



Martin-Gatton
College of Agriculture, Food and Environment
Cooperative Extension Service

Plant Pathology Fact Sheet

PPFS-VG-30

Commercial Spray Schedule for Field Production of Solanaceous Crops

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INTRODUCTION

Solanaceous crops include tomatoes, peppers, potatoes, and eggplants. In Kentucky, the most common commercially grown solanaceous crops are tomatoes and peppers. Numerous plant pathogens can cause disease, resulting in plant damage and yield loss. Applications of fungicides and bactericides are often necessary to limit the impact of plant diseases. They provide the greatest efficacy when applied preventively prior to disease onset. Growers should develop a preventative spray schedule for each crop and season in order to limit the impact of diseases. This document provides information on the timing of the most common tomato and pepper diseases, as well as example spray schedules. Fungicides recommended here include a few of the most common products; a complete list of registered fungicides can be found in *Vegetable Production Guide for Commercial Growers* (ID-36) and *Southeast U.S. Vegetable Crop Handbook* (SEVEW); generic products may also be available.

TIMELINES OF COMMON AND IMPORTANT DISEASES OCCURRING ON PEPPER AND TOMATO CROPS IN FIELD PRODUCTION.

Pepper	
Disease	Time Period
Bacterial spot	May – Sept
Pythium root and crown rot	May – Aug
Rhizoctonia root and crown rot	May – Sept
Southern blight	July - Aug

Tomato	
Disease	Time Period
Rhizoctonia root and crown rot	May – Sept
Bacterial spot	June – Sept
Bacterial speck	June – Aug
Early blight	June – Sept
Septoria leaf spot	June – Sept
Anthraxnose ripe rot	July – Aug
Buckeye rot, Phytophthora blight	July – Aug
Fusarium wilt	July – Aug
Southern blight	July - Aug



COMMON DISEASES OF TOMATO AND PEPPER CROPS (from left to right): EARLY BLIGHT ON TOMATO FOLIAGE, BACTERIAL SPOT ON PEPPER FRUIT, AND SOUTHERN BLIGHT ON TOMATO STEM.

Disease Management for Field Peppers

GENERAL NOTES

The following includes an example of products; this list is not comprehensive. A complete list of fungicides and their efficacy can be found in *Vegetable Production Guide for Commercial Growers* (ID-36) and *Southeast U.S. Vegetable Crop Handbook* (SEVEW). See Additional Resources section.

Always read product labels for specific use instructions. The label is the law.

PREPLANT

Rotate out of pepper for at least 3 years, especially for sites with a history of soil-borne diseases. Space plants for maximum air circulation. Follow cultural practices (rotate crops, improve drainage, select resistant cultivars, practice sanitation).

TRANSPLANT (Approximately mid-May)

If field has a history of Rhizoctonia root rot or southern blight, apply Blocker at pre-plant, transplant, or side-dress application. Apply Ridomil for Pythium root rot and damping-off if disease emerges.

VEGETATIVE GROWTH (Approximately mid-May through late June)

Space plants for increased air circulation. Practice good sanitation (e.g, remove diseased or senescing tissue regularly, remove clippings and debris from field). Prune to maintain good air circulation.

Application Timing <i>Weeks after transplant</i>	Application Notes	Fungicides/Bactericides ²	Target Diseases
Week 1 to 4	Use bactericides preventatively, before disease develops. Applications should be made every 1 to 2 weeks, especially if weather is hot and wet.	Copper	Bacterial spot

HARVEST (Approximately July - Mid-August)

Avoid working in fields when foliage is wet. Clean tools between fields. Sanitation is critical.

Application Timing <i>Weeks after transplant</i>	Application Notes	Fungicides/Bactericides ²	Target Diseases
Week 5 to 12	Use bactericides preventatively before disease develops. Applications should be made every 1 to 2 weeks. Rotate products between applications to avoid resistance development.	Copper	Bacterial spot
		Leap	
As needed ¹	Applications should be made every 1 to 2 weeks.	Aftershock	Rhizoctonia, southern blight
		Evito	
As needed ¹	Applications should be made every 1 to 2 weeks.	Cabrio	Anthracnose
		Quadris	
As needed ¹	Applications should be made every 1 to 2 weeks.	Orondis Gold	Phytophthora blight and fruit rot
		Ranman	
		Revus	

¹ Application necessary when diagnostic results confirm presence of disease or if field has a history of disease.

² See SEVEW Table 3-53 Biopesticides for alternative products. (Note: This production guide is revised annually, and the location of this information could change with updates.)

Disease Management for Field Tomatoes

GENERAL NOTES

The following includes an example of products; this list is not comprehensive. A complete list of fungicides and their efficacy can be found in *Vegetable Production Guide for Commercial Growers* (ID-36) and *Southeast U.S. Vegetable Crop Handbook* (SEVEW). See Additional Resources section.

Always read product labels for specific use instructions. The label is the law.

PREPLANT

Rotate out of solanaceous crops for at least 3 years, especially for sites with a history of soil-borne diseases. Space plants for maximum air circulation. For sites with a history of timber rot, incorporate Conans into the soil in January. Follow cultural practices (rotate crops, improve drainage, select resistant cultivars, practice sanitation).

TRANSPLANT (Approximately early May)

If field has a history of Rhizoctonia root rot or southern blight, apply Blocker at pre-plant, transplant, or side dress application (see precautions). Apply Ridomil for Pythium root rot and damping-off if disease emerges.

