Tree diseases

Presentation by Dr. Robert Schlub for WSARE and University of Guam's Plant Disease Diagnostic Workshop Attendees

Tree diseases

This presentation is the assimilation of information from the internet and other sources that I thought were germane for this WSARE sponsored Plant Disease Diagnostic Training. Any omission of credit due, is mine alone.

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Indigenous pathogens and native tree species

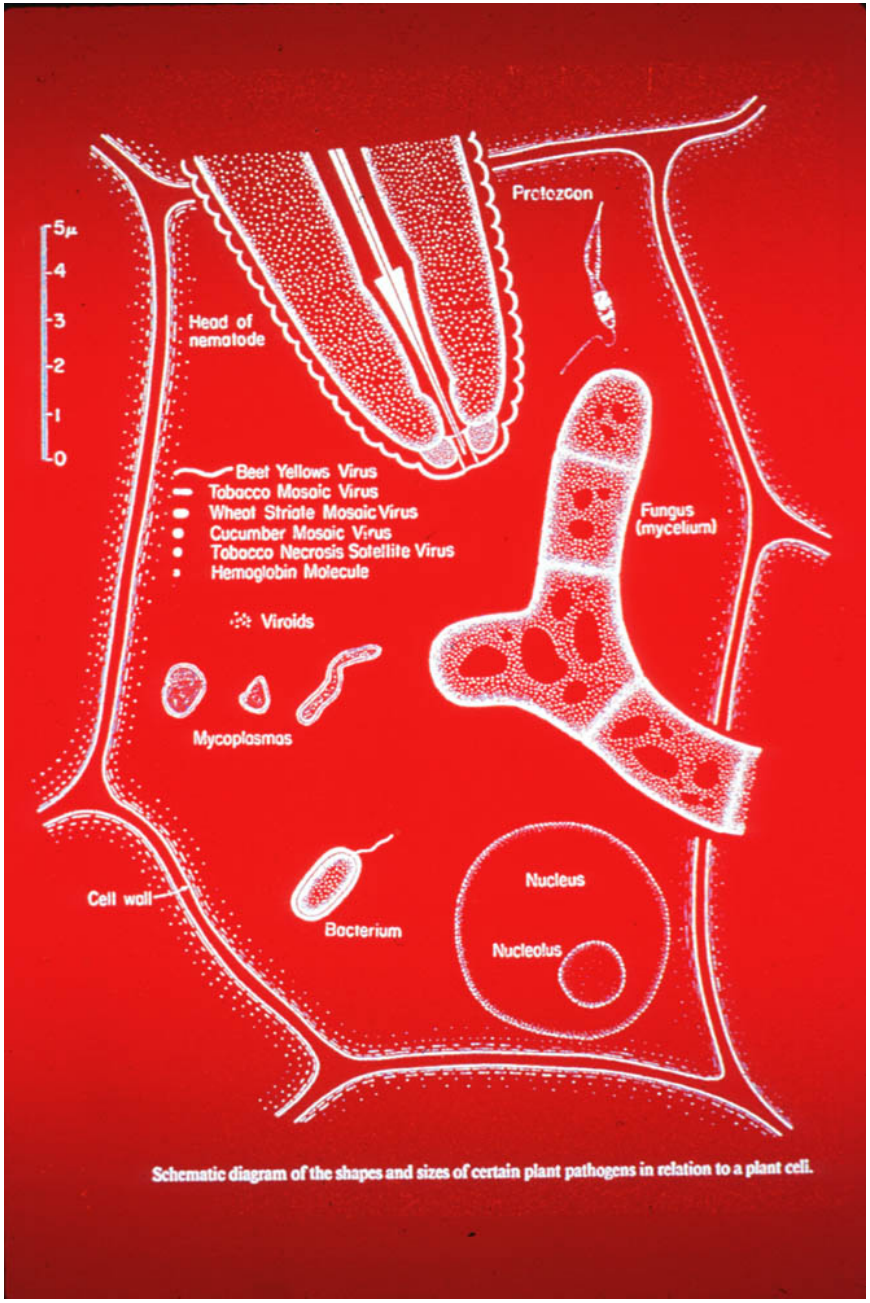
- peaceful coexistence
- develop only in response to natural or artificial interruptions

