

Symptomatology in Plant Diagnosis

- Important to understand in order to diagnose plant problems.
- Many new terms will be presented but not necessary to memorize them. I use most but not all. Use the glossary.
- This class will not make you overnight experts but should increase your awareness and ability to ask the right questions and better analyze samples.



Symptomatology in Plant Diagnosis

- **SYMPTOMS:** reaction of host to a disturbance (insect, disease, environmental factor)
- **SIGNS:** the causal agent or evidence of the agent
 - disease agent: fruiting bodies, spores, bacterial ooze, nematodes, electron micrograph of virus, etc.
 - Insect: shed skins, frass, honeydew, et
 - Misc: Spray residue, teeth marks, footprints, etc.



Symptomatology in Plant Diagnosis

- SYMPTOMS:
 - **Localized vs. Systemic**
 - **Primary vs. Secondary**
 - A particular symptom can be caused by many different agents
 - Single symptom not conclusive
 - Sometimes, a collection of symptoms can be diagnostic



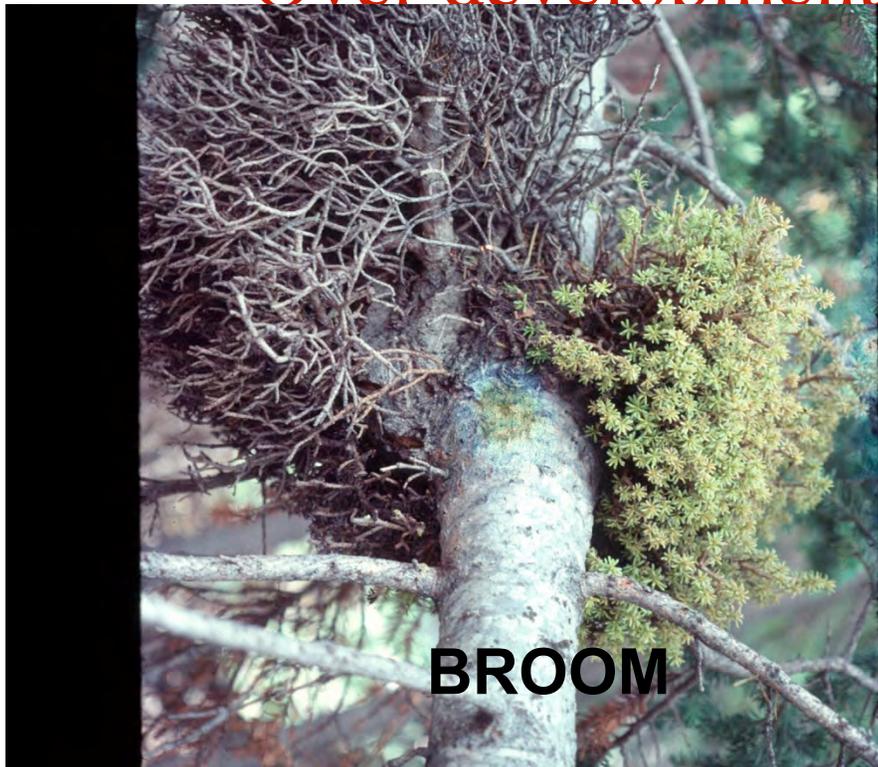
Symptomatology in Plant Diagnosis

HYPERTROPHIC Symptoms (accelerated growth, differentiation or development)

- **Cell size or numbers**
 - Callus
 - Curl, roll
 - Brooming (Witches broom)
 - Epinasty
 - Scab
 - Tumefaction (galls burls, warts, knots, tubercules, etc.)



