

Plant Disease Notes

Fusarium Surface Rot and Fusarium Root Rot

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Fusarium surface rot and Fusarium root rot are caused by the fungus *Fusarium*. Fusarium surface rot is common on roots stored for any length of time after harvest. Fusarium root rot is a serious disease of sweet potatoes in the Southeast.

Symptoms. Surface rot occasionally occurs before harvest on roots that have been mechanically injured, split by growth cracks, or damaged by nematodes, insects, or other soil pests. Lesions on fleshy roots are circular, light to dark brown, firm, and dry. Decay remains shallow, usually not extending beyond the roots' vascular ring. Externally, lesions appear solid brown and are often centered on a broken rootlet. When infected roots are stored for an extended period, the tissue around the lesions dries and becomes shrunken, and the root eventually becomes hard and mummified.

Fusarium root rot may be difficult to distinguish from Fusarium surface rot by external symptoms. In some cases, surface rot may be an early stage of the more aggressive root rot. Root rot lesions are circular and commonly exhibit light and dark brown concentric rings. Internal rotting extends beyond the vascular area in to the center of the root and may eventually effect the entire

root. This pattern distinguishes root rot from surface rot. The tissue near the advancing margins of these lesions varies from orange to light brown and is more spongy and moist than either healthy tissue or older lesion tissue. Older lesion tissue is dark brown, dry, spongy, and occurs in oval-shaped cavities near the root surface. These cavities often have white fungal growth on their inner surface. As the lesions grow, the infected tissue shrinks, dries up, and eventually mummifies.

Frequently, rot begins at the ends of the storage root, a phase known as Fusarium end rot. Another phase, Fusarium stem canker, occurs on the sprouts of infected mother roots in plant beds. In this phase, a dark brown to black decay begins at the base of the sprout, and progresses up the stem.

Persistence and Transmission. Species of *Fusarium* that cause surface rot and root rot can persist in soil for many years. Infection in the field may occur through rootlets or growth cracks. More commonly, however, roots contaminated with the fungus are invaded through wounds that occur during harvest. Surface rot or root rot that develops during storage spreads to other stored roots only when new wounds are made.

Surface rot is prevalent when sweet potatoes are mechanically harvested, when soil is wet and cold at harvest or excessively dry before harvest (causing increased skinning of sweet potatoes), when sweet potatoes are exposed to high or low temperatures for extended periods after digging and before curing, or when conditions are favorable for desiccation of wounded tissue.

Control. Fusarium surface rot and root rot can be controlled by the following strategies:

- To reduce Fusarium root rot, control surface rot.
- Use sanitary practices and properly handle harvested roots. These are the most effective control procedures for both pathogens.

- Minimize injury during harvesting and handling, especially if the crop is lifted from wet soil.

- Cure roots immediately after harvest.

- Reduce surface rot in the field by controlling root-knot nematodes and insects that can rupture the skin of sweet potatoes.

- Reduce spread of Fusarium root rot to sprouts in transplant beds by planting disease-free roots treated with fungicides.

- To avoid transporting the stem canker phase of Fusarium to the field, cut transplants above the soil line.



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Use chemicals only according to the directions on the label. Follow all directions, precautions, and restrictions that are listed.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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