NC STATE UNIVERSITY

WEBINAR (July 29 2020, 10-11am)
Muscadine Disease Management:
Fresh-Market Muscadine: How to keep it clean

Organization:
Debby Wechsler, NC Muscadine Grape Association

Host:
Mark Hoffmann, NC State University

Co-Host:
Emma Volk, NC State University

Panelists:
Phillip Brennan, Plant Pathologist, University of Georgia
Bill Cline, Plant Pathologist, NC State University
Mark Hoffmann, Small Fruits Extension Specialist, NC State University
Ervin Lineberger, Owner, Killdeer Farms, Kings Mountain NC

Agenda

- Disease Management starts in Winter: What to consider when managing a fresh-market muscadine vineyard – *Dr. Mark Hoffmann, NC State University*
- Muscadine Diseases and control options – *Dr. Phillip Brennan, University of Georgia*
- Questions and Answers with: *Ervin Lineberger, Phil Brennan, Bill Cline, Mark Hoffmann*

- Benny Bloodworth passed away on July 22

Rules

1.) Q+A:

- Please write your questions into the Q+A box
- *We try to address all questions during and after a presentation*
- Emma Volk will monitor questions and will make sure that we won't miss any.

2.) Pesticide Credits

- You have to be present through the whole webinar.
- Please have your pesticide license number, name and county ready.
- *You will have to enter you name and license number into the chat box by end of the seminar.*
- *If you don't do that, you won't be able to get the necessary hours.*
- Debby Wechsler will record all information

Online

Webinar Recording and presentations will be available on the Grape Portal:
https://grapes.ces.ncsu.edu

Enjoy the webinar ☺

Clean fruit start early

Mark Hoffmann
Small Fruits Extension Specialist
NC State University
mark.hoffmann@ncsu.edu
919-352-8006

Clean Fruit?

Photo courtesy: P. Conner

Why is that important?

Berry appearance is a distinctive factor to define fresh-market grape quality!

While other quality factors are more important for wine-grape production

- *Reputation*
- *Increase customer base*
- *Increase yields*
- *Increase the standard of the NC fresh market muscadine industry*

What can we do?

- *What are the main culprits?*
- *Cultivar Choice*
- *Pruning*
- *Basic disease control*
- *Sprayer? Disease Resistance?*

What are the main culprits

- Black Rot (*Guignardia bidwellii*)
- Macrophoma Rot (*Botryosphaeria dothidea*)
- Ripe Rot (*Colletotrichum gloeosporioides*)
- Bitter Rot (*Greeneria uvicola*)
- Powdery Mildew (*Uncinula necator*)

Macrophoma Rot; Photo courtesy: B. Cline

Ripe Rot; Photo courtesy: B. Cline

Beetles and Stink Bugs can also be problems

Cultivar Choice

- Do not chose cultivars with a low eating quality
- ~~**Carlos, Noble, Dorcen, Magnolia**~~ are great processing cultivars, but have low fresh-market quality.
- Bronze fresh-market cultivars often more susceptible (Fry and Early Fry)

Photo courtesy: P. Conner

Common Bronze Cultivars

Season	Cultivar	Flower type
Early	**Hall**	Self-fertile
Early	**Triumph**	Self-fertile
Mid	**Tara**	Self-Fertile
Mid	**Fry**	Female
Late	**Late Fry**	Self-fertile

Common Dark Cultivars

Season	Cultivar	Flower type
Early	**Lane**	Self-fertile
Mid	**Supreme**	Female
Mid	**Ison**	Self-fertile
Mid	**Black Fry**	Female
Mid	**Paulk**	Self-fertile
Late	**Nesbitt**	Self-fertile

Comprehensive list of cultivars

Table 2. Characteristics of evaluated muscadine cultivars. Seasonal fruit development can differ depending on location.

Cultivar	Type	Fruit Color	Fruit Size	Cold-hardy	Season
Wine and Juice					
Carlos	Self-fertile	Bronze	Small-Medium	+	Mid
Doreen	Self-fertile	Bronze	Small-Medium	+	Late
Magnolia	Self-fertile	Bronze	Small-Medium	+	Mid
Noble	Self-fertile	Dark	Small-Medium	++	Mid
Fresh Market					
Black Beauty	Female	Dark	Large	++	Early-Mid
Black Fry	Female	Dark	Large	++	Mid
Darlene	Female	Bronze	Large	-	Early-Mid
Early Fry	Female	Bronze	Large		Early
Fry	Female	Bronze	Large	++	Mid
Granny Val	Self-fertile	Bronze	Large		Late
Hall	Self-fertile	Bronze	Medium-Large	-	Early
Ison	Self-fertile	Dark	Medium-Large		Mid
Lane	Self-fertile	Dark	Medium-Large	-	Early
Late Fry	Self-fertile	Bronze	Large	++	Late
Nesbitt	Self-fertile	Dark	Medium-Large	-	Mid-Late
Oh My!	Self-fertile	Bronze	Medium, seedl.	?	?
Paulk	Self-fertile	Dark	Large	-	Mid-Late
RazzMatazz	Self-fertile	Pink/Red	Small, seedl.	-	All year
Summit	Female	Bronze	Medium	+	Early-Mid
Supreme	Female	Dark	Large	-	Mid
Tara	Self-fertile	Bronze	Medium-Large	-	Early-Mid
Triumph	Self-fertile	Bronze	Medium	+	Early