Over development in size or cell numbers



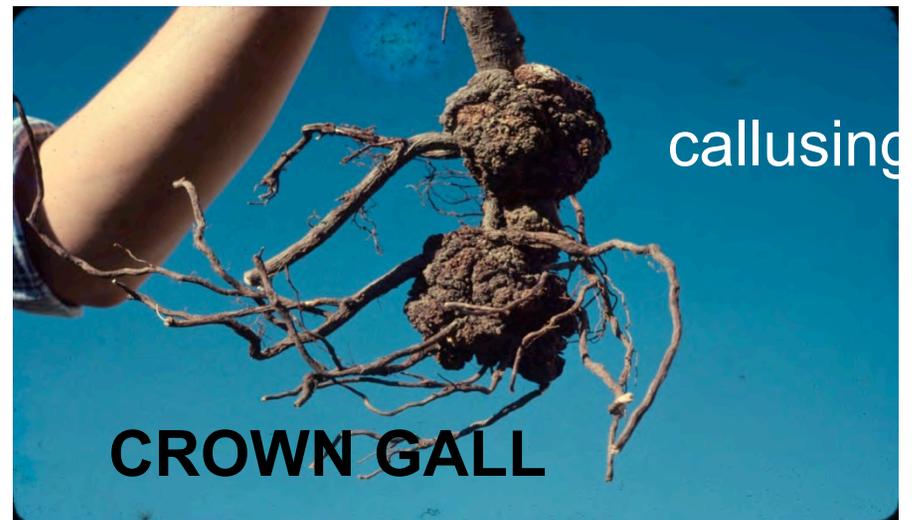
BROOM



BEET CURLY TOP



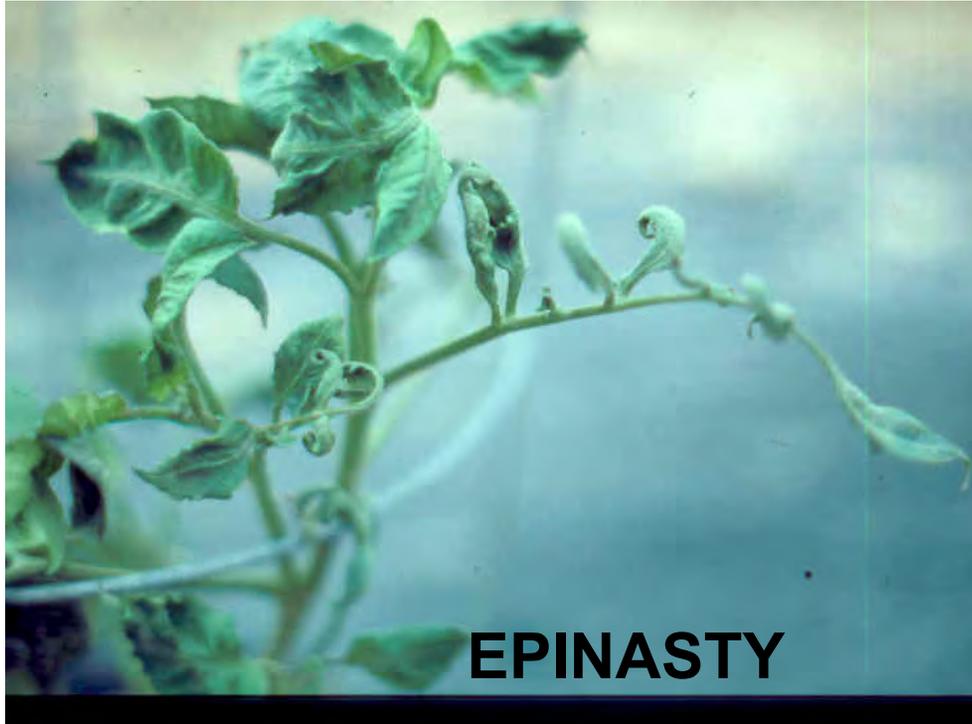
CITRUS SCAB



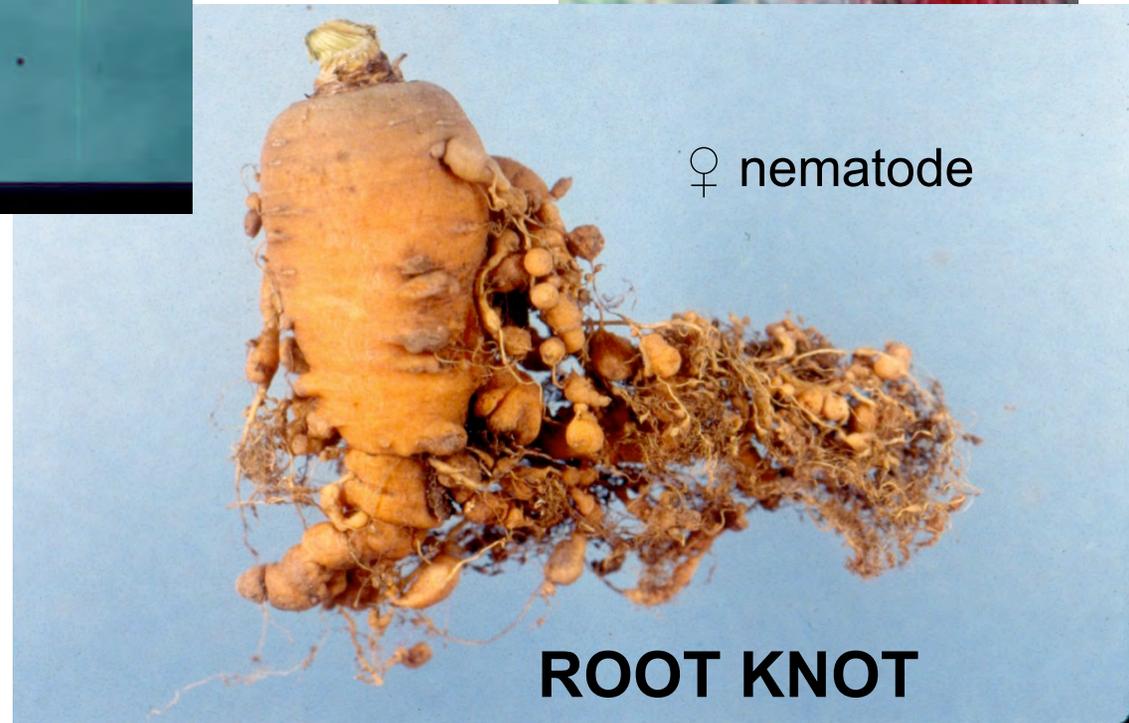
CROWN GALL

callusing

Over development in size or cell numbers



Giant cells



Symptomatology in Plant Diagnosis

HYPERTROPHIC Symptoms (accelerated growth, differentiation or development)

