



Muscadine Diseases

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A pathogen is destroying Italy's olive trees

CBS News March 10, 2019, 9:49 AM

Xylella fastidiosa

Pierce's Disease (PD)

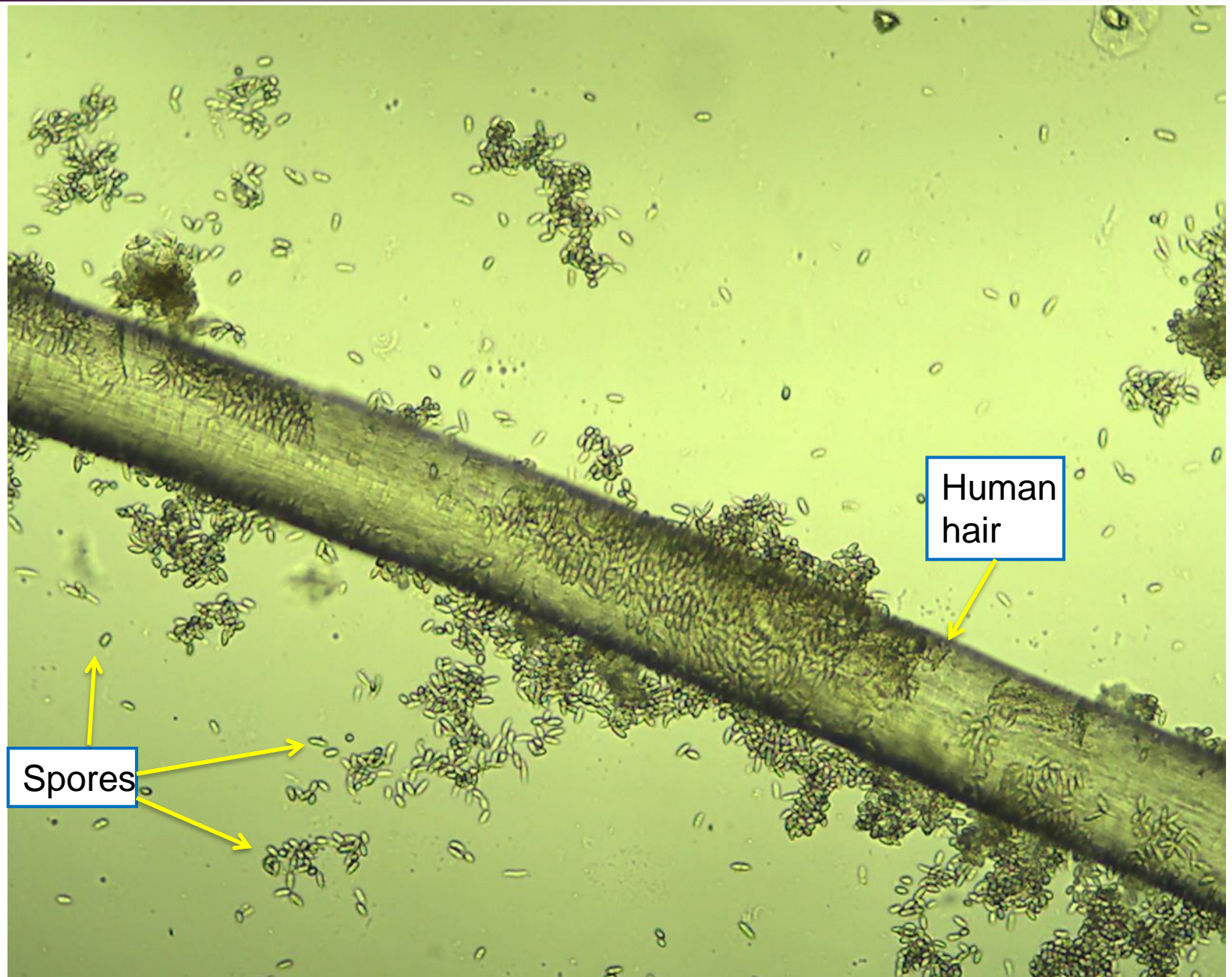
- Bacteria (*Xylella fastidiosa*)
- Muscadines are fairly resistant to PD
- Causes marginal leaf burn on 'Carlos' and other susceptible muscadines, but does not kill vines



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





Human
hair

Spores

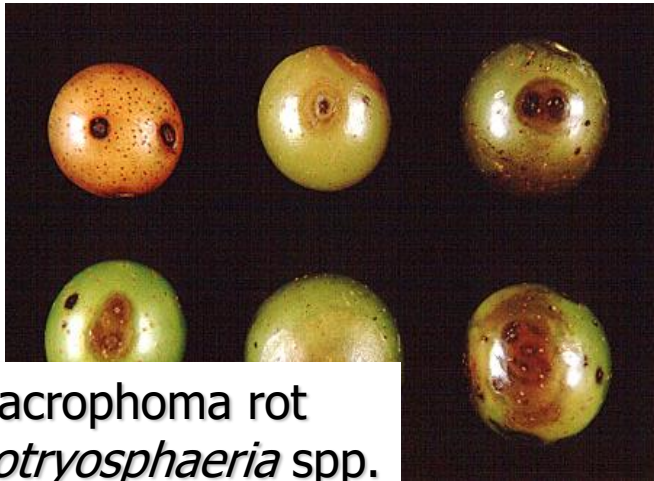
Fungal pathogens overwinter in old, infected plant parts, releasing spores that infect new emerging shoots in the spring







Fruit Rots



Macrophoma rot
Botryosphaeria spp.



