

# Identification and Treatment of Fruit Rots and Other Diseases



**Dr. Patrick Conner**

# Berry Rots

- Soft rots of berries
  - Ripe Rot
  - Bitter Rot
  - Macrophoma Rot
- Cankers on berries
  - Black Rot

# Berry Rot Life Cycle

Winter – survives in pedicels and mummy berries.



Summer – rapid spread of disease with ripening.



Spring - latent infection of young berries during rainy weather.



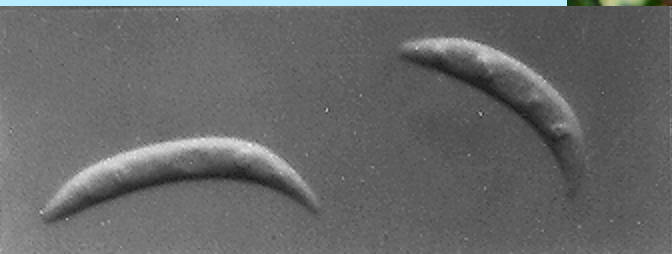
# Ripe Rot

- *Colletotrichum spp.* (anthracnose)
- Infect a wide range of crops plants (grapes, apple, peach, kiwi, papaya, mango etc.)
- Likes warm and wet conditions.
  - needs 6-8 hours wetness for infection.
- Conidia spread by wind and rain and feeding insects.
- Can cause latent infections in immature fruit.
  - Can lead to rot in storage.
- Overwinters on mummified berries and berry pedicels.
- Particularly common on Higgins, Magnolia, Summit, Carlos, Fry, and Scuppernong.

# Ripe Rot

- Identification

- Infection only visible on ripening berries.
- Soft rot of berries.
- Salmon or cream colored spots on rotting fruit.



# Bitter Rot

- *Greeneria uvicola*
- Can infect leaves, flowers, and berries, but does not sporulate on leaves.
- Gives a bitter flavor to wines and juices, hence the name.
- Invades berries from the pedicel.
- Symptomless berries may have a shorter shelf life.
- Overwinters as mummified berries and on infected pedicels.
- Flush of spores during flowering and again at fruit ripening.
- ‘Higgins’ and ‘Fry’ extremely susceptible.

- Leaf infections occur early in the year.



# Bitter Rot

- Identification
  - Pin head black spots on rotting berries.
  - Small black spots on leaves, flowers, and tendrils.
  - Tends to rot whole berry versus a specific lesion.





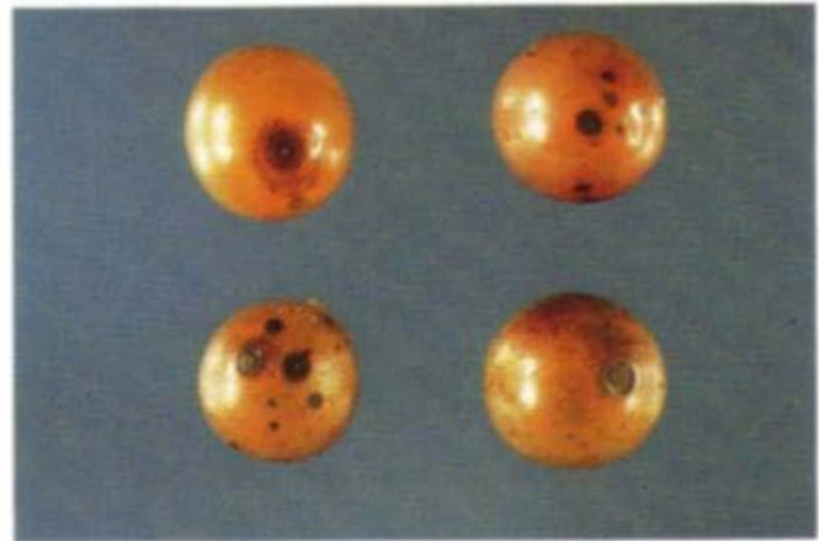
# Macrophoma Rot (Bot Rot)

- *Botryosphaeria dothidea*
- Fungus in this genus also cause dead arm disease.
- Wide host range and infects many woody plants.
- Common on Fry, Higgins, Summit, and Triumph and Carlos.
- Control with early cover sprays of Captan.

# Macrophoma Rot (Bot Rot)

- Identification

- Rot appears as berries reach full size.
- Starts as a firm tan to brown lesion.
- Generally identified by the lack of salmon (ripe rot) or black (bitter rot) spots.
- Results in a hollow shell of a berry.



**Fig. 5. Various stages of Macrophoma rot on muscadine grapes caused by *Botryosphaeria dothidea*.**

# Black Rot

- *Guignardia bidwellii* f. *muscadinii*
- Produces large brown lesions on leaves.
- Superficial scab produced on berries.
- Often common, seldom severe.
- Prevalent on Cowart and Carlos.



# Berry Rot Control

- Control
  - Chemical control starting at cap fall.
  - Early harvest of fruit.
  - Control of feeding insects.
  - Remove mummified berries and clusters.
  - Avoid bronze cultivars.
  - Flail mow crop debris during winter.
  - Avoid overhead irrigation.