VEGETATIVE GROWTH (Approximately mid-May through late June)

Sucker and prune tomato plants early while suckers are small to avoid creating large open wounds. Use clean tools. Space and prune plants for increased air circulation. Practice good sanitation (e.g., remove diseased or senescing tissue regularly, remove clippings and debris from fields).

Application Timing <i>Weeks after transplant</i>	Application Notes	Fungicides/Bactericides ²	Target Diseases
Week 1 to 8	Use fungicides and bactericides preventatively, before disease develops. Applications should be made every 1 to 2 weeks. Rotate products between applications to avoid resistance development.	Mancozeb + Copper (tank mix)	Bacterial spot, bacterial speck, early blight, Septoria leaf spot
		Mancozeb + Azoxystrobin (tank mix)	Early blight, Septoria leaf spot
		Mancozeb + Fontelis (tank mix)	
As needed ¹	Fields with a history of bacterial disease, apply every 2 weeks.	Actigard (tank mixed with other preventative products)	Bacterial spot, bacterial speck

HARVEST (Approximately July to mid-August)

Prune to maintain good air circulation. Sanitation is critical.

Application Timing <i>Weeks after transplant</i>	Application Notes	Fungicides/Bactericides ²	Target Diseases
Week 9 to 12	Applications should be made every 1 to 2 weeks. Rotate products between applications to avoid resistance development.	Chlorothalonil + Copper (tank mix)	Anthracnose ripe rot, bacterial spot, bacterial speck, early blight, Septoria leaf spot
		Fontelis + Copper (tank mix)	
Week 12 to end of season	Applications should be made every 1 to 2 weeks.	Chlorothalonil	Anthracnose ripe rot, early blight, Septoria leaf spot
As needed ¹	Applications should be made every 1 to 2 weeks.	Copper	Bacterial spot, bacterial speck

Table continued on the next page

Disease Management for Field Tomatoes (cont'd)

HARVEST (Approximately July to Mid-August) (cont'd)

Prune to maintain good air circulation. Sanitation is critical.

Application Timing <i>Weeks after transplant</i>	Application Notes	Fungicides/Bactericides ²	Target Diseases
As needed ¹	Applications should be made every 1 to 2 weeks.	Aftershock Aprovia Top Fontelis	Southern blight
As needed ¹	Applications should be made every 1 to 2 weeks.	Orondis Gold/Opti/Ultra Ranman Revus	Buckeye rot

¹ Application necessary when diagnostic results confirm presence of disease or if field has a history of disease.

² See SEVEW Table 3-53 Biopesticides for alternative products. (Note: This production guide is revised annually, and the location of this information could change with updates.)

EXAMPLE FIELD SPRAY SCHEDULES FOR PEPPER AND TOMATO.

Pepper		
At Transplant	Fungicide(s)	Target Diseases
0	Blocker (optional)	RZ, SB
Weeks after Transplant	Fungicide(s)	Target Diseases
1-4	Copper (optional)	BS
Weeks during Harvest	Fungicide(s)	Target Diseases
5	Copper + Quadris	A, BS
6	Leap	BS
7	Copper + Quadris	A, BS
8	Leap	BS
9	Copper + Quadris	A, BS
10	Leap	BS
11	Copper	BS
12	Leap	BS

A – ANTHRACNOSE; BS – BACTERIAL SPOT; RZ – RHIZOCTONIA;
SB – SOUTHERN BLIGHT

Tomato		
Weeks after Transplant	Fungicide(s)	Target Diseases
1	Mancozeb + copper	BSS
2	Mancozeb + copper	BSS
3	Azoxystrobin + mancozeb	BSS, EB, S
4	Mancozeb + copper	BSS, EB, S
5	Fontelis + mancozeb	BSS, EB, S
6	Mancozeb + copper	BSS, EB, S
7	Azoxystrobin + mancozeb	BSS, EB, S
8	Mancozeb + copper	BSS, EB, S
Weeks during Harvest	Fungicide(s)	Target Diseases
9	Chlorothalonil + copper	A, BSS, EB, S
10	Fontelis + copper	A, BSS, EB, S
11	Chlorothalonil + copper	A, BSS, EB, S
12	Fontelis + copper	A, BSS, EB, S
13	Chlorothalonil	A, EB, S
14-15	Chlorothalonil	A, EB, S

A – ANTHRACNOSE RIPE ROT; BSS – BACTERIAL SPOT AND SPECK;
EB – EARLY BLIGHT; S – SEPTORIA LEAF SPOT

DISCLAIMER

*Fungicides listed here include a few of the most common products available
and were selected to simplify information in this publication.*

No endorsement is intended nor is criticism implied of similar products that are not named.

ADDITIONAL RESOURCES

- Vegetable Production Guide for Commercial Growers (ID-36)
<http://www2.ca.uky.edu/agcomm/pubs/id/id36/id36.pdf>
- Southeast U.S. Vegetable Crop Handbook (SEVEW)
<https://www.aces.edu/blog/topics/vegetable-crops/southeastern-us-vegetable-crop-handbook/>
- UK Plant Pathology Extension Publications
<https://plantpathology.ca.uky.edu/extension/publications>

November 2023

Acknowledgments

The authors would like to thank Inga Meadows, Plant Pathology Extension Associate, North Carolina State University, and Shawn Wright, University of Kentucky Horticulture Extension Specialist, for their reviews of this publication.

Editor: Cheryl Kaiser, Plant Pathology Extension Support

Photos: Kim Leonberger, University of Kentucky (early blight), Howard F. Schartz, Colorado State University, Bugwood.org (bacterial spot), and Kenny Seebold, University of Kentucky (southern blight)

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