

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 measures (practices) are available, but every practice will not be effective against every disease. The choice of which measures to use depends on the biology of the pathogen causing disease, the options available for effective management of the disease, and the disease management preferences and feasibility of the available measures for the producer or gardener. The best approach to disease management is integrated disease management, which uses a combination of biological, cultural, physical, and chemical disease management measures.

Below are general disease management measures that can be incorporated into a disease management program at different times in the growing season. These measures help by preventing the introduction of pathogens into new areas, reducing the spread of pathogens to new plants or plantings, reducing the buildup of pathogens in a field, reducing the severity or occurrence of disease, and modifying the conditions favorable for disease development. 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 crops in Mississippi and their signs and symptoms.
- ▶ Know what information to collect when you need help with plant problems.
- ▶ 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.
- Use cleaned and disinfested/disinfected potting media and transplant trays or pots.
- 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 disinfect 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 disinfect 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 disinfect 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).

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