



# Angular Leaf Spot of Cucurbits

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## Introduction

Angular leaf spot of cucurbits is caused by the bacterium *Pseudomonas syringae* pv. *lachrymans*. The bacterium can attack a wide range of cucurbits including watermelon, melon, squash, cucumber, zucchini, and pumpkin.

## Symptoms

The bacterium attacks the leaves, stems and fruit of cucurbit plants. On leaves the bacterium causes small, sometimes angular, watersoaked areas which later turn brown or straw-colored (Fig. 1). Leaf lesions are delimited by the veins, hence the angular appearance of the lesions. Under humid conditions, a white, milky exudate, consisting of bacteria, forms on the lesions and dries to form a thin, white crust. Affected leaf tissue often dries and drops out, leaving irregularly shaped holes in the leaves. Heavily infected leaves may turn yellow. Lesions may also occur on petioles and stems.



Fig. 1. Angular leaf spot symptoms on a squash leaf. Photo by Gerald Holmes Strawberry Center, Cal Poly San Luis Obispo, [Bugwood.org](http://Bugwood.org).

On fruit the bacterium causes circular spots. These spots often crack open and turn white in color. Rot may extend internally and predispose infected fruit to secondary bacterial soft rot.

## Disease Cycle

The bacterium can overwinter in seed and on diseased plant debris in the field. Seed-borne bacteria spread to the cotyledons when the seed germinates. Contaminated transplants can also be a source of the disease. Splashing rain or irrigation spreads bacteria from the soil to plant parts and from plant to plant. The organism is easily spread in the field by cultivation equipment, harvesters, and by wind-blown rain. Angular leaf spot is most active between 75°-82°F (24°-28°C) and is favored by high humidity.

## Control Cultural Tactics

- Use pathogen-free seed and transplants.
- Avoid working among plants when foliage is wet and using overhead irrigation since these practices will spread the bacteria.
- In locations where the disease has been diagnosed, rotate out of cucurbit crops (e.g. cucumber, squash, pumpkin) for at least 2 years, if possible.

## Pesticide Management

Pesticides may be used to manage this disease and should be initiated as soon as symptoms first appear. Pesticides will be most effective when used in conjunction with cultural tactics. Refer to the current [Virginia Pest Management Guide for Home Grounds and Animals](https://www.pubs.ext.vt.edu/456/456-018/456-018.html) (<https://www.pubs.ext.vt.edu/456/456-018/456-018.html>) or [Commerical Vegetable Production Recommendations](https://www.pubs.ext.vt.edu/456/456-420/456-420.html) (<https://www.pubs.ext.vt.edu/456/456-420/456-420.html>) for details on pesticides and resistant cucumber varieties.

## Host Resistance

Plant angular leaf spot-resistant cucumber varieties. There are many slicing and pickling cucumber varieties with resistance to angular leaf spot. VCE publication 456-420, [The Mid-Atlantic Commercial Vegetable Recommendations](https://www.pubs.ext.vt.edu/456/456-420/456-420) (https://www.pubs.ext.vt.edu/456/456-420/456-420), lists resistant varieties and many seed companies also include disease-resistance information for varieties.

## Diagnosing the Disease

The Virginia Tech Plant Disease Clinic can diagnose this Disease and other plant diseases. Refer to the [Plant Disease Clinic website](https://bit.ly/VTplantclinic) (https://bit.ly/VTplantclinic) for the current diagnostic form, fees, and instructions on collecting an appropriate diagnostic sample and submitting samples to the Plant Disease Clinic.



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Produced by Virginia Cooperative Extension, Virginia Tech, 2023

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VT/1223/SPES-528P