

Plant Disease Diagnosis Report



Feature	Diagnosis Details
Disease Name	Tomato_Leaf_Mold
Confidence Level	100.00%
Date	2026-02-21 11:19

AI Expert Recommendations:

Disease Report: Tomato Leaf Mold

Detection Confidence: 100.0%

This report provides comprehensive information regarding Tomato Leaf Mold, a fungal disease requiring prompt and diligent management.

1. Disease Description

Tomato Leaf Mold is a widespread fungal disease primarily affecting tomato plants, particularly under conditions of high humidity and poor air circulation. It is caused by the fungus *Passalora fulva* (formerly known as *Cladosporium fulvum*).

Symptoms:
*Foliage: The most characteristic symptoms appear on the leaves.

*Upper Leaf Surface:Initially, small, pale green to yellow spots develop. These spots are often angular, delimited by the leaf veins, and may later expand and merge. As the disease progresses, these areas may turn slightly brownish.

*Lower Leaf Surface:Directly beneath the spots on the upper surface, a distinctive olive-green to brownish, velvety fungal growth develops. This velvety appearance is due to the profuse production of fungal spores (conidia) and conidiophores. This is a key diagnostic feature.

* As the infection advances, affected leaves turn yellow, then necrotic (brown and dead), shrivel, and eventually drop off. Symptoms typically start on the older, lower leaves and progress upwards through the plant canopy.

*Other Parts (Less Common):In severe cases or under ideal conditions for the pathogen, symptoms can occasionally be observed on stems, petioles, and even fruit, manifesting as leathery, dark spots, usually near the calyx end.

Conditions Favoring Disease Development:
*High Humidity:Relative humidity consistently above 85% is critical for spore germination and infection. This is a primary driver of outbreaks, especially in enclosed environments like greenhouses or high-density field plantings.

*Leaf Wetness:Extended periods of leaf wetness (e.g., from dew, rain, or overhead irrigation) are highly conducive to spore dispersal and infection.

*Moderate Temperatures:Optimal temperature range for disease development is 18-25°C (65-77°F), though it can occur in temperatures ranging from 10-32°C (50-90°F).

*Poor Air Circulation:Dense foliage, close plant spacing, and lack of ventilation create stagnant, humid microclimates within the plant canopy, perfect for pathogen proliferation.

2. Immediate Treatment

Upon confirming the presence of Tomato Leaf Mold, immediate action is crucial to halt its spread and protect the crop. A combination of cultural and fungicidal approaches is recommended.

A. Cultural Practices (Immediate Action):
1.Remove Infected Leaves:Carefully prune and promptly remove all visibly infected leaves. Ensure sanitation by placing removed leaves into sealed bags and disposing of them away from the growing area (e.g., deep burying or burning, as local regulations permit). Do NOT compost infected material.

2.Sanitize Tools:Disinfect pruning shears and other tools with a 10% bleach solution or rubbing alcohol between each plant, or at minimum, after pruning infected plants to prevent inadvertently spreading spores.

3.Improve Air Circulation:
* In greenhouses: Immediately increase ventilation (fans, vents) and consider using heat to lower relative humidity. Aim to keep relative humidity below 80%.

* In field settings: If practical, improve spacing between rows, and carefully remove non-essential suckers or lower leaves (if not infected) to open the canopy for better airflow.

4.Manage Irrigation:Switch from overhead irrigation to drip irrigation or furrow irrigation if possible, to avoid wetting foliage. If overhead irrigation is unavoidable, water early in the morning to allow leaves to dry completely before nightfall.

B. Organic Treatment Options:
*Copper-based Fungicides:Products containing copper hydroxide, copper sulfate, or copper octanoate are effective broad-spectrum protectants. They work by preventing spore germination and inhibiting fungal growth on the leaf surface.

*Application:Apply according to label instructions. Thorough coverage, especially on the undersides of leaves, is critical. Repeat applications may be necessary, typically every 7-10 days, particularly during humid periods.

*Neem Oil:While generally more effective as a repellent or for minor pest control, some neem oil formulations

can have fungistatic properties. It can be used as a supplementary treatment but may not be sufficient for a severe outbreak.

*Application:Follow label instructions for dilution and application. Best applied preventatively or at the very early stages of infection.

*Potassium Bicarbonate:Products like GreenCure work as a contact fungicide by disrupting fungal cell walls.

*Application:Apply as a foliar spray according to label directions. It is generally safe but requires good coverage and regular reapplication.

*Biological Fungicides:Products containing beneficial microorganisms like *Bacillus subtilis*(e.g., Serenade) or *Streptomyces lydicus*(e.g., Actinovate) can offer some antagonistic effect against the fungus. These are generally most effective when used preventatively or in early stages of disease.

