

WATER MOLD FUNGI IN THE LANDSCAPE

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The past few wet, cool springs, have resulted in more problems caused by water mold fungi – a group of disease causing organisms which thrive under wet soil conditions. Scientifically, two main genera of water mold fungi are commonly isolated from diseased root and crown tissues: *Pythium* and *Phytophthora*. While these fungi are prevalent in most soils, they typically do not always cause disease in landscape plants because the natural resistance of plants is usually strong enough to resist attack. However, wet soils in cool conditions can predispose plants to infection by root rot disease. On heavier textured soils which cannot readily drain, the air required by root systems is displaced by water resulting in unfavorable root health conditions.

Both *Pythium* and *Phytophthora* are capable of causing root, crown and stem rot on landscape plants. Young, tender seedlings when infected will "damp off." Because root function (when diseased) is reduced, water and nutrient uptake are limited. As with many root diseases, the first above-ground symptoms of a water mold fungus infection often include starvation (chlorosis) and drought (wilting). Leaves may wilt and turn brown or defoliate. Unusually small leaves and sparse growth is a common symptom on woody plants. Twigs and branches start to die back from the tips in the advanced stages of the disease. Plants also become weakened and susceptible to attack by other disease and pest organisms.

Pythium and *Phytophthora* species cause decline from root rot worldwide whenever the soil becomes too wet for normal growth of susceptible plants and temperatures remain between 55-70 degrees Fahrenheit. The fungus overwinters in infected roots or in the soil as either spores or vegetative growth. In the spring, *Pythium* and *Phytophthora* swimming spores are released which move through the soil water and infect roots of susceptible plants that they contact. These swimming spores are produced during periods of cool, wet weather. During periods of unfavorable environmental conditions for the fungus, resting structures are formed which can start infections once the soil is wet and temperatures are favorable.

Preventative Control: Good Drainage at Planting

During landscape construction, there are frequently areas adjacent to buildings which may be severely compacted by heavy equipment or vehicular/foot traffic. Prior to planting, determine if there is adequate subsurface drainage to remove water from the active root zones of intended plantings. Deep tilling procedures or cross-ripping to a twelve inch minimum depth on two foot centers can frequently provide the degree of compaction breakup required to assist in removal of excess root zone moisture. For soils which are naturally heavy textured and/or which may have deeper impermeable soil layers, it may be necessary to prepare planting sites in greater detail.

After Planting

After planting, careful irrigation management should be practiced to ensure that root zones do not remain saturated for long periods of time. Frequently, problems can arise when relying on an automated irrigation system without taking into account the impact of additional rainfall. It is sometimes more prudent to rely upon visual inspection of root zone soil moisture conditions and to manually irrigate young landscape plantings, particularly during early spring installations when rainfall can have a significant impact on increasing the incidence of water mold root rot fungi.

There are a number of fungicides registered for use in suppressing water mold root rot activity. It should be noted, however, that fungicides alone will not solve the problem. Maintaining drier soils between thorough irrigations will greatly assist in improving root health and development, increasing plant resistance, and creating conditions less favorable for the incidence and spread of water mold fungi.