

LATE BLIGHT OF POTATO

By:

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INTRODUCTION:-

This disease kills the tops of potato plants and also involves the tuber. It is the most destructive of all the diseases of potato if conditions are favourable for its development.

Symptoms:

- The first symptoms are the appearance of brown spots or extended necrotic areas on the leaves.
- Necrotic areas soon turn to brownish black lesions, enlarging rapidly under favorable weather.
- Lesions appear at the tip or margin of leaves and then spread downward or inward increasing in size.
- Under moist weather blighted leaves killed within two or four days. If weather is dry blighted areas of leaves curl and shrivel.
- Generally leaves are attacked first.
- Potato tubers also become infected while they are in the field. First sign of tuber infection is brown to purple discoloration of the skin followed by brownish dry rot.

Causal organism:

Phytophthora infestans(Mont.)Debary.

The mycelium of the fungus is endophytic consisting of hyaline, much branched coenocytic intercellular hyphae with haustoria.

DISEASE CYCLE :

- Infected tubers are the main source of infection. The dormant mycelium in the tubers becomes active and grows upward in the stem and sporulates on small shoots
- .Then leaf become infected from sporangia produced by the mycelium.
- Sporangiophores emerge through the stomata of leaves and also through lenticels on tubers.
- They are slender hyaline sparsly branched producing sporangia at it tips.
- The sporangia are multinucleate (7-30 nuclei), thin walled, hyaline, oval or pear shaped with an apical papilla.
- Sporangium first develop at the tip of a branch.
- As soon as it is mature, the tip swells slightly, proliferates, and turns the attached sporangium to the side as elongation of the sporangiophore proceeds.
- Sporangial germination direct by germ tube or indirect by formation of biflagellate zoospores.
- Low temperature favours zoospore formation, whereas higher temperature the germ tube development.
- Zoospore lose their flagella and germinates by germ tube and penetrates the host either through stomata or directly.
- The spores from blighted leaves are washed down into the soil where they infect the healthy tuber .Sexual reproduction in *P. infestans* is not very common in nature.
- Night temperature below the dew point, minimum temperature 10⁰ celsius, clouds favour sever development of disease.

Control:-

1. **Spraying:-**Some fungicides should on leaves, which prevent germination of sporangia. Bordeaux mixture, blitox-50, zineb, maneb ,etc.
2. **Destruction of haulms.** :- Infected leaves should be destroyed. This can be done by spraying H₂SO₄,CuSO₄, on diseased leaves.
3. **Seed selection:-**Tubers from infected should be discarded.
4. **Storage:-**Tubers should be stored in cool, dry and well aerated stores. Before storage tubers should be given dip in 1:1000HgCl₂ solution.
5. **Disease resistant varieties:-**Resistant varieties should be grown.

Harvesting should be delayed:-Harvesting of a diseased crop should be delayed until the plants are fully mature. The plants should be allowed to dry completely before harvesting. This will kill the spores present on the foliage and thus avoid infection of harvesting crop.