



Types of fungal diseases in pecans

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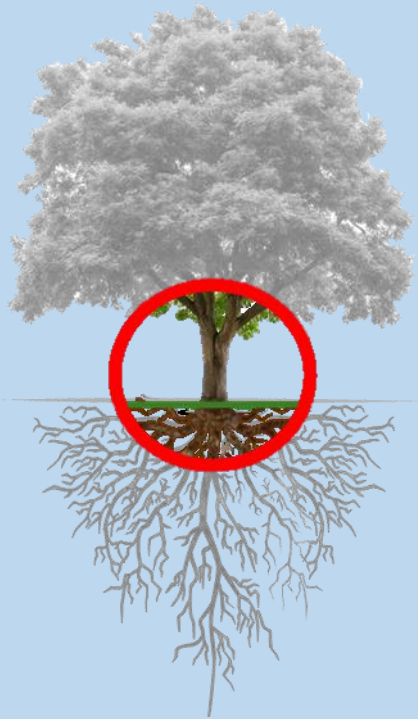
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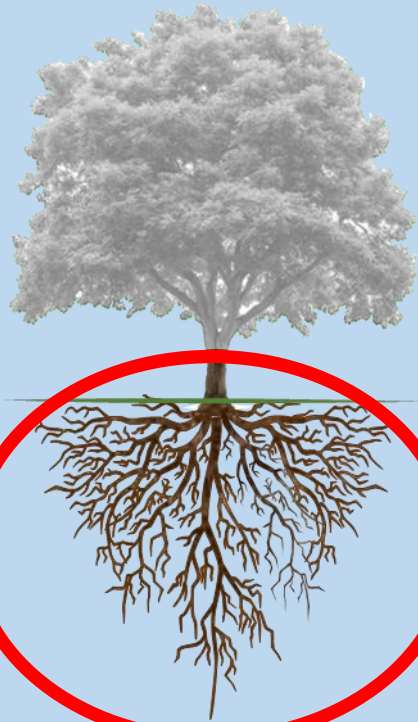
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Categories of fungal plant pathogens in pecans

