

COMMON DISORDERS OF INTERIOR PLANTS

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Interiorscape plants are a mixture of many diverse species and no one environmental condition is favorable for all. The environment that most interiorscape plants are subjected to on-site is one of too little or too much. Too much light or not enough light. Too warm or too cold. Too moist or too dry. Trying to achieve the proper balance of all of these factors for each individual plant is the difficult challenge that interior plant specialists are faced with each day.

In this article we will discuss the most common disorders (caused by an environmental factors) associated with interiorscape plants in interior locations, how to avoid these problems, and how to manage problems when they arise.

Interior Plant Disorders

Disorders of interior plants caused by environmental and cultural conditions are the most common and the most important problems associated with growing on site interior plants. Disorders include problems associated with pH, high salts, temperature, light, growing media, watering and humidity. Eighty percent of the problems associated with interior plants are disorders. Many of the disorders discussed effect the root zone or root environment. If the root environment is poor, the roots will be poor and the overall appearance of the plant will be poor. Many of the disorders discussed can be easily corrected and/or rectified if detected early on.

◆ pH - Most interior plants do best in a media in which the pH range is between 5.0 (acidic) - 6.9 (neutral). Once the pH of the media moves about 7.0 many of the nutrients the plant needs to function normally starts to become unavailable. Due to their tropical nature many interior plants are acid-loving and under the influence of high pH conditions they become chlorotic and less vigorous. If not corrected, the plant will go into a decline and eventually die. Media pH should be monitored frequently and corrections should be made if necessary. Addition of products such as iron sulfate or ammonium sulfate will help lower the pH and supply some needed iron to the plant.

◆ Growing medium - The growing media should be well-drained and should not remain saturated with water for an extended amount of time. The media should also allow a satisfactory amount of aeration for the plant roots. Professionals are encouraged to use growing media that is specifically developed for growing interior plants (soiless mix). The use of media that contains native soil or garden soil, even if pasturized is discouraged. The texture of these soils is too heavy a texture and will contain many plant pathogens that can infect the roots of the plant. Many soiless mixes contain polymers that absorb and hold moisture in an effort to maintain a more constant media moisture. These products keep the roots from over drying and make them less susceptible to damage.

◆ Salts - Under certain conditions of high pH and depending on the condition of the water used to irrigate or the type of fertilizer used, salts can accumulate in the media to high or toxic levels. High salts can damage roots. This damage will be reflected in an unhealthy plant and in some cases the damaged roots will be more susceptible to root rot inducing organisms. High salts can be translocated and accumulate at the margins of the leaves and cause leaf damage or leaf burn. This is one of the most common symptoms associated with interior plants. The salt content of the media should be monitored frequently and corrected if necessary to avoid these problems. Flushing the media with water (leaching-out) can rectify this problem if caught early.

◆ Light - The quality of light, as well as the quantity of light, greatly affects the health of indoor plants. The use of "grow" lights can solve light quality problems, but may not provide sufficient quantity. Low light levels (less than 50 foot-candle of daylight or 100 foot-candle of fluorescent or incandescent light) can be satisfactory for the health maintenance of many plants if fertilizers are used sparingly and the plants are properly conditioned or acclimated prior to being placed in these environments. Condition plants by placing them at 250-300 foot-candle of light for several weeks prior to final placement. Foliage one foot away from a reflectorized 40W fluorescent lamp will be in about this much light. Too much light (4 or more hours of direct sunlight on the foliage) can cause problems if fertilization rates or watering frequencies are not properly balanced.

◆ Temperature - Most indoor plants prefer day temperatures between 60 degrees and 70 degrees F. Rapid temperature fluctuations (window drafts, exposure to air from heat registers) as well as exposure to air under 45 degrees F will result in poor plant health. Some plants such as Ficus sp. respond to temperature fluctuations by dropping leaves. Remember that sunlight directly on leaves can greatly increase leaf temperature and in some cases cause irreversible damage (Fig. 6). This damage can be the entry point of some secondary plant pathogenic fungi and bacteria.

◆ Humidity - Air under 30% relative humidity that is blowing over foliage for many hours each day is very stressful to most plants. Remember most of the plants used for interior purposes are tropical in nature and dry air is harmful to them. In most indoor environments, winter air is far drier than summer air. Using room humidifiers, redirecting air currents, or growing plants above trays of water (gravel beds) may help.

◆ Watering - If soils are properly constituted, weekly thorough soakings are usually sufficient for plants in most indoor environments. However, do not depend solely on the calendar to schedule watering. Inspect the soil-under the surface, 2 to 6 inches-to determine watering needs. Each watering must thoroughly wet the soil and the entire root mass. Use of tepid water (60 degrees to 80 de-

greens F) is beneficial. Excess water must drain out of the container. If the plant roots are allowed to set in water for extended periods and the root zone becomes aerobic plant pathogenic fungi can infect the root and root rot will develop. If soils have dried excessively, they may be difficult to re-wet. Water may run freely through or around the root mass. Watch for this and soak such soil masses in water for several hours until they are properly re-wetted. Pot-bound plants and large plants in small pots will need watering more frequently. The location of the plant will also dictate how much water that individual plant will need. Plants with Southern exposures may require more water than plants located on the North side of the room.

Water quality is also very important. Many interior plants are sensitive to high levels of chlorine in the water. In some parts of the country the boron levels in the water can be toxic. Water quality should be tested periodically. Water may need to be filtered or subjected to a reverse osmosis process prior to use.

◆ Fertilizer - A complete soluble fertilizer containing nitrogen, phosphorus, and potassium (NPK) should be used. The amount to give to the plant will be directly related to the quantity of light being received by the plant. Many fertilizer levels are written for plants in abundantly lighted locations such as bay windows or greenhouses. As a result, many indoor plants are over fertilized. Always dissolve the fertilizer in tepid water and drench the solution through the root mass. Do not apply fertilizer to roots that are too dry. This will result in burning of the roots and will predispose the roots to attack by root rotting organisms such as *Pythium* sp.

◆ Root-Bound - Allowing interior plants to become root-bound should be avoided at all cost. Once a plant becomes root-bound the ability of the plant to function properly becomes drastically limited. If a plant is root-bound, it will dry-out too quickly. It will lose all of the buffer capacity of the media which can result in root burn and eventually root death. Root-bound roots lack proper aeration and will be less likely to adjust to temperature fluctuations. If possible plants should be periodically checked for being root-bound and should be transplanted when necessary.

Remember that unlike plants in the ground the interior plant has a very restricted root zone and many of the problems associated with in-ground plants are exaggerated with interior plants. Therefore, close attention must be paid to root zone of interior plants. However, by following these simple guidelines the majority of problems that we find routinely associated with interior plants can be avoided.

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