

TREE DISEASES ON GOLF COURSES

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Tree diseases is a subject of such vast scope that a thick text book would be required to cover the subject adequately. Dozens of tree genera and literally hundreds of diseases would need coverage. What I would like to do is make a brief overview of the more common tree diseases that I have seen on courses in the Detroit area. Included will be a few insect, cultural and physiological problems commonly mistaken for diseases. For ease of discussion, I have taken the liberty of placing the diseases in the following categories.

1. Wilt Diseases - those diseases that infect the conductive tissue and become systemic.
2. Canker Diseases - those diseases that infect the woody tissue, but are not systemic.
3. Leaf Diseases - those diseases that primarily infect the leaves.
4. Bacterial Diseases - those diseases caused by bacteria rather than fungi.
5. Non-Parasitic Diseases - those injuries not caused by pathogenic organisms.

Wilt Diseases

Dutch Elm Disease is probably the most well known wilt disease. Diagnostic symptoms include a flagging or yellow wilting of the foliage usually on the terminals of upper branches. Infected wood shows an olive-black discoloration of the sapwood. The fungus is transmitted by bark beetles and root grafts and the disease is quickly fatal. Control measures include spraying to control bark beetles, severing root grafts, and spraying or injecting benomyl.

Verticillium Wilt - This vascular disease attacks a wide range of plant material including maples, Russian olive and barberry. Not always fatal. No control but rapid growing plants can resist infection. Discoloration of the sapwood is present.

Oak Wilt - Another similar disease that presently is not a problem in southeastern Michigan. Oak is declining rapidly and should be checked for other problems, particularly root rot.

Canker Diseases

Cytospora Canker - This disease attacks a wide range of plant material. Frequently weakened plants are infected. As the infection spreads through the woody tissue, girdling and death can result. No control except to remove infected tissue and give good cultural care.

Crown Canker of Dogwood - An example of a canker disease that enters through injury.

Phomopsis Twig Blight - A common problem on junipers, particularly Arborvita's, that is confused with winter injury. Infection points on the branches causes blighting of terminals. Benomyl or bordeaux applied in the spring offer effective control.

Sycamore Anthracnose - This disease is most known for its blighting of sycamore foliage in the spring. However, this disease overwinters in twig cankers that can cause a witches broom effect. Bordeaux sprays starting at bud swell give effective control.

Leaf Diseases

Apple Scab - Leaf infection on mountain ash and flower crabapples is the primary concern. Severe infection can result in defoliation. Occasionally infection of the fruit can be a problem. Sprays of Captan or benomyl give good control. Resistant crabapple varieties are available.

Leaf Spot of Hawthorn - A disease similar to apple scab. Avoid planting Paul's Scarlet Hawthorn.

Cedar Apple Rust - Orange lesions on the leaves of crabapples and hawthorn are characteristic of this disease. Sprays of ferbam or sulfur offer good protection. The alternate host for this fungus is the red cedar where orange gelatinous spore bodies are produced in the spring. Acti-dione sprays on the juniper also offer control. Elimination of nearby red cedars will give control where this is practical.

Sooty Mold - A black sticky appearance of the foliage makes this problem easy to identify. This is not a pathogenic fungus. The sooty mold fungus is living on the sticky honeydew excreted by sucking type insects. Control of the insects will control the problem.

Powdery Mildew - Powdery mildew is commonly a problem on crabapples and lilacs. Karathane or benomyl give good control.

Bacterial Diseases

Fireblight - Fireblight is probably the best known bacterial disease. Plants frequently attacked include pear, apple, firethorn and barberry. Usually branch terminals develop a blackened appearance as if burned. A characteristic shepards crook may also develop in the dead tissue. Infected branches should be pruned out well below the dead tissue with tools disinfected between cuts. Bordeaux or Ag-Streptomycin sprays in the spring are helpful. Other fungicides are of no value since they are not effective against this bacteria.

Crown Gall - This bacterial disease primarily infects the root system where it stimulates the formation of galls. Plant vigor is reduced. No good chemical control is available. Avoid planting plants showing the symptoms of crown gall. Replant with resistant plants.

Non-Parasitic Diseases

Chemical Injury - Salt and herbicide damage are the two most common forms of chemical injury observed. Salt damage is shown by poor growth and leaf burn. Using salt tolerant plants plus care in salting and snow removal are the best precautions. Herbicide injury is usually indicated by distorted growth or unusually foliar burn. Careful application and herbicide selection are required to prevent injury.

Chlorosis of Pin Oak - This is an iron deficiency problem, aggravated by a high soil pH. The use of iron chelates as sprays or injections is beneficial. Avoid planting pin oaks in problem areas.

Leaf Scorch - Trees under stress commonly develop a marginal burning of the leaves. This is the result of moisture demand by the leaves that is greater than the roots can supply. Trees experiencing environmental stress, such as restricted roots or intense reflected heat radiation are usually affected. Scorch can also be caused by root and trunk diseases. Fertilization and watering are beneficial.

In summary, this was just a brief overview of the more common tree diseases. Diagnosing diseases is sometimes easy and sometimes extremely difficult. Be sure to consider all the possibilities with a thorough inspection, including the environment before making a decision. When you are in doubt, contact your local Extension Agent for assistance.