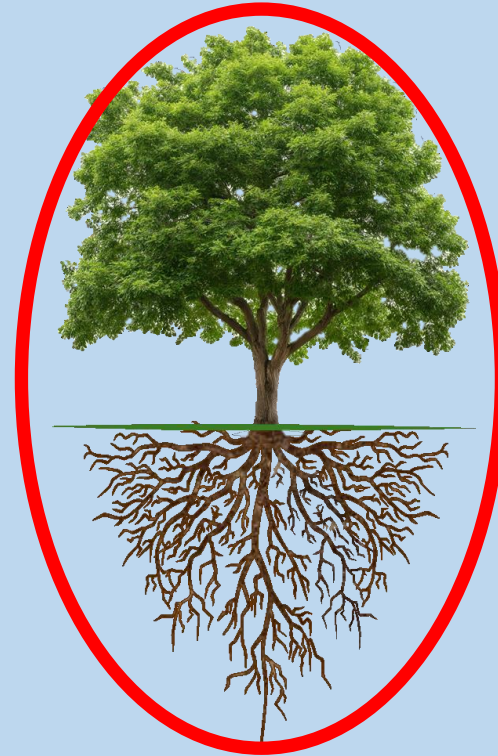
Stem diseases



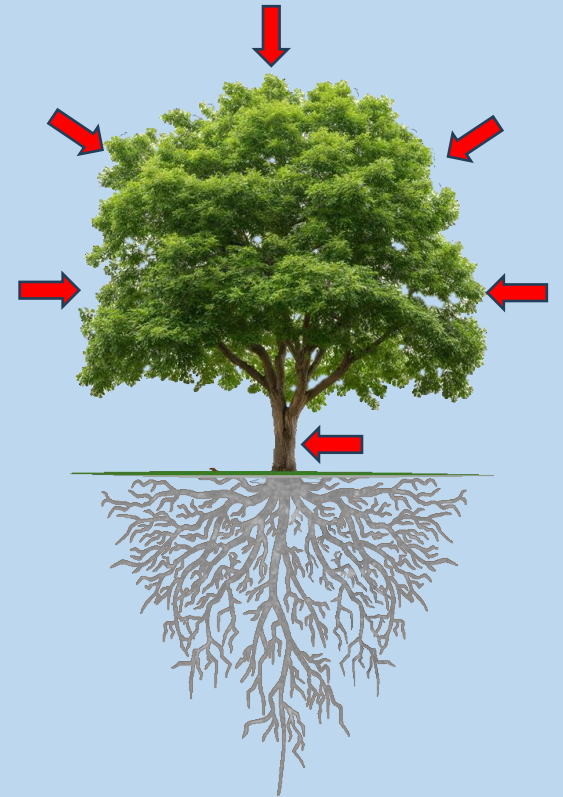
Root diseases



Endophytic pathogens

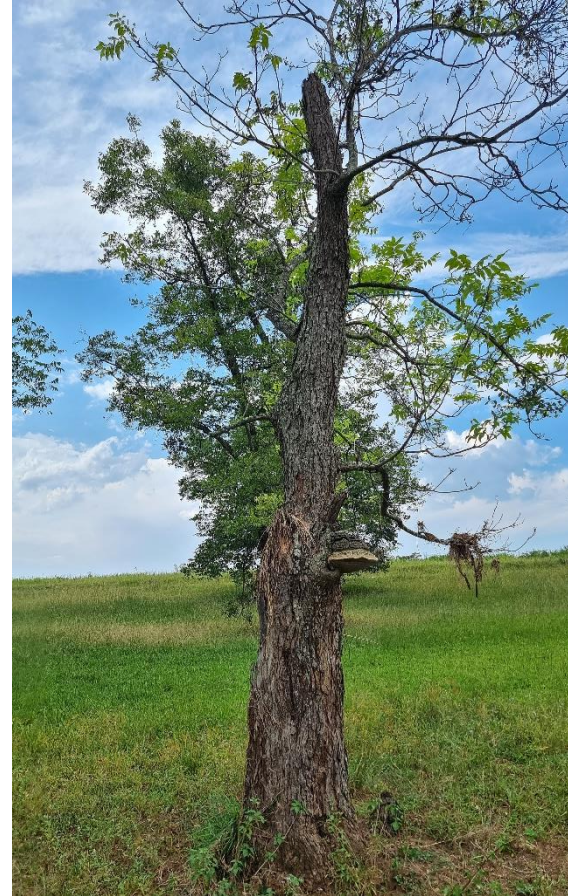
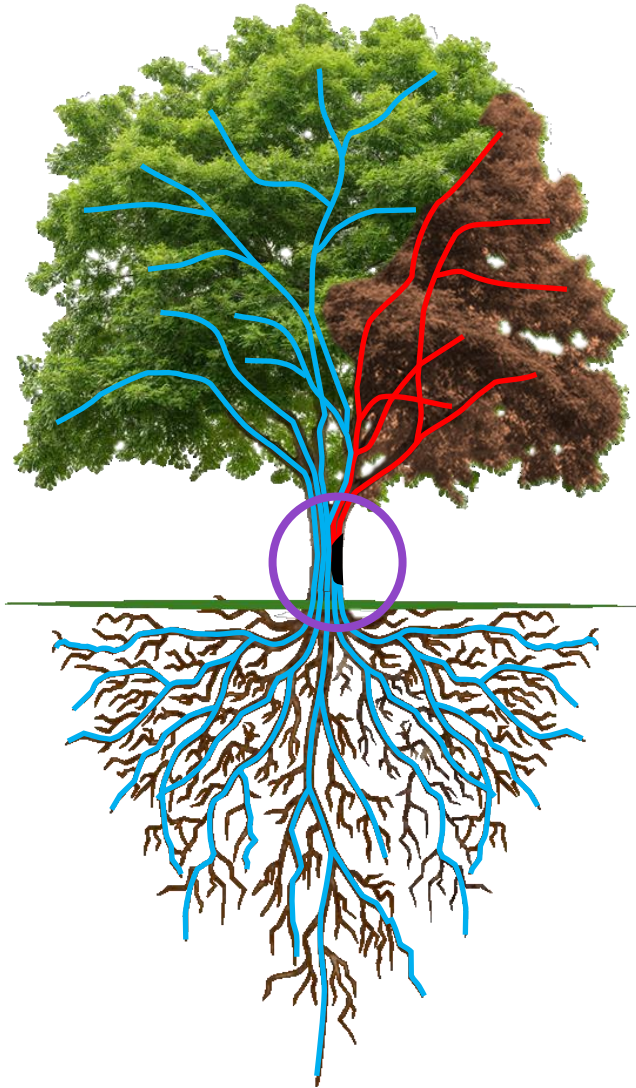


External pathogens

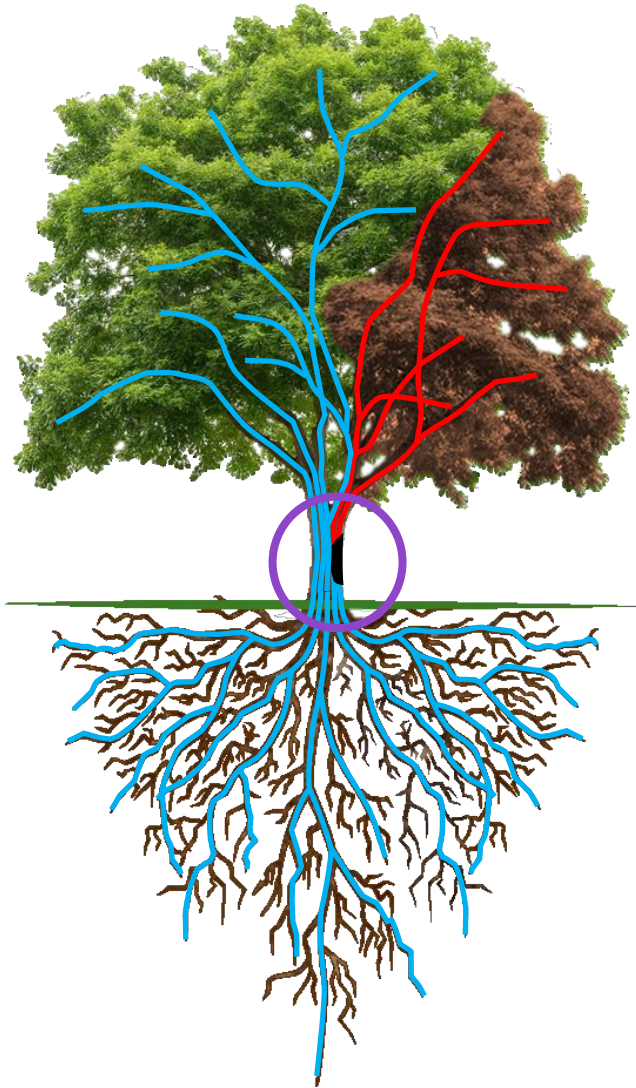


Pathogens causing stem diseases

Phellinus rimosus (trunk rot)



