



Backyard Grape Disease & Pest 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, insect, and weed 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 pesticide 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 or insect infestations. Other practices eliminate and eradicate sources for fungal and bacterial pathogens or insects, thereby reducing risk for disease or infestation. Combine cultural practices with a pesticide 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 or insects and reduce risks for infections/infestations.
- Bagging clusters when grapes are pea-sized is an effective way of managing pests without spraying. Use the method outlined in EntFacts-218 (bagging apples). Make vertical cuts at tops of bags and place over grape clusters; gather bag tops around canes and secure with staples. 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.

WEED MANAGEMENT

Cultural practices are the primary methods for weed management. Prior to planting, the site should be clear of weeds. Manual weed removal and effective mowing help manage the presence and populations of unwanted plant species. Weeds are easier to remove by hand when small; once established, weeds become more difficult to manage. Application of mulch or landscape fabric provides a barrier to grasses and broad leaf weeds. Herbicide use is not recommended as damage to plants can occur. However, growers not opposed to minimal herbicide use, can apply products containing glyphosate or glufosinate. Applications should be made with low spray pressure to avoid drift. Precautions should be taken to avoid herbicide contact with leaves, vines, and fruit. There are currently few organic herbicides labeled for use. Check labels for full use information and pre-harvest intervals.

USING THE TABLE

The following table focuses on cultural practices as a means for eliminating or reducing risk for vine and fruit diseases and insects. Cultural practices should be considered for each plant growth stage, regardless of pesticide program. Fungicides and insecticides are listed in the right-hand column with target pathogens and/or insects. 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.

Time of Year ¹	Growth Stage	Cultural Practices		Disease		Insect	
		Target Disease/Insect	Management	Target Disease	Fungicides ²	Target Insect	Insecticides ²
March	Dormant	Anthracnose Black rot Phomopsis Grape cane gallmaker	Prune to remove infected canes from the previous season; Remove galls on canes (1 inch swollen areas); Reduce bud density to 4 to 6 shoots per foot of lateral arm.	Anthracnose	Lime sulfur ³ or Sulfurix		
Mid-April/ Late April	New growth (2" to 4" long)	Black rot Phomopsis Phylloxera	Prune to remove diseased canes; Remove and dispose of leaves with galls; Thin shoots to 4 to 6 per foot of lateral arm for increased air movement; Remove infected leaves; Remove weeds.	Black rot Downy mildew Phomopsis Powdery mildew	Mancozeb or Copper*		Climbing cutworms Flea beetle Sevin
Late April/ Early May	New growth (10" to 15" long)	Black rot 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 Downy mildew Phomopsis Powdery mildew	Mancozeb or Immunox (myclobutanil) Mancozeb Mancozeb or Copper* Immunox (myclobutanil), Sulfur*		Flea beetle Sevin
Mid-May	Pre-bloom (just before blooms open)	Black rot Downy mildew Powdery mildew Phylloxera	Remove infected leaves; Remove and dispose of leaves with galls; Remove weeds.	Black rot Downy mildew Phomopsis Powdery mildew	Mancozeb or Immunox (myclobutanil) Mancozeb or Copper* Immunox (myclobutanil), Sulfur*		

Time of Year ¹	Cultural Practices		Disease		Insect	
	Target Disease/Insect	Management	Target Disease	Fungicides ²	Target Insect	Insecticides ²
Mid-May/ Late May	Black rot Downy mildew Powdery mildew	Position shoots for increased air movement; Remove infected leaves; Remove weeds.	Black rot Powdery mildew Downy mildew	Mancozeb or Immucox (myclobutanil) Immucox (myclobutanil) or Sulfur* Mancozeb	Do not use insecticides during bloom	
Post-bloom	Black rot Downy mildew Fruit rots Powdery mildew	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 Downy mildew Powdery mildew	Captan or Copper* Copper* or Sulfur*	Grape berry moth Japanese beetle	Sevin
Summer growth	Black rot Downy mildew Fruit rots Powdery mildew Brown marmorated stink bug Green June beetle Japanese beetle Spotted wing drosophila	Remove infected leaves and fruit; Remove leaves around clusters to increase air movement; Cover plants with fine netting to exclude fruit flies, stink bugs, and beetles; Remove and dispose of damaged fruit.	Powdery mildew Downy mildew	Copper* or Sulfur* Captan or Copper*	Brown marmorated stink bug Grape berry moth Green June beetle Japanese beetle Spotted wing drosophila	Malathion Sevin
End of season	All diseases All insects	Rake fallen leaves and destroy; Remove all fruit from vines and clean up all fallen fruit; Prune to remove infected canes.				

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

² 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).

³ Either a liquid or wettable formulation is appropriate.



GRAPE RESOURCES

- Entomology Extension Publications/Fruit Pests
<https://entomology.ca.uky.edu/fruit>

- Horticulture Extension Publications/Home Fruit
<http://www.uky.edu/hort/document-list-home-fruit>

- Plant Pathology Extension Publications
<http://www2.ca.uky.edu/agcollege/plantpathology/extension/pubs.html>

- Bagging Apples: Alternative Pest Management for Hobbyists (EntFacts-218)
<http://www.ca.uky.edu/entomology/entfacts/entfactpdf/ef218.pdf>

- Disease and Insect Control Program for Homegrown Fruit in Kentucky (ID-21)
<http://www.ca.uky.edu/agc/pubs/id/id21/id21.pdf>

- Fruit, Orchard, and Vineyard Sanitation (PPFS-FR-T-05)
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-05.pdf

- Midwest Small Fruit Pest Management Handbook
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/MwSmFruitPMHandbook.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

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