https://content.ces.ncsu.edu/muscadine-grape-production-guide

www.smallfruits.org

For Agents and Extension Centers: Hard Copies Available

Pruning and Sanitizing

- **Do not keep dead or diseased wood in the vineyard!**
- **Do not keep old fruit/clusters on the vine**
- Make sure your cordons or trunk does not suffer wounds
- Think about replacing cordons frequently

Pruning and Sanitizing

‘deep pruning’

Basic Spray Program

(1)Bud break to bloom:
Targets are Black Rot, Powdery, Bitter Rot, Angular leaf spot

EBDCs (Mancozeb, Manzate, etc.) (66d PHI)
FRAC 3 (Rally 40W)
FRAC 1 (Topsin M)
FRAC 11s (Abound, Flint, Pristine, Sovran) $$$

Recommend 1-2 applications before bloom, depending on situation

Basic Spray Program

(2) Bloom:
Targets are Black Rot, Powdery, Ripe Rot, Bitter Rot, Angular leaf spot

FRAC M4: Captan
FRAC 3 (Rally 40W)
FRAC 1 (Topsin M)
FRAC 11s (Abound, Flint, Pristine, Sovran) $$$

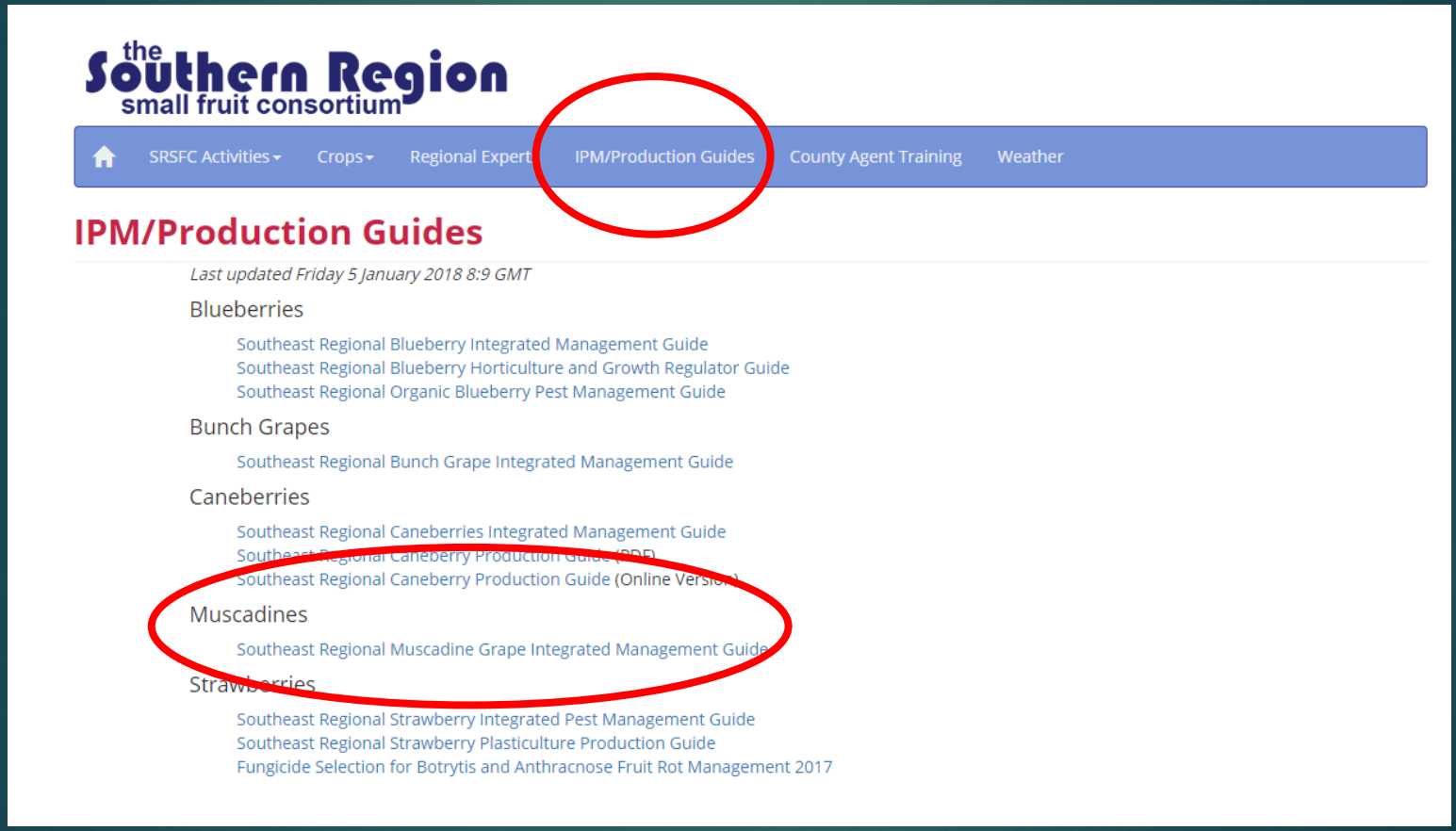
Basic Spray Program

(3) Post-bloom and during harvest:
Targets are Black Rot, Powdery, Ripe Rot, Bitter Rot, Angular leaf spot

FRAC M4: Captan (72 hours re-entry, 0 days PHI)
FRAC 3 (Rally 40W) (14 days PHI)
FRAC 1 (Topsin M) (7 days PHI)
FRAC 11s (Abound, Flint, Pristine, Sovran) $$$ (14 days PHI)

Basic Spray Program

www.smallfruits.org



Basic Spray Program

www.smallfruits.org

2019 Southeast Regional Muscadine Grape Integrated Management Guide

Commodity Editor
Bill Cline (North Carolina State University)

Section Editors
Pathology; Bill Cline (North Carolina State University), Phil Brannen (University of Georgia)
Entomology; Brett Blaauw (University of Georgia), Frank Hale (University of Tennessee) and Hannah Burrack (North Carolina State University)
Weed Science; Wayne Mitchem (North Carolina State University)
Vertebrate Management; David Lockwood (University of Tennessee)
Pesticide Stewardship and Safety: Ash Sial (University of Georgia)

Senior Editors
Phil Brannen (University of Georgia)
Bill Cline (North Carolina State University)

Contributions were also made by Ed Sikora (Auburn University), Rebecca Melanson (Mississippi State University).

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.

