



Martin-Gatton  
College of Agriculture, Food and Environment  
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Plant Pathology Fact Sheet

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# Commercial Spray Schedule for High Tunnel Production of Cucumbers

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## INTRODUCTION

High tunnel cucumber production allows growers to plant earlier in spring, resulting in fruit available for sale before field cucumbers can be marketed. Although high tunnels provide protection from weather and can help keep foliage dry, numerous plant pathogens can still infect high tunnel cucumbers resulting in plant and/or fruit loss. Applications of fungicides are often necessary to limit the impact from plant diseases. Fungicides provide the greatest efficacy when applied preventatively (prior to disease onset). Growers should develop a spray schedule for each season to limit the impact of the various fungi that can affect cucumbers. This document provides information on the timing of the most common high tunnel cucumber diseases, as well as an example spray schedule for conventional production systems. The 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. In Kentucky, high tunnels are considered greenhouses; use only products that are labeled for greenhouse application.

Disease	Time Period
Gray mold	Apr - Aug
Pythium root rot	Apr – Aug
White mold ( <i>Sclerotinia</i> )	Apr - May
Powdery mildew	May – Aug
Southern blight	June - Aug

**TABLE 1. TIMELINE OF COMMON AND IMPORTANT DISEASES OCCURRING ON CUCUMBER CROPS IN HIGH TUNNEL PRODUCTION.**



SOUTHERN BLIGHT (*left*) AND LEAF SPOT DISEASES (SUCH AS ANTHRACNOSE) (*right*) CAN DEVELOP ON CUCUMBERS IN HIGH TUNNEL PRODUCTION.



## Disease Management for High Tunnel Cucumber Production

### 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 *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

Do not plant cucurbit crops in the same high tunnel year after year. Rotate out of cucurbit crops for at least 3 years in the same high tunnel, especially for sites with a history of soil-borne diseases. Space or prune plants for maximum air circulation. When available, use resistant cultivars (e.g. powdery mildew resistant cultivars). For sites with a history of white mold (*Sclerotinia*), incorporate Contans into the soil in January. Follow cultural practices (rotate crops, improve drainage, select resistant cultivars, practice sanitation).

### AT PLANTING (Approximately mid-April)

Apply Previcur Flex or Ridomil for Pythium root rot and damping-off if disease emerges. To prevent bacterial wilt, manage cucumber beetles beginning at seedling stage (See *Cucumber Beetles* Entfact-311 publication)

### VEGETATIVE GROWTH (Approximately mid-April through late May)

Maintain relative humidity (RH) below 70% by opening end or side walls for air circulation, even when raining. This is the most critical step for disease prevention and control. If temperatures exceed 50°F outside, it is safe to open the tunnels without risking cold damage to cucumber plants. Install at least one humidity meter in each high tunnel. Trellis plants early and prune often to maintain air circulation between plants. Clean tools after each use. Practice good sanitation, such as removing diseased or senescing tissue regularly and removing clippings and debris from the tunnel.

Application Timing <i>Weeks after transplant</i>	Application Notes	Fungicides <sup>2</sup>	Target Diseases
Week 1 to 5	Use fungicides preventatively before disease develops. Applications should be made every 1 to 2 weeks.	Mancozeb	Leaf spots
As needed <sup>1</sup>	Apply as a soil drench during April and May. Applications are for suppression only.	Fontelis	White mold ( <i>Sclerotinia</i> )
As needed <sup>1</sup>	Target applications in April and May.	Fontelis Inspire Super	Botrytis gray mold

### FLOWERING THROUGH HARVEST (Approximately early June through mid-August)

Maintain RH below 70% all season. Maintain good air circulation. Unless there is extreme wind, the tunnel should remain open during this time period. Sanitation is critical.

Application Timing <i>Weeks after transplant</i>	Application Notes	Fungicides <sup>2</sup>	Target Diseases
Week 6 to 16	Applications should be made every 1 to 2 weeks. Rotate products between applications to avoid development of disease resistance.	Fontelis Quadris Top Inspire Super	Leaf spot, powdery mildew
As needed <sup>1</sup>	Applications should be made when disease is severe.	Torino	Powdery mildew
As needed <sup>1</sup>	Applications should be made when disease is severe.	Fontelis	Southern blight

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

<sup>2</sup> 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 SCHEDULE FOR HIGH TUNNEL CUCUMBER PRODUCTION**

High Tunnel Cucumber		
Weeks after Planting	Fungicide(s)	Target Diseases
1-5	Mancozeb	LS
Weeks during Harvest	Fungicide(s)	Target Diseases
6	Fontelis	LS, PM
7	Inspire Super	LS, PM
8	Fontelis	LS, PM
9	Inspire Super	LS, PM
10	Fontelis	LS, PM
11-16	Torino	PM

LS - leaf spots; PM - powdery mildew

**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**

- Cucumber Beetles (EntFact-311)  
<https://entomology.ca.uky.edu/ef311>
- Plant Pathology Extension Publications (UK)  
<https://plantpathology.ca.uky.edu/extension/publications>
- Southeast U.S. Vegetable Crop Handbook (SEVEW)  
<https://www.aces.edu/blog/topics/vegetable-crops/southeastern-us-vegetable-crop-handbook/>
- Vegetable Production Guide for Commercial Growers (ID-36)  
<http://www2.ca.uky.edu/agcomm/pubs/id/id36/id36.pdf>

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