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Perspective

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Blight and fruit rot disease in crops

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DESCRIPTION

The oomycete plant pathogen *Phytophthora capsici* causes blight and fruit rot in peppers and other key commercial crops. The disease can quickly spread through water, contaminating irrigation ponds and creeks. It is now one of the most damaging diseases of solanaceous and cucurbit crops, especially winter squash and peppers, and can result in complete crop loss. Long-lived spores, known as oospores, are produced by the pathogen and can persist in the soil for up to ten years. When the weather is hot and humid, the disease spreads quickly by the formation of sporangia which is a different type of spore.

Symptoms

Phytophthora blight of peppers can infect the roots, stems, leaves, or fruit, depending on the stage of the plant. The little roots die, and the larger roots develop brown-black sores. Plants wilt and lose their top leaves. Near the soil line, roots and stems will appear water-soaked, dark brown in colour, and mushy. Plants or vines can suddenly collapse. When rain and overhead irrigation splash diseased soil onto budding pepper fruits, they might become infected. Water-soaked patches of fruit rot eventually become covered with white powdery or cottony mold. Zoospores disseminated by splashing water can also infect pepper leaves, causing lesions identical to those seen on fruit. Crown blight is the most prevalent ailment in peppers.

Life cycle

When there is extra soil moisture and warm, wet weather, the fungus can infect peppers and other crops at any stage of growth.

The fungus survives the winter as thick-walled oospores in the soil. In the soil, *Phytophthora* can be found as oospores (sexual overwintering spores), sporangia (special structures that can either germinate directly or create zoospores), chlamydospores (resistant to desiccation, thick-walled mycelium cells), or mycelium. *P. capsici* produces sporangia, which are structures that contain asexual, swimming zoospores that are released into saturated soil. Living plant components in the soil and on the soil surface attract zoospores, which swim toward them. Zoospores can germinate and infect any plant part in the soil (roots, crowns), or *via* splashing water once they find a host plant (leaves, fruit).

Disease control

Plant disease-resistant cultivars are used. *P. capsici* resistance is modest in several bell, sweet, and spicy peppers. Plants in a field with good drainage and even in the terrains, standing water do not accumulate for long periods of time. Keep illness out of the productive fields. For at least three years, rotate your crops with crops other than tomatoes, eggplants, and cucurbits. When possible, use raised beds with plastic mulch. After working in an affected field, disinfect farm equipment. Flood-prone low-lying locations should be avoided. Fungicide use varies based on the crop and, in some situations, the environment. Take care not to overwater. Check the irrigation system for leaks on a regular basis and fix them. Keep cull heaps away from non-infested fields and sources of surface irrigation. Use non-susceptible crops in your rotation.