

Ascomycetes in lab tomorrow

- Quiz (Lab manual pages 27-33 'Oomycetes' and intro pages for Ascospores I (pp. 35-36) and Ascospores II (pp.43-44))
- Look at Ascomycete diseases – signs and symptoms
- Key out powdery mildew pathogens
- Finish up Disease of the week

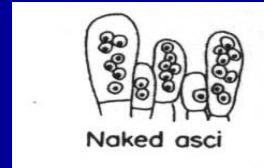
Ascomycetes

- Haploid (but cells can be multi-nucleate)
- Septate hyphae (frequent cross walls)
- Cell walls made of chitin
- Sexual spore: **ascospore**
(product of meiosis)
- Asexual spore: **conidia**
(product of mitosis)



Ascospores

- Produced in an **ascus** (sac)
- Released in the spring (or fall)
- Asci can be borne naked:
- Usually asci are contained in a fruiting body called an **ascocarp** or **ascoma**



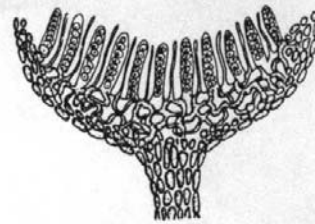
3 kinds of fruiting bodies = ascocarps (ascoma)



Chasmothecium



Perithecium



Apothecium

spherical

flask-shaped

disc-shaped

Diseases caused by Ascomycete pathogens where the ascospore plays a prominent role

- Powdery mildews
- Apple scab
- Eastern filbert blight
- White mold

Powdery mildew of grape

Ascomycete pathogen

Polycyclic disease

Primary inoculum:

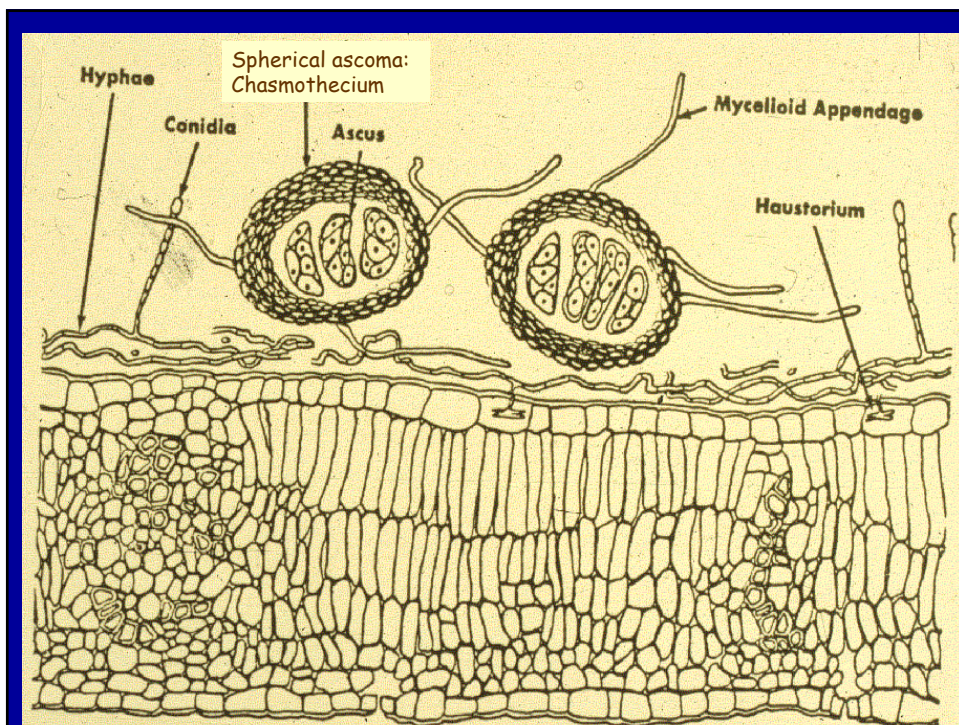
ascospores from spherical chasmothecium OR
conidia from infected leaf buds