- **premature development of tissues or organs**
 - Abscission or cast
 - Prolepsis



Premature development of tissues or organs



Symptomatology in Plant Diagnosis

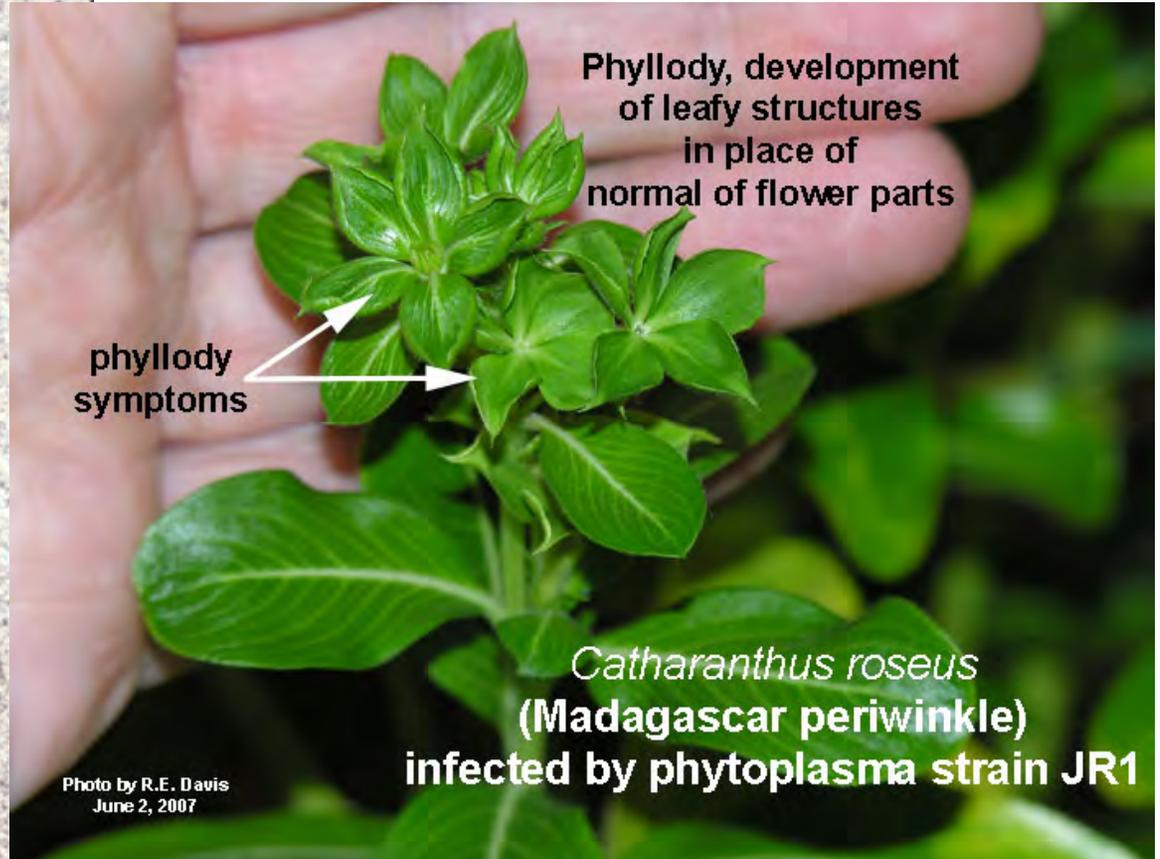
HYPERTROPHIC Symptoms (accelerated growth, differentiation or development)

- **Transformation of tissues or organs**
 - Heterotrophy
 - Russeting
 - Phyllody



Transformation of tissue

PHYLLODY



Also greening or virescence

Transformation of tissue



Russetting

Symptomatology in Plant Diagnosis

HYPERTROPHIC Symptoms (accelerated growth, differentiation or development)

- **Abnormal increase in coloration**
 - Anthocyanescence
 - Bronzing
 - Virescence or greening



Anthocyanescence



Symptomatology in Plant Diagnosis

ATROPHIC symptoms (retarded or halted growth, differentiation or development)

- **Underdevelopment in size or number of cells**
 - Dwarfing, stunting
 - Rosetting



Underdevelopment in size or cell number



(Systemic downy mildew)

STUNTING

Symptomatology in Plant Diagnosis

ATROPHIC symptoms (retarded or halted growth, differentiation or development)

- Subnormal development, other than size
 - Abortion
 - Chlorosis
 - Etiolation
 - Mosaic, mottling
 - Suppression (Blasting)