Pathogens causing stem diseases



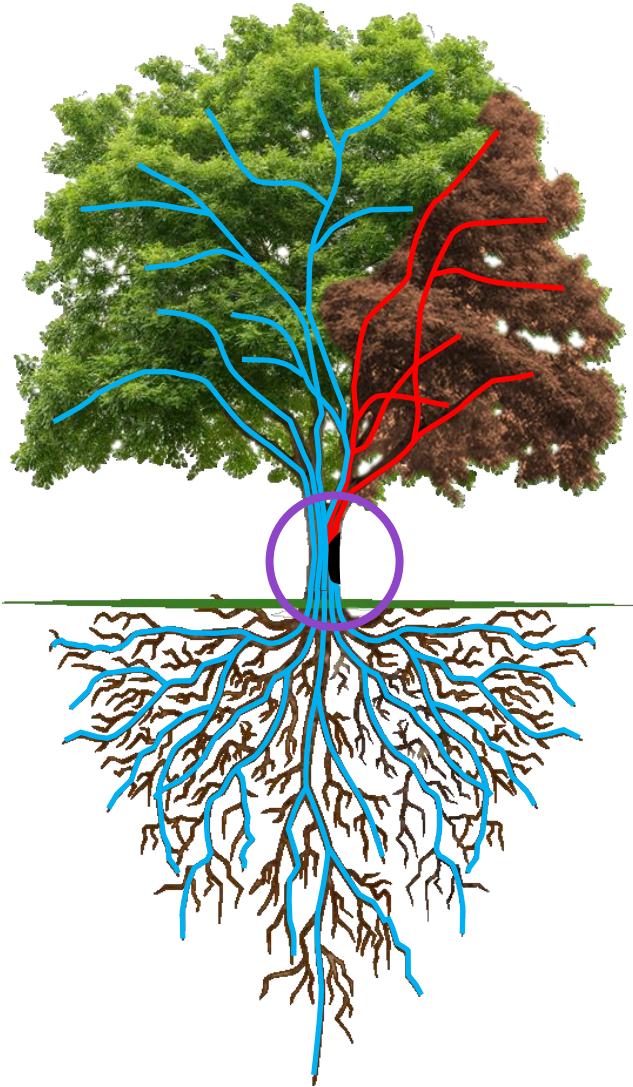
Phellinus rimosus (trunk rot)



- Spores settle on exposed wood from injuries or natural openings, such as branch scars or wounds caused by pruning, storms, or insects.
- Wind and insects can contribute to spore dispersal.

