Identification and Treatment of Fruit Rots and Other Diseases

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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.
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 russet.
  – More common in the northern regions.
  – Causes a brown russetting of fruit skin.
  – Don’t confuse with flat mite damage that causes a russet 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