e-GRO Alert

Food Crops

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Alternaria leaf blight on cucumbers in high tunnels

Jean Williams-Woodward

jwilwood@uwyo.edu

The hot, dry conditions of Wyoming usually are not very conducive to plant diseases. However, poor air circulation, higher humidity, and leaf wetness within high-tunnel vegetable production can lead to fungal leaf spot diseases. During a recent visit with a vegetable producer, leaf spotting due to the fungus, Alternaria, was identified on cucumbers.

Alternaria leaf blight is common across the USA, especially in southern and midwestern states. The fungus, *Alternaria cucumerina*, infects multiple cucurbit crops including cucumbers, watermelon, cantaloupe, summer and winter squashes. and pumpkin. The fungus causes tan to brown lesions, often with concentric rings (Figure 1). The lesions are often surrounded by a yellow a halo that might be confused with a bacterial leaf spot, especially if the lesions are along the leaf margin (Figures 2 and 3). It can also cause lesions on the fruit, as well as sunscald due to the loss of foliage under severe infections. *Alternaria* is a profuse spore-producer. The lesions can often look fuzzy due to an abundance of spores produced on both the upper and lower leaf surfaces (Figure 4).

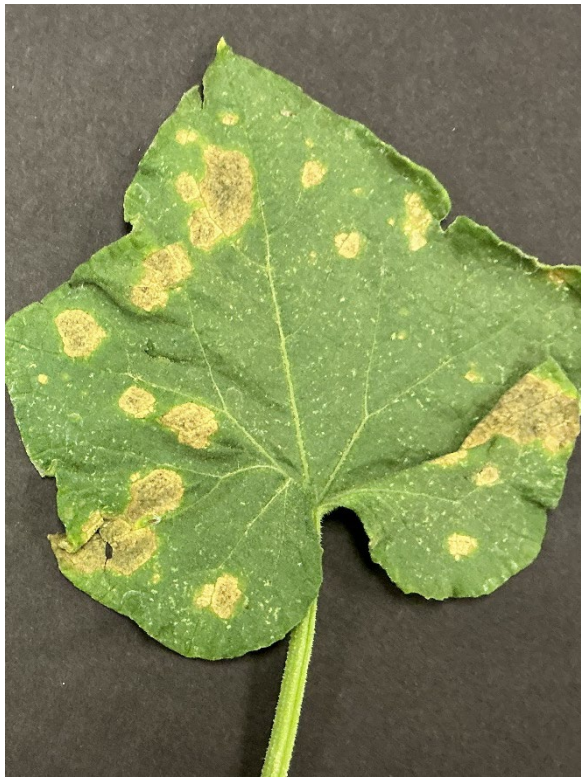

Figure 1: Tan to brown lesions with yellow halos on cucumber due to *Alternaria cucumerina* infection. (Image by Calum Wheeler, University of Wyoming Extension Plant Diagnostic Lab)

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The fungus overwinters on fallen and old leaf debris within the soil and in beds. *Alternaria* can survive for up to two years in crop debris. Newly developing spores can be water-splashed and wind-dispersed to new growth each year, as well as spread throughout the canopy once infection starts on lower leaves. Spores may also be spread by insects, on tools, and through worker activity within greenhouses and high tunnels. Because of the pathogen's ability to survive, removal of plant debris at the end of the season is important to reduce inoculum for next years or the next crop's infection. Bury, burn, or physically remove the debris from the planting areas.

In beds that had the disease, rotate away from cucurbit crops for at least two years. If possible, and when available, plant *Alternaria*-resistant varieties. Disease presence is often worse on nitrogen-stressed plants; therefore, maintain proper nutrition.

Fungicides can reduce infection and slow spread within the canopy and beds. There are numerous products and active ingredients labeled for controlling Alternaria leaf blight including products containing azoxystrobin, boscalid, chlorothalonil, copper hydroxide, cyprodinil, difenoconazole, fluopyram, fluoxastrobin, mancozeb, penthiopyrad, pyraclostrobin, tetraconazole, trifloxystrobin, and others. Always follow product labeling for rates, use requirements, and restrictions. There are several OMRI listed products for *Alternaria* control on cucumber that may limit leaf spot spread including extract of *Reynoutria sachalinensis* (Regalia®) and neem oil. I have not tested these products for Alternaria leaf blight control and cannot attest to their efficacy

Please note: The mention of specific active ingredients does not constitute an endorsement or recommendation of, nor discrimination against similar products not mentioned.

