



# Symptom Identification of Pecan Phymatotrichopsis Root Rot (PRR)

Jiahuai Hu

## PRR Facts

- Commonly known as cotton root rot or Texas root rot.
- PRR is caused by the soilborne fungus *Phymatotrichopsis omnivora*.
- PRR is geographically limited to the southwest and parts of the south central US and northern Mexico.
- The fungus persists as sclerotia (1 to 5 mm in diameter) and mycelial strands (rhizomorph) for decades in the soil, in particular calcareous clay soils (pH range of 7 to 8.5).
- The fungus forms spore mats (white to tan in color and 2 to 16 inches in diameter) on the soil surface during warm, rainy weather. The spores are sterile.
- Spread directly to adjacent plants by fungal strands that grow through the soil. Affected areas often appear as circular patterns of dead trees.
- All pecan varieties are susceptible. PRR affects over 2,000 species of dicots (broadleaf plants), but does not affect monocots (grasses).
- Delayed bud break in spring.
- Water-stress related leaf symptoms including slight yellowing or scorching of the leaves. These symptoms may progress rapidly to severe yellowing and scorching.
- Severe defoliation and twig dieback in the center of canopy, sparse or see-through canopy.
- Trees with advanced PRR infection often wilt and die suddenly with brown leaves remained firmly attached to the tree.

## Root Symptoms

- Necrotic lesions underneath the outer layer of roots.
- Severely decayed root with bark readily sloughed off.
- Woolly strands of the fungus are often visible on the decayed root surface.

## Management

Refer to Extension Publication AZ1771-2018 that can be found at <https://extension.arizona.edu/pubs/phymatotrichopsis-root-rot-pecan>.

## Tree Canopy Symptoms

- Symptom expression depends on pecan variety, tree age, and the degree of root damages caused by the fungus. PRR-affected trees may remain asymptomatic appearance for a period of time.



Early spring sudden tree death with leaves remained firmly attached to the tree



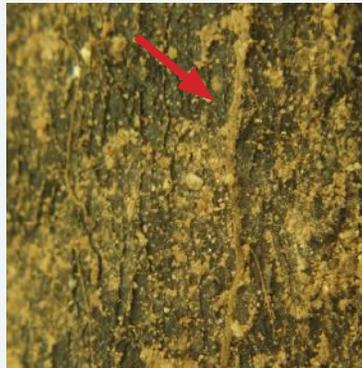
Mid-season sudden tree death



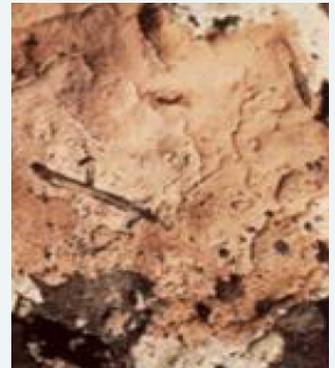
Necrotic lesions on root bark



Decayed roots with bark readily sloughed-off



Bronze colored woolly strands of the fungus



Spore mat



Overnight tree death with wilting and bronzing leaves



Tree death after bud break



Rapid death of one branch, while the other branch remained green



Yellowing of leaves on PRR affected young tree



Leaf scorching



Defoliation and sparse canopy



Defoliation of one branch, while the other branch remained green



Defoliation of the entire tree



Completely defoliated and then new leaves regrew in mid-summer



Leaves wilt and die after bud break and blooming early spring



PRR affected trees (front center ) leafed out at least two weeks later than healthy trees (background) in early spring



Severe yellowing and scorching of leaves as well as defoliation



Dead mature trees with brown leaves remained firmly attached to the tree



Irregular shape of PRR affect areas



Circular pattern of PRR affected area



Two adjacent circles of PRR affected areas



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**Cooperative Extension**

**THE UNIVERSITY OF ARIZONA**  
**COLLEGE OF AGRICULTURE AND LIFE SCIENCES**  
**TUCSON, ARIZONA 85721**

**DR. JIAHUAI HU**

*Assistant Cooperative Extension Specialist and Plant Pathologist,  
School of Plant Sciences*

**CONTACT:**  
**JIAHUAI HU**

**[epp@email.arizona.edu](mailto:epp@email.arizona.edu)**

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