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House Plant Problems

Green and flowering house plants are a popular part of the furnishings of most Minnesota homes. Indeed, many homemakers obtain great satisfaction from house plant projects that brighten Minnesota winter days. It's well known that house plants contribute to the quality of life, and many new homemakers are including house plants when furnishing their homes. Obviously the well-being of house plants is of considerable concern.

Plants grown indoors, although sheltered from some of the hazards encountered by outdoor plants, have problems that are unique to the indoor environment. Light energy in the average home is limited during the fall season (October, November, and December). Generally light comes from one side only and in insufficient quantities. As the dark, dreary days of winter and the heating season begin, symptoms of low light such as small leaves, long thin stems, pale green color, and flower failure develop. This problem syndrome is complicated further by the severe lowering of humidity and development of moisture stress symptoms. During moisture stress periods and before wilt is apparent, the plant is weakened by root loss due to drought.

During the winter months (January, February, March) you may have adjusted your watering program but generally most people overwater, keeping the soil constantly wet. Continued overwatering contributes to further root loss and plant decline. In general from November to February, plants are in the slowest growth period. As our daily light supply increases, plant growth should improve. However, several factors may prevent the plant from developing to its full growth potential. First, the plant may be out of balance, i.e. root loss leaves more top than can be supported by the existing root system. Secondly, the entire root system may be pot-bound, thus limiting top development. Third, the soil mixture usually contains a high level of soluble salts that are not usable by the plant roots and, in fact, are toxic. This may be evidenced by a white crust on the top layer of soil or upper edge of the pot. This may develop more rapidly with alkaline water supplies and/or high fertilizer applications. Finally, soil structure in a pot after a year is generally too compacted to allow good root development. Regular addition of water to soil tends to settle it and reduce the much needed air space.

Generally some detective work is required to assess which problem is occurring in your house plants. Some of the grossly observable symptoms that suggest specific problems and/or diseases are:

Yellowing and death of lower leaves

May be evidence of nutrient deficiency, especially nitrogen. Older plants that have become pot-bound because of overly

abundant root development are often affected. Woody ornamental house plants such as rubber plant, dracaena, and dieffenbachia (not woody) are especially susceptible to nutrient disorders. The application of nitrogen fertilizers often can reverse this problem when yellowing has just started.

Yellowing of all leaves

May be evidence of excessive soil moisture. May also be complicated by root rots. Check the drainage holes in the pots or planter boxes. If plugged, plants may easily be overwatered, and the plant will literally be standing in water. A water-logged soil is deficient in oxygen. A water-saturated soil is also an environment that is conducive to several root rot diseases. Certain soil-borne fungi, Pythium, Rhizoctonia, Phytophthora, Fusarium, and other species, are responsible for root and crown infection.

If root rots have not affected too much tissue, they sometimes can be arrested by drenching the soil with a fungicide such as Captan, Benlate, Thiram, Dexon, PCNB. However, for most homeowners, fungicides are not readily available and probably cost as much as purchasing a new plant. Often, repotting these plants in pasteurized soil gives them a new lease on life. Cutting off the rotting and infected roots and transplanting may be worthwhile. When root rots have gone too far and the plants are in poor condition, they are best discarded. Occasionally mites, aphids, and scale insects can cause yellowing of the plant.

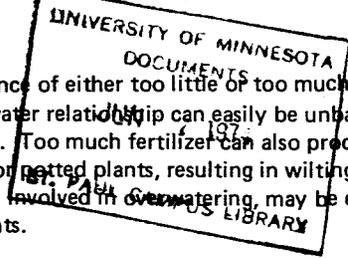
Wilting

May be evidence of either too little or too much water. The soil-air-water relationship can easily be unbalanced in potted plants. Too much fertilizer can also produce a toxic situation for potted plants, resulting in wilting. Root rotting, often involved in overwatering, may be expressed as wilted plants.

Certain house plants such as African violets are quite susceptible to overwatering and subsequently the rotting of roots and crowns. When plants first show a tendency to wilt, reduce the watering and check for a plugged pot.

