

DROUGHT CONDITIONS WREAK HAVOC ON TREES AND SHRUBS

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Drought conditions are wreaking havoc on numerous native and non-native trees and shrubs throughout Indiana. Many evergreens (white pine, Colorado blue spruce, fir, arbovitae), deciduous trees (maple, ash, oak) high-maintenance ornamentals (Japanese maple, Japanese stewartia, rhododendron), and even normally low-maintenance plants like Spirea are exhibiting leaf scorch, dieback and in some cases entire plant death.

Normally, established, native plants have evolved to survive seasonal and annual variations in water supply, however even these species are exhibiting symptoms of stress in response to the severity of the drought conditions. Drought damage develops in plants when dry soils prevent roots from absorbing the moisture necessary to replace water lost during transpiration (a process that a plant needs in order for photosynthesis to occur), resulting in stress. Under continued stress, leaves wilt, turn yellow to brown at the tips and margins, curl, or show all of these symptoms and die. Stressed plants are predisposed to infection by pathogens, attack by insects, and additional injury from other site and environmental factors.

The first and only obvious indication of drought appears in the leaves. Symptoms include green leaves that wilt and turn brown; severely stressed deciduous plants may drop all their leaves. In conifers, needles turn yellow or brown and drop and entire branches will die back. Due to the waxy, protective layer on conifer needles, these symptoms may not develop until many months after the initial stressful event. By the time these symptoms develop, it may be too late to save the tree or shrub. Note-- drought symptoms on evergreens should not be confused with natural autumn shedding of older, inner needles, which is also occurring now.

Even the most drought tolerant plant will succumb to drought if recently transplanted. Transplanted plants are at greatest risk of drought damage having lost significant root mass, preventing leaves from obtaining needed moisture. Woody plants within three to five years of transplanting are most susceptible to drought damage as roots have yet to establish fully.

The key to managing drought damage is prevention: Deep watering during extended dry periods throughout the year, including winter months through early spring when temperatures remain above freezing for prolonged periods protect plants, particularly evergreens, from drought.

To minimize the impact of drought, mulch around the base of the tree, taking care to avoid “mulch volcanoes,” and keeping the mulch away from the tree’s stem. Two to four inches of mulch increases soil moisture retention, prevents weed development and competition, and minimizes the likelihood of lawnmower and weed whip injury.

However, more than four inches of mulch actually prevents roots from obtaining necessary moisture by blocking rainfall or irrigation. Other techniques to manage drought is to avoid planting shallow-rooted species (ash, sweet gum, silver maple) in areas of low moisture or on sandy soils. Water ornamental trees about once a week to moisten soil 6 to 12 inches deep into the root zone (approximately 1" of water). For clay soils, watering 2 times per week with only 0.5" soil will prevent flooding, and allow water to percolate to the root zone.