About two-thirds of all plant problems in Washington result from non-parasitic causes, such as unfavorable weather and poor growing conditions. Less than one-third of all of the problems are caused by a parasitic disease (diseases caused by fungi, bacteria, viruses, or nematodes).

Insect damage also can be a problem. But since insects may be seen, the cause of the damage is evident. Therefore, insects are not considered in this publication.

The nature of nonparasitic plant problems varies, but most involve weather damage, poor planting location or procedures, other aspects of plant care, and suspected hormone-type herbicide (weed killer) damage.

**Weather Damage**
Weather extremes account for many nonparasitic diseases. Extremes include early freezing weather (especially following mild fall weather), low winter temperatures, abnormally wet or dry springs and summers, and late spring frost. It is helpful to consider weather extremes when diagnosing plant damage. Sometimes the damage is immediately apparent, but many times it does not become visible until the warm summer weather. Although certain stress factors may weaken a plant, symptoms may not appear until several have accumulated. Giving good care to damaged plants is about all that can be done to help bring them back to good health (see below).

**Poor Planting Location or Procedures**
Improper preparation of the planting hole or site, and planting too deeply or in the wrong location or at the wrong time of the year all cause plant problems. When purchasing plants ask the nurseryworker whether they are adapted to your area, and in what location (sun, shade, partial shade, protected area, or open area) they should be planted. Consider soil conditions where the plant is to be placed, since many plants will not do well in poorly drained soil.

Generally, the best times to transplant are in the fall or late winter. If soils are poorly drained, late winter transplanting will probably not be possible. Try to avoid transplanting in June, July, and August.
Another thing to keep in mind is that, in general, the larger the tree or shrub when transplanted, the more slowly it will become established and the more stressed it will likely be. Container-grown or balled-and-burlapped plants will suffer less stress when transplanted than bareroot plants. Plants which are more likely to be stressed from transplanting will benefit from having some of the branches pruned to bring the top more in balance with the roots. Seek advice from your nursery about the specific plant you purchase.

**Watering and Fertilizing Problems and Suggestions**

Failing to properly water and fertilize plants results in problems. Remember, it usually takes shrubs and trees several years to become fully established after transplanting. Until they are established, they need special care. Weather stress factors also are more apt to damage plants during this time.

During dry summer weather, water plants deeply so the entire potential root zone is moist, especially plants which are unestablished or damaged by weather or other factors. Do not overwater or the roots may rot. How often to water and how much water to apply depend on soil conditions. It may be as often as once every 3 to 5 days in sandy soils (where the water drains through rapidly and evaporation is high), or as long as once every 1 1/2 to 2 weeks or longer in heavy soils.

Since a given amount of water will soak more deeply into sandy soils than into heavier soils, apply less water per application in sandy soils. Careful experimenting will indicate the schedule for a particular location and plant.

This rule of proper watering applies to established lawns also.

During particularly dry springs or summers, even large, healthy, well-established plants may need deep watering to prevent or lessen damage. Frequent light sprinkling is not desirable since it results in shallow rooting and may leave the soil dry below the 2- to 3-inch depth. Reduce waterings during late summer and early fall unless weather conditions dictate otherwise. Generally speaking, this will help the plants begin to harden for the cold fall and winter temperatures. For further information, see EB1090, Watering Home Gardens and Landscape Plants, at your county cooperative Extension office.

Fertilizing with a general-purpose fertilizer, such as 5-10-10, may be done in spring when the new growth begins, and again in June, but should not generally be done after mid to late July, since it may stimulate late growth which could be killed back over winter. Always be sure to water the fertilizer in well to avoid burning the feeder roots and further stressing the plant.

Do not overfertilize. Additional fertilizer applications between first spring growth and June may be made, if needed, but they should be light. Fertilizing after the first year of establishment or a year after weather damage may not be necessary unless the plants appear off-color or stunted. Further information on fertilizing can be found in EB1102, Soil Management in Yards and Gardens, and EB1034, Fertilizing Landscape Trees and Shrubs, available at your county Cooperative Extension office.

**Hormone-Type Herbicide Damage**

Hormone-type herbicides (weed killers commonly used against broadleaf weeds
in lawns) often are suspected of causing damage to nonweed plants. Such damage appears primarily as deformity of the leaves. Ornamentals, vegetables, and other kinds of plants are affected. Grapes are especially sensitive to these herbicides, as are tomatoes and beans. In some cases, the homeowner or grower has applied herbicide to a lawn area or other area near the affected plants, leaving little question as to the source of the herbicide. However, many times the homeowner has used neither a herbicide nor a contaminated spray tank, and the source of the herbicide has remained a mystery.

Remember, when using herbicides, carefully follow all label directions and precautions. Drift of the spray, or vaporization of the applied product and drift of the fumes onto desirable plants, can damage them. Application to lawns or other areas which are over roots of desirable plants can result in plant damage when the chemical is taken up by the roots. Do not use the same sprayer to apply herbicides and any other pesticide; herbicide residues may remain in the sprayer regardless of how thoroughly you rinse the sprayer.

Since these herbicides are systemic (taken into the plant), they will be found to some extent in the fruit, leaves, seeds, and other plant parts. This is important when edible plants or plant parts (tomato fruit, bean pods or seeds, potatoes, etc.) are involved. In such cases, the safest procedure is not to eat the produce of affected plants.

**Houseplant and Greenhouse Plant Problems**

Probably 95% or more of the problems on houseplants, whether in homes or in greenhouses, result from unsatisfactory growing conditions, and no fungi or other disease organisms are involved. Knowing the indoor or greenhouse environment required by the plants would go a long way toward eliminating many problems. For example, homes are usually low in humidity and light. Plants requiring high humidity may do best in the kitchen or bathroom. Plants requiring much light may do best near the southern or western windows of the house, but may still have problems in the dark winter months.

Take care not to sunburn the plants. Some plants will do well in direct sunlight but should be introduced to such light gradually. Other plants will not tolerate direct sunlight. Proper watering and pot drainage also are important. Check bookstores, public libraries, or other sources for books or articles containing specific information on the proper care of the houseplant in question.

**In Conclusion**

Under certain circumstances and with certain plants, parasitic diseases can cause serious problems. However, in the majority of cases, the cause of the plant problem is nonparasitic (caused by bad weather, poor growing conditions, etc.). Careful attention to the proper care of plants would prevent or correct the majority of plant problems for the home gardener and the commercial grower.

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