



- Dormant	- Pre-Bloom	- Bloom	- Post Bloom	- Mid Season	- 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.

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## Pre-Harvest Disease Management and Late Season Bunch Rots

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Many vineyards are approaching or already within 30 days of the anticipated harvest date for early wine grape varieties. During this window, grape berries are becoming very susceptible to a variety of late-season rots, such as ripe rot, sour rot, *Botrytis* bunch rot, and other "secondary-fungi" associated with bunch rots. In addition, continue to be vigilant with downy mildew (**DM**) management through harvest. While grape berries should have acquired resistance to Powdery Mildew (**PM**), leaves (especially younger), remain susceptible.

### General Guidelines

- In general, it is best to avoid applying fungicides containing sulfur, copper, and captan within 30–45 days of your anticipated harvest date. Although most residual should be gone by harvest, sulfur and copper may impart off-flavors to wine, and captan residues may delay fermentation.
- In managing **DM** and **PM**, your objective should be to maintain a functional canopy through harvest.
  - With white cultivars, you may be able to stop spraying for **DM** and **PM** before harvest and tolerate some foliar mildew without harming fruit.
  - With red cultivars that need to hang on the vine to mature, you may need to apply fungicides until quite late in the season to preserve the canopy, especially for **DM**.
- Be vigilant in scouting for late-season bunch rots, which often appear suddenly and close to fruit maturity.

### Downy Mildew

- For **late DM**, use a phosphorous acid product (phosphite) such as Phostrol, ProPhyt, etc. Resistance to **FRAC 11** (e.g. Pristine) and **FRAC 40** (e.g. Revus) has been documented in local **DM** pathogen populations. See more notes under [Downy Mildew Management](#).

### Powdery Mildew

- **Late PM** fungicides that will not affect wine quality include Quintec (**FRAC 13**), Vivando (**FRAC 50**), Torino (**U6**), and various DMI fungicides (**FRAC 3**).
- Some SDHIs (**FRAC 7**) such as Aprovia, Kenja, and Endura are also effective against **PM**.
- **If you have active PM**, use only stylet oil or a potassium salt product. Use stylet oil **once**, and only on severe infections. Do not apply oil within 14 days of either sulfur or captan. In addition, do not spray oil at temperatures above 90°F. (Note: stylet oil application late in ripening may decrease sugar accumulation).

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## Late-Season Bunch Rots

- **Botrytis Bunch Rot**

Preharvest can be a critical time for *Botrytis* control on bunch rot-prone cultivars, especially in wet seasons. Latent infections that occurred during bloom can become active, and berries become increasingly susceptible to infection after veraison. (See more notes, including spray options and fungicide resistance management, under the TimelyVit on [Disease Management - Botrytis](#)).

- **Ripe Rot**

- Ripe rot, caused by species within the genus of *Colletotrichum*, has been on the rise in recent years.
- The disease is favored by wet and warm weather conditions after the fruit reach 18°Brix.
- Timing of control for ripe rot is not very clear, but our ongoing trials suggest berries become most susceptible after veraison. Thus, control efforts may should be concentrated during fruit ripening.
- Fungicide options are limited. Fludioxonil (FRAC 12, Switch and Miravis Prime) is very effective and has post infection activity.
  - Captan is effective, but only offers protection.
  - FRAC 11 fungicides (e.g. Pristine) has typically been considered the primary fungicide for management, however be aware that about 30% local fungal populations have developed resistance.
  - Certain DMI fungicides (FRAC 3), including difenoconazole (e.g. Laguna, Inspire Super), can be used to alternate with Switch or Captan during preharvest, for resistance management.
  - Although Polyoxin D Zinc Salt (e.g. PhD) is labelled for ripe rot, field trials showed inconsistent and often limited efficacy against *Colletotrichum spp.*

- **Sour Rot**

- Current understanding of sour rot is that it is caused by a complex of fungi, bacteria, and insects, thus, management of sour rot involves controlling both the microbes and the *Drosophila* fruit flies.
- Susceptibility is very cultivar specific and development begins at approximately 15°Brix. Weekly application of insecticides (i.e. Mustang Max) and antimicrobial materials (i.e. Oxidate) when berries reach 15° Brix have shown good efficacy for management. However due to risk of secondary insect pest outbreaks (mites, others), this is only recommended on the most susceptible cultivars (history at location) when conditions are conducive for rot development.

- **Bitter Rot**

Symptoms closely resemble black rot, *phomopsis*, and ripe rot. Fungicides including the strobilurins (FRAC 11), Thiophanate methyl (FRAC 1), captan, and ziram are recommended for bitter rot control.

- **Other Rots**

- Watch for other late-season rots as fruit ripen, especially if there has been damage from hail, birds, insects, or PM on fruit, as wounds serve as entry points that facilitate infections by various fungi.
- Be careful not to injure ripening fruit while spraying, mowing, or leaf pulling, and control insects, birds, etc. that cause damage to the fruit as part of an overall management program.

**Additional resources for general grape disease management:** Virginia Tech Grape Pest Management: [https://www.pubs.ext.vt.edu/content/dam/pubs\\_ext\\_vt\\_edu/456/456-017/ENTO-337C.pdf](https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/456/456-017/ENTO-337C.pdf)

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