Secondary inoculum: conidia

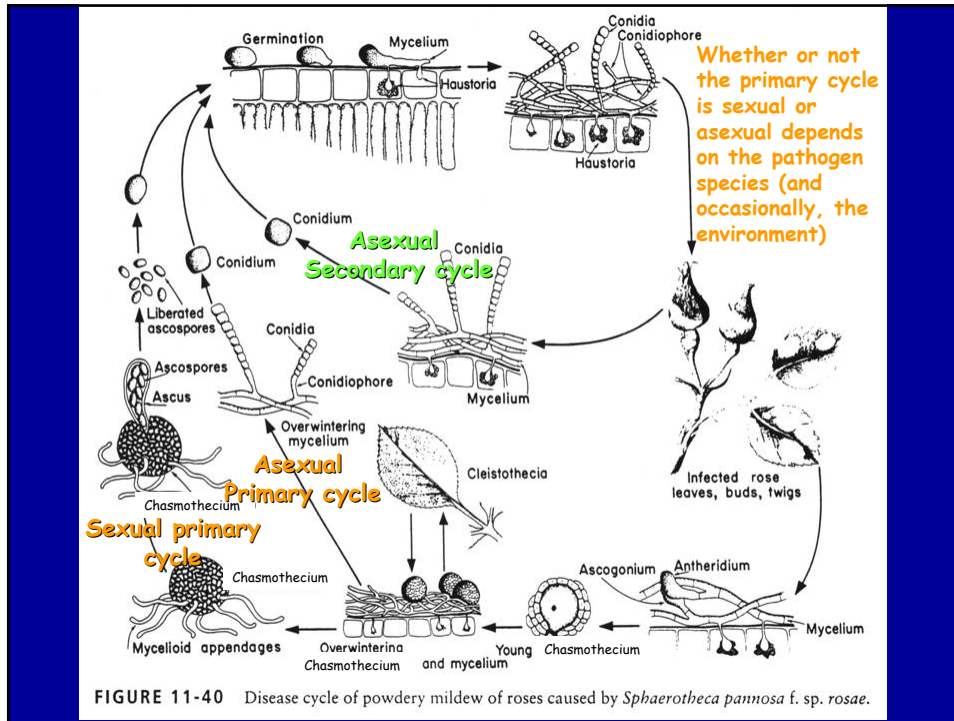
Obligate, biotrophic pathogen



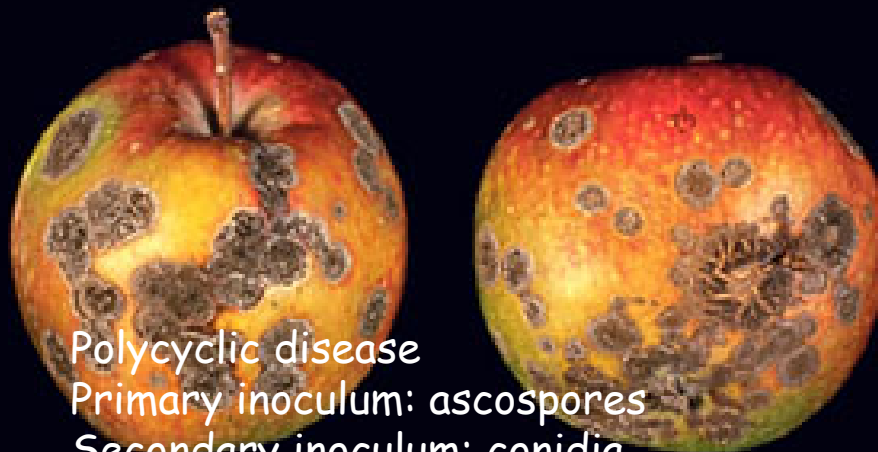
Powdery mildew conidia



