

# Backyard Grape Disease Management Using Cultural Practices (with Low Spray, No Spray & Organic Options)

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## INTRODUCTION

Backyard grape production requires a proactive approach to disease management. Preventative practices are recommended to minimize inputs. While intensive culture may result in the highest quality fruit, reduced inputs can result in acceptable fruit with minor crop losses or aesthetic maladies. This guide focuses on preventative cultural practices with options of low-input fungicide applications. Refer to the homeowner fruit spray guide (ID-21) for a more complete pesticide spray schedule.

## CULTURAL PRACTICES

Cultural practices should always be considered when planning, planting, and maintaining a backyard vineyard. Some practices keep plants healthy and assure the lowest risk for disease outbreaks. Other practices eliminate and eradicate sources for fungal and bacterial pathogens, thereby reducing risk for disease. Combine cultural practices with a fungicide preventative program or use them alone for a no-spray alternative.

- A well-drained site located in full sun is required.
- Maintain plant vigor by watering during drought, mulching to regulate soil moisture and temperature, and amending soil nutrients according to soil and petiole tests.
- Minimize insect and wildlife damage.
- Prune and space plants to increase air circulation.
- Utilize specific cultural practices listed in the table to eliminate disease-causing pathogens and reduce risks for infections.
- Bagging grape clusters when fruit are pea-sized is an effective way of managing pests without spraying. Use the method outlined in EntFacts-218 (bagging apples); however, bags can be left on grapes until harvest.

## RESISTANCE

A healthy vineyard begins with planning. Disease-resistant cultivars can reduce the need for many fungicide applications. Growers should focus on cultivars that are resistant to the most devastating grape diseases in their area. Downy mildew and powdery mildew are often the most challenging grape diseases in Kentucky. Refer to Table 5-2 in *Midwest Small Fruit Pest Management Handbook* (page 126) for a listing of disease-resistant grape cultivars.

## USING THE TABLE

The following table focuses on cultural practices as a means for eliminating or reducing risk for vine and fruit disease. Cultural practices should be considered for each plant growth stage, regardless of fungicide program; target diseases are listed for each practice. Fungicides are listed in the right-hand column; organic fungicides (OMRI-approved) are marked with an asterisk (\*). Organic fungicides are generally less effective for managing diseases than synthetic products. It is very difficult to produce a grape crop in Kentucky without bagging or using pesticides.

## RESOURCES

- Plant Pathology Extension Publications  
<http://www2.ca.uky.edu/agcollege/plantpathology/extension/pubs.html>
- Disease and Insect Control Program for Homegrown Fruit in Kentucky (ID-21)  
<http://www.ca.uky.edu/agc/pubs/id/id21/id21.pdf>
- Bagging Apples: Alternative Pest Management for Hobbyists (EntFacts-218)  
<http://www.ca.uky.edu/entomology/entfacts/entfactpdf/ef218.pdf>
- Midwest Small Fruit Pest Management Handbook  
[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/MwSmFruitPMHandbook.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/MwSmFruitPMHandbook.pdf)
- Fruit, Orchard, and Vineyard Sanitation (PPFS-FR-T-05)  
[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GEN-05.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-05.pdf)
- Simplified Backyard Grape Spray Guide (PPFS-FR-S-23)  
[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-FR-S-23.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-FR-S-23.pdf)

| Time of Year <sup>1</sup> | Growth Stage                           | Target Disease  | Cultural Management  | Target Disease | Chemical Management <sup>2</sup>   |
|---------------------------|--|---|--|----------------|------------------------------------|
| March                     | Dormant                                | Anthracnose<br>Black rot<br>Phomopsis                     | Prune to remove infected canes from the previous season; Reduce bud density to 4 to 6 shoots per foot of lateral arm.  | Anthracnose    | Lime sulfur* <sup>3</sup>          |
| Mid-April/<br>Late April  | New growth<br>(2" to 4" long)          | Black rot<br>Phomopsis                                    | Prune to remove diseased canes; Thin shoots to 4 to 6 per foot of lateral arm for increased air movement; Remove infected leaves; Remove weeds.                            | Black rot      | Mancozeb or Copper*                |
|                           |  |   |  | Phomopsis      | Mancozeb or Copper*                |
|                           |  |   |  | Powdery mildew | Sulfur*                            |
| Late April/<br>Early May  | New growth<br>(10" to 15" long)        | Black rot<br>Phomopsis                                    | Prune to remove diseased canes; Thin shoots to 4 to 6 per foot of lateral arm for increased air movement; Remove infected leaves; Remove weeds.                            | Black rot      | Mancozeb or Immunox (myclobutanol) |
|                           |  |   |  | Phomopsis      | Mancozeb or Copper*                |
|                           |  |   |  | Powdery mildew | Immunox (myclobutanol),            |
|                           |  |   |  | Downy mildew   | Mancozeb                           |
| Mid-May                   | Pre-bloom<br>(just before blooms open) | Black rot<br>Powdery mildew<br>Downy mildew               | Remove infected leaves; Remove weeds.  | Black rot      | Mancozeb or Immunox (myclobutanol) |
|                           |  |   |  | Phomopsis      | Mancozeb or Copper*                |
|                           |  |   |  | Powdery mildew | Immunox (myclobutanol) or Sulfur*  |
|                           |  |   |  | Downy mildew   | Mancozeb or Copper*                |
| Mid-May/<br>Late May      | Bloom                                  | Black rot<br>Powdery mildew<br>Downy mildew               | Position shoots for increased air movement; Remove infected leaves; Remove weeds.  | Black rot      | Mancozeb or Immunox (myclobutanol) |
|                           |  |   |  | Powdery mildew | Immunox (myclobutanol) or Sulfur*  |
|                           |  |   |  | Downy mildew   | Mancozeb                           |
| Post-bloom                |  | Black rot<br>Powdery mildew<br>Downy mildew<br>Fruit rots | Remove infected leaves and fruit; Remove leaves around clusters to increase air movement; Thin clusters to 1 to 2 per shoot; Bag fruit clusters when grapes are pea-sized. | Black rot      | Captan or Copper*                  |
|                           |  |   |  | Powdery mildew | Copper* or Sulfur*                 |
|                           |  |   |  | Downy mildew   | Captan or Copper*                  |
| Summer growth             |  | Black rot<br>Powdery mildew<br>Downy mildew<br>Fruit rots | Remove infected leaves and fruit; Remove leaves around clusters to increase air movement.  | Powdery mildew | Copper* or Sulfur*                 |
|                           |  |   |  | Downy mildew   | Captan or Copper*                  |
| End of season             |  | All diseases  | Rake fallen leaves and destroy; Remove all fruit from vines and clean up all fallen fruit; Prune to remove infected canes.   |                |                                    |

<sup>1</sup> The growth stage indicated typically occurs during this time of year; however, this may vary from year to year depending on environmental conditions.

<sup>2</sup> Products noted with an \* indicate those that may be used in organic production. For a list of products approved by Organic Materials Review Institute (OMRI) please see University of Kentucky publication *Homeowner's Guide to Fungicides* (PPFS-GEN-07).

<sup>3</sup> Either a liquid or wettable formulation is appropriate.

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**Photo credit:** Stephen Ausmus, USDA-ARS