



Even though there has been intermittent rainfall this spring, we are facing early season drought stress this year. The question is – are we adequately prepared to minimize our plant losses? In order to determine readiness, let's take a look at the problem, symptoms, consequences, and potential remedies to this often unpredictable problem.

Simply stated, drought stress is the result of insufficiently available soil moisture. This lack of soil moisture sends a “closure” signal to the leaf stomata – the pores of the leaf and stem epidermis. Repeated or extended closure will result in lack of transpiration, photosynthesis will stop and the ability of the plant to grow, or even survive, under extreme conditions will be severely compromised. Early signals of drought stress may include marginal leaf scorch, premature leaf drop, dieback in the branch tips, or overall plant wilting. These symptoms will vary in severity depending on the plant material, general health condition, soil type, and appropriate placement in the landscape environment.

Understanding some of the symptoms of drought stress does help us to understand when and how to intervene, hopefully lessening permanent impacts. A small amount of mid-day wilting indicates a low level of moisture stress. Moderate amounts of stress will result in more distinct wilting symptoms exhibited throughout the day with the leaves/needles resuming normal appearance during the evening hours. These visible, primary responses to dry conditions can often be remedied through responsible human intervention. At this point if caught early enough, the damage is not irreparable, but can certainly have impact on growth and health. Extreme cases of drought stress will be exhibited through uninterrupted day and evening wilting, leaf discoloration and potential – often permanent - leaf loss. With stresses this intense, expect to see some extended damage in growth and increases in disease and pest pressures throughout the next few years.

The effects of these secondary problems can be harder to visibly identify and more deadly than the primary drought stress. Insect pests and diseases target weakened plant material often causing long-term health problems. Prolonged drought may also cause feeder root desiccation,

inhibiting the ability of the plant system to re-hydrate when soil moisture does become available.

Actions to remedy minor stress symptoms include some pretty basic techniques - watering, weed control and appropriate plant material choice, placement and care. In new plantings, deep watering to the equivalent of 1” of rainfall per week will help plants establish deep roots, crucial to long term survival. Depending on the weather conditions, watering may have to be done every 7 – 10 days during the growing season. Mature plantings in good overall health can often withstand minor drought, without additional watering, if initial choice, placement and care were appropriate.

Appropriate plant choices, initial placement and care are the first proactive steps to prevent drought stress. What are the tolerances to dry or wet conditions, heat and cold, salt, pollution, dog urine? Did the material get proper planting? Look at native plants - herbaceous, shrubs and trees - to provide some assurance that material will have a good chance of surviving periodic extreme weather conditions natural to this area.

Weed control is imperative to the overall health of any planting. To grow a pound of weeds takes approximately 80 gallons of water. If the weeds are getting the moisture, the plant material is not – it is good sense to remove the weeds from the moisture cycle. Mulches are another important and basic technique to improve survival odds. A 3” to 4” depth of mulch will provide sufficient coverage to cool the root zone, retain moisture, and reduce weed pressure.

Water – so basic and so critical to the survival of the living. With some thought and understanding of conditions, symptoms and potential interventions, the level of this early drought stress severity can be moderated.