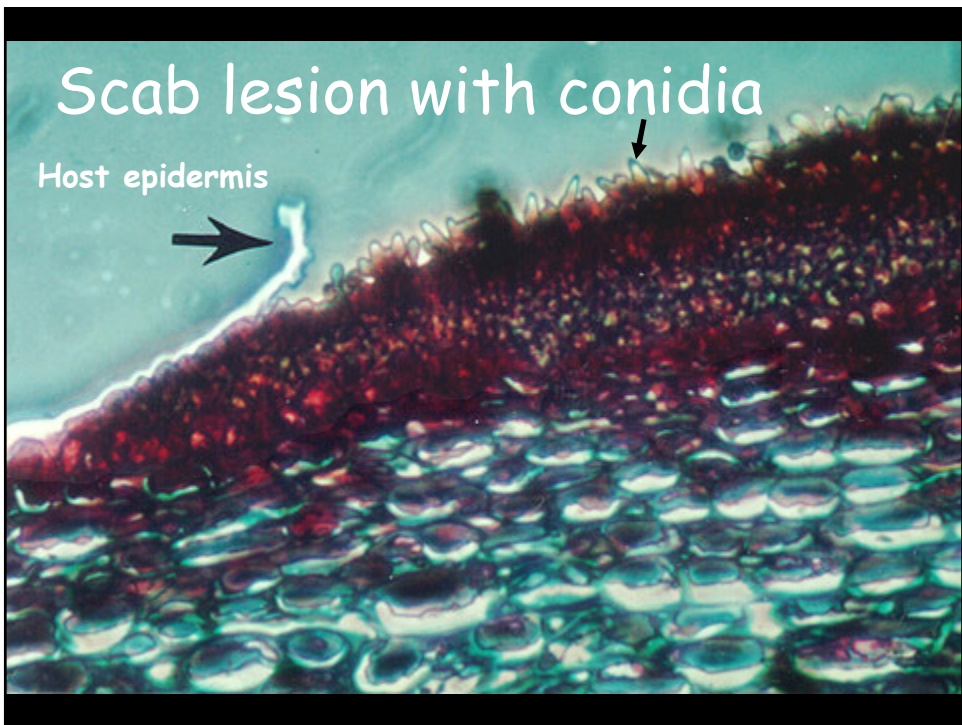




Apple Scab



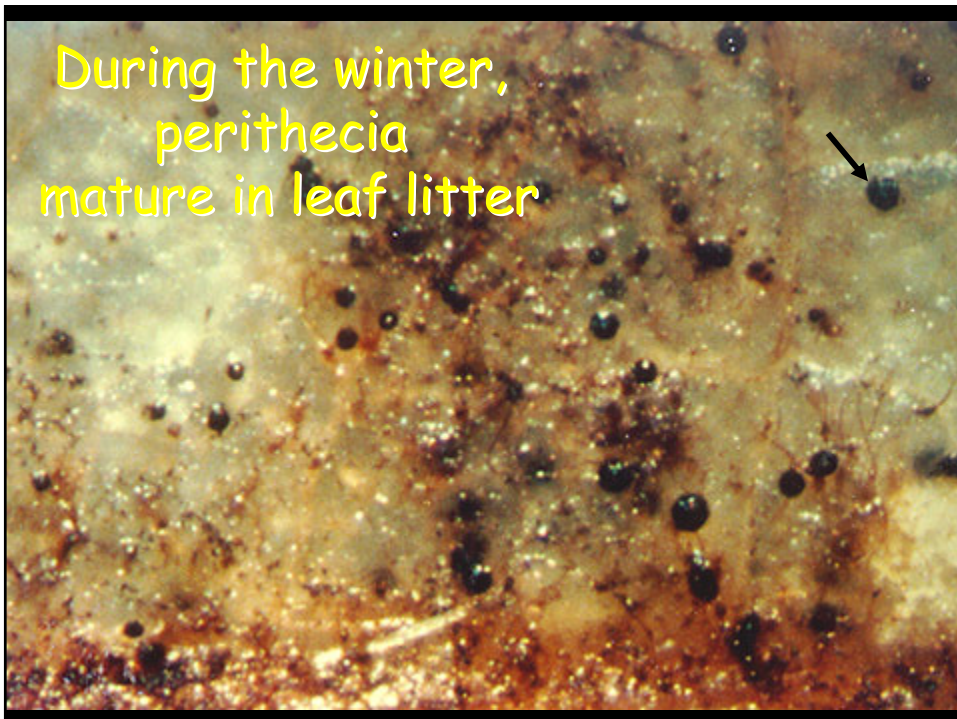
Polycyclic disease
 Primary inoculum: ascospores
 Secondary inoculum: conidia
 Facultative saprophyte



