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)

- *Botryrosphaeria 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

- *Guignarida 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 occur 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.

Courtesy Bill Cline

Sooty mold
*Peltaster fructicola*
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