



# Controlling Fruit Rots on Muscadine Grapes

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A microscopic image showing a dense population of bitter rot spores. A thick, dark, cylindrical human hair is positioned diagonally across the frame. The hair is heavily coated with a thick layer of spores. Numerous individual spores are also visible in the surrounding light green fluid medium. The spores are small, oval-shaped, and have a distinct dark outline.

**Bitter rot spores  
from muscadine  
grape**

Human  
hair

Spores

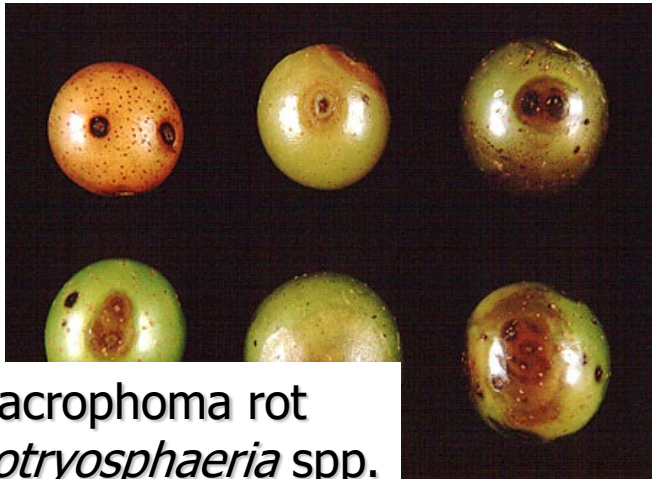




# **MUSCADINE FRUIT ROTS**

## **SIGNS & SYMPTOMS**

# Fruit Rots



Macrophoma rot  
*Botryosphaeria* spp.



Ripe rot  
*Colletotrichum* spp.



Bitter Rot  
*Greeneria uvicola*



Sooty mold  
*Peltaster fructicola*



Ripe rot at harvest

# 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









# **MUSCADINE FRUIT ROTS**

## **MANAGEMENT AND CONTROL**



# Good Cultural Practices

- Fertility – avoid over-fertilization
- Canopy management – weed control, summer pruning to promote air movement
- Timely, complete harvest – esp. critical with hand-harvest for fresh
- Winter pruning to remove overwintering diseases

# 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.superbhorticulture.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



# “Standard” Fungicide Recommendations for NC

- Mancozeb early (66 d PHI)
- Alternate or tank mix myclobutanil (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**

Fungicide “Standards” Known to Work	FRAC Code
Captan	M4
Rally	3
Abound	11
Pristine	7+11
Flint	11
Mancozeb	M3

**Labeled for grape but  
Never tested on  
muscadines until 2020**



“New” Products Evaluated in 2020	FRAC Code
Aprovia	7
Aprovia Top	3+7
Gavel	22+M3
Switch	9+12
Miravis Prime	7+12
Luna Experience	3+7
Topguard EQ	3+11
Kenja	7
Procure	3
Merivon	7+11
Badge (copper)	M1

Treatment and rate per acre	Ripe rot % <sup>z</sup>	Bitter rot %	Macrophoma rot %	Marketable %	Angular leaf spot <sup>y</sup>	
					incidence	severity
Untreated control	2.9 abcd <sup>x</sup>	5.6 a	8.1 a	86.8 a	80.0 a	15.0 a
Aprovia 10.5 fl oz	1.4 abcd	2.6 bc	1.4 cd	94.8 cd	12.5 bc	2.2 bc
Aprovia Top 13.3 fl oz	1.4 abcd	0.1 c	0.9 cd	97.4 cd	1.2 c	1.2 c
Gavel 2.5 lb	2.0 abcd	2.0 bc	3.8 bc	92.2 abc	0.2 c	0.2 c
Switch 14.0 oz	0 d	1.0 c	0.2 d	98.9 d	23.8 b	5.0 b
Miravis Prime 13.4 fl oz	0.3 d	1.2 c	1.1 cd	97.7 cd	7.5 c	1.5 bc
Luna Experience 8.6 fl oz	4.1 a	2.0 bc	3.6 bc	92.2 abc	0 c	0 c
Topguard EQ 8.0 fl oz	0.6 bcd	1.0 c	1.8 cd	97.0 cd	0 c	0 c
Kenja 22.0 fl oz	0.5 cd	1.7 c	0.8 cd	97.4 cd	13.8 bc	2.0 bc
Badge SC 3.5 pt	3.5 abc	4.6 ab	6.0 ab	87.7 ab	8.8 bc	2.8 bc
Procure 8.0 fl oz	3.8 ab	0.6 c	2.6 cd	92.7 bc	10.0 bc	3.5 bc
Merivon 5.5 fl oz	0.8 bcd	0.2 c	1.5 cd	97.4 cd	0.2 c	1.2 c
LSD	3.18	2.78	3.26	5.91	15.76	3.73

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(Cline, Brannen and Breeden, 'Carlos' trial, 2020)

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<b>Flint</b>	<b>11</b>
<b>Mancozeb</b>	<b>M3</b>

**No phytotoxicity  
observed with any newly  
tested products in 2020**

**\*\*\*Increased marketable  
yield (vs no spray)**

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