

Late blight disease of tomato: A serious problem for Indian tomato farmers

Late blight is a devastating disease caused by *Phytophthora infestans*. It spreads rapidly in cool, humid weather and can destroy tomato crops, leading to significant losses. Symptoms include water-soaked spots on leaves, dark patches, greasy-looking stems, and sunken lesions on fruits. In areas with high rainfall, farmers should grow the variety *Arka Abhed F1* or follow a six-canopy spray schedule using copper oxychloride (2.5 g per liter of water), along with soil mulching, for susceptible tomato hybrids and varieties.

Keywords: Arka Abhed, Good farming practices, ICAR-IIHR, Experiment station, Preventive sprays

TOMATO is an important vegetable crop in India, grown for both domestic consumption and export. However, late blight, caused by *Phytophthora infestans*, is a major problem for farmers, especially in cool and humid conditions. The disease spreads rapidly and can destroy entire tomato fields, resulting in severe losses.

How late blight spreads

- The disease spreads through tiny air-borne spores and thrives in wet, humid conditions (15-18°C).
- Spores land on plants and quickly infect leaves, stems, and fruits.
- In just 4-5 days, the infection spreads widely, causing outbreaks.

Table 1. Environmental conditions favouring late blight outbreaks

Weather factor	Ideal conditions	Preventive action for farmers
Temperature	15–18°C	Monitor weather forecasts, adjust planting time
Humidity	>90%	Ensure proper plant spacing, use black polythene mulching (30 micron)
Rainfall	Continuous wet conditions	Improve field drainage, avoid overhead irrigation
Wind speed	High wind disperses spores	Plant windbreaks, avoid late sowing in monsoon season

Symptoms of late blight

Farmers should check their tomato plants regularly and look for these warning signs and symptoms:

Leaves: Water-soaked spots that turn dark brown with white fuzz underneath.

Stems: Dark, greasy-looking patches that spread and kill the plant.

Fruits: Sunken brown spots that develop white mold in humid conditions.



Typical initial foliar symptoms appeared as small, irregular and water-soaked spots

How to control late blight disease

Since the disease spreads quickly, farmers must take early action using a combination of methods.

Table 2. Recommended copper-based organic fungicides

Fungicide Name	Formulation	Dosage (per liter of water)	Mode of Action	Usage Guidelines
Copper Oxychloride 50% WP	Wettable Powder	2.5 g	Contact (Preventive)	Apply 6 times at 6-day intervals
Copper Hydroxide 77% WP	Wettable Powder	2.0 g	Contact (Preventive)	Apply before disease onset



Symptoms appeared on petioles and stems as brown streaks



On tomato fruits, the symptoms appeared as a dark olivaceous and greasy spots

Good farming practices

- **Grow resistant varieties/hybrid:** *Arka Abhed F₁*
- **Crop rotation:** Avoid planting tomatoes in the same field every year
- **Field hygiene:** Remove infected plant parts to stop

disease spread

- **Spacing and staking:** Ensure enough space between plants for proper airflow and less moisture buildup
- **Mulching:** Use black polythene mulch (30 micron) to reduce soil moisture and prevent disease spread.

Organic fungicides

- **Preventive sprays:** Apply copper-based fungicides before the disease appears.
- **Copper Oxychloride sprays:** Best results were seen when copper oxychloride (2.5 g per liter of water) was sprayed six times at six-day intervals along with soil mulching.

SUMMARY

Late blight, caused by *Phytophthora infestans*, is a major threat to tomato farmers in India, particularly in cool, humid, and high-rainfall regions. It spreads rapidly through air and soil, causing severe crop losses. Typical symptoms include dark, water-soaked spots on leaves, greasy-looking stems, and sunken brown patches on fruits. To manage the disease, farmers are advised to grow resistant varieties such as *Arka Abhed F₁*, practice crop rotation, maintain proper plant spacing, and apply organic fungicides like copper oxychloride (2.5 g per liter) in six sprays at six-day intervals along with soil mulching. These practices can reduce disease impact by up to 92.04% and increase yield to 9.25 t/ha. Adopting these methods can help farmers protect their crops and improve overall harvests.

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