provide oxygen to the roots of plants with water-saturated soils, and others do not. However, most trees will maintain health if floodwaters recede in 7 days or less. It also helps if water is flowing rather than stagnant because flowing water contains more oxygen. If the roots of sensitive trees are flooded for long periods of time, damage will occur including leaf drop, iron chlorosis, leaf curl, branch dieback and, in some cases, tree death. Another danger of flooding is the deposition of sediment. An additional layer of silt 3 inches or more can also restrict oxygen to the roots. If possible, remove deep layers of sediment as soon as conditions permit. This is especially important for small or recently transplanted trees.

Try to avoid additional stress to the trees this growing season. Ironically, one of the most important practices is to water trees if the weather turns dry. Flooding damages roots, making the root system less efficient in making use of available soil water. Timely watering is vital to a tree's recovery. Also diligently remove dead or dying branches that may serve as an entry point for disease organisms or insect pests. The following information on tree survival came from the U.S. Forest Service.

Flood-tolerant trees can survive one growing season under flooded conditions: Red maple, silver maple, pecan, hackberry, persimmon, white ash, green ash, sweetgum, sycamore, eastern cottonwood, pin oak and baldcypress.

Trees moderately tolerant of flooding can survive 30 consecutive days under flooded conditions: River birch, downy hawthorn, honeylocust, swamp white oak, southern red oak, bur oak, willow oak and American elm.

Trees sensitive to flooding are unable to survive more than a few days of flooding during the growing season: Redbud, flowering dogwood, black walnut, red mulberry, most pines, white oak, blackjack oak, red oak and black oak.

Soils often become compacted and crusted after a heavy rainfall. This also can restrict oxygen to the roots. Lightly scraping the soil to break this crust will help maintain a healthy root system and, therefore, a healthy plant. Be careful not to cultivate too deeply as shallow roots may be damaged. If you think the excessively wet weather will continue, bedding up the rows before planting even just a couple of inches, will improve drainage and allow for better aeration.

References:

1. [How to Manage Flood Damage to Trees](#), University of Minnesota Extension

Last Updated: 2/1/2022

Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

“Knowledge for Life”

Kansas State University Agricultural Experiment Station and Cooperative Extension Service