

4. Leaf blight

Pathogen: *Alternaria alternata* and *Fusarium* spp.

Symptoms

- In *A. alternata* infection, drying of leaves starts from the leaf tip and later extends to the base covering entire leaf lamina and then to the petiole.



- *Fusarium* spp. may cause disease from marginal leaf browning and blackening which later spread towards mid-rib, leading to defoliation.

Factors responsible for disease spread

- *A. alternata* remains dormant in infected leaves and survives in soil on plant debris, and can infect new crop when the condition is congenial.
- Temperature of 28-30°C favours the multiplication of fungus.

Crop loss: 10-15%

Occurrence

- Occurs during summer and rainy season

Management

- Foliar spray of 0.1% Hexaconazole 5% SC (1ml/L), repeat after 10-15 days in case if disease is severe.
- **Safe period:** Five days

5. Bacterial leaf blight

Pathogen: *Pseudomonas syringae* pv. *mori* / *Xanthomonas campestris* pv. *mori*

Symptoms

- Initially, it appears as a small water-soaked, irregular brown spots on the lower surface of the leaves which later appear on the upper leaf surface and shoot tips.
- In sever condition, the veins and veinlet's become necrotic and curled, rotten and turns brownish-black in colour.



Factors responsible for spreading of the disease

- Soil is the primary source of infection and the secondary infection is by irrigation and cultivation practices
- Pathogen invades through stomata, wounds caused by wind, rain and insect attack

Occurrence

- Occurs in rainy and winter season.

Management

- Spraying of 250 ppm Streptomycin (1 g /4 L) or 0.2 % Mancozeb 75 WP (2g /L), repeat the spray after one week if disease is sever.
- **Safe period:** 10 days

For further details Contact:

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Management of Foliar Diseases of Mulberry



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1. Leaf spot

Pathogens: *Cercospora moricola*, *Setosphaeria rostrata*, *Nigrospora sphaerica*, *Curvularia lunata* and *Cladosporium cladosporioides*.

Symptoms:

Symptoms are varied with small gray to brown, circular to irregular spots, small necrotic spots on the upper surface, brownish circular or irregular leaf spots in the initial stage, enlarge, coalesce and form shot holes in later stage. Severely affected leaves become yellowish and fall off prematurely.



Cercospora, *Setosphaeria*, *Nigrospora sphaerica* leaf spots

Factors responsible for disease spread

- The air borne conidia spreads through air and rain droplets.
- Temperature of 24-26°C and RH of 70-80% are congenial for the disease development.

Crop loss: 10-12%

Occurrence: More prevalent during rainy season followed by winter. The disease starts progressing 35-40 days after pruning (DAP) and becomes severe at 70th DAP.

Management

- Spray 0.1% Hexaconazole 5% SC (1ml/L). Two sprays at an interval of 10-15 days if disease condition is severe.
- **Safe Period: Five days.**

2. Powdery mildew

Pathogen: *Phyllactinia corylea*

Symptoms:

Initially, white powdery patches on lower surface of leaves are seen which later cover the entire leaf surface and the corresponding portions on the upper surface of leaves develop chlorotic lesions. Infected leaves turn yellow and fall off.



Factors responsible for disease spread

- The air borne conidia spread primarily through wind current.
- Temperature of 24-28°C and RH of 75-80% accelerates infection and disease development.

Crop loss: 5-10%

Occurrence: Disease is prevalent during winter and rainy seasons and progresses 40th DAP becoming severe on 70th DAP.

Management

- Follow wider spacing of plantation
- Spray 0.1% Hexaconazole 5% SC (1ml/L) or 0.2% wettable sulphur 80%WP (2g/L).
- **Safe period: Five days**
- Release yellow lady bird beetles and white spotted lady bird beetles, since they feed on the mildew fungus.
- Grow resistant varieties like MR1 and MR2.

3. Leaf rust

Pathogen: *Cerotelium fici*

Symptoms:

- Initially, circular pinhead sized brown eruptive lesions appear on lower surface of the leaves and later leaves become yellow and wither off.



Factors responsible for disease spread

- The air borne uredospores are dispersed through water droplets and wind current.
- Temperature of 22-26°C and RH of above 70% accelerates infection and disease development.

Crop loss: 10-15%

Occurrence

- The disease is more prevalent during winter and rainy seasons. It starts progressing 45-50 DAP becoming severe on 70th DAP. The mature leaves are more prone to the disease.

Management

- Follow wider spacing of plantation
- Avoid delayed leaf harvest and don't keep the left over leaf in the garden.
- Foliar spray of 0.1% Hexaconazole 5% SC (1ml/L), repeat after 10-15 days in case if disease is severe.
- **Safe period: Five days.**