Sudden loss of leaves

May be evidence of a rapid change in temperature, dry air, cold drafts, or exposure to gas fumes. A change in location in the house from a sunny to a dark place sometimes can cause leaf drop in certain species.



Brown leaf tips

May be the result of nutritional deficiencies, but more often is caused by exposure to hot, dry air. Homes with forced air furnaces often have very low humidity unless humidifiers are used. Improper watering also can be involved with brown tips. Occasionally mechanical injury, rubbing, or crushing can result in brown tips. Also, check for insect involvement and accumulation of soluble salts in the pot.

At times certain root disorders also can be responsible for brown tip, but usually yellowing and wilting are present also. Ferns and other tender leaf plants are particularly vulnerable to brown leaf tips.

Brown spots on leaves

May be evidence of injury caused by direct sunlight burning plants that require shade during bright, sunny days. Some leaf spots on house plants are caused by fungi and bacteria. Examination of the spots for minute mycelial growth can suggest fungus while bacterial development is recognized by the water-soaked appearance. As tropical plant foliage becomes old, yellow to brown spots develop simply because of tissue age. Provide adequate air circulation around the plant and avoid sprinkling water on the leaves when leaf spot disease is indicated. Remove any seriously affected leaves and destroy them. Since most leaf spotting organisms require moisture for infection, leaf spot disease development in homes is very rare.

PRESCRIPTION FOR HEALTHY POT PLANTS*

Some plants require repotting annually, while slow-growing species may require only the replacement of a little of the top-soil with fresh soil. If a plant requires water more often than once every 24 hours, a larger pot is required. When repotting, remove the shoulder of soil around the top and any loose soil. Also, loosen the soil at the base of the root ball to encourage rooting into the new soil. To loosen and remove soil, use a gradual squeezing motion to minimize the breaking of tender young white roots. Repot in a new or clean disinfected container of suitable size. (NOTE: oil on some new plastic pots is toxic to plants and should be removed.)

When repotting always put pasteurized soil on the bottom, sides, and, if necessary, top of the remaining plant ball. In most instances, the plant should not be placed any deeper in the soil than it was in the previous pot. When repotting, try to spread out the bottom roots rather than to compress them into a small volume. Water thoroughly and add more soil if settling occurs. Because overwatering hinders new root growth, water again when the soil dries, but not before. A good potting soil generally requires no fertilization for 3 to 4 months under most home conditions. Fertilize as needed in proportion to plant regrowth.

*Written in cooperation with Dick Widmer

Soil preparation

A soil mixture appropriate for most house plants contains three parts good garden loam (soil), two parts organic matter (leaf mold, compost, or peat), and one part sand. This soil mix should be exposed to enough heat for a time long enough to destroy the pathogenic micro-organisms in the soil. Normally complete sterilization is not necessary, only pasteurization.

Two soil pasteurization methods are available to the home-maker. In the first, oven pasteurization, place the soil in a small greenhouse flat or baking pan to a depth not to exceed 4 inches (do not pack the soil). The soil should be moistened if it is not already damp. Cover the container with aluminum foil and seal the edges. Insert a thermometer into the soil and place in the oven at low heat, approximately 200° F. The soil should be maintained at a temperature of 180° for a minimum of 30 minutes. Remove, cool, and use the soil immediately. The second method is the pressure cooker pasteurization process. Several cups of water are placed in the bottom of the cooker. Then soil in shallow pans no more than 3 to 4 inches deep is placed over the water. Do not pack the soil into the containers. Allow steam to circulate between the soil containers. Seal the cover, heat until steam has driven the air out of the pressure cooker, and then cap, cooking at 10 lbs of pressure for 15 minutes. Turn off the heat, allow to cool, and use the soil. If you don't want to go to this trouble, most greenhouses and floral shops sell small quantities of soil that have been steam treated.

Glazed pottery containers and plastic pots can be washed with detergent and hot water. Porous clay pots should be washed and scrubbed and then soaked in liquid bleach (1 part bleach and 9 parts water) for 1 hour. After disinfecting with bleach, rinse the container free of any bleach solution.

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