Santa Cruz County Farm Bureau Ask Laura Newsletter Column

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Phytophthora Crown and Root Rot

Question: Are there nursery diseases that are more common during or following a wet winter and spring?

Answer: *Phytophthora* are worldwide-recognized plant pathogenic microorganisms, many of which cause root and collar rot diseases and complete their lifecycle in the presence of water. *Phytophthora* release swimming spores that move through water and are attracted to plant root exudates. Once susceptible plant roots are infected, the pathogen can cause root rot, and disease can spread further into the stems. Leaves can be smaller than normal and have chlorosis or interveinal chlorosis. Wilting can occur even with adequate soil moisture. When *Phytophthora* infects at or develops into the root crown near the soil line, the disease is described as a "crown rot." Often at this stage, leaves may droop, and the plant dies. Cutting just under the bark at or just above the soil line may reveal dead inner bark tissue. The dead tissue may be reddish brown, brown, or black and will differ from healthy tissue, which can be white, green, or pink depending on the type of plant or tissue.

Root balls must be examined by carefully removing the pot to expose the roots. Sometimes gently shaking, or washing the soil mix from the outer portion of the rootball, can allow for a better examination. Diseased roots can be reddish brown to dark brown while healthy roots are often white to tan, depending on the plant species. Feeder roots can be rotted away, and heavier roots can be discolored. Fleshy roots of some plant species can be brown, water-soaked and flaccid. They may also be brittle, thin and rotted inside, while healthy roots are often turgid and crisp.

Figure 1F. Diplacus aurantiacus 'Trish' showing above ground symptoms because of various degrees of Phytophthora root rot (infected with Phytophthora cryptogea). Photo: S. Tjosvold.

Figure 2 Diplacus aurantiacus (Sticky monkeyflower) with Phytophthora root rot (infected with Phytophthora cryptogea). All fine feeder roots are infected and necrotic. Phytophthora has not killed larger roots yet. Photo: S. Tjosvold.