Introduction of exotic (i.e., foreign) pathogens

- Possibility of major losses
- Lack of innate genetic resistance
- Lack of biological controls

Introduction of exotic tree into indigenous pathogen area

- Possibility of major losses
- Lack of innate genetic resistance
- Lack of biological controls

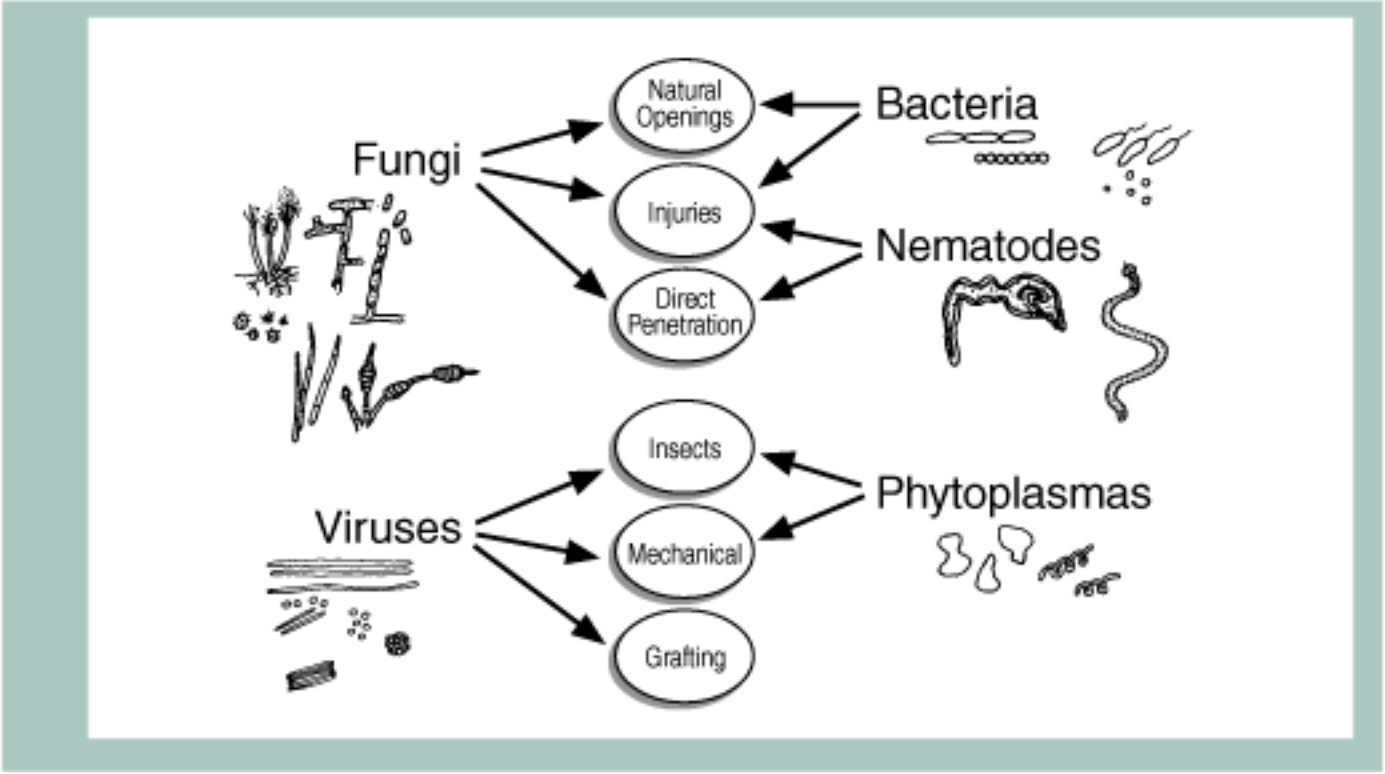


Schematic diagram of the shapes and sizes of certain plant pathogens in relation to a plant cell.

