

## PEST & DISEASE DIAGNOSIS

*Insects and disease can threaten the health of your trees. If you notice any abnormality in your tree's health, they should be examined promptly. By identifying the symptoms and understanding their causes, BTS will (in most cases) be able to diagnose the problem and select an appropriate treatment.*

### **Diagnosis**

*Correct diagnosis of plant health problems requires a careful examination of the situation.*

- ~ **Accurately identify the plant.** Because many insects and diseases are plant-specific, this information can quickly limit the number of suspected diseases and disorders.
- ~ **Look for a pattern of abnormality.** It may be helpful to compare the affected plant with other plants on the property. Differences in color or growth may offer clues to the problem. Non-uniform damage may indicate insects or diseases. Uniform damage can indicate disorders caused by physical injury, poor drainage, or weather.
- ~ **Carefully examine the landscape.** The history of the property and adjacent land may reveal problems. The number of species affected may also distinguish between various factors. Most living pathogens spread slowly. If a large percentage of plants become diseased virtually overnight, a pathogen is probably not involved.
- ~ **Examine the roots.** Note their color - brown roots indicate dry soil conditions or the presence of toxic chemicals. Black roots reflect overly wet soil or the presence of root-rotting organisms.
- ~ **Check the trunk and branches.** Examine the trunk for wounds that provide avenues for disease. Large defects may indicate a potential hazard.
- ~ **Note the position and appearance of leaves.** Dead leaves at the top of a tree can be caused by environmental or mechanical root stress. Mis-shapen leaves may indicate viral infection, insect feeding, or exposure to herbicides. The size and color of the foliage may also tell a great deal about the plant's condition.



### **Stress**

*Environmental stress weakens plants and makes them more susceptible to insect and disease attack.*

Basic elements that influence plant health include sufficient water, light, and a proper balance of nutrients. Too much or too little of any of these environmental conditions may cause plant stress.

Trees deal with shading and competition for water and nutrients by adjusting their growth patterns to reflect the availability of resources. Although trees adapt to living in stressful conditions, many times the stress they experience is more than they can handle which makes them more susceptible to insects and diseases.



### **Diseases**

Three things are required for disease to develop: the presence of a pathogen; plant susceptibility to that pathogen; and an environment suitable for the development of that pathogen. Plants vary in susceptibility to pathogens. Many disease-prevention programs focus on the use of pathogen-resistant plant varieties. Diseases can be classified as being caused by either infectious or non-infectious agents. Infectious agents include fungi, viruses, and bacteria. Non-infectious agents include nutrient deficiencies, temperature extremes, vandalism, pollutants and moisture levels.

### **Insects**

Some insects can cause injury and damage to trees and shrubs. By defoliating trees or sucking their sap, insects can retard plant growth. By boring into the trunk and branches, they interfere with sap flow and weaken tree structure.

Insects may also carry some plant diseases. The insect problem however, is secondary to problems brought on by stress disorders or pathogens.

Most insects are beneficial rather than destructive and may be divided into three categories based on their method of feeding: chewing, sucking, and boring. Chewing insects eat plant tissue such as leaves, flowers, buds, and twigs. Sucking insects insert their beaks into the tissue of leaves, twigs, branches, or fruit then feed on the juices. Boring insects feed beneath the tree bark as larvae. Some borers kill twigs as adults when feeding or as eggs hatch and develop.

Treatment will depend on insect species, the extent of the problem, and a variety of other factors. Consult Biota Tech Services, Inc. if you have any doubt about the problem or proper treatment.

*~ Some Text Referenced from ISA Journals & Periodicals.*