Managing the complexity of pest management

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Remember last year?

This is the complex part!

Pests that plagued you last year have a way of reappearing!

Black Rot *Guigardia bidwellii*

- Early season
- Needs free water for infection
- Infection period reduced as temperatures rise
- Primary inoculum source – mummy berries

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Phomopsis Cane and Leaf Spot

(*Phomopsis viticola*)

- Early season
- Needs free water for infection
- Primary inoculum infected canes
- Berries susceptible all season, inoculum becomes depleted at pea-size berries

Phomopsis Cane and Leaf Spot

(*Phomopsis viticola*)

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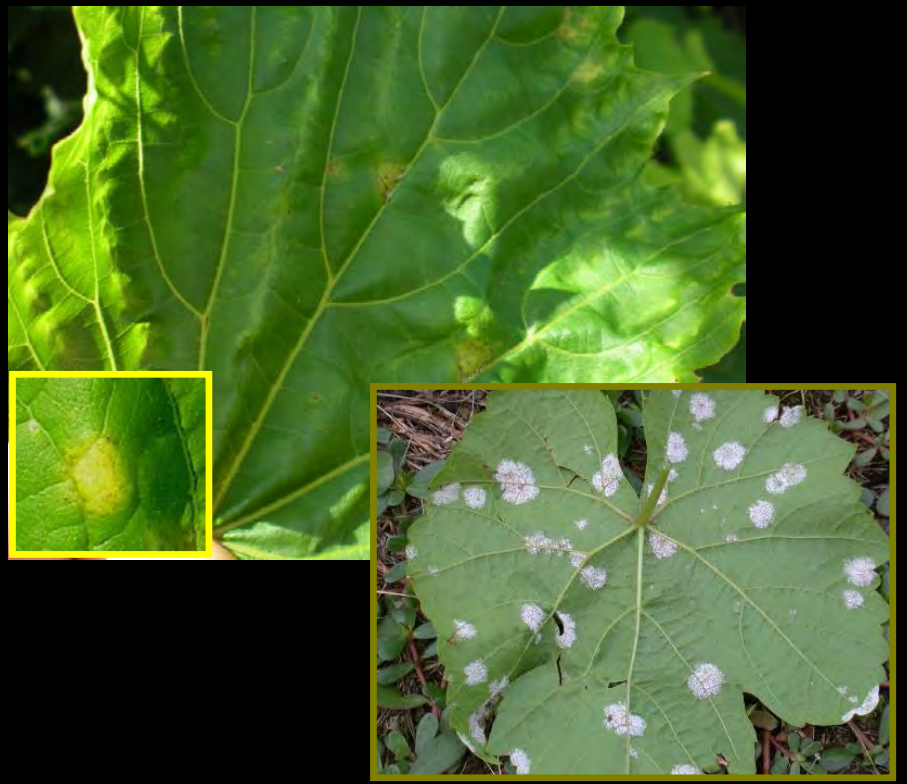
Downy mildew *Plasmopara viticola*

- Can be early season
- Needs free water for infection
- Generation time reduced as temperatures rise
- Primary inoculum infected fallen leaves



Anthracnose *Elsinoe ampelina*

- Can occur early season
- Needs free water for infection
- E. Swenson cultivars susceptible and Marquette, Frontenac, La Crescent
- Primary inoculum infected plant material

Anthracnose *Elsinoe ampelina*

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Managing these potential maladies

- Mancozeb products (Dithane F-45, Penncozeb Rainshield, Manzate,..others will provide protection to:
  - Black Rot
  - Phomopsis cane and leaf spot
  - Downy mildew
  - Anthracnose Penncozeb (30 day PHI). Most effective: Sovran, Abound, Endura, Pristine, and Topsin M – Annemiek Schilder MSU

Captan 50WP and early season

- Label states “suppression of black rot”

Warning

Do not mix Captan products with:

- Oil sprays or immediately after or before oil sprays
- Lime sulfur
- Lime
- Bordeaux mixture

