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

Plant Pathology Fact Sheet **PPFS-VG-47**

Organic Commercial Spray Schedule for Field Production of Pumpkin

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Introduction

Commercial field production of organic pumpkin allows growers to yield premium crop prices. However, 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. These products provide the greatest efficacy when applied prior to disease onset. Growers should develop a preventative spray schedule for each crop and season to limit the impact of diseases. Organic growers will rely on specific products to maintain certifications or be able to market produce as organically produced. This document provides information on the timing of the most common pumpkin diseases, as well as an example spray schedule. 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 *Southeastern U.S. Vegetable Crop Handbook* (SEVEW); generic products may also be available. Information on OMRI approved products is available at https://www.omri.org/.

Pumpkin	
Disease	**Time Period**
Angular leaf spot/bacterial spot	July - Sep
Cercospora leaf spot	July - Sep
Fusarium crown rot	July - Aug
Phytophthora blight & fruit rot	July - Aug
Phytophthora stem & root rot	July - Aug
Powdery mildew	July - Sep
Anthracnose	Aug - Sep
Downy mildew	Aug - Sep
Plectosporium blight	Aug - Oct
Pythium cottony leak	Aug - Oct
Fusarium fruit rot	Sep - Oct

Timeline of common and important diseases occurring on pumpkin.

Common pumpkin fruit diseases occurring in Kentucky include Phytophthora fruit rot (*left*) and Anthracnose (*right*).

Disease Management for Organic Field Pumpkins

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 the *Vegetable Production Guide for Commercial Growers* (ID-36) and the *Southeastern 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 cucurbit crops for at least 3 years, especially for sites with a history of soil-borne diseases. Space plants for maximum air circulation. When available, use resistant cultivars (e.g. bacterial wilt or powdery mildew resistant cultivars). Follow cultural practices (rotate crops, improve drainage, practice sanitation).

AT PLANTING (prior to mid-June/planting begins mid-June)

Apply LalStop K61, Obtego, or RootShield Plus if Pythium root rot or damping off disease emerges or if field has a history of belly rot, cottony leak, or Fusarium fruit rot. To prevent bacterial wilt, manage cucumber beetles beginning at seedling stage (See *Cucumber Beetles* Entfact-311 publication).

VEGETATIVE GROWTH (Approximately mid-June through mid-August)

Practice good sanitation, such as removing diseased or senescing tissue regularly and removing clippings and debris from the field.

Application Timing *Weeks after planting*	**Application Notes**	**Fungicides[2]**	**Target Diseases**
Week 1 to 3	Disease pressure is low prior to vine touch, but a SAR inducer can help plants build immunity.	Actinovate/Regalia	Leaf diseases
Week 4 to 7	Use fungicides preventatively before disease develops. Applications should be made every 1 to 2 weeks. A SAR inducer can help plants build immunity.	Cease/Stargus Copper[3,4] OSO SAR inducer Actinovate/Regalia	Angular leaf spot, Cercospora leaf spot, powdery mildew
As needed[1]	For severe powdery mildew or high risk plantings, add an additional product to tank mix or add additional sprays.	Sulfur[5] Cease/Stargus MilStop EcoSwing	Powdery mildew

FLOWERING THROUGH HARVEST (Approximately mid-August through October)

Application Timing *Weeks after planting*	**Application Notes**	**Fungicides/Bactericides[2]**	**Target Diseases**
Week 8 to 15	Use fungicides preventatively before disease develops. Applications should be made every 1 to 2 weeks. A SAR inducer can help plants build immunity.	Cease/Stargus Copper[3,4,6] OSO SAR inducer Actinovate/Regalia	Angular leaf spot, Cercospora leaf spot, powdery mildew

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

[2] See SEVEW Table 3-51 Biopesticides for alternative products. (Note: This production guide is revised annually and location of this information could change.)

[3] Copper products can include Badge, Basic Cop, Nordox, or NuCop.

[4] Combining copper fungicides with SAR products like Actinovate, Regalia, and some Bacillus products can enhance efficacy of copper-based fungicides.

[5] Sulfur should not be applied within 7 days of Bacillus products.

[6] Copper may result in phytotoxicity on fruit in some cultivars, particularly under cool, humid conditions.

Disease Management for Organic Field Pumpkins

FLOWERING THROUGH HARVEST (Approximately mid-August through October) *(cont'd)*

Application Timing *Weeks after planting*	**Application Notes**	**Fungicides/Bactericides[2]**	**Target Diseases**
As needed[1]	For severe powdery mildew or high risk plantings, add an additional product to tank mix or add additional sprays.	Sulfur[5]	Powdery mildew
		Cease/Stargus	
		MilStop	
		EcoSwing	
As needed[1]	Applications should be made every 1 to 2 weeks when risk is high. Monitor disease via ipmpipe.org forecasting site.	Copper[3,4,6]	Downy mildew
		MilStop	
		Zonix	
As needed[1]	For severe angular leaf spot or high risk plantings, add an additional product to tank mix or add additional sprays. A SAR inducer can help plants build immunity.	Copper[3,4,6]	Angular leaf spot
		Cease/Stargus	
		Leap	
		SAR inducer Actinovate/Regalia	
As needed[1]	Preventative applications should be made if field has a history of disease.	Copper[3,4,6]	Gummy stem blight
		OSO	
As needed[1]	Preventative applications should be made if field has a history of disease.	LalStop K61	Fusarium crown rot & fruit rot
		RootShield Plus	
		Obtego	
As needed[1]	Preventative applications should be made if field has a history of disease.	Zonix	Phytophthora blight & fruit rot
		RootShield Plus	
		LalStop K61	
		Cease/Stargus	
As needed[1]	Preventative applications should be made if field has a history of disease.	Copper[3,4,6]	Plectosporium blight

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[2] See SEVEW Table 3-51 Biopesticides for alternative products. (Note: This production guide is revised annually and location of this information could change.)
[3] Copper products can include Badge, Basic Cop, Nordox, or NuCop.
[4] Combining copper fungicides with SAR products like Actinovate, Regalia, and some Bacillus products can enhance efficacy of copper-based fungicides.
[5] Sulfur should not be applied within 7 days of Bacillus products.
[6] Copper may result in phytotoxicity on fruit in some cultivars, particularly under cool, humid conditions.

Example spray schedule for organic field production of pumpkin.

Pumpkin		
Weeks after Planting	**Fungicide(s)**	**Target Diseases**
1-7	Actinovate+Cease	LS
Weeks during Flowering & Harvest	**Fungicide(s)**	**Target Diseases**
8	Cease+EcoSwing	LS, DM, GSB, PM
9	NuCop+MilStop	LS, DM, GSB, PM
10	Cease+EcoSwing	LS, DM, GSB, PM
11	NuCop+MilStop	LS, DM, GSB, PM
12	Cease+EcoSwing	LS, DM, GSB, PM
13	MilStop+OSO	LS, DM, GSB, PM
14	Cease+EcoSwing	LS, DM, GSB, PM
15	MilStop+OSO	LS, DM, GSB, PM

DM – Downy mildew; GSB– Gummy stem blight;
LS – Fungal leaf spots; PM – Powdery mildew

Additional Resources

Additional information can be found on the UK Plant Pathology Extension Publications webpage https://plantpathology.ca.uky.edu/extension/publications

- Vegetable Production Guide for Commercial Growers (ID-36)
- Southeasteastern U.S. Vegetable Crop Handbook (SEVEW)
- OMRI Product Website https://www.omri.org/

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