Basic Spray Program

Efficacy of selected fungicides against diseases of muscadine grape[1]

Fungicide	PHI (Pre-Harvest Interval)	Mode-of-Action (MOA) Grouping[2]	FRAC code[3]	Bitter rot	Powdery mildew	Ripe rot	Macro-phoma rot	Black rot	Sooty blotch	Dead arm	Angular leaf spot
Myclobutanil **(Rally)**	14 days	G	3	++[2]	++++	NA	+	++++	+++	???	++++
Thiophanate-methyl **(Topsin- M)**	7 days	B	1	++	+++	+	+	+++	+++	++	+++
Wettable Sulfur **(Microthiol** and other trade names)	1 day (re-entry)	Multi-site	M 2	NA	++++	NA	NA	NA	???	NA	NA
Pyraclostrobin + boscalid **(Pristine)**	14 days	C	7+11	+++	++++	++++	+++++	++++	+++++	++	++++
Kresoxim-methyl **(Sovran)**	14 days	C	11	+++	+++	+++	++	+++	+++	++	+++
Azoxystrobin **(Abound)**	14 days	C	11	+++	++++	++++	++++	++++	++++	++	++++
Trifloxystrobin **(Flint)**	14 days	C	11	+++	++++	++++	+++++	++++	+++++	++	+++
Ziram **(Ziram)**	21 days	Multi-site	M 3	++	++	+++	++	+++	+++	++	+++
Captan **(Captan, Captec)**	0 days (72 hrs re-entry)	Multi-site	M 4	++	++	++++	+++	+++	+++	++	+++
EBDCs (includes **Maneb, Manex, Penncozeb, Manzate, Dithane M-45**)	66 days	Multi-site	M 3	+++	++	NA	++	+++	++	++	+++

[1] NA = no significant activity, ??? = unknown activity; + = very limited activity, ++ = limited activity, +++ = moderate activity, ++++ = good activity, +++++ = excellent activity.
[2] Alternation of fungicides with different modes of action helps prevent the development of pest resistance to a particular class of fungicide. There is no benefit to alternating or tank-mixing fungicides with the same mode of action. Fungicides listed as "multi-site" are the least likely to be overcome by a resistant strain of a pathogen.
[3] In addition to MOA grouping, the FRAC code also indicates fungicides that can be alternated to discourage pest resistance; alternate or tank-mix only those products having different FRAC codes.

Q+A Point for later: Sprayer

Q+A Point for later: Sprayer

Targeted Spray

Q+A Point for later: Fungicide Resistance?

- Ripe Rot (*Colletotrichum gloeosporioides) (FRAC 11?)*
- Powdery Mildew (*Uncinula necator*)(*FRAC 3 and 11?)*

Test at the UGA plant molecular diagnostic lab:
https://site.caes.uga.edu/alimdl/

Thank you

Q+A