Subnormal development other than size



ABORTION



CHLOROSIS



BLEACHING

Subnormal development other than size



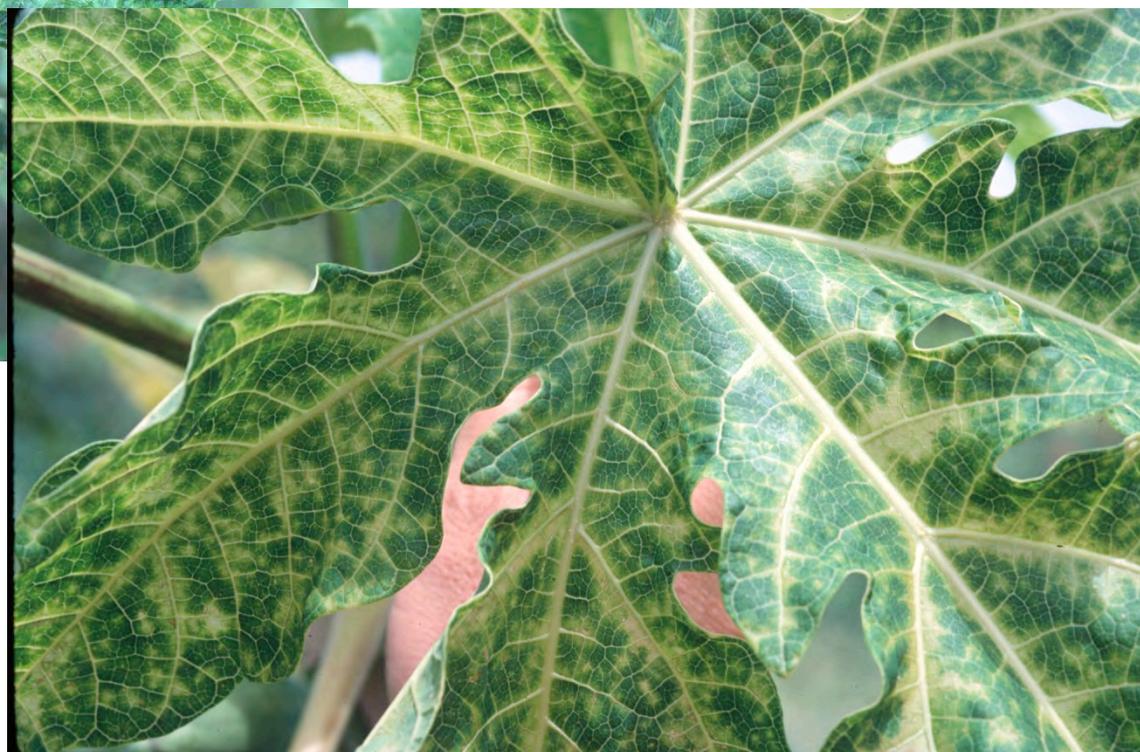
Etiolation



Subnormal development other than size



MOSAIC



Symptomatology in Plant Diagnosis

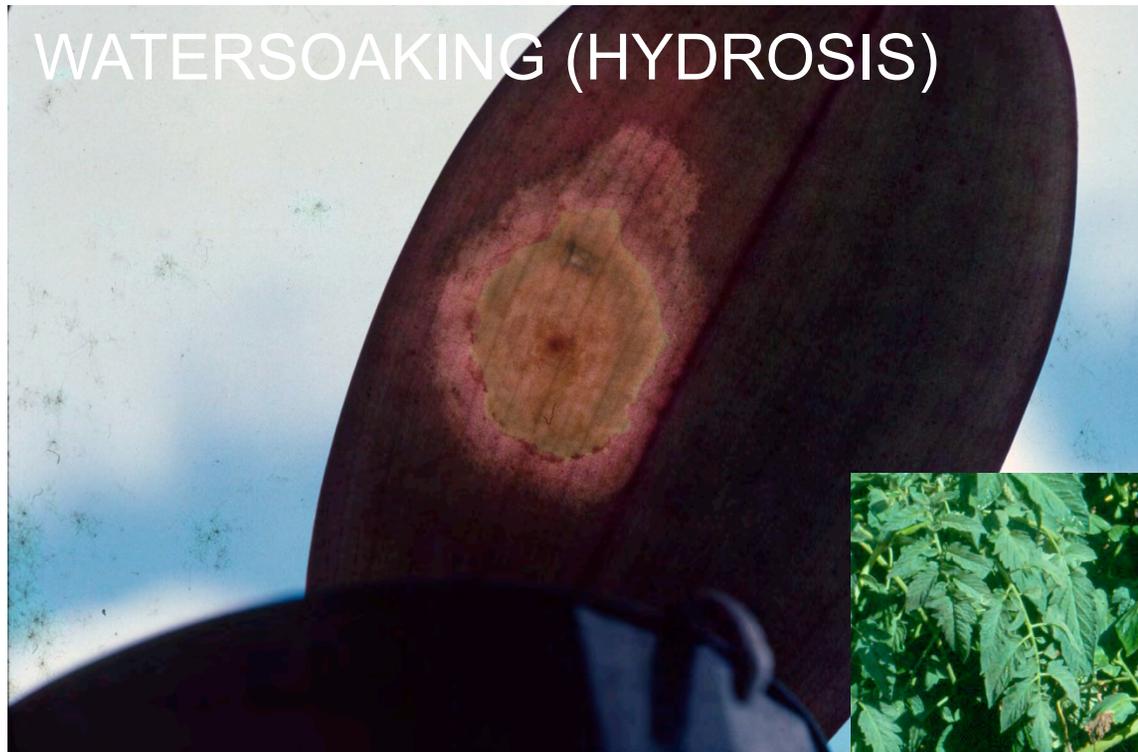
NECROTIC Symptoms- degeneration or death of cells and tissues