Pathogens causing stem diseases

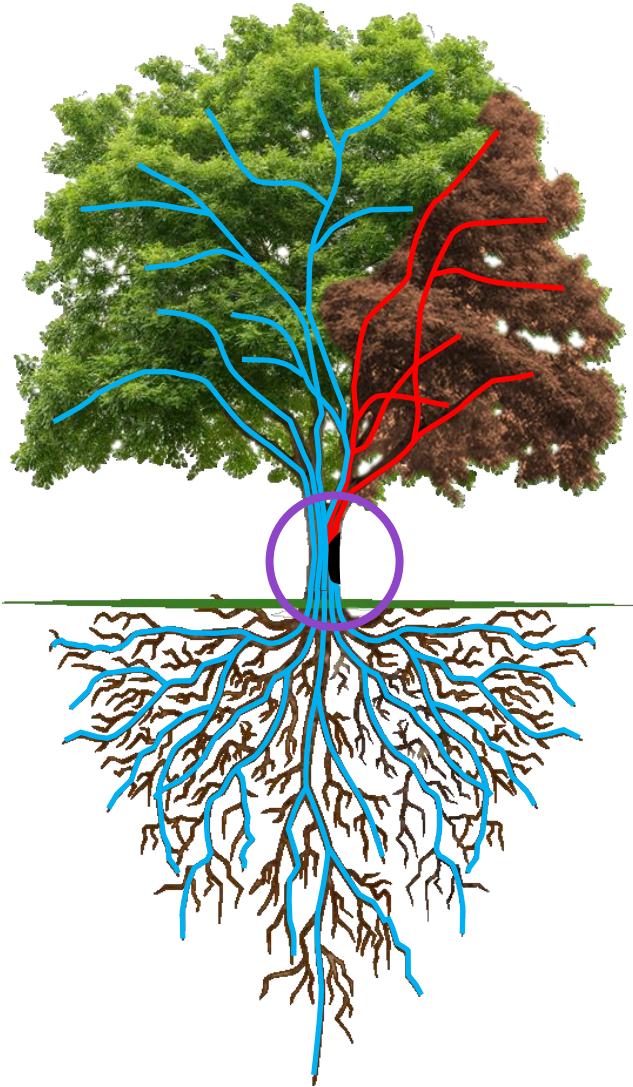
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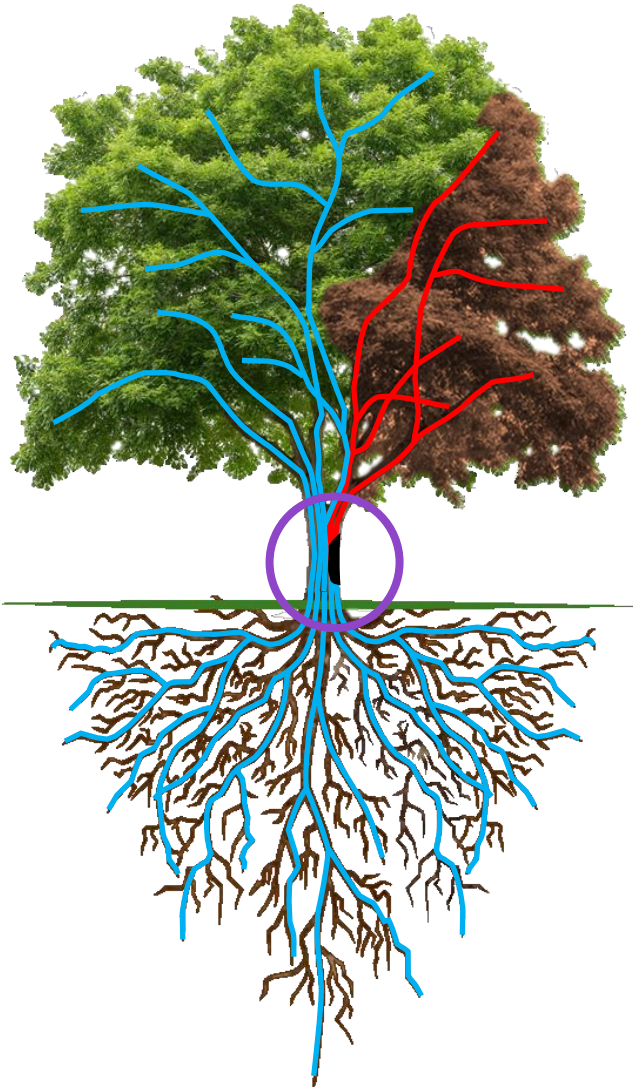
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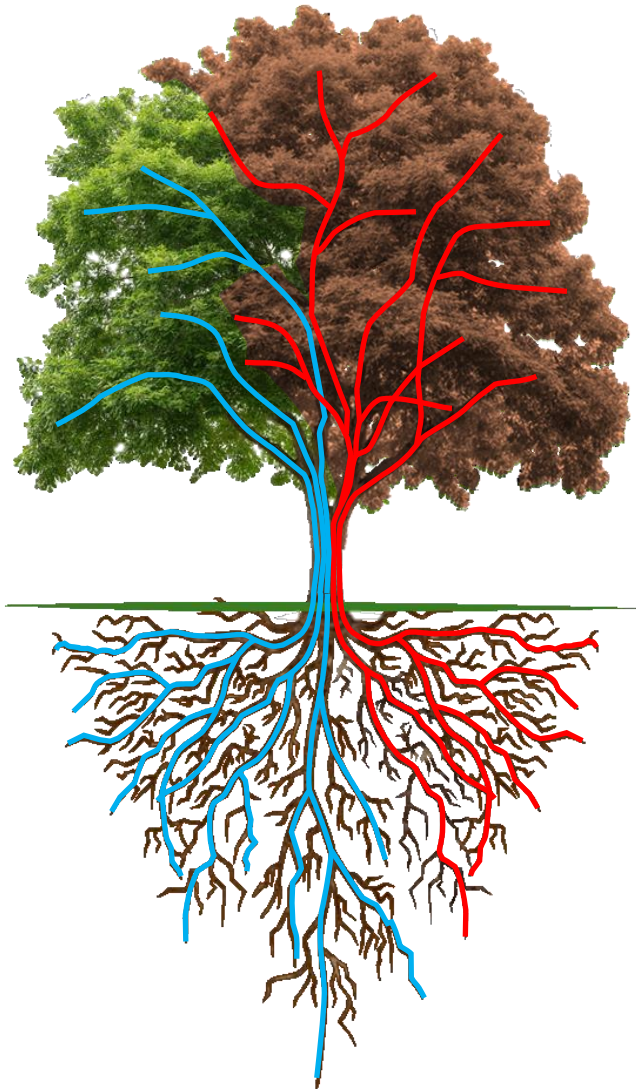
Pathogens causing stem diseases

Schizophyllum commune (trunk rot)



- It is an opportunistic pathogen, infects weakened or injured trees.
- It needs natural wounds (branches breaking off) or injuries caused by animals, insects, or human activity.