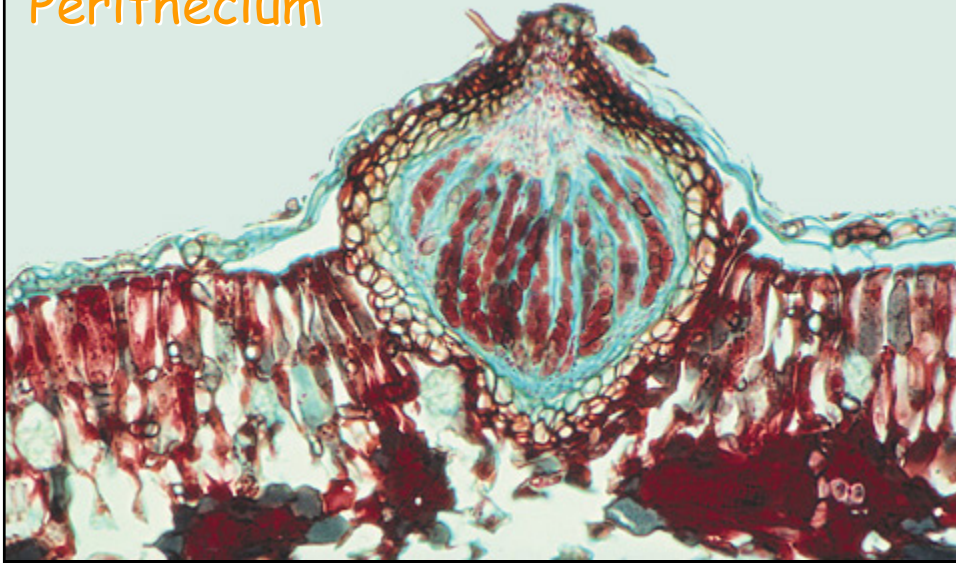
Apple leaf litter



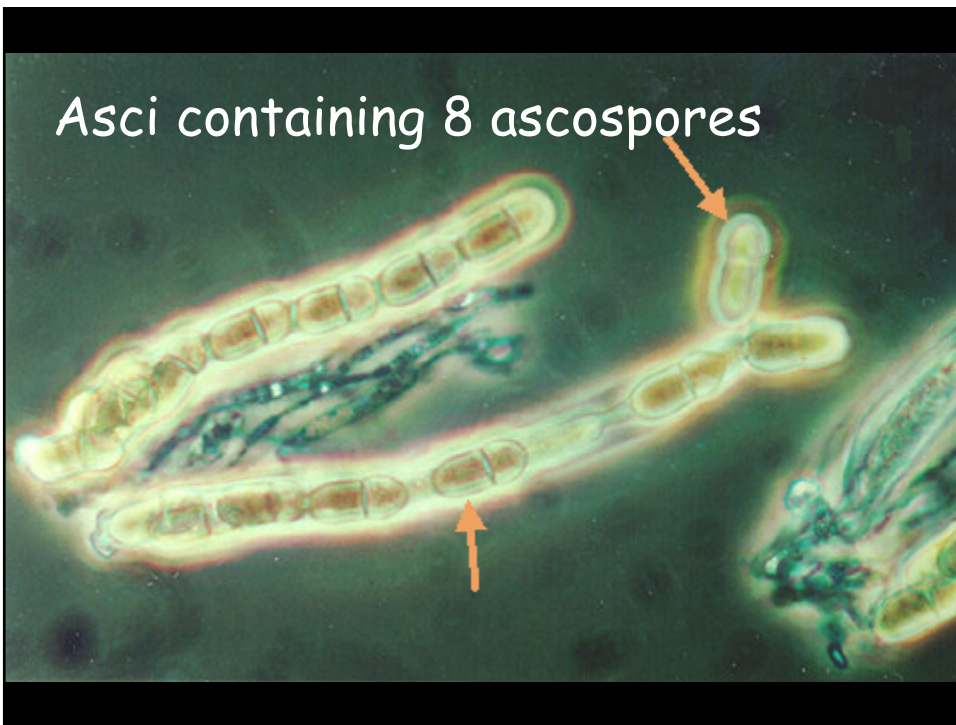
During the winter,
perithecia
mature in leaf litter