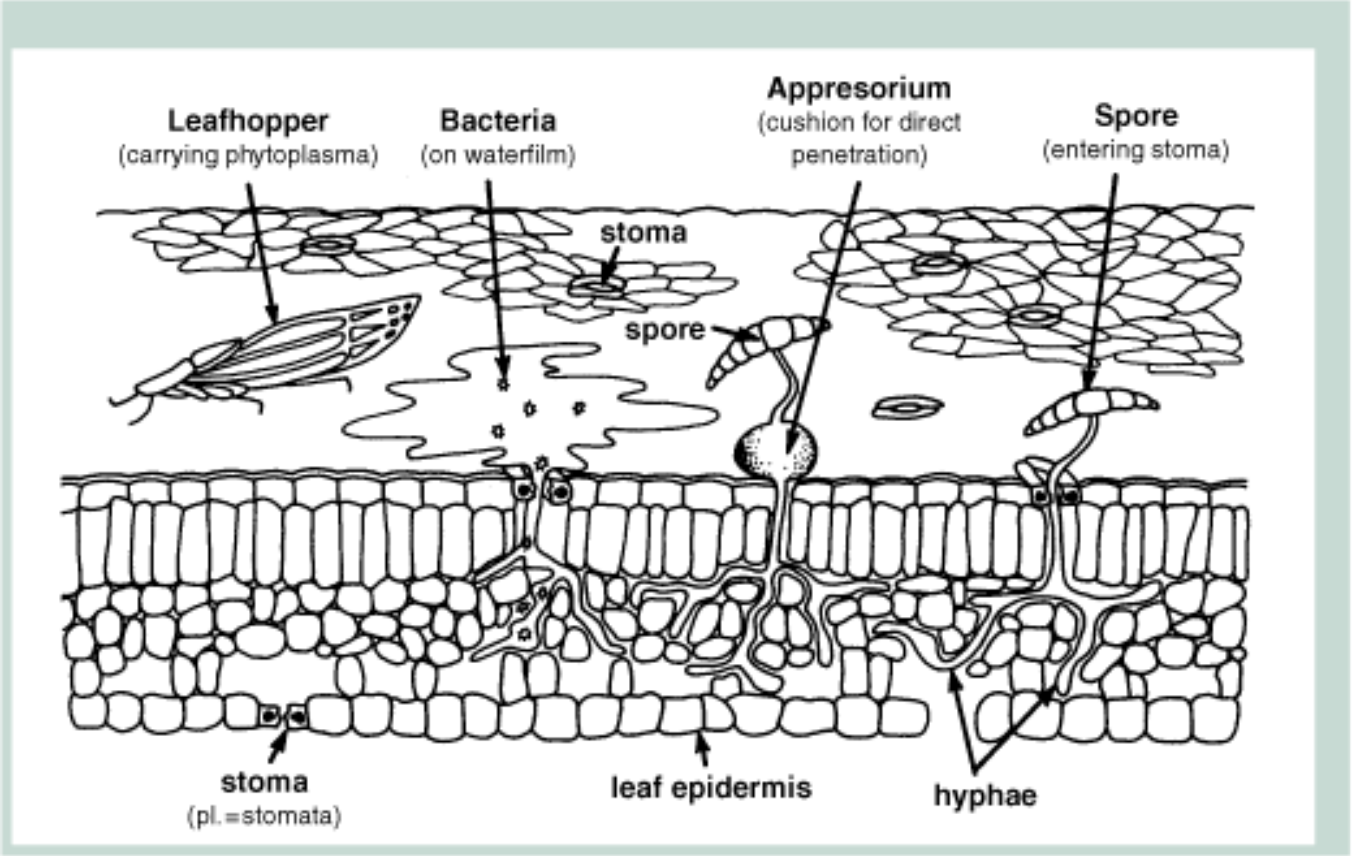
Symptoms vs. Causal Agents

	Bacteria	Fungi	Viruses	Nematodes	Phytoplasmas
Wilts	√	√		√	√
Leaf Spots & Blights	√	√	√		
Fruit Rots	√	√			
Root Rots	√	√		√	
Damping Off		√			
Distorted Growth	√	√	√	√	√

