

What Killed this Tree? Site-Related Problems in the Landscape

Here are some questions to ask yourself when diagnosing plant problems in the landscape.

1. What is the name of the plant?

It is important to know the normal appearance and growth habit of a plant before attempting to diagnose problems as what may be perceived as a “problem” may actually be normal for the plant. Accurate plant identification is the first step in diagnosing plant problems.

Examples: Larch is a deciduous conifer and appears “dead” in winter. Bristlecone pine appears to have pine needle scale. White pines shed inner needles profusely in autumn. Sweetgum has corky ridges on its stems. Variegated cultivars often appear abnormal in color. Misdiagnosis of these “problems” can prove embarrassing.

2. What common pests affect the plant?

Most plants have a limited set of insect, mite, and disease pests that affect them. When diagnosing problems, it helps to know the signs and symptoms of these common pest problems. Penn State’s *Woody Ornamental Insect, Mite, and Disease Management Guide* (<http://woodypestguide.cas.psu.edu/>) outlines common pests of trees and shrubs. Cornell University’s two outstanding publications, *Insects that Feed on Trees and Shrubs* and *Diseases of Trees and Shrubs*, are referred to in the Penn State guide by page number, making it quick and easy to view color pictures of common pests if all three publications are available.

3. Does the plant have specific site requirements or intolerances?

While many plants tolerate a wide range of growing conditions, others do not. You will need to know the requirements of each species in order to diagnose a problem correctly.

Examples: Yews and Douglas fir are intolerant of wet sites. Rhododendron, pin oak, willow oak, most hollies, and many other plants require acidic soils. Some plants tolerate shade while others do not. Know the site preferences for the trees or shrubs in question. Many plant identification texts can help you determine site intolerances for specific plants.

4. How long has the plant been established on this site?

Dead or dying plants that have been established less than two years may be affected by problems relating to their establishment in the landscape, beginning with the quality of the plant before it reached the site. Improper digging, handling, planting, and post-transplant care are common plant killers.

Examples: Plants desiccated in transport; plants over- or under-watered in storage or after planting; plants dug with improper ball size; plants which are planted too deep in the nursery and/or the landscape.

5. Has there been recent construction, paving, grade change, or other disturbance(s) on the site?

Soil compaction and grade change reduces soil oxygen levels in the root zone. Tree roots can’t function without adequate levels of oxygen or the trees will decline and die. Furthermore, decline may not actually occur until

several years after the construction activity, making it difficult to diagnose the problem.

6. What's happening where the plant stem meets the soil?

This is where you'll find girdling twine, rodent injury, girdling roots, mechanical injury, plastic burlap, graft incompatibility, improper planting depth signs, plastic pots still around the root ball, etc.

7. Is the site extremely wet for any extended periods during the year?

Some sites are inherently too wet for certain landscape plants. Be aware of changing soil-water relations around plants due to construction, water diversion, broken rain spouting, etc.

8. Were herbicides applied recently?

Herbicides used in normal turf and landscape management rarely kill landscape plants. The ability of an herbicide to cause landscape plant injury will vary depending on its mode of action, the plants involved, and many other factors. Most herbicides cause distinct plant injury symptoms while others will cause a range of symptoms that vary with the plant species involved. Don't blame herbicides for plant injury merely because you can't establish a proper explanation for the site-related problem. Herbicides are unlikely to injure individual plants in the landscape, so if symptoms are confined to one plant but surrounding plants are healthy, consider another diagnosis.

9. Were there recent, unusual weather conditions?

Low temperature, late spring freezes, high winds, hail, drought, and excessive rainfall all affect plant growth. Weather conditions such as these are a convenient explanation when no other explanation is obvious and are sometimes inaccurately used when the diagnostician is stumped. On the other hand, don't underestimate the impact of extremes in weather, the effects of which may not be evident until a year or more after the stress has occurred.

10. Does the landscape have adequate soil resources to support plant growth?

New construction sites often leave just a veneer of soil over cinder blocks, rubble, mounds of tree stumps, plaster board, rocks, asphalt, etc. Unfortunately, you may never determine that this is the problem unless your postmortem includes the use of a backhoe to reveal what is going on underground.

11. Has there been any other unusual activity that may have affected tree, shrub and turf health?

This list can be endless. Stay alert and observant for the unusual. Knowledge about the site history is often essential in diagnosing a current condition.

Examples: a gas grill was used under the lilac; piles of de-icing salted snow remained in the shrub beds all winter; the dog never strayed more than 10 feet from the porch all winter; fertilizer was left to deteriorate in bags under trees in the landscape; the caterer dumped leftover ice cubes and/or hot coffee in the turf and beds weekly, gas leaks, etc.

Diagnosing plant problems is not easy. . . .

Be ready to admit that sometimes you just don't have enough information to diagnose the problem. Trees, shrubs, and turf grasses, like other living things, often succumb to an accumulation of stresses rather than a single factor. This makes diagnosis difficult and sometimes impossible.

Experience and judgment come into play. For instance, cedar apple rust and aphids are frequently found on crabapples each year, however, plant killers are not. The diagnostician must be able to discriminate among his/her observations before drawing conclusions.

On the other hand, sometimes we fail to look closely enough to gather the information needed to diagnose the problem. Plant problems are rarely diagnosed accurately from the seat of the truck; it's often a "hands and knees" operation that yields the most conclusive results.

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