- **Protoplasmic degeneration preceding cell death**
 - Water-soaking (hydrosis)
 - Mottling
 - Reddening
 - Silvering
 - Wilting
 - Yellowing



NECROTIC--

protoplasmic degeneration preceding actual death



Protoplasmic degeneration preceding death



SILVERING

NECROTIC--

protoplasmic degeneration preceding actual death



YELLOWING (often used interchangeably with chlorosis)

Symptomatology in Plant Diagnosis

NECROTIC Symptoms- degeneration or death of cells and tissues

- **Protoplasmic death and cellular disintegration**

- Bleeding
- Canker
- Dieback
- Girdling
- Pitting
- Shot-hole
- Staghead (spike-top)
- Lesion
- Blight
- Damping-off
- Flagging
- Gummosis, resinosis
- Mummy
- Spot
- Streak
- Rot



Protoplasmic death and cellular disintegration



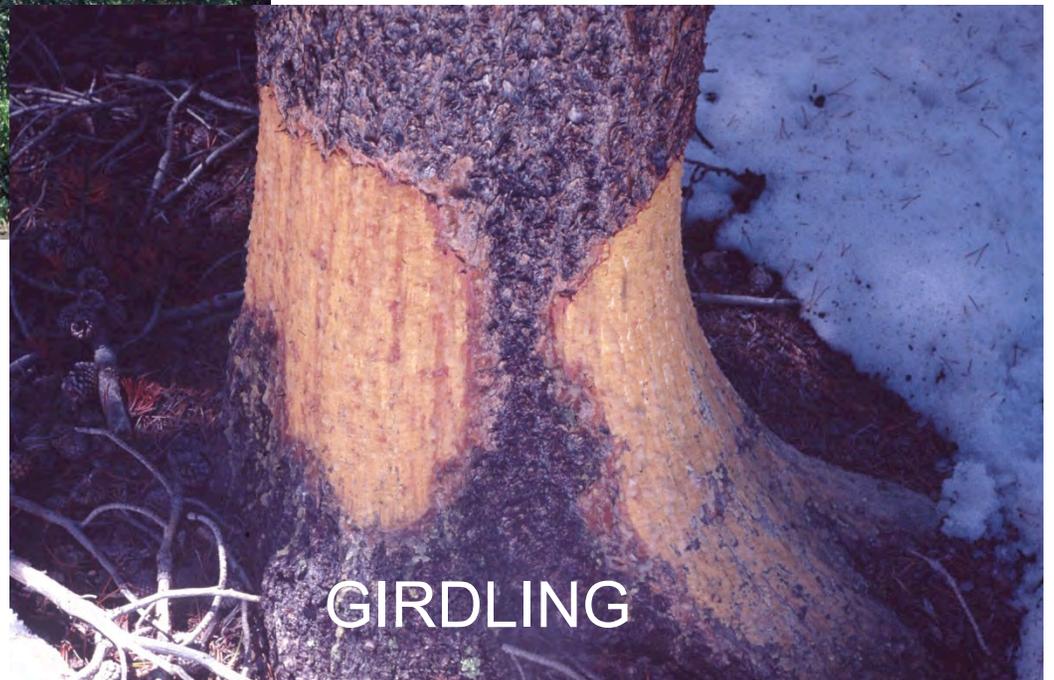
BLIGHT

Protoplasmic death and cellular disintegration

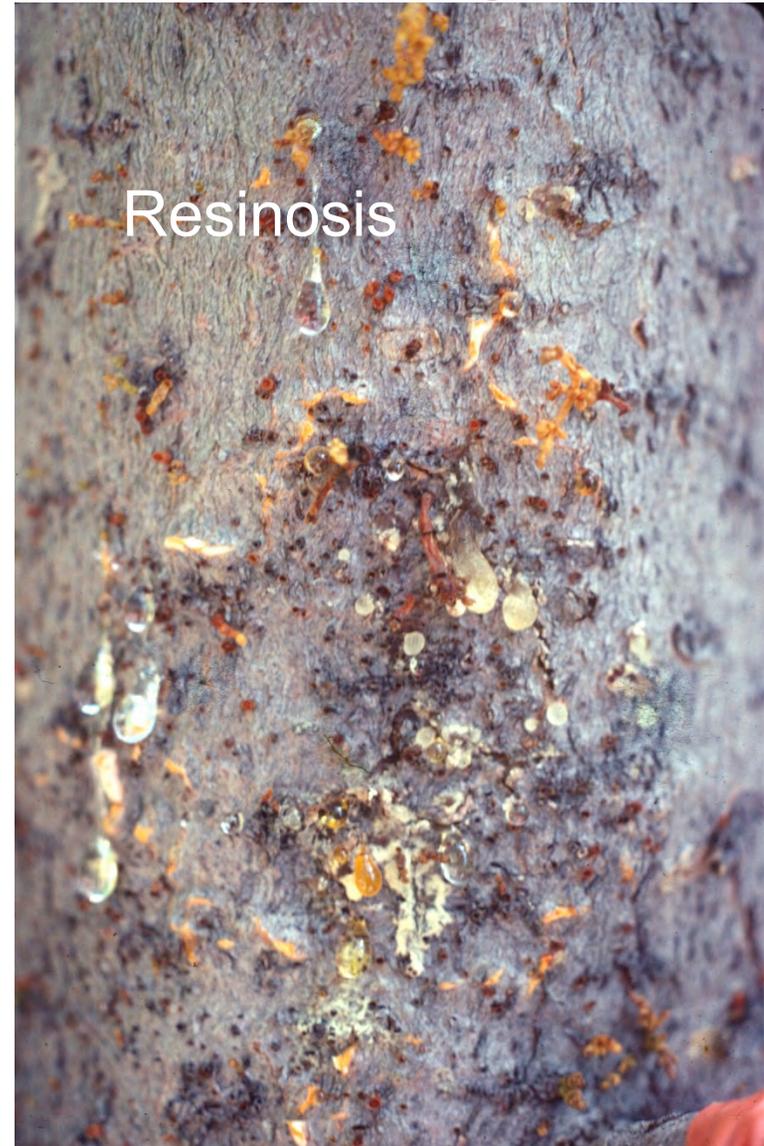
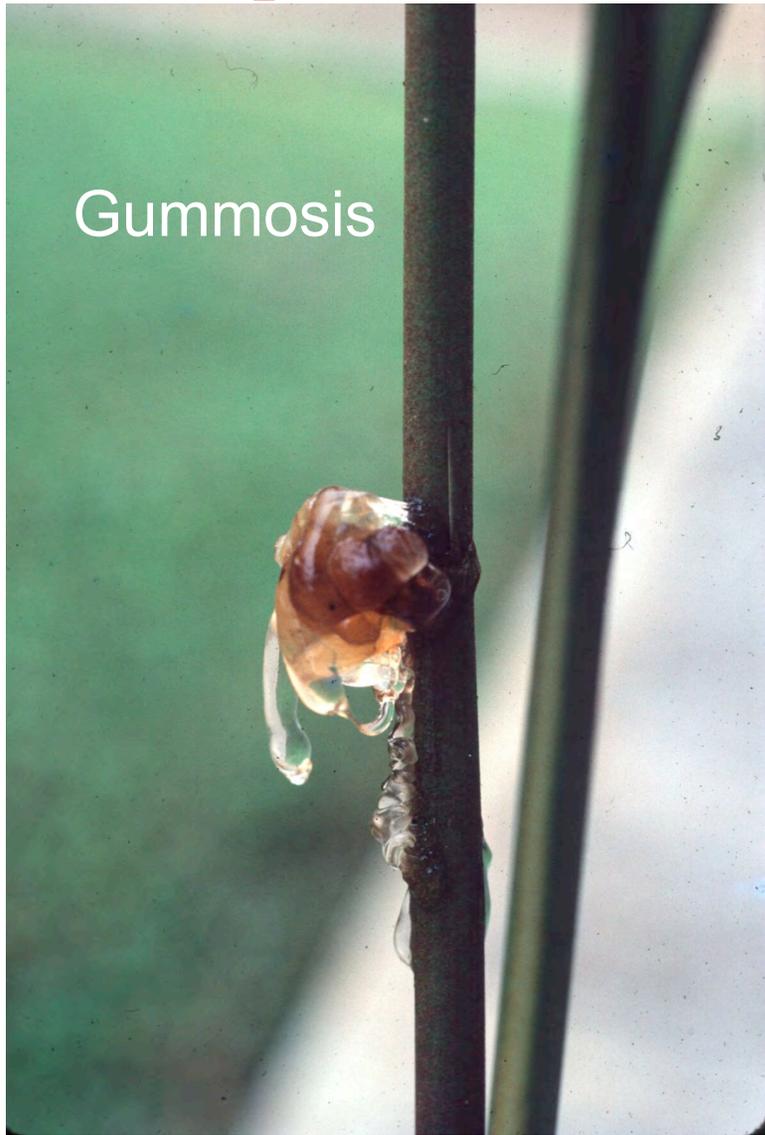


