Angular Leafspot of Cucumber

PP-738 (Revised), Reviewed July 1996

J.R. Venette, Professor, Plant Pathology
R.C. Smith, Extension Horticulturist
H.A. Lamey, Extension Plant Pathologist

During warm, wet weather, bacterial angular leafspot can cause serious yield and quality loss to cucumbers. The bacterium, *Pseudomonas syringae* pv. *lachrymans (Pseudomonas lachrymans)*, also infects other cucurbits including zucchini, squash, honeydew melon, muskmelon, and watermelon.

Heavy infections of cucumber can occur during extended rainy periods when plant tissues become filled with water. Small angular water-soaked spots may develop on the leaves, stems and fruit. The spots are confined by leaf veins and appear tan on the upper surface and gummy or shiny below. As the lesions age, their color changes from gray to white. Sometimes dead tissue falls away, giving the leaf a ragged shot-hole appearance (Figure 1). Infections on fruits are first small, circular, water-soaked and soft but older lesions are chalky and cracked. Fruit spots usually occur when fruits are about half grown. Below the lesions, flesh may be brown down to the seed layer. If attacked when very young, the fruit may fall off the plant. Lesions on stems may be covered with abundant bacterial slime.

Figure 1. Angular leafspot on cucumber. Photo by Clemson University.

Infection originates from bacteria overwintering on infected debris from the previous year or in contaminated seed. Contaminated seed often dies at germination. Those infected seeds that live often give rise to cotyledonary (first leaves to emerge from the soil) infections which initiate spread. Disease spread in the field requires free water and occurs by rain splash or overhead irrigation carrying bacteria from infected to healthy plants. Bacteria enter plants through stomates (surface pores). Transfer is aided by insects, plant contact, wind, and hands or clothing of pickers. Temperatures of 75-82 degrees Fahrenheit, high humidity, and excessive nitrogen fertilization favor disease development.

Control

Cucumbers should be grown from clean seed in an area isolated from other cucurbit fields and on land that has been free of cucurbits for one or two years. Clean seed is produced in dry inland areas of California.

Copper containing sprays can help control the disease. Copper fungicides such as Kocide 101, Kocide

606, Champion, or Champion Flowable can be used by commercial growers. Homeowners can use Bordeaux Mixture. These fungicides should be applied in strict accordance with label instructions. Current recommendations are available at county extension offices. A weekly copper spray schedule is advisable when weather is favorable for disease spread (above 75 F and wet). Copper sprays should not be continued in dry weather, especially hot, dry weather, because the sprays may cause plant injury.

Debris from the crop should be destroyed to decrease overwintering and spread of the disease to other fields the next year. Avoid excessive overhead irrigation or excessive amounts of nitrogen fertilizer. Do not work the cucumber field when plants are wet since water helps spread the disease.

Some cucumber varieties have resistance or tolerance to angular leafspot. Disease reactions of some common varieties to angular leafspot and to other diseases is given in Table 1. Other diseases listed in the table are described in Extension Circular PP656 Disease Management in Home-Grown Cucumbers, Melons and Squash (1991)

Table 1. Reaction of Cucumber Varieties to Angular Leafspot and Other Diseases.

Variety (maturity)	Source	Angular Leafspot	Scab	Anthrac-nose	Powdery Mildew	Downy Mildew	Bac-terial Wilt	Mosaic
Chipper (58 days)	NK	R		R	R	R		R
Explorer (56 days)	NK	R		R	R	R		R
Marketeer (66 days)	Gurney Field		T		T	T		
Pioneer (51 days)	Stokes Holmes	T	T	T	T	T		
Liberty (48 days)	Stokes Twilley	T	R			T		R
Saladin (55 days)	Stokes Twilley					T	T	R
Shamrock (55 days)	Stokes	T	T		T	T		T
Spacemaster (60 days)	Burpee Field		T	S				T
Sweet Slice (62 days)	Harris Jung	T		T	T	T		T
Sweet Success (55 days)	May Park	R	R	R	R	R		R
Victory (50 days)	Stokes	T	T	T	T	T		T

T = Tolerant; R = Resistant; S = Susceptible

Originally published as PP circular 738, July 1981, by C.L. Kohls, J.R. Venette and H.A. Lamey.

PP-738 (Revised), December 1987
Reviewed July 1996