Ripe rot
Colletotrichum spp.



Bitter Rot
Greeneria uvicola



Sooty mold
Peltaster fructicola



Ripe rot at harvest

Leaf Diseases



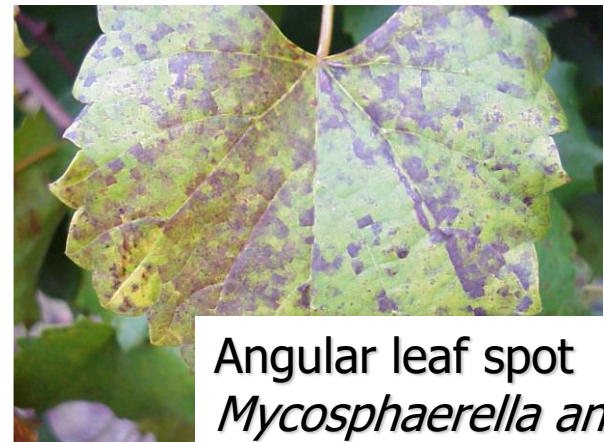
Bitter Rot
Greeneria uvicola



Black rot
Guignardia bidwellii



Pierce's Disease
Xylella fastidiosa



Angular leaf spot
Mycosphaerella angulata



Black rot on leaves

Powdery Mildew

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









Management and Control of Diseases

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

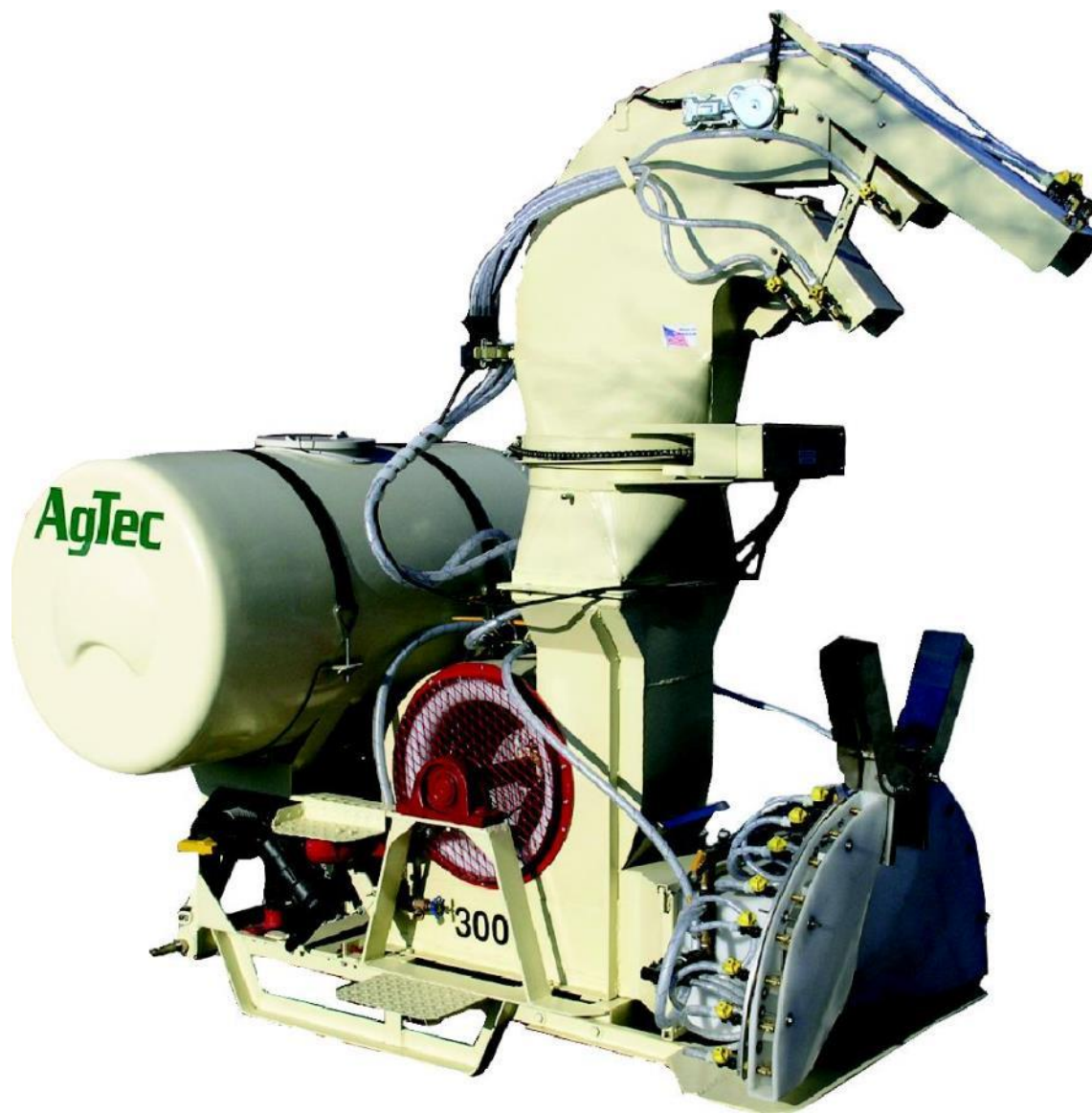
Fungicides, Sprayers and Spray Timing



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





NO

For muscadine disease
Control, spray up, not
down!

YES



<http://www.superhorticulture.com>



<http://vtpv.ext.vt.edu>

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



NCSU-PDIC

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

