

Laboratory Lecture 7 (1 hour 12 minutes)

1. The apple scab and brown rot fungi survive both as saprophytes and parasites. Explain. What is the primary inoculum of each pathogen? Secondary inoculum? It is usually more effective to focus on the primary inoculum when controlling disease. Why?
2. The ascospores of *Venturia inaequalis* are unusual. In relation to disease forecasting, why is that information important?
3. What are acervuli? What do they contain, and how do they function in relation to inoculum dispersal?
4. What are "mummies," and how do they function? How can this information be helpful for controlling *Monilinia fructicola* by cultural means?
5. *Botrytis*, one of the most common greenhouse plant pathogens, thrives under certain environmental conditions. What conditions are they? Also, *Botrytis* is primarily a saprophyte, so what triggers it to become an aggressive parasite?
6. The citrus canker and apple scab pathogens cause superficial fruit damage rather than decay or rot. Thus, the blemished fruits remain edible. That being the case, why do growers take such pains to control them? In particular, why is citrus canker being so aggressively contained in Florida?
7. *Colletotrichum* and *Gloeosporium* species are extremely common plant pathogens. Where are you most likely to find them, and what types of symptoms do they induce?
8. A seed-transmitted *Colletotrichum* species, *C. lindmuthianum*, infects bean. This fungus infects the leaves, stems, and pods of its host and can cause considerable damage. Unfortunately, the cash value beans is usually not high enough to warrant using fungicides to control it. That being the case, what alternative does a grower have?
9. For diseases such as rose black spot, a disease similar to apple scab, it is recommended that fungicides be applied immediately after it rains, not before nor long afterwards. What is the logic behind this advice?
10. The epidemiology of *Monilinia fructicola* is unusual in that the leaves are unlikely to be infected. In terms of defining primary and secondary inoculum, when are you most likely to find the pathogen? Are you more likely to find large amounts of diseased tissue in the spring or later in the season when the fruit is being harvested?
11. What is an apothecium and how does it differ from a perithecium? Pycnidium?
12. There are only a few species of *Botrytis* and many of *Colletotrichum* and *Gloeosporium*. Which has the broader host range, *B. cinerea* or each of the members of the *Colletotrichum/Gloeosporium* complex?

Key Words

Acervulus (-i)
Apothecium (-ia)
Apple scab
Anthracnose
Botrytis
Brown rot of stone fruits
Colletotrichum
Citrus canker
Disease forecasting (apple scab)
Exponential curve (logarithmic curve)
Facultative parasite/saprophyte
Gloeosporium
Glomerella
Gray mold
Monilinia fructicola
Mummy
Primary disease cycle
Sclerotia
Secondary disease cycle(s)

Seed certification (in relation to bean anthracnose)

Sporodochium (-ia)

Timing (in relation to disease control)

Xanthomonas axonopodis

Xanthomonas campestris pv. *citri*

Venturia inaequalis