*Application:Follow label instructions. Can be integrated into a regular spray program.

C. Chemical Treatment Options:
*Protectant Fungicides:These create a protective barrier on the plant surface.

*Chlorothalonil:(e.g., Bravo, Daconil). A broad-spectrum, multi-site protectant fungicide. Highly effective when applied before infection or at early onset.

*Mancozeb:(e.g., Dithane, Manzate). Another broad-spectrum, multi-site protectant.

*Application:Apply according to label instructions, ensuring thorough coverage of all leaf surfaces. Pay close attention to pre-harvest intervals (PHI) and re-entry intervals (REI).

*Systemic Fungicides (if available and permitted for tomato leaf mold in your region):These products are absorbed by the plant and translocated, offering both protective and curative action.

*Strobilurins:(e.g., azoxystrobin, pyraclostrobin, kresoxim-methyl). These fungicides inhibit fungal respiration. Effective but prone to resistance development if overused.

*Triazoles (DMI fungicides):(e.g., difenoconazole, tebuconazole). Some triazoles may be registered for use on tomato diseases.

*Application:Always rotate systemic fungicides with different modes of action (FRAC codes) or tank-mix with protectant fungicides (like chlorothalonil or mancozeb) to mitigate the risk of fungicide resistance. Follow label instructions meticulously for rates, timing, and PHI.

3. Prevention

Long-term management and prevention are crucial to minimize the recurrence and impact of Tomato Leaf Mold. An integrated pest management (IPM) approach is highly recommended.

- Resistant Varieties:This is the most effective preventative measure. Select tomato varieties that possess genetic resistance (often indicated by "Cf" genes on seed packets or plant descriptions) to *Passalora fulva*. There are varieties resistant to multiple races of the pathogen.

- Sanitation:Crop Debris:At the end of the growing season, meticulously remove and destroy all tomato plant debris (leaves, stems, fruit). The fungus can overwinter in plant residues.Greenhouse Hygiene:Thoroughly clean and disinfect greenhouses between crops, including benches, floors, and structural elements.Tool Disinfection:Regularly disinfect all pruning tools and equipment.

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- Tool Disinfection:Regularly disinfect all pruning tools and equipment.

- Optimize Air Circulation:Plant Spacing:Ensure adequate spacing between plants to promote good airflow within the canopy.Pruning:Implement strategic pruning practices to improve air circulation, such as removing suckers and lower leaves as plants grow (taking care not to create excessive wounds during humid

periods). **Greenhouse Ventilation:** Maintain excellent ventilation in greenhouses through adequate fan usage, vent openings, and potentially horizontal airflow fans.

- **Plant Spacing:** Ensure adequate spacing between plants to promote good airflow within the canopy.
- **Pruning:** Implement strategic pruning practices to improve air circulation, such as removing suckers and lower leaves as plants grow (taking care not to create excessive wounds during humid periods).
- **Greenhouse Ventilation:** Maintain excellent ventilation in greenhouses through adequate fan usage, vent openings, and potentially horizontal airflow fans.
- **Water Management:** **Drip Irrigation:** Utilize drip or furrow irrigation to deliver water directly to the plant roots, keeping foliage dry. **Timing:** If overhead irrigation is necessary, water early in the morning to allow leaves to dry rapidly before evening. Avoid late afternoon or evening irrigation.
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- **Humidity Control (Greenhouses):** Employ heating and ventilation systems in tandem to reduce relative humidity, especially during cool nights or humid days. Aim to maintain relative humidity below 80%. Avoid condensation on plant surfaces or structures.
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- **Crop Rotation:** While *P. fulvum* is highly host-specific, rotating tomato crops with non-host plants (e.g., corn, beans, cucurbits) for at least 2-3 years can help reduce overall inoculum levels in the growing environment.
- **Scouting and Early Detection:** Regularly inspect your tomato plants, paying close attention to the lower leaves and the undersides of foliage. Early detection of symptoms allows for more timely and effective intervention, preventing widespread disease development.
- **Disease-Free Seed/Transplants:** Source seeds and transplants from reputable suppliers to ensure they are disease-free. While less common, *Passalora fulvum* can be seed-borne.
- **Protective Fungicide Applications:** In areas with a history of leaf mold or during periods of high risk (e.g., extended periods of high humidity), consider preventative applications of organic (e.g., copper-based) or conventional protectant fungicides (e.g., chlorothalonil, mancozeb) according to label instructions.

By implementing these integrated strategies, you can significantly reduce the risk and impact of Tomato Leaf Mold on your crops, ensuring healthier plants and more productive yields. Always consult product labels for specific application rates, safety precautions, and pre-harvest intervals.