



Bean & Pea IPM Guide for Small Acreage & Backyard Production

PPFS-VG-22

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INTRODUCTION

Legume vegetable crops (beans and peas) are popular vegetables for both commercial production and backyard gardens. Yields may be impacted by diseases, insect pests, or weeds, so a proactive management approach is needed. Preventative practices are recommended to minimize damage and cost of management. This guide focuses on preventative cultural practices with options of low-input pesticide applications; organic options are also presented. Refer to the *Home Vegetable Gardening in Kentucky* (ID-128) publication for additional information on pesticide spray schedules for small acreages.

IPM PRACTICES

Integrated Pest Management (IPM) utilizes a combination of biological, cultural, physical, and chemical methods to reduce and/or manage diseases and pests. Implementation of multiple IPM practices is often more impactful than any practice used alone.

CULTURAL PRACTICES

Cultural practices should always be considered when planning, planting, and maintaining a field or garden. Some practices keep plants healthy and ensure the lowest risk for disease outbreaks or insect infestations. Other practices eliminate and eradicate sources for disease agents or insects, thereby reducing risk. Combine cultural practices with a preventative spray program or use them alone for a no-spray alternative.

- Choose a well-drained site located in full sun.
- Maintain plant vigor by watering during drought, mulching to regulate soil moisture and temperature, and amending soil nutrients according to soil tests.
- Minimize insect and wildlife damage.
- Increase plant spacing to improve air circulation and promote leaf drying.
- Utilize specific cultural practices listed in the table to eliminate disease-causing pathogens or insects and to reduce risks for infections/infestations.

RESISTANCE

A healthy vegetable planting begins with planning. Disease-resistant cultivars can reduce the need for many fungicide and bactericide applications. Select cultivars that are resistant to the most devastating legume diseases in the area. Growers are advised to maintain a record of disease occurrence and select cultivars with resistance. Information about resistant cultivars can be found in *Vegetable Cultivars for Kentucky Gardens* (ID-133) or through supplier catalogs/websites.

WEED MANAGEMENT

Cultural practices such as manual weed removal and mulching are the primary methods for weed management in small acreages. Fields and gardens should be scouted frequently to remove weeds while they are young. Never allow weeds to go to seed. Often, a hoe is sufficient to remove above and below-ground portions of weeds. Vegetable plants should be planted as soon as possible after working the soil to minimize the germination of new weeds. Organic mulches such as compost, straw (not hay), shredded bark, newspaper, or cardboard can be used to limit weed emergence. Lawn clippings should not be used if herbicide treatments were applied prior to mowing. Avoid introducing mulch from sources that may be contaminated with weeds or weed seeds.

Small acreage farmers and gardeners rarely rely on herbicides for weed management. Non-selective contact herbicides, such as glyphosate, may be used according to the label. Herbicide applications should be made with low spray pressure to avoid drift, and precautions should be taken to avoid herbicide contact with vegetable plants. Pre-emergent herbicides may be applied after transplanting or when plants are at least 2 to 3 inches tall but before weeds have emerged. There are few organic herbicides labeled for home gardens. Check labels for information, precautions, and pre-harvest intervals.

USING THE TABLE

The following table focuses on cultural practices as a means for eliminating or reducing the risk for diseases and insects of legume crops. Cultural practices should be considered for each plant growth stage and should be utilized regardless of spray 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.

		Cultural Practices		Disease		Insect				
Time of Year ¹	Growth Stage	Target		Fungicide/ Bactericide		Insecticide/ Miticide				
		Disease/Insect	Cultural Management	Target Disease	Management ²	Target Insect	Management ^{2,4}			
March-April (peas) May (earliest beans)	Direct Seeding	-Angular leaf spot	Plant resistant varieties; Plant pathogen-free seed; Practice crop rotation; Increase spacing between plants/rows.	-Damping-off	Plant treated seed	-Black cutworm	pyrethroid			
		-Anthracnose						-Seedling diseases	-Seedcorn maggot	Use insecticide treated seed
		-Bacterial brown spot							-White grubs	
-Bean rust	-Wireworms									
		-Cercospora leaf spot								
		-Common bacterial blight								
		-Sclerotinia white mold								
		-Damping-off	Utilize new or pasteurized potting mix; Use new or sanitized trays/pots; Plant certified or heat-treated seed.							
		-Seedling diseases								
		-Black cutworm	Avoid planting into areas previously in sod or grasses; Plant when soil temperatures promote rapid germination and seedling growth; Prepare soil at least two weeks before planting.							
		-Seedcorn maggot								
		-White grubs								
		-Wireworms								

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 * 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 Chlorothalonil may be harmful to pollinators, avoid use during bloom.

⁴ For a list of insecticides approved for use in residential areas see: General Use Insecticides for Home Gardeners (ENTFACT-445).

