Managing Cucurbit Powdery Mildew Organically – Key Points for Success

Margaret Tuttle McGrath
Plant Pathology and Plant-Microbe Biology Section, SIPS, Cornell University
Long Island Horticultural Research and Extension Center (LIHREC)
3059 Sound Avenue, Riverhead, NY 11901; mtm3@cornell.edu

1. Grow resistant varieties. They provide useful but variable suppression of powdery mildew from limited in pumpkin and squash to very high in cucumber. See https://www.vegetables.cornell.edu/pest-management/disease-factsheets/disease-resistant-vegetable-varieties/

2. Check upper and lower surfaces of at least 50 older leaves for symptoms weekly beginning at the start of fruit formation, which is a physiological stress that causes plants to become susceptible. Symptoms often appear first on lower surface.

3. Begin applying fungicides as soon as symptoms are seen and continue on a weekly schedule. Conditions typically remain favorable throughout the growing season because powdery mildew develops when it is dry; a prolonged period of rain is unfavorable. Getting spray deposited on the underside of leaves is important for optimizing control because organic fungicides have contact activity, but challenging due to the large size of cucurbit leaves and density of foliage.

4. There are many organic fungicides for powdery mildew. Sulfur is the most effective fungicide; low rate of a dispersible formulation is recommended. It can be phytotoxic to cantaloupe, especially under high temperatures (above 80 F); there are sulfur-tolerant varieties. Mineral oils also have good efficacy; do not apply within 2 weeks of sulfur. There are several biopesticides labeled for powdery mildew on cucurbits. Using at least two products with different modes of action is recommended. For information to help with selecting biopesticides see https://www.vegetables.cornell.edu/ipm/diseases/biopesticides/. At this webpage there is a list of biopesticides labeled for use on cucurbits. Search for 'powdery' to see which ones are labeled for powdery mildew. The list includes active ingredient to help with selecting different products. There is an excel spreadsheet with efficacy results from evaluations of biopesticides for diseases of vegetable crops (and basil) conducted at universities and published in PDMR. Results were used to calculate % control. If you download the file to look for results, best to hide columns H – U as most important information is whether treatment was effective and % control achieved which are in columns V – Y. There are 2 tables with summary results from solo product evaluations in the database. These are also at the webpage.

5. Within a week of the last application, look at severity of powdery mildew on leaves to assess degree of control obtained and potential need to change the program for the next year.

There is additional information about this disease and its management at
https://www.vegetables.cornell.edu/pest-management/disease-factsheets/cucurbit-powdery-mildew/