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Backyard Berry Disease, Pest, and Cultural Practices Calendar

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Introduction

Backyard berry (blueberry, raspberry, blackberry, and strawberry) 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 backyard berry plantings. 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.

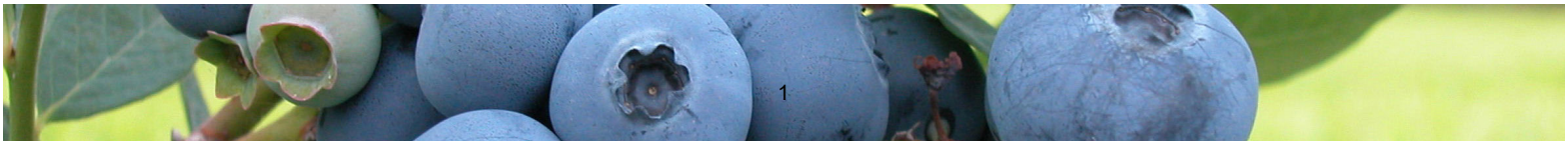
- A well-drained site located in full sun is required.
- Maintain plant vigor by watering during drought, mulching to regulate soil moisture and temperature, and amending soil nutrients according to soil and petiole tests.
- Minimize insect and wildlife damage.
- Prune and space plants to increase air circulation.
- Utilize specific cultural practices listed in the table to eliminate disease-causing pathogens or insects and reduce risks for infections/infestations.

Resistance

A healthy berry planting begins with planning. Disease-resistant cultivars can reduce the need for many fungicide and bactericide applications. Growers should focus on cultivars that are resistant to the most devastating berry diseases in their area. Leaf spots and fruit rots are often the most challenging berry diseases in Kentucky. Refer to Tables 2-1 on page 27 (strawberry), and 4-2 on page 109 (blueberry) of Midwest Small Fruit Pest Management Handbook for a listing of disease-resistant berry 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. However, soil barriers, like landscape fabric, will not work for matted row strawberries (where daughter plants need to root) or for brambles that sucker (as opposed to growing from a single crown). Herbicide use is not recommended as damage to plants can occur. However, growers not opposed to minimal herbicide use, can apply labeled products, as needed. Applications should be made with low spray pressure to avoid drift. Precautions should be taken to avoid herbicide contact with leaves, stems, crowns, canes, 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 cane, branch, leaf, and fruit diseases and insects. Cultural practices should be considered for each plant growth stage, and should be utilized regardless of pesticide programs. Fungicides and insecticides are listed in the right hand columns with target pathogens or insects. Always read and follow label instructions when using pesticides, including pre-harvest intervals. Organic products (OMRI-approved) are marked with an asterisk (*). Organic fungicides are generally less effective for managing diseases than synthetic products.

Time of Year[1]	Growth Stage	Cultural Practices		Disease		Insect	
		Disease/Insect	Management	Disease	Fungicides[2]	Insect	Insecticides[2]
Blueberries							
March	Dormant	Phomopsis twig blight	Prune out infected stems; Remove weak canes; Avoid mechanical damage.	Phomopsis twig blight	Lime sulfur* or Sulforix		
May	Petal fall	Phomopsis twig blight	Avoid excess nitrogen; Prune infected stems.	Phomopsis twig blight	Captan	Do not use insecticides during bloom	
	After bloom	Fruit rots Phomopsis twig	Remove infected berries; Avoid overhead watering; Avoid excess nitrogen.	Leaf spots Fruit rots	Captan	Plum curculio	Malathion
June	Harvest	Fruit rots Spotted wing drosophila	Remove infected berries; Avoid drought stress; Irrigate; Avoid excess nitrogen; Cover plants with fine netting to exclude fruit flies; Gather and remove fallen and damaged fruit; Pick berries frequenty; Wash and refrigerate/freeze immediately after harvest.			Blueberry maggot Brown marmorated stink bug	Malathion
						Japanese beetle	Sevin
						Spotted wing drosophila	Spinosad
July	End of season	Fruit rots Phomopsis twig blight	Remove all berries from bushes/ground and destroy; Mulch around plants; Prevent drought stress.				
Strawberries							
	Pre-bloom		Remove weeds to reduce inoculum and insect sources; Plant with wide row spacing.				
	During bloom	Fruit rots Leaf spots	Place straw mulch around plants; Remove weeds for better air flow.	Fruit rots Leaf spots	Captan	Do not use insecticides during bloom	
	Post-bloom	Fruit rots Leaf spots	Remove infected berries; Remove weeds to allow for better air flow; Remove infected leaves.	Fruit rots Leaf spots	Captan	Plant bug	Malathion
						Spittlebug	Sevin
	Harvest	Fruit rots Sap beetle Slug Spotted wing drosophila	Remove infected berries; Remove and dispose of all damaged fruit; Pick berries frequently, wash, and refrigerate/freeze immediately.			Sap beetle	Malathion
	End of Season	Fruit rots Leaf spots	Renovate beds; Mow old foliage (do not damage crowns); Rake, remove, and discard all leaf and berry debris.				

Time of Year[1]	Growth Stage	Cultural Practices		Disease		Insect	
		Disease/Insect	Management	Disease	Fungicides[2]	Insect	Insecticides[2]
Brambles							
March	Dormant	Anthracnose Cane blight Spur blight Rednecked caneborer	Remove canes that fruited the previous season, if not done in autumn; remove canes with noticeable galling (1-2 inch swellings).	Anthracnose Cane blight Spur blight	Lime sulfur*		
April	Vegetative growth	Anthracnose Cane blight Orange rust Spur blight	Prune to increase air movement. Remove infected plants including roots (orange rust); Remove weeds that may serve as inoculum sources.	Anthracnose Cane blight Spur blight	Copper* or Captan		
Mid-May	Bud break (buds show silver)	Anthracnose Cane blight Spur blight	Remove weeds to increase air movement.	Anthracnose Cane blight Spur blight	Copper* or Captan		
Late May	During bloom	Botrytis fruit rot Orange rust Viruses	Remove infected fruit and discard (Botrytis); Remove infected plants including roots (orange rust).	Leaf spots	Captan	Do not use insecticides during bloom	
Mid-June/ mid-July	Harvest	Botrytis fruit rot Orange rust Viruses Spotted wing drosophila	Remove infected fuit and discard; Cover plants with fine netting to exclude fruit flies; Gather and remove fallen and damaged fruit; Pick berries frequently, wash, and refrigerate/freeze immediately.			Japanese beetle Green June beetle	Malathion or Sevin
						Spotted wing drosophila	Spinosad
						Stink bug	Malathion
	End of season	Anthracnose Cane blight Orange rust Spur blight Viruses	Remove canes that fruited the previous season; Remove infected plants including roots (orange rust).				

[1] The 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).

Berry 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
https://plantpathology.ca.uky.edu/extension/publications

- 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)
https://plantpathology.ca.uky.edu/files/ppfs-gen-05.pdf

- Homeowner's Guide to Fungicides (PPFS-GEN-07)
https://plantpathology.ca.uky.edu/files/ppfs-gen-07.pdf

- Midwest Small Fruit Pest Management Handbook
https://plantpathology.ca.uky.edu/files/mw_sm_fruit_b861_osu_2004.pdf

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Photo credit: Mark Ehlenfeldt, USDA-ARS