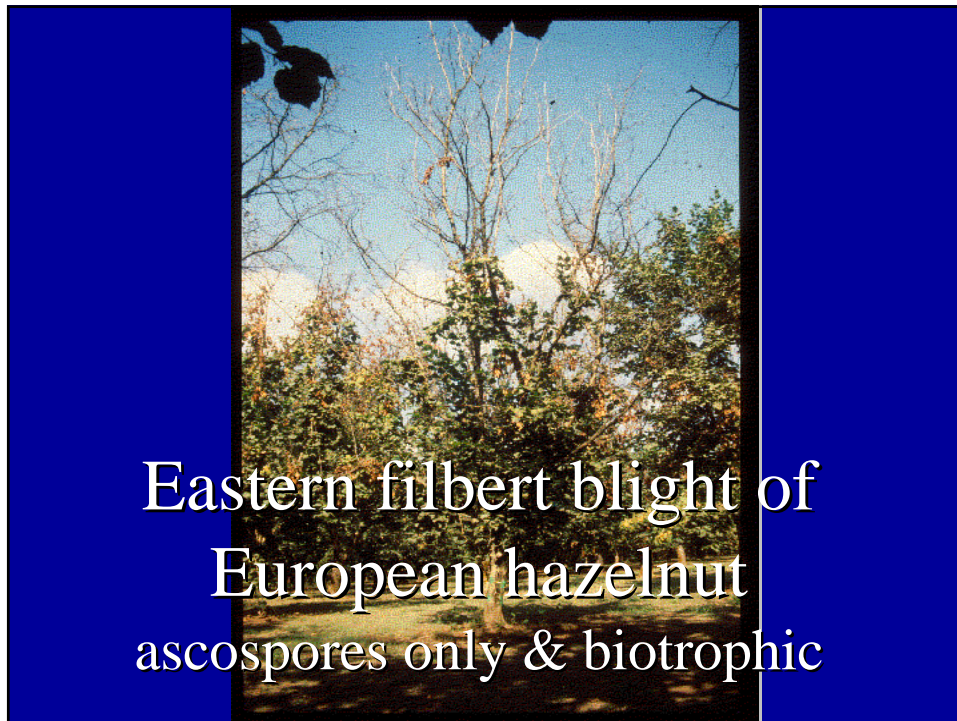
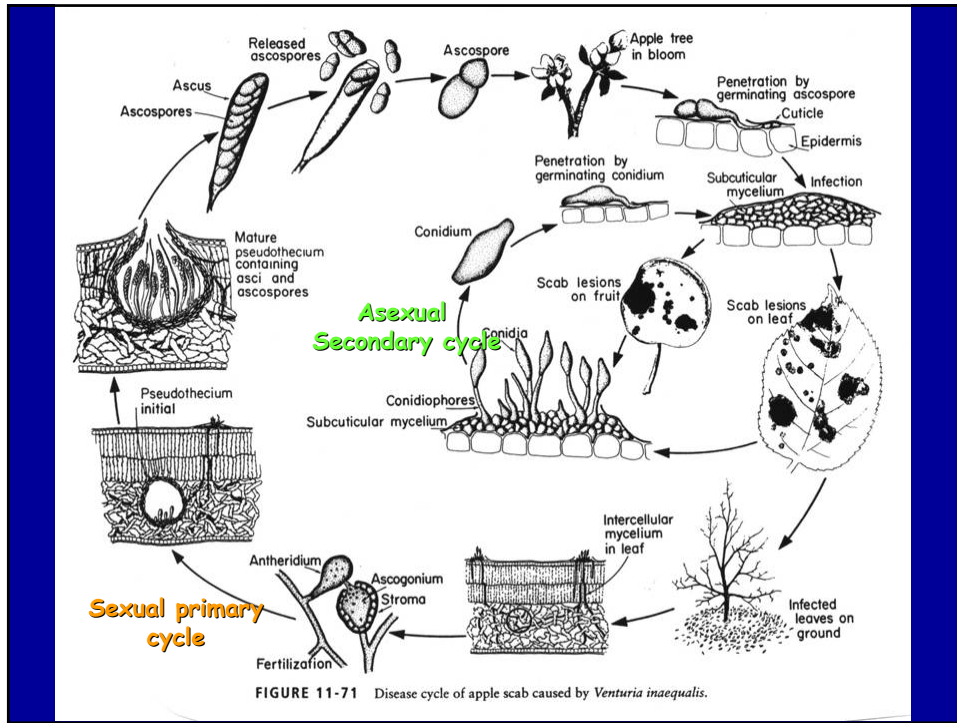