# Leaf Spots

- Angular Leaf Spot
- Bitter Rot
- Black Rot

# Angular Leaf Spot

- *Mycosphaerella angulata*
- Only affects muscadine grapes.
- Infections occurs after midseason.
- Results in leaf loss and exposure of grapes to sun scald.
- Weakens vines and makes them more susceptible to cold damage

# Angular Spot Life Cycle

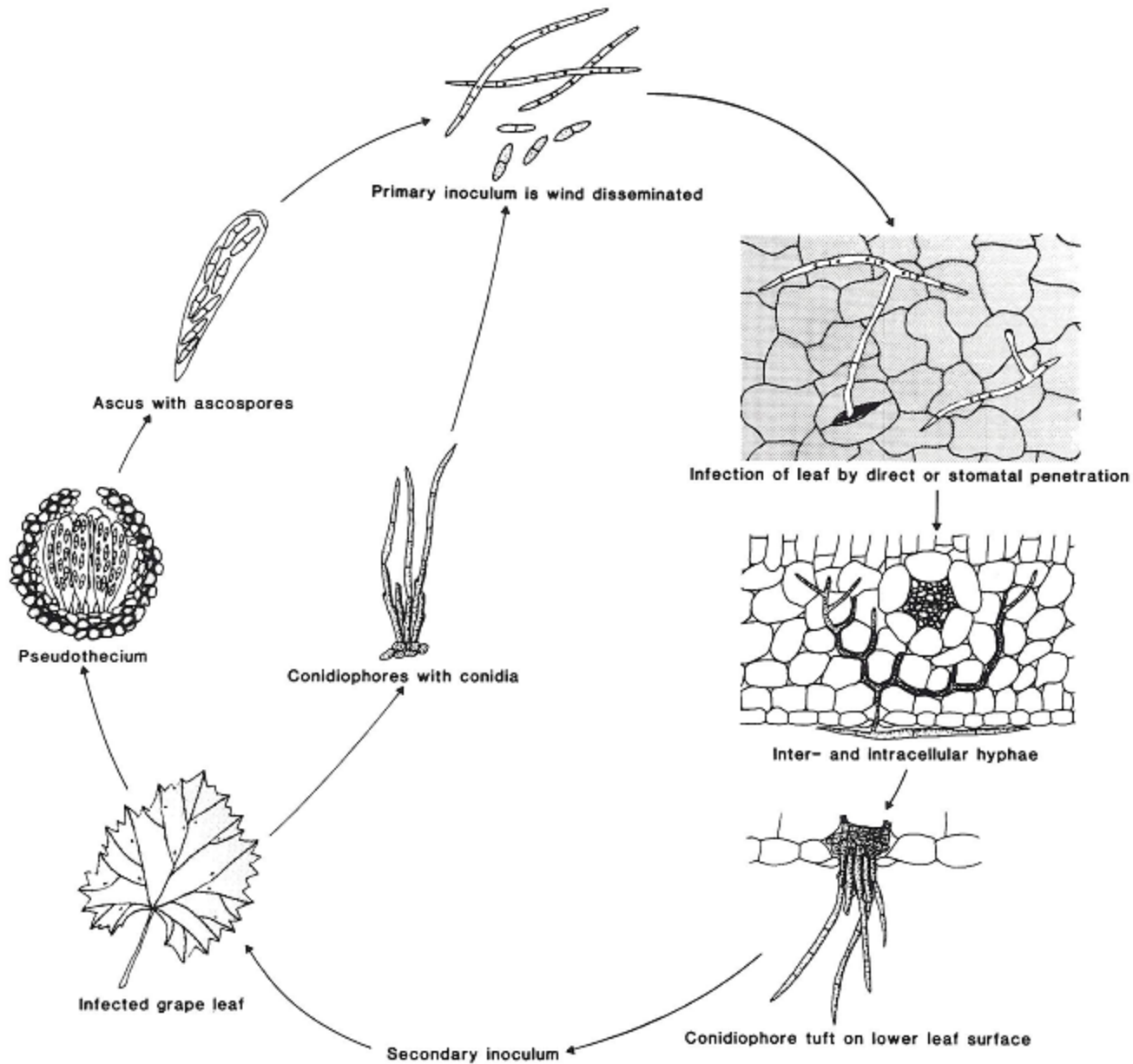


Fig. 22. Disease cycle of angular leaf spot of muscadine grape, caused by *Mycosphaerella angulata*. (Drawing by M. E. Daykin)

# Angular Leaf Spot

- Control
  - Destroy crop residue.
  - Remove nearby wild muscadine vines.
  - Apply fungicides, especially mid to late season.
  - Keep vines healthy.





