

PLP 3002

Fruit diseases and anthracnoses

Sources of inoculum

- Primary versus secondary stages
- Sexual versus asexual spores

Featured pathogens

- Apple scab caused by *Venturia inaequalis*
- Brown rot of stone fruits caused by *Monilinia fructicola*
- *Colletotrichum*, *Gloeosporium*, and other anthracnoses
- Gray mold caused by *Botrytis*

Special note on citrus canker

- *Xanthomonas axonopodis*
- a.k.a. *Xanthomonas campestris* pv. *citri*

Symptoms

- Conspicuous, dry lesions (apple scab)
- Open, basin-like sores
(*Colletotrichum*/*Gloeosporium*)
- Moist soft rots, decay (brown rot)

Signs

- Acervuli with spores (apple scab, anthracnoses)
- Sporodochia with conidia, apothecia, mummies (brown rot)

Apple scab life cycles

- Primary cycle (one) : Perithecia with asci
 - 2-celled ascospores/disease forecasting
- Secondary cycles (many) : Acervuli with conidia
- Transition : Parasite become saprophyte

Control

- Genetic resistance
- Use of fungicides

Timing of fungicide application

- disease forecasting / primary cycle
- spray immediately following rain

Brown rot life cycles

- Primary cycle (one) : Apothecia with asci
 - ascospores discharged from mummies in Spring
- Secondary cycles (many) : sporodochia with conidia (especially fruits)
- Transition : Fruits mummify into a sclerotium-like structure

Control

- Disking up mummies
 - disrupt apothecia formation in Spring
 - careful handling of fruit

Colletotrichum/Gloeosporium (Deuteromycetes)

- Spore forms
- Anamorphs (most common) :
Colletotrichum, Gloeosporium
- Teliomorphs (less common) :
Glomerella (perithecium)

Primary cycle (usually conidia)

- Plant debris
- Overlapping crops (e.g. papaya)
- Vegetative (e.g. strawberry transplants)
- Seed (e.g. bean anthracnose)

Control

- Clean cultivation (eliminate debris)
- Crop rotation
- Timely sprays (fruit ripening)
- Certification programs
 - Seed (bean anthracnose)

Gray mold caused by Botrytis (Deuteromycete)

- Symptoms
 - Diffuse blighting (flowers, fruit, leaves)

Signs

- Hyphae and small sclerotia (high humidity)

Botrytis is the most common disease of greenhouse crops

- Favors cool, humid conditions
- Fungus often gains ingress through
 - Injury
 - Decaying flower petals
- Then advances towards healthy tissue
