MISSISSIPPI STATE UNIVERSITY EXTENSION

A Checklist of Disease Management Recommendations for Vegetable Production

Various diseases threaten vegetable production in Mississippi throughout the growing season. While some diseases may not cause severe damage, others may cause significant yield losses. To minimize the impact of diseases, commercial producers and home gardeners should implement a disease management program.

Various disease management practices are available, but each one will not be effective against every disease. Choosing which disease management practices to use depends on several factors. These include the biology of the pathogen(s) causing the disease(s), the options available and preferences for effective disease management, and the feasibility of available practices for producers/gardeners. The best approach is integrated disease management, which uses a combination of biological, cultural, physical, and chemical practices.

Below are general disease management practices that can be incorporated into a disease management program at different times in the growing season. These practices help prevent the introduction of pathogens into new areas, reduce the spread of pathogens to new plants or plantings, decrease pathogen buildup in a field, lessen the severity or occurrence of disease, and make conditions for disease development less favorable. Specific disease management recommendations for a particular vegetable disease can be found in various MSU Extension resources or by contacting your local Extension agent or plant pathologist.

The following steps can also help producers and gardeners improve their ability to manage diseases:

- Know the plant; be able to recognize normal plant growth as well as the symptoms of common nutritional deficiencies.
- Know the common diseases of the crop(s) in Mississippi and their signs and symptoms.
- Know what information to collect when assistance with plant problems is needed.
- Know where to look for information and who to contact for help.

Before Planting and/or at Planting

- ☐ Collect and submit soil samples to the MSU Extension Soil Testing Lab for appropriate fertility recommendations.
- ☐ Choose an appropriate planting site that provides good sunlight, airflow, and drainage.
- ☐ Prepare a proper garden plan that includes crop rotation.
- ☐ Consider the disease history of a planting site and implement additional disease management measures as necessary.
- ☐ Select recommended varieties for commercial or home garden production for your area.
- ☐ Select varieties that have resistance to common diseases in your area.
- ☐ Purchase certified disease-free seeds or healthy-looking transplants from reputable sources.
- ☐ Purchase fungicide-treated seeds or treat non-treated seeds with approved fungicides.
- ☐ Perform approved seed treatments (for example, hot-water treatment).
- ☐ Follow planting recommendations regarding seed depth and plant spacing.
- ☐ Plant only healthy-looking transplants; discard transplants with signs or symptoms of disease.
- ☐ Plant seeds and seedlings during ideal environmental conditions for germination and growth (warm, dry soil).
- ☐ Alter the timing of planting so that harvest is completed before diseases usually appear.
- ☐ Clean and disinfest potting media, transplant trays, or pots prior to reuse.
- ☐ Use mulch and/or stakes, cages, or trellises when appropriate for the crop.
- ☐ Apply effective fungicides appropriately following resistance management guidelines (rotation); biologicals may be most effective at this time.

During the Growing Season

- ☐ Follow recommendations for fertilization (soil and plant tissue analysis); do not overfertilize.
- ☐ Avoid practices that leave foliage wet for long periods (for example, substitute drip irrigation or adjust the timing of overhead irrigation); do not overwater.
- ☐ Regulate temperature and humidity in enclosed structures.
- ☐ Clean and disinfest tools and equipment between fields and after each use.
- ☐ Clean hands, shoes, etc., between fields and before entering enclosed structures.
- ☐ Remove and destroy or bury crop debris.
- ☐ Rogue (throw out) diseased plants and plant tissue (possibly soil around the base of stems).
- ☐ Avoid using diseased plants or plant tissue in improperly managed compost.
- ☐ Avoid working with wet plants.
- ☐ Stake, cage, or trellis plants.
- ☐ Scout regularly for diseases and insects.
- ☐ Monitor local disease epidemics; sign up for newsletters or alerts from Extension agents, specialists, or disease-monitoring programs.
- ☐ Apply effective fungicides appropriately following resistance management guidelines (rotation).
- ☐ Manage insect vectors known to transmit pathogens.
- ☐ Collect and submit plant samples to the MSU Extension Plant Diagnostic Lab at the first sign of disease, for disease identification and appropriate disease management recommendations.
- ☐ Collect and submit soil samples to the MSU Extension Plant Diagnostic Lab for nematode identification and quantification (planning for the following season).
- ☐ Collect and submit plant tissue and/or soil samples to the MSU Extension Soil Testing Lab for analysis if potential nutrient issues are observed.

During and/or After Harvest

- ☐ Apply effective fungicides appropriately following resistance management guidelines (rotation).
- ☐ Harvest mature crops promptly.
- ☐ Practice proper handling and storage of harvested crops.
- ☐ Remove and destroy or bury (till) crop debris remaining in fields.
- ☐ Till ground to bury plant debris remaining in fields.
- ☐ Clean and disinfest plant support structures and surfaces in plant production areas.
- ☐ Avoid using diseased plants or plant tissue in improperly managed compost.
- ☐ Avoid saving seeds from diseased fruits.

Throughout the Year

- ☐ Keep detailed disease and disease management records from year to year.
- ☐ Remove weeds or volunteer plants that can harbor plant pathogens between seasons.
- ☐ Clean and disinfest tools and equipment between fields and after each use.
- ☐ Clean hands, shoes, etc., between fields and before entering enclosed structures.
- ☐ Avoid tobacco use (particularly when growing crops susceptible to tobacco mosaic and related viruses).

This work is supported by the Crop Protection and Pest Management, Extension Implementation Program, award nos. 2021-70006-35580 and 2024-70006-43496 from the U.S. Department of Agriculture's National Institute of Food and Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and should not be construed to represent any official USDA or U.S. Government determination or policy.

USDA National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

Publication 3761 (POD-07-25)

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Produced by Agricultural Communications.

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. ANGUS L. CATCHOT JR., Director

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