Pathogens causing root diseases

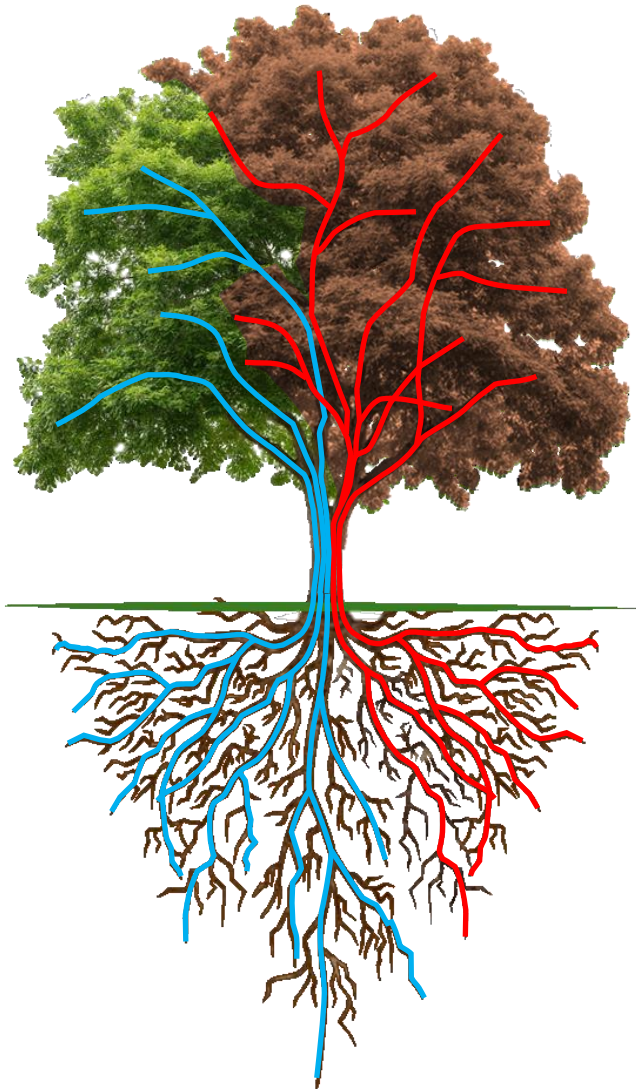


Ganoderma (root and basal rot)



- *Ganoderma* penetrates the tree through open wounds on the roots or at the base.
- Wounds are normally caused by lawnmowers, pruning cuts, insect activity or storms.
- Break down lignin, causing soft rot.

Pathogens causing root diseases



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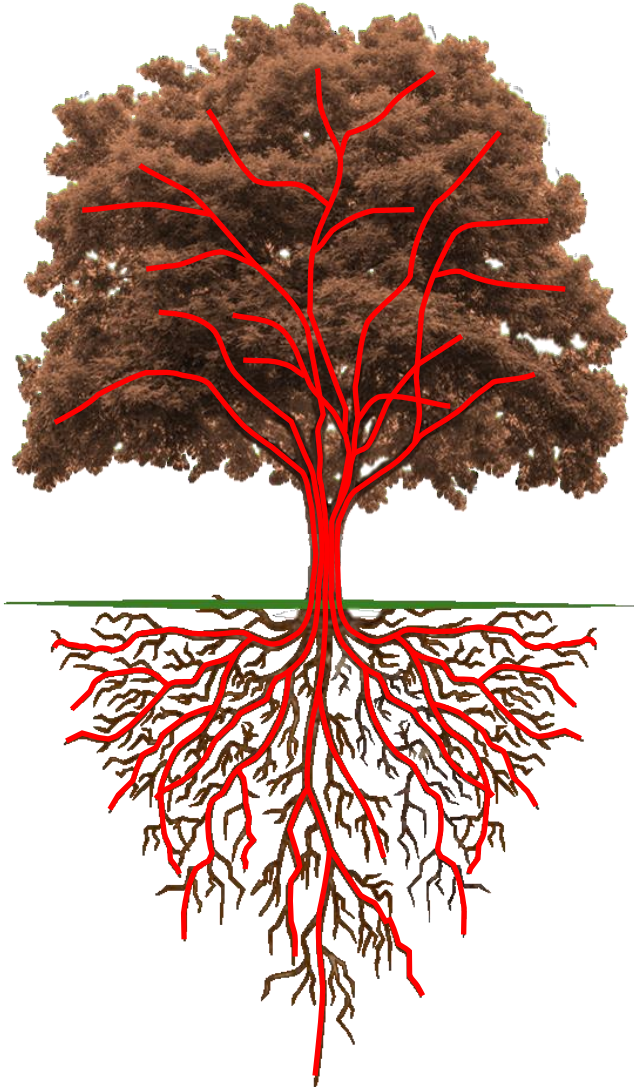
Pathogens causing root diseases

Ganoderma (root and basal rot)



