Lecture 18 - Diseases of Mulberry

Mulberry

Root rot- *Macrophomina phaseolina*

Symptoms

Sudden wilting, withering of leaves and affected plants fail to sprout after pruning and dry up completely. Affected plants can be pulled out easily. Rotting of primary and secondary roots, rotten roots turn black and roots contain large number of black sclerotia. Decay of root bark.

Management

Uprooting the infected plant and the stump and root portions are burnt. Application of Neem cake @ 1 tonne/ha in four split doses. Application of antagonist *Bacillus subtilis* @ 25 g/plant. Application of antagonist fungus *Trichoderma viride* @ 25 g/plant. Drenching the soil with carbendazim @ 10 ml of 1% concentration per plant

Stem canker- *Lasiodiplodia (Botryodiplodia) theobromae*

Symptoms

Nursery

Failure of cuttings to sprout. Sudden withering and death of sprouts. Discolouration and drying of stems and buds above the soil. Rotting and peeling of bark on stem below the soil surface. Black mycelial threads seen below infected bark and black eruptions on the bark of the infected stem portion.

Grown-up plants

Greyish brown discolouration of the bark at the cut ends of the stem. Delayed sprouting, death of buds and sprouts, black eruptions on the bark in the infected region and death of plants. The above symptoms can be observed a few days after the plants are pruned.

Management

Planting in winter months is avoided. Pre-treatment of cuttings with carbendazim @ 4g/l for a period of 12 h. After pruning, the cut surfaces of the stems should be dressed with a spray/smear of carbendazim @ 4g/l.

Leaf rust - *Cerotelium fici*

Symptoms

Presence of small, irregular reddish to rusty brown spot on older leaves on lower surface. Leaves become yellowish and wither off prematurely.

Management

Providing wider spacing. Spraying carbendazim @ 500-625 g/ha

Leaf spot- *Cercospora moricola*

Symptoms

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.

Management

Spraying carbendazim @ 500-625 g/ha

Powdery mildew - *Phyllactinia corylea*

Symptoms

Initially, white powdery patches on lower surface of leaves are seen which later cover the entire leaf surface. Later turn black to brown in colour. Infected leaves turn yellow and fall off. High humidity (>70%) and low temperature (24-26˚C) favour outbreak of the disease.

Pathogen

The fungus produces ectophytic mycelium. It gets nutrition from the host through haustoria sent into the mesophyll tissues. Conidiophores are erect, long and hyaline, which cut off oval shaped conidia at their tips. Cleistothecia are flat, sphere shaped, papillate and bear asci inside.

Mode of spread and survival

The fungus spreads through conidia or ascospores.

Providing wider spacing. Growing resistant varieties like MR1, MR2 and China White Spraying Carbendazim @ 500-625 g/ha. Releasing yellow lady bird beetles and white spotted lady bird beetles, since they feed on the mildew fungus.

Bacterial blight- *Pseudomonas mori*

Symptoms

Numerous irregular water soaked patches on the lower surface of leaf. Leaves become curled, rotten and turn brownish black in colour. Black longitudinal lesions are seen on the bark of young shoots. Yellowing and defoliation.

Management

Uprooting and burning. Spraying 0.1 per cent of Streptomycin or Streptocyclin (safe period is 15 days).

Root knot nematode *Meloidogyne incognita*

Symptoms

Growth and yield of plants affected. Stunted plants, marginal necrosis and yellowing of leaves, necrotic lesions on the root surface. Formation of characteristic knots or galls on the roots. Wilting of plants.

Management

Deep ploughing in summer. Applying neem cake @ 1000 kg/ha. Applying Carbofuran 3G @ 30 kg/ha/year in four split doses (safe period is 50 days).