Immediate Pre-Bloom (just before the beginning of capfall) to 4 to 5 weeks post-bloom

- All cultivars and their fruit are susceptible to:
  - Black rot
  - Phomopsis fruit rot
  - Downy mildew
  - Powdery mildew
  - Anthracnose

Immediate Pre-Bloom (just before the beginning of capfall) to 4 to 5 weeks post-bloom

- Use the most effective fungicides
  - Strobies (if no resistance)
  - Manztes, Ziram, Captan – phomopsis, black rot, downy mildew
- Maximize coverage, full rates, shortest spray interval (14 days should be maximum spray interval)

Downy mildew resistance to Strobies

- Abound, Sovran, Flint, Pristine, Quadris top
- Resistance confirmed in mid-Atlantic and southern states (downy mildew 2005), NY (powdery mildew 2002), and anecdotal report of failure in MO (downy mildew) in 2015
- Be careful relying on these materials used alone

Resistance management - Strobies

- Careful only relying on Strobies alone when clusters highly susceptible to DM – immediate pre-bloom/post bloom
- Careful relying on Strobies if DM pressure is high
- Tank mix with mancozeb, captan, or other products for DM control

Planning for an extended wet period

immediate pre-bloom to 4 to 5 weeks post bloom

- Target diseases that were not controlled last season
- Shorten up spray intervals
- Use systemic and protectant fungicides
- Keep good records of rainfall amounts and if your spray did actually dry before a wet period – rainfastness.

Rainfastness

- Pesticide must dry after applied
- Systemic pesticides needs time to absorb after applied
- Labels often contain limited information or vague
- In general prefer “24 hours of dry weather after application” or pesticides more prone to removal by rain within 24 hours after application.

Rainfastness

Suggestions

- ≥ 2 inches rainfall and protectant fungicide recently applied – reapply
- Protectant fungicide 7 days old or older and ≥ 1 rainfall – reapply
- Systemic fungicides often rainfast after a few hours but most systemic fungicides need 24 hours to be fully absorbed

Effect of simulated rainfall on Ziram

Rainfall	Residues removed
(inches)	(%)
0.1	25
0.5	30
1.0	65
2.0	75

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Annemiek Schilder MSU, 2010

First Postbloom (10-14 days after immediate pre-bloom)

- Black rot, Downy mildew, Phomopsis, Powdery mildew, and Anthracnose

Second Postbloom

- Black rot can still be a problem
  - Wet conditions
  - Early infections occurred
- Phomopsis inoculum becomes depleted
- Foliar Downy mildew threat especially during wet periods

Summer

- Disease management decisions should be driven by:
  - Weather conditions
  - Scouting and monitoring

Sour Rot (pre-harvest cluster decay – smell vinegar)

- Wounds are entry point – birds, rain, cracking, grape berry moth powdery mildew, compression in tight clusters…
- *Saccharomyces* yeasts ….ethanol
- *Acetobacter* and *Gluconobacter*….acetic acid
- 15° Brix, ≥ 60° F, and rain is trigger…cracked fruit

Sour Rot

- VSP training system versus High wire
- Don’t let Sour rot get out of control
- Control fruit flies

Sour Rot and Grape Berry Moth

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Veraison

- “Rots” – berries are susceptible
  - Bitter rot
  - Ripe rot
- Botrytis – Susceptible cultivars and wet weather

Summary

- Remove mummy berries/clusters NOW
- A lot of Black Rot inoculum available for early infections
- An early cover spray ≤ 1 – inch shoots
- If disease develops early management becomes complicated
- Scout and Monitor Always

Sources To Help You

Wine Grape Production Guide for Eastern North America. Natural Resources, Agriculture, and Engineering Service Cooperative Extension. 2008.

Effective Vineyard Spraying. Andrew Landers. 2010.

Midwest Fruit Pest Management Guide 2016.

You can purchase a copy or download a free pdf copy of the guide at https://mdc.itap.purdue.edu/item.asp?item_number=ID-465-W#.VscwHuY5P50

Pesticide label database

http://www.cdms.net/Label-Database

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