Muscadine Diseases

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A pathogen is destroying Italy’s olive trees

Xylella fastidiosa

CBS News March 10, 2019, 9:49 AM
Pierce’s Disease (PD)

- Bacteria (*Xylella fastidiosa*)
- Muscadines are fairly resistant to PD
- Causes marginal leaf burn on ‘Carlos’ and other susceptible muscadines, but does not kill vines
Leaf and fruit diseases of muscadine grape

- Mostly caused by fungi
- Spores are microscopic
- Spread by wind, splashing rain, or insects
- Most spores require moisture to germinate and infect
Spores

Human hair
Fungal pathogens overwinter in old, infected plant parts, releasing spores that infect new emerging shoots in the spring.
Fruit Rots

Macrophoma rot
*Botryosphaeria* spp.

Bitter Rot
*Greeneria uvicola*

Ripe rot
*Colletotrichum* spp.

Sooty mold
*Peltaster fructicola*
Ripe rot at harvest
Leaf Diseases

- Bitter Rot
  *Greeneria uvicola*

- Black rot
  *Guignardia bidwellii*

- Angular leaf spot
  *Mycosphaerella angulata*

- Pierce's Disease
  *Xylella fastidiosa*
Black rot on leaves
Powdery Mildew

- Fungus (*Uncinula necator*)
- Appears as faint white “powder” on young fruit
- Causes brown russetting on surface
- Affected fruit cannot ripen normally; may crack
Disease Resistance in Muscadines

- Resistant to Pierce’s Disease
- No Downy Mildew
- No Botrytis Bunch Rot
- Resistant to Nematodes
- Not Grafted
- Few (if any) Viruses

cv. Noble
Fungicides, Sprayers and Spray Timing
Sprayers

- Airblast with 20-40 gallons per acre, OR
- High-pressure sprayer with 50-100 gallons per acre
- Sprayer must be designed to reach grapes underneath the canopy
For muscadine disease Control, spray up, not down!
Spray Timing – much simpler for muscadine (compared to Vinifera)

- Mid-May (Before disease is visible!!)
- Shoots 6-10 inches in length
- Flowers not yet open
- Continue every 2 wk until early August
- Early summer sprays provide more disease control than later sprays, because fungicides are mainly protectants
- Write it down
Fungicides

- Mancozeb early (66 d PHI)
- Alternate or tank mix myclobutanil (Nova, Rally) with Captan, apply every 2 wks from Mid-May through August
- Where ripe rot is a problem (shown), replace or supplement Captan with a strobilurin fungicide (such as Abound, Pristine or Flint)
- ALWAYS READ AND FOLLOW THE LABEL!

Ripe rot
Nita, January 2016

Summary cont.

**Vinifera**

- Modes of action used
  - M1 (copper) x 2 times
  - M2 (sulfur) x 11 times
  - M3 (mancozeb) x 7 times
  - M4 (captan) x 4 times
  - 2 (Rovral) x 2 time
  - 3 (Rally) x 2 times
  - 9 (Scala) x 1 times
  - 13 (Quintec) x 1 time (+1)
  - 33 (Phosphite, Phostrol) x 2 times (+2-3 times)

**Muscadine**

- Mancozeb 1-2X
- Captan 3-6X
- Rally 3-6X
2019 Southeast Regional Muscadine Grape Integrated Management Guide

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Recommendations are based on information from the manufacturer’s label and performance data from research and extension field tests. Because environmental conditions and grower application methods vary widely, suggested use does not imply that performance of the pesticide will always conform to the safety and pest control standards indicated by experimental data.

This publication is intended for use only as a guide. Specific rates and application methods are on the pesticide label, and these are subject to change at any time. Always refer to and read the pesticide label before making any application! The pesticide label supersedes any information contained in this guide, and it is the legal document referenced for application standards.
Cultural Problems
Abiotic and Chemical Injury
Of the most recent 27 muscadine disease samples submitted for diagnosis, 14 were abiotic/cultural problems rather than disease.

- Lack of pruning
- Poorly drained site (“wet feet”)
- Trunk injury from freezing or other causes
- Herbicide injury (2,4-D most common)
Hail damage to green fruit
2,4-D herbicide injury
2,4-D on blueberry (and nearby oak)
Spray burn on fruit – usually on the side “facing” the sprayer. Caused by phytotoxic chemicals or a tank mix of incompatible chemicals (oils or surfactants with certain wettable powders)
Spray burn from tank mix with GPA too low, so off-label
Avoiding tank mix problems

- When in doubt, don’t do it!
- Avoid mixing different formulations (EC with WP, etc)
- Surfactants are often not necessary and can be injurious
- Read and follow the label – if you do not, you have no recourse when injury occurs