

Root Rots in the Garden

Brian Hudelson, UW-Madison Plant Pathology and Laura Jull, UW-Madison Horticulture

What is root rot? Root rot is a general term that describes any disease where the pathogen (causal organism) attacks and leads to the deterioration of a plant's root system. Most plants are susceptible to root rots, including both woody and herbaceous ornamentals. Root rots can be chronic diseases or, more commonly, are acute and can lead to the death of the plant.

How do you know if your plant has a root rot? Gardeners often become aware of root rot problems when they see above ground symptoms of the disease. Plants with root rot are often stunted or wilted, and may have leaves with a yellow or red color, suggesting a nutrient deficiency.



Brown discoloration of roots typical of root rots.

Examination of the roots of these plants reveals tissue that is soft and brown.

Where does root rot come from? A large number of soil-borne fungi cause root rots. *Pythium* spp., *Phytophthora* spp., *Rhizoctonia solani*, and *Fusarium* spp. are the most common root rot fungi. These fungi have wide host ranges, and thus can cause root rots on a wide variety of plants. Most root rot fungi prefer wet soil conditions and some, such as *Pythium* and *Phytophthora*, produce spores that can survive for long periods in soil.

How do I save a plant with root rot? **REDUCE SOIL MOISTURE!** Provide enough water to fulfill a plant's growth needs and prevent drought stress, but **DO NOT** over-water. Remove excess mulch (> 3 in.) that can lead to overly wet soils. Chemical fungicides (PCNB, mefenoxam, metalaxyl, etridiazole, thiophanate-methyl and propiconazole) and biological control agents (*Gliocladium*, *Streptomyces*, and *Trichoderma*) are labeled for root

rot control. However, **DO NOT** use these products unless you know **exactly** which root rot pathogen is affecting your plants. Contact your county Extension agent for details on obtaining an accurate root rot diagnosis and for advice on which, if any, fungicides you should consider using.

How do I avoid problems with root rots? Buy plants from a reputable source and make sure they are root rot-free prior to purchase. Establish healthy plants in a well-drained site. Moderate soil moisture. Add organic material (e.g., leaf litter or compost) to heavy soils to increase soil drainage. **DO NOT** over-water. Provide just enough water to fulfill the plants' needs for growth and prevent drought stress. Also, **DO NOT** apply more than three inches of mulch in flowerbeds. **REMEMBER**, root rot fungi grow and reproduce best in wet soils. Finally, minimize movement of root rot fungi in your garden. **DO NOT** move soil or plants from areas with root rot problems. **DO NOT** water plants with water contaminated with soil (and thus potentially with root rot fungi). After working with plants with root rot problems, disinfect tools and footwear with a 10% bleach or detergent solution, or alcohol.

For more information on root rots: Contact your county Extension agent: