

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Downy Mildew of Grapes

Symptoms

- Symptoms of the disease appear on all the aerial and tender parts of the vines.

Leaf symptoms

- On the upper surface of the leaf the first signs of downy mildew are in the form of small greenish yellow indefinite spots.
- The disease on the lower surface of the leaf is similar to that on the upper, but is very soon covered by a downy, white growth being most prominent on the under surface of greenish yellow part.
- The infection of aged leaves results in mosaic of small, angular, yellow to reddish brown lesions limited by veinlets. The affected leaves fall prematurely.

Symptoms on berries

- The berries stop growing, turn hard, bluish green and then brown.
- **C.O.** *Plasmopara viticola*

Downy mildew of grapes



Epidemiology

- High humidity above 90%.
- Optimum temperature is 20°C.
- **Management**
- Spray any one of the following fungicides:
 - 1. Cabriotop @ 2 gm/litre of water
 - 3. Score 250 EC @ 0.5-1.0 ml/litre of water.

Powdery Mildew of Grapes

Symptoms:

The powdery mildew fungus can infect all green tissues of the vine.

Leaf symptoms:

- Powdery mildew on the leaves of a grape vine appears as a white dust on the upper and lower parts of the leaves. With severe infections, discoloration and drying out of the leaves become prominent.

Shoot symptoms:

- On green shoots, the same powdery symptoms are visible. The fungus infects the green tissue and causes reduction in photosynthesis and grape vine vigour.

Symptoms on berries:

- A white powdery substance covers the berries that can be rubbed off.
- Berry size, sugar development and overall growth of the vine are affected.

Epidemiology

- **Humidity:** 40-100%.
- Germination can occur even at less than 20% humidity.
- **Temperature:** 21-30°C.
- **Optimum temperature:** 25°C

- **C.O.** *Erysiphe necator*
- *Uncinula necator*

Symptoms of Powdery Mildew on Grapes



Management

- Spray any one of the following fungicides:
- 1. Cabriotop @ 2 gm/litre of water.
- 2. Score 250 EC @ 0.5-1.0 ml/litre of water.
- 3. Systhane @ 0.5 ml/litre of water

Gray Mould of Grapes

- Gray mold of grape is also known as Botrytis bunch rot.
- It's one of the most important diseases of grapes in the world which can cause serious losses in grape yields. The fungus can occur anytime during the growing season, but most commonly occurs near the harvest time.
- **Symptoms**
 - Usually, *Botrytis cinerea* infects ripe berries.
 - Infected berries become soft and watery, which under humid conditions are covered with the grey sporulating growth of the fungus.
 - Infected berries become “mummies” and drop off later.
 - Symptoms of gray mold also appear on the leaves as dull green spots which turn brown and necrotic.
 - Infection on pedicel and rachis produces brown spots that turn black and cause cluster to shrivel and drop.
 - **C.O.** *Botrytis cinerea*

Symptoms of Gray Mould of Grapes



Disease Cycle

- The fungus survives in grape mummies, dead grape tissues and other plant hosts.
- The fungus produces *conidia* from *sclerotia*.
- Conidia are dispersed by the wind which cause several new infections.
- In late spring, fungus can infect young shoots, blossoms, and leaves.
- Wounds on berries which are caused by birds, insects, hail, or other diseases increase the infection of Botrytis.

Factors Favouring

- The disease is favoured by the temperature range between 3 and 30 °C.
- Free moisture and high relative humidity above 90% also favour the disease development.

Management

- Gray mold can be efficiently controlled by the use of the good cultural practices.
- Fungus overwinters on the old plant tissues so phyto-sanitation is essentially required.
- Integrated disease management practices minimize the infection levels.
- When there are chances of high infection, the fungicides can be applied.
- Spray Captan 50 WP @ 1 gm / liter of water.

*Sources

- 1. Recommended books.
 - 2. Latest research articles downloaded from Google.
 - 3. Google images.
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- *Solely for academic purpose and guidance of students.