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ANTHRACNOSE OF CUCUMBER

Anthracnose is a common fungal disease of cucumber in fields, greenhouses, and high tunnels. The disease can develop on all aboveground parts of cucumber and cause leaf spot, blight, stem canker, and fruit rot during the growing season. Severe epidemics of the disease during warm and wet summers may result in early defoliation, yield losses, and lower quality fruit. Infected fruit may result in contaminated seed.

SYMPTOMS AND DIAGNOSTICS

Leaf spots are the most common symptoms observed in fields; they begin as water-soaked areas and then become small, yellowish, circular spots. Lesions can expand, turn brown, and become greater than a half inch in

diameter on leaves (Figure 1). When stems and petioles are infected, symptoms start as elongated, oval to diamond-shaped light brown cankers (Figure 2) that may be covered by pink-colored spores in high relative humidity conditions. Cankers can girdle the stems and cause wilting of the upper parts of the affected stems. Fruit also can be infected as they mature. Symptoms on fruit start as circular, water-soaked spots and become brown, sunken lesions (Figure 3). A mass of salmon-colored spores can form on lesions during wet conditions. Seed harvested from infected fruit can be contaminated by the pathogen. Seedlings grown from contaminated seed can be infected and develop water-soaked, pale yellow or brown



Figure 1. Brown lesions with yellow haloes (arrow) on a cucumber leaf.



Figure 2. Elongate, oval, pale yellow lesions (arrow) on a cucumber stem



Figure 3. Brown, sunken lesions (arrow) on a mature cucumber fruit.



Figure 4. Brown, necrotic lesions (arrows) on cotyledons of cucumber seedlings.

necrotic lesions on cotyledons (Figure 4).

DISEASE DEVELOPMENT

Anthrachnose of cucumber is caused by the fungus *Colletotrichum orbiculare*, which also infects other cucurbit crops such as muskmelon and watermelon. Squash, cantaloupe, and pumpkin are rarely infected by the pathogen. Varying levels of resistance to anthracnose exist in cucumber varieties.

The fungus survives between seasons on seed, volunteer cucurbits, and plant debris, which serve as the primary inoculum. When the pathogen is seedborne, seedlings can be infected and cause disease epidemics in seedbeds. Infected seedlings may serve as the primary inoculum source in gardens and fields. Spores are dispersed from diseased plants by splashing rain and overhead irrigation. The optimum temperature for disease development is 70 to 80°F. Spore production, germination, and infection are favored by prolonged periods of high relative humidity in the canopy and a film of water on leaf surfaces. Therefore, anthracnose usually becomes established in mid-season and rainy and warm weather conditions play an important role in epidemics of this disease.

MANAGEMENT

Resistant varieties: Using resistant varieties is the first and most effective way

to manage anthracnose of cucumber. Resistant cucumber slicers include ‘Intimidator,’ ‘Speedway,’ ‘Dasher II,’ ‘General Lee,’ and ‘Marketmore.’ Among pickling cucumbers, ‘Alibi,’ ‘Supremo,’ ‘Vlasstar,’ ‘Fancipack,’ and ‘Eureka’ are more tolerant or resistant.

Cultural practices: Start with healthy seed or seedlings by purchasing them from reputable sources. Scout cucumber plants for anthracnose and remove diseased leaves from the lower part of plants to reduce fungal inoculum and improve air circulation. When possible, avoid overhead or sprinkler irrigation and do not water plants on cloudy days. Water early in the day to ensure plants dry out before sunset. At the end of the season, remove plant residues from fields. If possible, practice a three-year rotation with non-cucurbit crops.

Fungicide application: Scouting for anthracnose in fields is essential to determine the time to start fungicide applications. Apply fungicides at regular intervals or add additional applications in rainy and wet conditions. Fungicides that are registered for anthracnose of cucumber in Connecticut include chlorothalonil (Bravo Weather Stik), Mancozeb (Dithane, Penncozeb, and Manzate), and

azoxystrobin (Quadris). Combining Bravo with mancozeb may increase control effectiveness. The options for organic vegetables are copper products and the biological control agent *Bacillus subtilis* strain QST 713. The pesticide label will contain information on dosage rates, application intervals, and safety precautions.

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