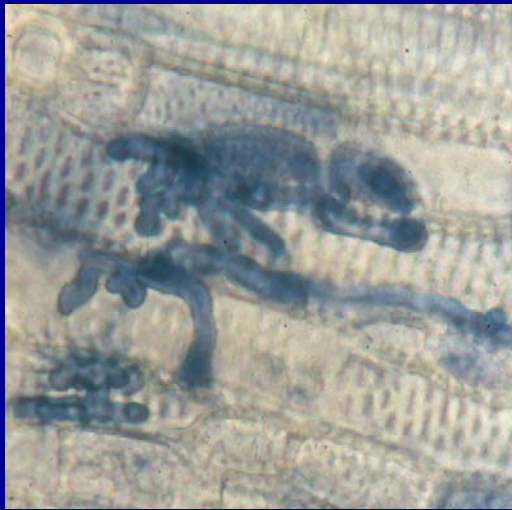
Perithecium



Asci containing 8 ascospores







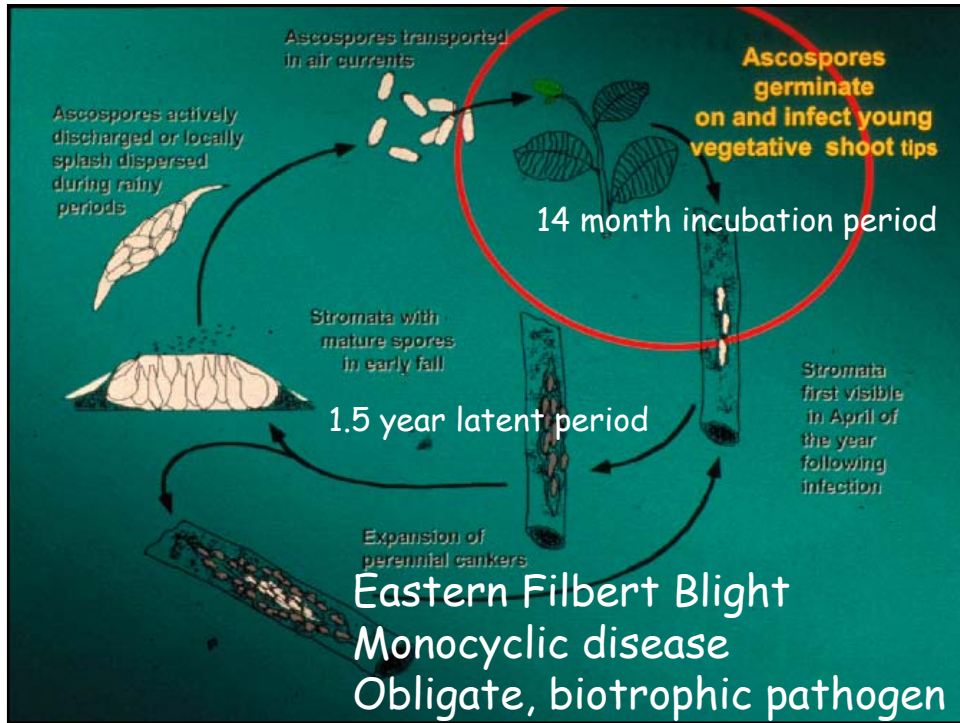
Mycelium in cambial layer of host

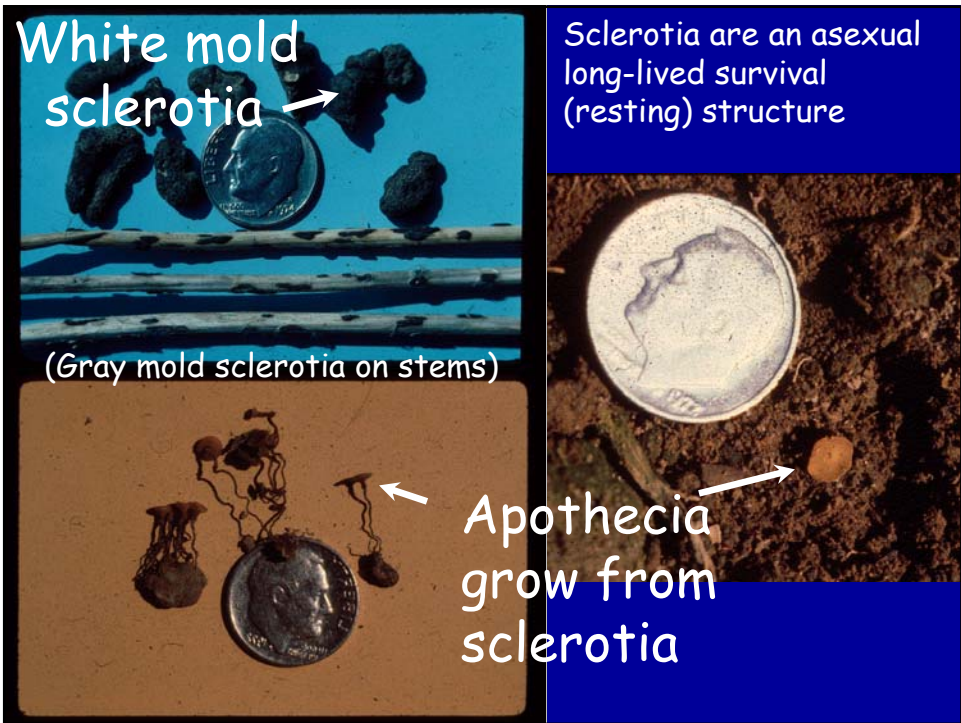


Cankers with rows of stromata bearing perithecia



Perithecia (six in this photo)
imbedded in a stroma





Dollar spot of turf

Dollar Spot Mycelium

Sclerotinia homeocarpa

UW-Madison

Diagram labels: Sterile apothecia (rare in nature), Spreading mycelium from dormant mycelium or anamata, Spreading lesion, Strona, Sexual primary cycle (rare), Asexual primary cycle.

Tar spot of maple ascospores only



The "black tar" is actually immature apothecia born on the leaf surface -



unlike the white mold fungus, the apothecia are NOT produced on a stalk