Pathogens causing root diseases

Overall decline

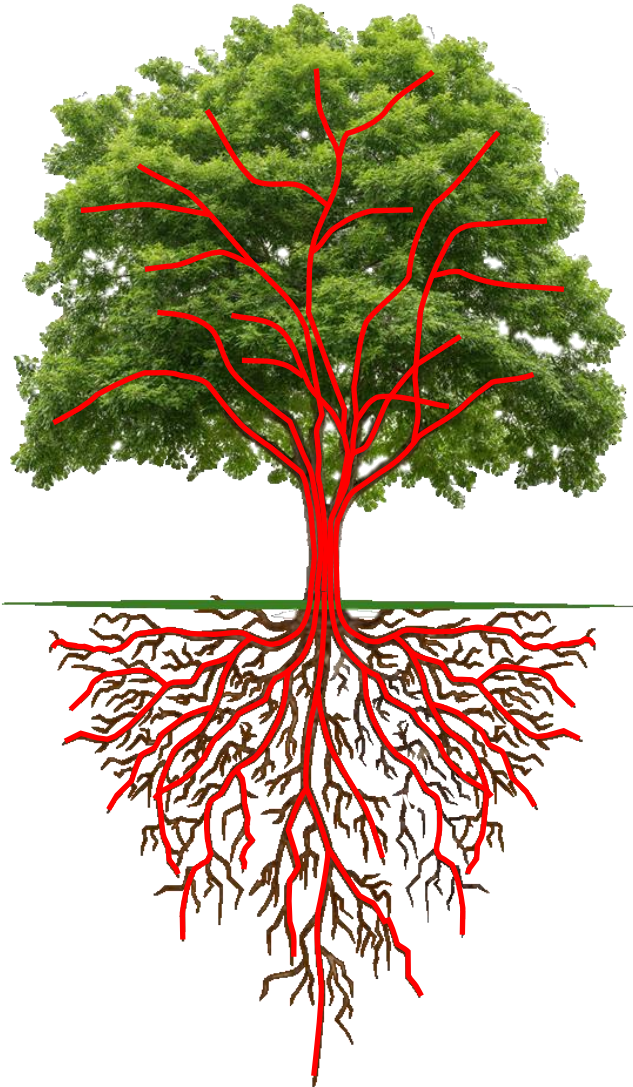


Pathogens causing root diseases

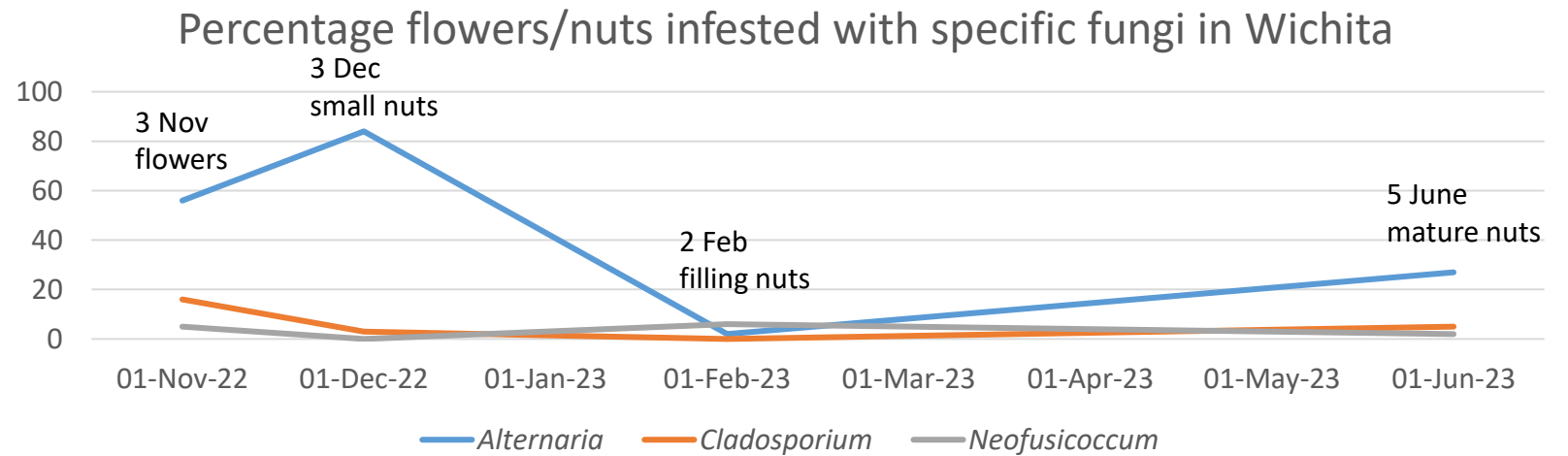
Overall decline



Endophytic pathogens



Alternaria alternata
Cladosporium cladosporioides
Neofusicoccum parvum



Endophytic pathogens

Seedling trial (2023)

Leaves	Wichita (%)	Ukulinga (%)
<i>Alternaria alternata</i>	77	86
<i>Cladosporium cladosporioides</i>	71	63
<i>Fusarium solani</i>	34	31
<i>Penicillium</i> spp.	60	54
<i>Trichoderma harzianum</i>	34	6