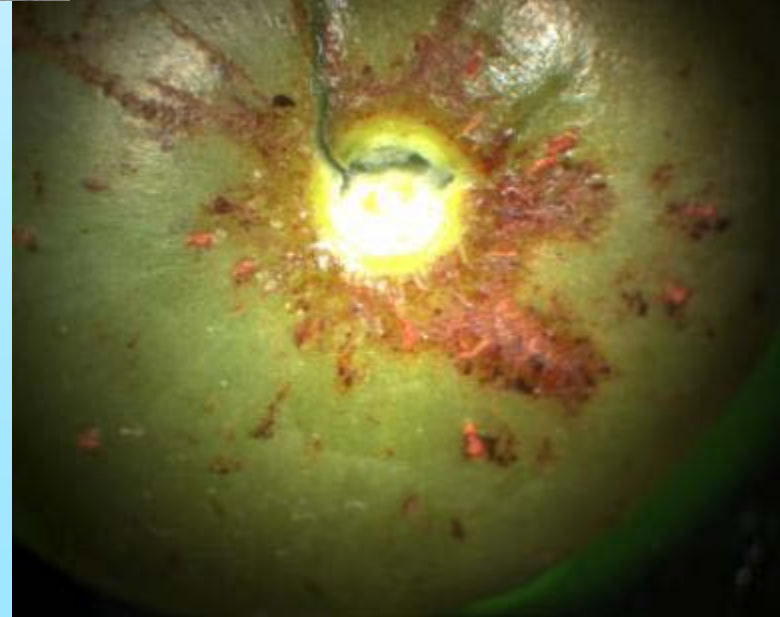
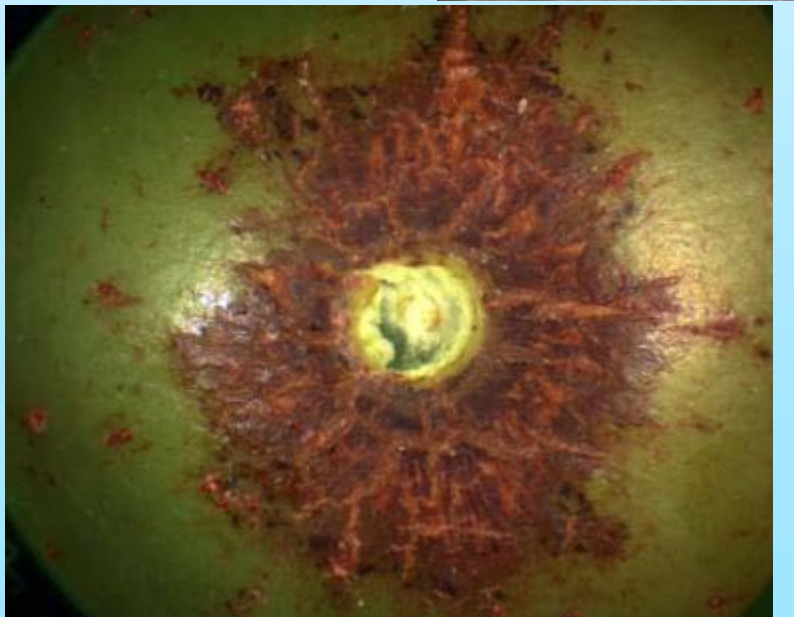
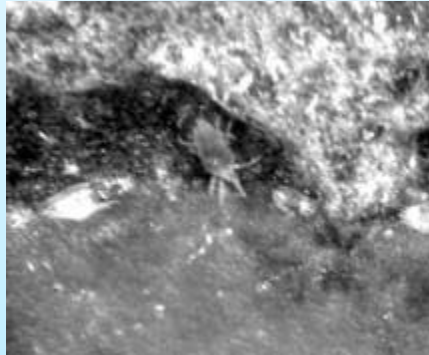
# Miscellaneous Diseases

- Powdery Mildew
  - *Uncinula necator*
  - Attacks berries just after fruit set, causing a fruit russett.
  - More common in the northern regions.
  - Causes a brown russetting of fruit skin.
  - Don't confuse with flat mite damage that causes a russett primarily around the stem.



# Flat Mite Damage

- Feeding damage concentrated around the stem scar.



# Miscellaneous Diseases

- Sooty Mold
  - *Peltaster fructicola*
  - Dark superficial discoloration, can be rubbed off.
  - Common on 'Fry'.
  - Caused by aphid honeydew building up on leaves and fruit.



# Miscellaneous Diseases

- Pierce's Disease
  - *Xylella fastidiosa*
  - Bacteria grow in xylem and prevent water flow, producing a leaf scorch.
  - Not very common on muscadine.
  - Can be a problem in 'Carlos'.



# Fungicide Scheduling

- Check with your plant pathologist.
  - Early season sprays are very important, berries can become infected and not show it until ripening.
  - Start when shoots are 6-10 inches and continue every 2 weeks. Early application important with bitter rot.
  - Alternate Nova with Captan.
  - If ripe rot is prevalent replace Captan with Abound.
  - If you wish to avoid spraying, concentrate on growing dark colored varieties. Alachua, Nesbitt, Polyanna, Southern Home, Noble, Supreme.
  - In bronze types, generally thicker skins give more protection. Triumph