Methods of infection by pathogens



Ways pathogens can infect a leaf



Leaf blights / spots

Cephaleuros virescens (Algal leaf spot) betel-nut, mango,

- *Cylindrocladium* on palm
- *Gliocladium* on palm
- *Septoria*
- *Colletrotrichum*- coconut
- *Phyllosticta*
- *Cercospora*
- *Ascochyta*
- *Phoma*
- *Mycosphaerella*
- *Oidium*
- *Pseudoepicoccum*
- *Colletotrichum*
- *Corynespora*

Anthracnose

Avocado

Mango


Ash

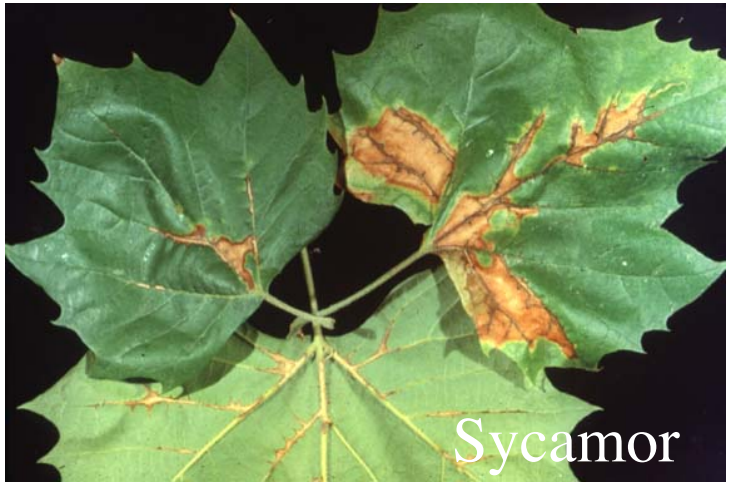

Sycamor
e


Sycamor
e
UGA1436141


Sycamor
e

Symptoms on some trees

- Small dead spots on leaves.
- Dead leaf margins and tips.
- Brown, dead leaf areas along the leaf veins.
- Premature defoliation.
- Twig death.
- Formation of a witches broom.



Rot Roots

- *Phytophthora* rot root - example on papaya, citrus spp.
- *Ganoderma*- example ironwood
- *Fusarium*-likely
- *Pythium*-likely
- *Macrophomina*-likely
- *Sclerotium rolfsii*-likely
- *Pseudoepicocum*-likely
- *Hetobasidion*-likely

Collar Rots

- *Botryodiplodia theobromae*- on breadfruit
- *Phellinus noxius*-breadfruit, flame tree, ironwood
- *Marasmiellus* spp-likely
- *Sclerotium rolfsii*-common on vegetables

Vascular wilt

- *Ralstonia* (bacterium)-example ironwood

Cankers

- *Botryodiploidia*-ironwood
- *Dothiorella* (Fusicoccum)-likely
- *Xanthomonas* (bacterium) (Citrus canker) - citrus
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Symptoms

Apple canker caused by *Nectria galligena*

Tissue Necrosis

Cankers = localized necrotic lesions

- **Sunken or swollen or both**
- **Mainly caused by fungi and bacteria**
- **Mechanical injury and insects can cause**

Viruses

- *Coconut tinangaja viroid*

Rust Diseases

- *Coleosporium* plumeria- plumeria
- *Aecidium fragiforme*- agathis spp.

Shoot Blights

- *Pestalotiopsis*
- *Colletotrichum*
- *Botryosphaeria*
- *Phytophthora* bud rot -
- *Xanthomonas campestri*- mango

Betel Nut Bud rot

- *Phytophthora arecae* or *palmivora*

Heart rot [host-Coconut; pathogen-*Phytophthora katsurae]:*

Phytophthora katsurae has been reported from Japan, Taiwan, Australia and Papua New Guinea.

http://www.ctahr.hawaii.edu/nelsons/galleries.htm

Parasitic plants

- *Cassytha filiformis*
- *Cuscuta campestris*

Nematodes

- *Meloidogyne*
- *Helicotylenchus*