		Cultural Practices		Disease		Insect	
Time of Year ¹	Growth Stage	Target	Cultural Management	Target Disease	Fungicide/ Bactericide	Target Insect	Insecticide/ Miticide
		Disease/Insect			Management ²		Management ^{2,4}
April (peas) June (beans)	Vegetative growth	-Angular leaf spot -Anthracnose -Bacterial brown spot -Bean rust -Cercospora leaf spot -Common bacterial blight	Remove infected leaves/stems/plants (do not compost); Remove weeds around plantings; Avoid overhead watering. Manage insect vectors. Hand pick and remove individual insects when populations are low; Scout plants weekly by checking undersides of leaves and buds.	-Angular leaf spot	chlorothalonil or sulfur*	-Bean leaf beetle -Grasshoppers -Japanese beetle -Mexican bean beetle -Potato leafhopper -Spider mites	pyrethroid
		-Viruses		-Anthracnose	chlorothalonil or copper*		
		-Bean leaf beetle -Grasshoppers -Japanese beetle -Mexican bean beetle -Potato leafhopper -Spider mites		-Bacterial brown spot	copper*		
		-Bean rust		chlorothalonil or sulfur*			
		-Cercospora leaf spot		chlorothalonil or copper* or sulfur*			
		-Common bacterial blight		copper*			
April-May (peas) June-July (beans)	Bloom	-Angular leaf spot -Anthracnose -- Bacterial brown spot -Bean rust -Cercospora leaf spot -Common bacterial blight	Remove infected leaves/stems/plants (do not compost); Remove weeds around plantings; Avoid overhead watering. Manage insect vectors. Hand pick and remove individual insects when populations are low; Scout plants weekly by checking undersides of leaves and buds.	-Angular leaf spot	chlorothalonil ³ or sulfur*	DO NOT USE Broad-spectrum insecticides during bloom.	
		-Viruses		-Anthracnose	chlorothalonil ³ or copper*		
		-Bean leaf beetle -Grasshoppers -Japanese beetle Mexican bean beetle -Potato leafhopper -Spider mites		-Bacterial brown spot	copper*		
		-Bean rust		chlorothalonil ³ or sulfur*			
		-Cercospora leaf spot		chlorothalonil ³ or copper* or sulfur*			
		-Common bacterial blight		copper*			

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		Cultural Practices		Disease		Insect	
Time of Year ¹	Growth Stage	Target		Fungicide/ Bactericide		Insecticide/ Miticide	
		Disease/Insect	Cultural Management	Target Disease	Management ²	Target Insect	Management ^{2,4}
May-June (peas) June-July (beans)	Pod bearing	-Angular leaf spot	Remove infected leaves/stems/plants (do not compost); Remove weeds around plantings; Avoid overhead watering.	-Angular leaf spot	chlorothalonil ³ or sulfur*	-Bean leaf beetle -Grasshoppers -Japanese beetle -Mexican bean beetle -Potato leafhopper -Stink bugs	pyrethroid
		-Anthracnose		-Anthracnose	chlorothalonil ³ or copper*		
		-Bacterial brown spot		-Bacterial brown spot	copper*		
		-Bean rust	Manage insect vectors.	-Bean rust	chlorothalonil ³ or sulfur*	-Spider mites	insecticidal soap*
		-Cercospora leaf spot		-Cercospora leaf spot	chlorothalonil ³ or copper* or sulfur*		
-Common bacterial blight	-Common bacterial blight	copper*					
-Viruses	-Common bacterial blight						
-Bean leaf beetle	Hand pick and remove individual insects when populations are low; Scout plants weekly by checking undersides of leaves and buds.	-Cercospora leaf spot					
-Grasshoppers							
-Japanese beetle							
-Mexican bean beetle							
-Potato leafhopper							
-Spider mites							
-Stinkbugs							
July August-September (beans)	End of Season	-Angular leaf spot	Gather all remaining plant tissues and destroy (do not compost diseased material); Deep-till to encourage decomposition; Do not save seeds.	NONE		-Bean leaf beetle -Grasshoppers -Japanese beetle -Mexican bean beetle -Potato leafhopper -Stink bugs	pyrethroid
		-Anthracnose					
		-Bacterial brown spot					
		-Bean rust					
		-Cercospora leaf spot					
		-Common bacterial blight					
		-Bean leaf beetle					
		-Grasshoppers					
		-Japanese beetle					
		-Mexican bean beetle					
		-Potato leafhopper					
		-Spider mites					
		-Stinkbugs					
						-Spider mites	insecticidal soap*

See the foot notes on pages 2 & 3 for superscript explanations.

ADDITIONAL RESOURCES

- Entomology Extension Publications/Vegetable Pests
<https://entomology.ca.uky.edu/entfacts/vegetables>
- Horticulture Extension Publications/Home Vegetables
<https://horticulture.ca.uky.edu/growers/home/vegetables>
- Plant Pathology Extension Publications
<https://plantpathology.ca.uky.edu/extension/publications>
- Home Vegetable Gardening in Kentucky (ID-128)
<https://www2.ca.uky.edu/agcomm/pubs/id/id128/id128.pdf>
- General Use Insecticides for Home Gardens (ENTFACT-445)
<https://entomology.ca.uky.edu/ef445>
- IPM Scouting Guide for Common Problems of Legume Vegetables in Kentucky (ID-227)
<https://www2.ca.uky.edu/agcomm/pubs/ID/ID227/ID227.pdf>
- Veggie Scout Website
<https://veggiescout.ca.uky.edu/>
- Homeowner’s Guide to Fungicides (PPFS-GEN-07)
<https://plantpathology.ca.uky.edu/files/PPFS-GEN-07.pdf>
- Cleaning & Disinfecting Hand Tools & Planting Supplies (PPFS-GEN-17)
<https://plantpathology.ca.uky.edu/files/PPFS-GEN-17.pdf>
- Vegetable Cultivars for Kentucky Gardens – 2013 (ID-133)
<https://www2.ca.uky.edu/agcomm/pubs/id/id133/id133.pdf>
- Cornell University Resource of Resistant Vegetable Varieties
<https://www.vegetables.cornell.edu/pest-management/disease-factsheets/disease-resistant-vegetable-varieties/>

*For larger fields and commercial acreage refer to the
Plant Pathology Extension Publications website for additional resources.*

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