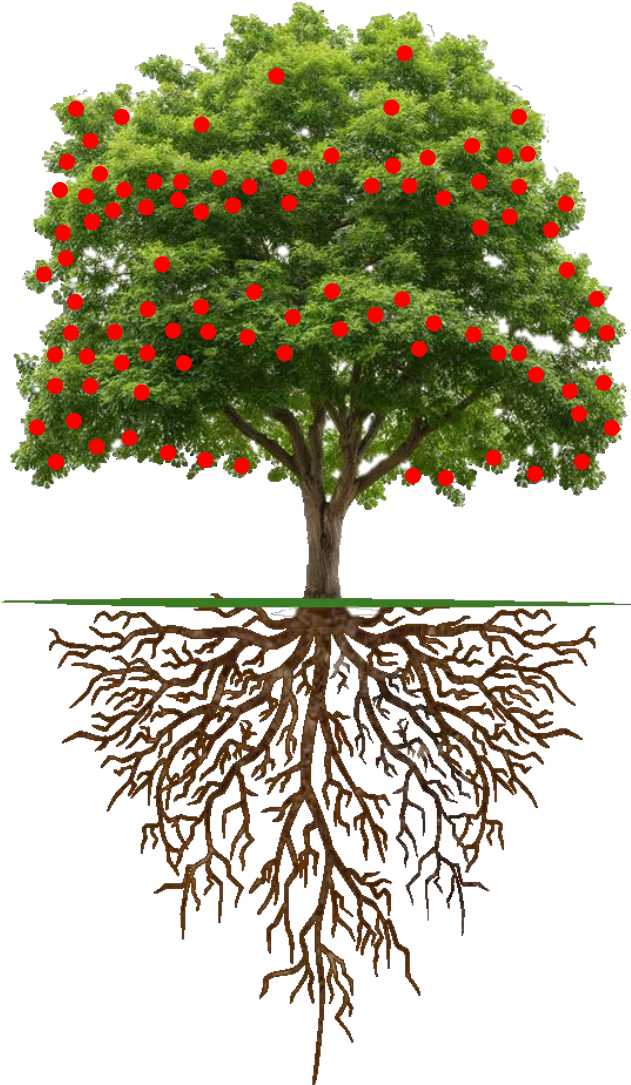
Shoots	Wichita (%)	Ukulinga (%)
<i>Alternaria alternata</i>	71	71
<i>Cladosporium cladosporioides</i>	60	57
<i>Fusarium solani</i>	37	46
<i>Penicillium</i> spp.	74	49
<i>Trichoderma harzianum</i>	57	20

Seed	Wichita (%)	Ukulinga (%)
<i>Alternaria alternata</i>	86	100
<i>Cladosporium cladosporioides</i>	17	14
<i>Fusarium solani</i>	60	20
<i>Penicillium</i> spp.	80	86
<i>Trichoderma harzianum</i>	49	46

Roots	Wichita (%)	Ukulinga (%)
<i>Alternaria alternata</i>	74	83
<i>Cladosporium cladosporioides</i>	34	31
<i>Fusarium solani</i>	54	63
<i>Penicillium</i> spp.	83	91
<i>Trichoderma harzianum</i>	89	89

Neofusicoccum parvum

External pathogens: leaf and nut diseases



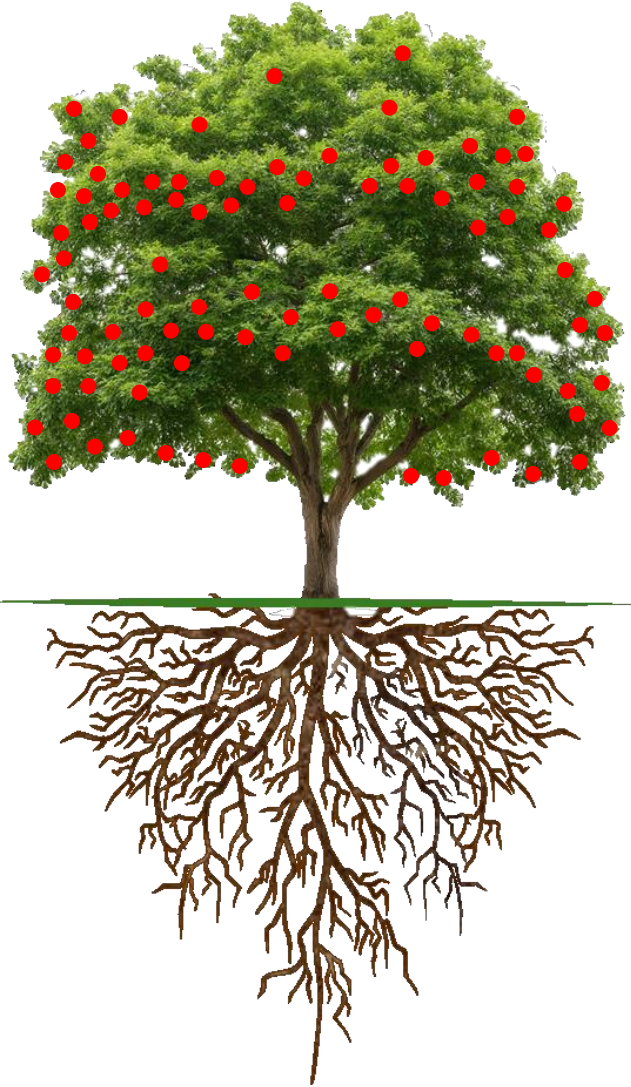
Cladosporium cladosporioides (pecan scab)



- High humidity and temperatures are conducive to pecan scab.
- Spores are airborne.
- The fungus is a saprophyte and grow on many substrates.
- High humidity causes infections, low humidity causes fruiting