Disease Management Summary

- Remove old crop debris.
- Plant disease-resistant varieties.
- Keep foliage as dry as possible.
- Avoid overhead irrigation to reduce water-splashing of spores.
- Disinfest tools and worker clothing to reduce fungal spore spread. Spraying tools and clothing with 70% ethanol or isopropyl alcohol or using RTU disinfecting sprays such as Lysol® and Clorox™ sprays can reduce spore survival on surfaces.
- Maintain proper nutrition, especially nitrogen.
- Use fungicides preventively or when small leaf spots are first seen to reduce leaf spot spread throughout the canopy.

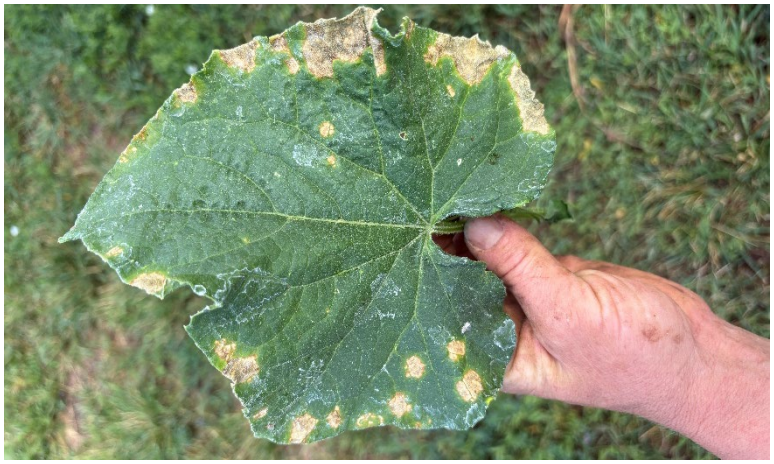

Figure 2: Alternaria leaf blight lesions with yellow halos that are mostly along the leaf margin. This could be confused with a bacterial leaf spot. (Image by Jean Williams-Woodward)

Figure 3: *Alternaria* leaf spotting can have a water-soaked, oily appearance on the leaf underside that could be confused with a bacterial leaf spot. *Alternaria* produces spores abundantly from the leaf spots. (Image by Jean Williams-Woodward)

Figure 4. Profuse *Alternaria* sporulation on the upper side of the leaf can be seen as blackish dots in the tan leaf spots. *Alternaria* produces spores on both side of the leaf. (Image by Calum Wheeler, University of Wyoming Extension Plant Diagnostic Lab)

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CONTRIBUTORS

Dr. Nora Catlin
Floriculture Specialist
Cornell University
nora.catlin@cornell.edu

Dr. Chris Currey
Assistant Professor of Floriculture
Iowa State University
ccurrey@iastate.edu

Dan Gilrein
Entomology Specialist
Cornell Cooperative Extension
Suffolk County
dog1@cornell.edu

Dr. Chieri Kubota
Controlled Environments Agriculture
The Ohio State University
kubota.10@osu.edu

Heidi Lindberg
Floriculture Extension Educator
Michigan State University
wolleage@anr.msu.edu

Dr. Roberto Lopez
Floriculture Extension & Research
Michigan State University
rglopez@msu.edu

Dr. Neil Mattson
Greenhouse Research & Extension
Cornell University
neil.mattson@cornell.edu

Dr. W. Garrett Owen
Sustainable Greenhouse & Nursery
Systems Extension & Research
The Ohio State University
owen.367@osu.edu

Dr. Alicia Rihn
Agricultural & Resource Economics
University of Tennessee-Knoxville
arihn@utk.edu

Dr. Debalina Saha
Horticulture Weed Science
Michigan State University
sahadeb2@msu.edu

Dr. Beth Scheckelhoff
Extension Educator – Greenhouse Systems
The Ohio State University
scheckelhoff.11@osu.edu

Dr. Ariana Torres-Bravo
Horticulture/ Ag. Economics
Purdue University
torres2@purdue.edu

Dr. Brian Whipker
Floriculture Extension & Research
NC State University
bwhipker@ncsu.edu

Dr. Jean Williams-Woodward
Extension Plant Pathologist
University of Wyoming
jwilwood@uwyo.edu

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