



Timely Viticulture

- Dormant
 - Pre-Bloom
 - Bloom
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 - Pre-Harvest
 - Harvest
 - Post Harvest
 - Dormant

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"Timely Vit" is designed to give those in the Maryland grape industry a timely reminder on procedures or topics they should be considering in the vineyard.

Disease Management - Botrytis

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Botrytis is the major disease on a grower's radar screen

- Infections can occur early in the season during bloom and later in the season from bunch closing on to harvest.
 1. Infections that get in at bloom (through senescing blossom parts) remain latent (dormant) until some of them resume activity and rot the berries as they start to ripen.
 2. The vast majority of latent infections remain inactive through harvest and the fruit stay healthy although some factors such as high humidity and high soil moisture during the pre-harvest period can promote infection.
 3. Berries are much more susceptible after veraison.
- Leaf infections are not typically widespread and obvious but can be a source of inoculum for fruit infections.
- The fungus primarily attacks highly succulent (new growth – high N), dead, or injured (e.g. insect or disease damaged – especially by grape berry moth and powdery mildew) tissues.
- Best conditions for spread are high humidity and still air.
- Leaf removal is a very important cultural practice which opens up the canopy to air flow, which reduces the canopy humidity and suppresses sporulation. Leaf removal can be done manually or mechanically.
- Unfertilized flowers and other dead tissue within the cluster are the main source of fungal spores for fruit infections through the season. Fruit infection can be dramatically reduced by removing dead tissue with high speed air. In seasons when the flower tissue is persistent on the developing berries, close attention should be paid to disease development.
- Serious Botrytis losses result from spread during the post-veraison/ pre-harvest period, after berries begin to ripen and become highly susceptible to rot by the fungus.
- Varieties with tight/compact cluster show have greater susceptibility due to increased berry-to-berry spread. Reducing cluster compactness has been shown to reduce infections.
- Pre-harvest spread can be increased by increasing the N content of berries (foliar sprays of urea after veraison). If you apply N at veraison your Botrytis management may need to be more intensive.

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Botrytis management program

- Bloom sprays are targeted to limit the establishment of latent infections. These are especially critical during season with extended wet weather during the bloom period.
- Veraison sprays are targeted to limit the establishment of primary infections and prevent berry to berry spread.
- A Post-veraison (2-3 weeks pre-harvest) application may be critical to prevent spread especially warm/wet/humid conditions.

Fungicides

- Vanguard is absorbed by the blossoms and fruit and resists wash-off and may have some post-infection activity.
- Scala is in the same chemical family as Vanguard.
 - * Both are highly prone to resistance development so they should be alternated with other fungicides and should not be used more than two times per season.
- Elevate is a protectant fungicide (does not enter the fruit) and is quite rain fast.
- Meteor is another trade name for Iprodione (Iprodione 4L, Rovral). Iprodione is an older fungicide that lost effectiveness due to overuse but can “recover.” Make one spray per season if it has not been used in your vineyard in at least three years.
- The strobies have shown moderate to excellent activity although Flint is the only one strong enough to be labeled for Botrytis control.
- Endura will probably provide very good control at the higher (8 oz/A) rate recommended for Botrytis, and only moderate activity at the lower rate (4.5 oz) recommended for powdery mildew (Wilcox).
- Inspire Super, Switch, and Pristine (high rate) are fungicide blends that are very effective.
- Luna Experience and Luna Tranquility both have good activity on Botrytis

Please remember that most fungicides that are used to protect against Botrytis are very prone to resistance development, so proper precautions should be take.

Maryland growers may refer to Extension Fact Sheet 848, *Guidelines for Developing an Effective Fungicide Spray Program for Wine Grapes in Maryland, 2012*, for specific management recommendations.

<http://extension.umd.edu/sites/default/files/docs/programs/viticulture/FS-848FungicideSprayGuidelines2012-2.pdf>

and the update:

<http://extension.umd.edu/sites/default/files/docs/programs/viticulture/FungicideSpraySupplementGuidlines2013.pdf>

For more detailed information please see info in the Fact Sheets:

<http://www.oardc.ohio-state.edu/fruitpathology/organic/Grape/botrytis.html>

<http://nysipm.cornell.edu/factsheets/grapes/diseases/botrytis.pdf>

<http://www.arec.vaes.vt.edu/alon-h-smith/grapes/pathology/extension/factsheets/botrytis-bunch-rot.pdf>