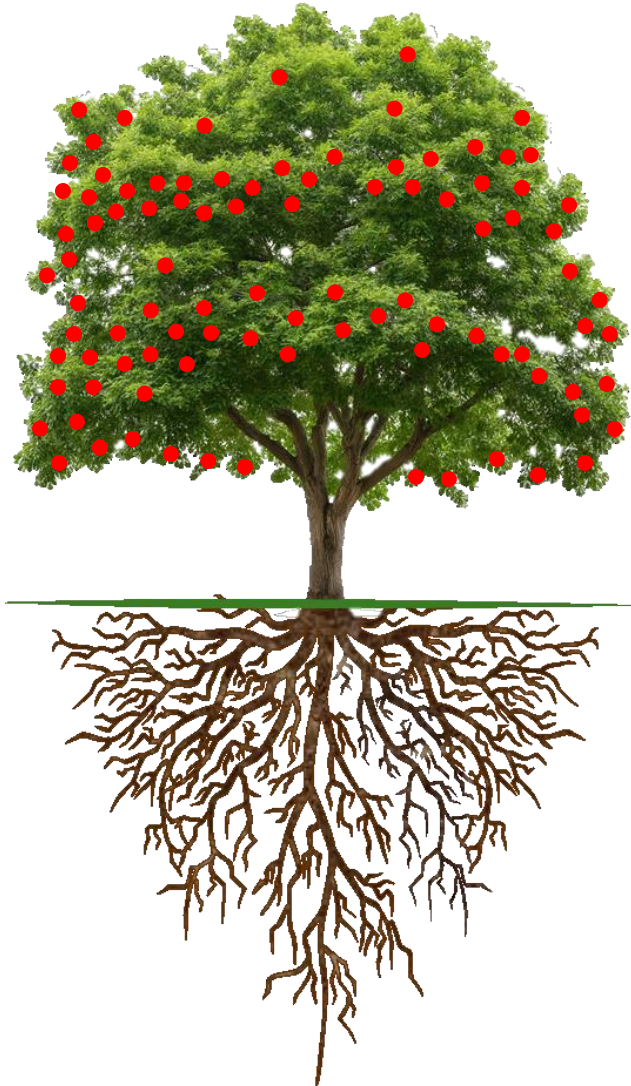
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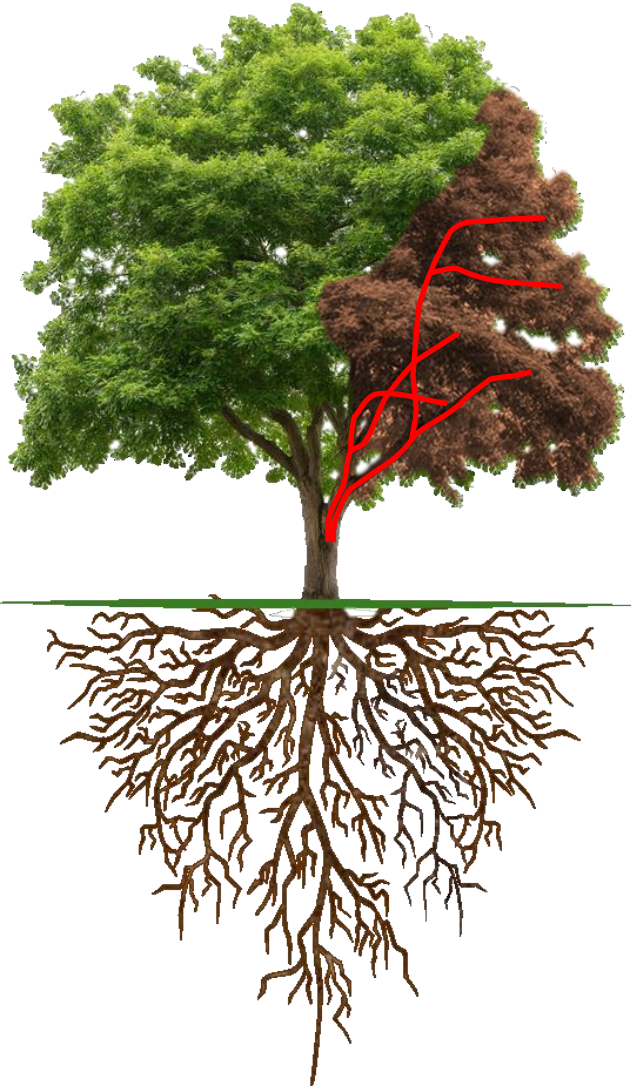
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External pathogens: dieback

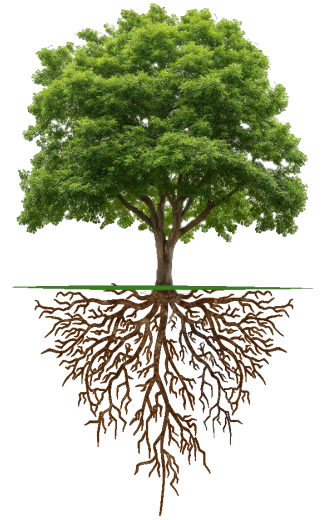
Neofusicoccum parvum (dieback)



- Spores are airborne
- They penetrate wounds on branches caused by hail, insects, or physical damage.

Conclusions

- The best protection against diseases are keeping pecan trees healthy.
 - Water
 - Nutrition
 - Protect against physical damage.
- Remove dead branches and consider removing dying trees.
- Use fungicides as the last resort.
- Fungal damage to a tree is permanent. Consider whether the damage is small enough to keep the tree.
- Leaf and nut diseases are seasonal and changes in management strategies can be adapted for the next season.



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- SAPPA for funding
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