DAMPING OFF

Protoplasmic death and cellular disintegration



Protoplasmic death and cellular disintegration



Protoplasmic death and cellular disintegration

Mummy



Protoplasmic death and cellular disintegration

ROTS

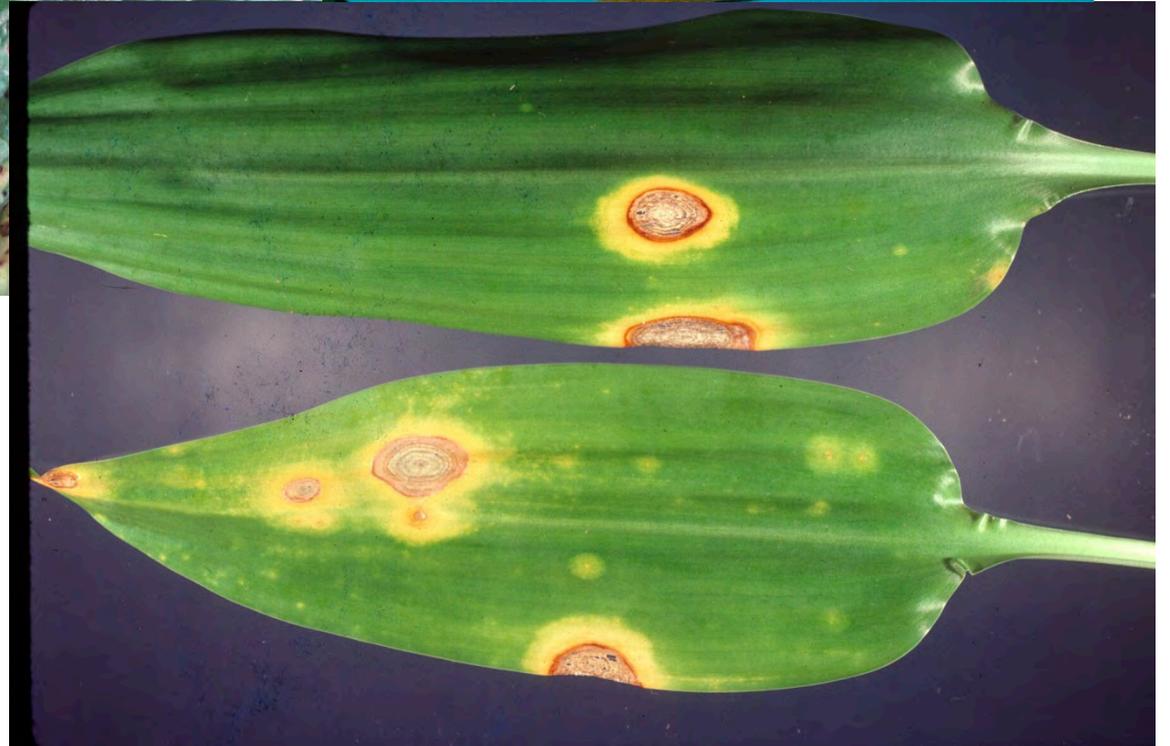


Protoplasmic death and cellular disintegration

ROTS

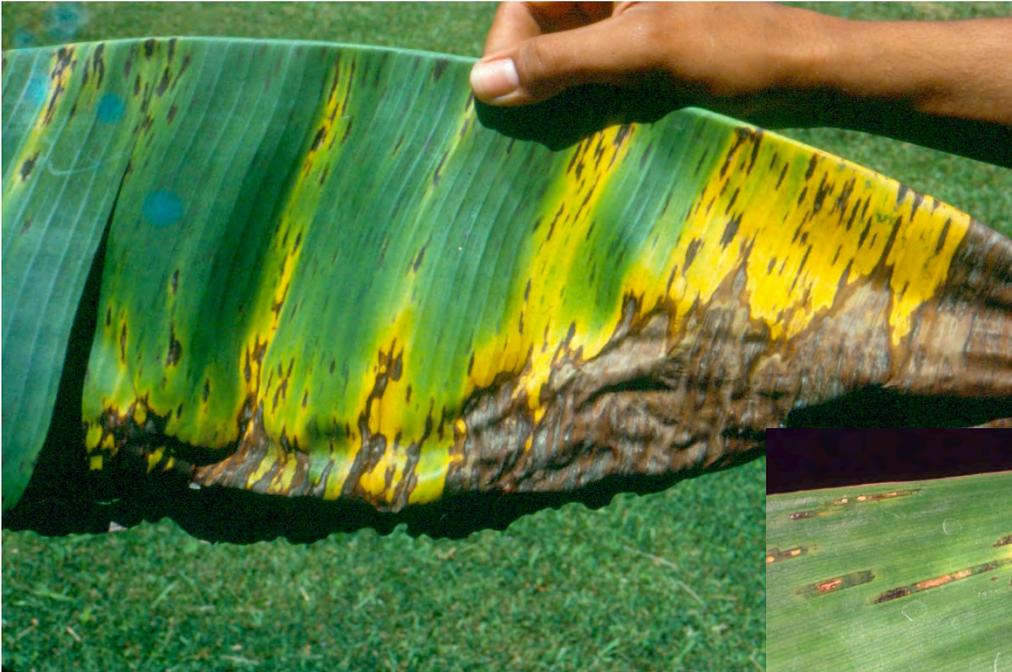


Protoplasmic death and cellular disintegration SPOTS



Protoplasmic death and cellular disintegration

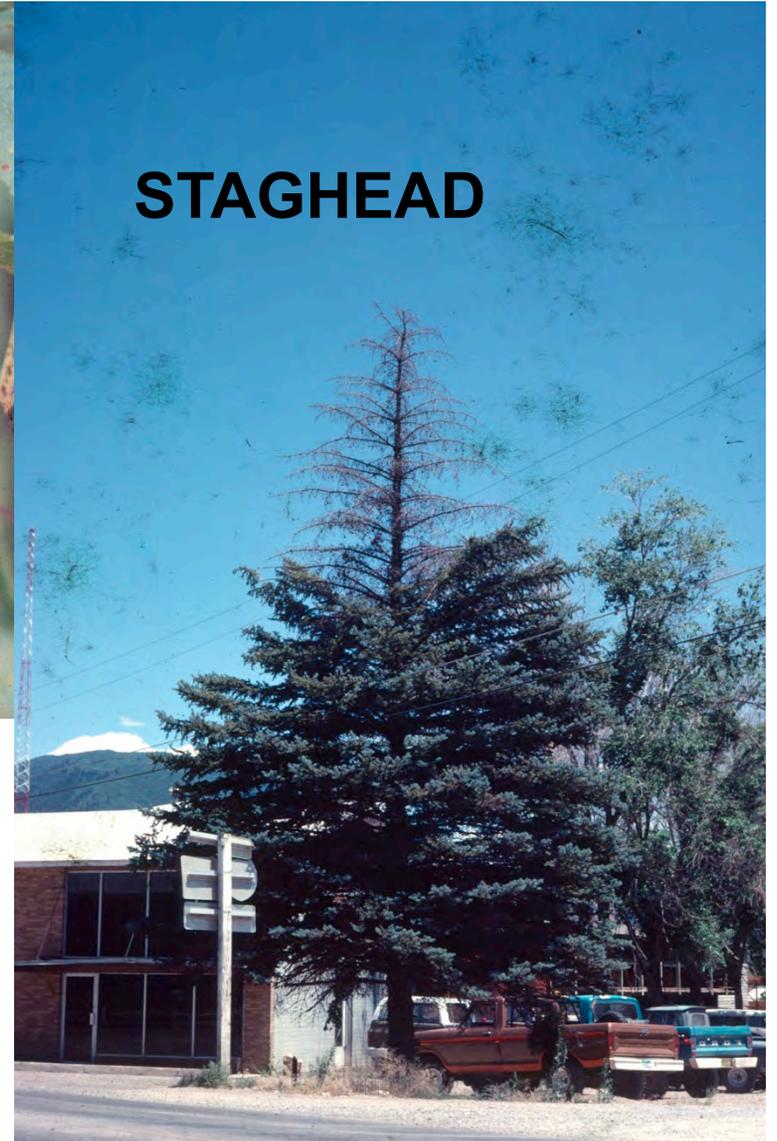
