

# Abiotic Disorders

**Abiotic or non-infectious disorders** are caused by environmental, cultural, and non-living things. Things causing abiotic or non-infectious diseases do not grow, reproduce, or spread from plant to plant; they are not contagious. These disorders are not diseases, but stresses can make plants more susceptible to infection. The section titled [Diseases of Indoor Plants](#) contains information on disease management.

Abiotic disorders **produce a wide range of symptoms** such as reduced vigor, yellowing leaves, leaf drop, or rapid death of plants. These **symptoms may resemble plant diseases**.

Further, **stressed plants may become more susceptible to pathogenic diseases**. For example, if Pythium root rot develops on a plant that is usually resistant to this disease, an investigation may reveal that the plant was consistently overwatered, resulting in high moisture and humidity (abiotic conditions) in the planting area. In this case, correcting the cultural practice that allowed the pathogen to become established may be the only corrective measure necessary for managing the water mold pathogen.

Many cultural and environmental conditions that lead to poor plant health are mentioned throughout this manual. This section will focus on some of the most likely abiotic disorders found in an interior landscape.

## Environmental Conditions Contributing to Abiotic Disorders

There are **certain ranges of temperature, light and water/humidity that provide for optimal plant health**. The importance of these factors is considered here in relation to the development of abiotic disorders.

Typically interior spaces utilized for living or work environments provide temperatures adequate for growing foliage plants. A **temperature range between 50° and 90° Fahrenheit can be tolerated by most foliage plants**. Attention must be given to temperatures during times when interior spaces are not occupied by people. With a more energy-conscious society, the thermostat may be set to temperatures that may injure plants when they are exposed over a period of time. Foliage plants can suffer cold damage without freezing. This is referred to as chilling injury. A few plants that are injured by exposure to chilling temperatures between 35° and 50° F for short periods of time include *Aglaonema* X 'Silver Queen', *Dieffenbachia maculata*, *Dracaena* spp. and *Polyscias fruticosa*. **Symptoms of chilling injury include yellowing or brown water-soaked areas on leaves, loss of foliage, poor growth, and wilting.**

Plants exposed to **hot temperatures for prolonged periods** of time can also suffer injury. **Wilting, marginal burn on foliage, and leaf drop** may occur. Since most foliage plants can tolerate temperatures as high as 95°F, provided they receive adequate water, the problem is not related entirely to maximum temperature but to utilization of stored food reserves due to elevated respiration levels. When a plant depletes its stored carbohydrates, it may become weak and predisposed to other stresses including invasion by pathogens.

**Light** affects numerous physiological conditions and processes in plants. When plants are subjected to inadequate light levels, disruptions of these functions may cause stress. Plants may exhibit poor growth and color. These symptoms are easily mistaken for something other than poor environmental conditions.

If plants haven't been adequately acclimatized to the conditions of an interiorscape (lower light levels, lower temperatures and humidity), they may experience yellowing and leaf drop and possible death following installation.

Many growers are producing **acclimatized plants which require more time to grow, but are more tolerant of environmental stress at the job site**. Be familiar with the growing practices of your supplier and symptoms

associated with an inadequately acclimatized plant. If the grower doesn't acclimatize the plants, establish a method and facility to do so before installing the plants directly into an interior landscape.

## **Cultural Practices Contributing to Plant Disorders**

**Most plant replacements result from a combination of poor environmental conditions and poor cultural practices.** Symptoms of abiotic disorders, resulting from poor environmental conditions and cultural practices, are extremely variable and are often misdiagnosed. Pesticide applications will not correct an abiotic disorder. It is vital that plant technicians understand the impact of their cultural practices on the plants they maintain.