STREAKS



Protoplasmic death and cellular disintegration



SHOTHOLE



STAGHEAD

Protoplasmic death and cellular disintegration



LESION

Miscellaneous (signs)

THRIPS



Miscellaneous (signs)



Tomato Powdery Mildew



Tomato leaf mold



Miscellaneous (signs)



Sooty mold

Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous (signs)



Miscellaneous



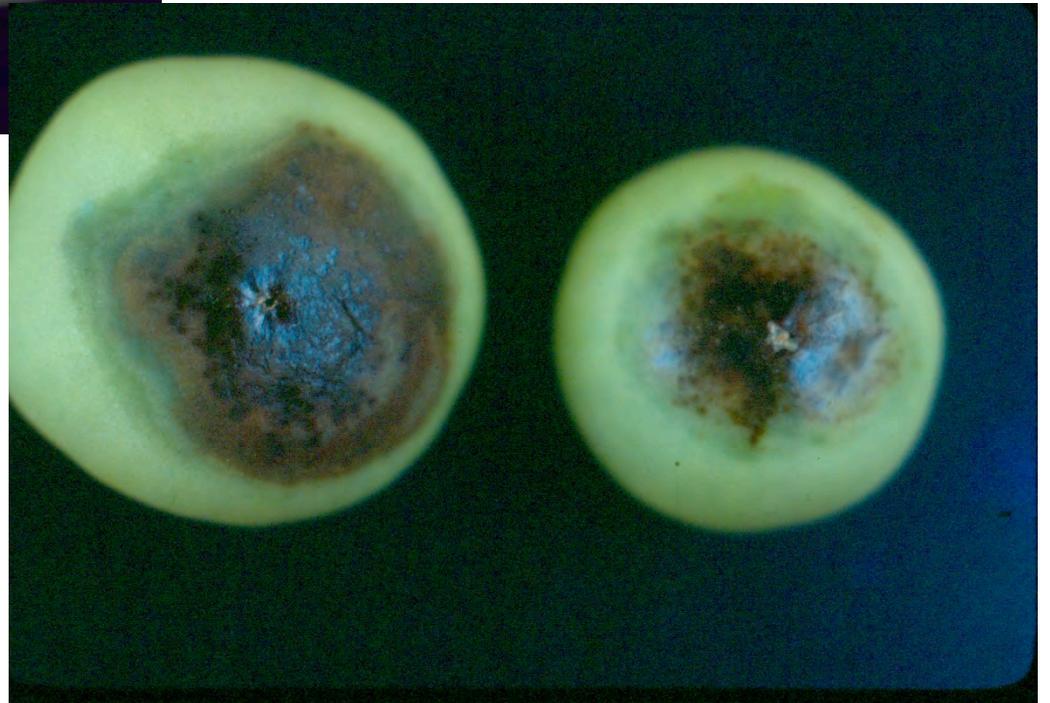
Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous



Miscellaneous

