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# Center for Smart Agriculture

## Floriculturist



**Module 5: Crop Health Management**

**Session 16: Diseases of flowering plants**



## Diseases of rose

### Powdery mildew (*Sphaerotheca pannosa* var. *rosae*)

The disease appears whenever the days are warm and nights are cool.

The disease first starts on the young leaves as raised, blister like areas that soon become covered with a grayish, white, powdery fungus growth. The overall plant vigor is checked. .

The disease can be controlled by spraying Bavistin or Benlate (0.1%) at 30 days interval regularly. Wettable sulphur (0.2%), propiconazole (0.1%) and Karathane (0.05%) may be used at 7-10 days interval to control the disease.



## Die Back [*Diplodia rosarum*]

Die back is one of the major diseases of rose. The disease causes death of the plant from tip downwards. Brown discoloration of the disease is conspicuous when affected stems are split open.

The common practice is to cut away the affected plants and burn it. The secateur should be disinfected with spirit and cut ends immediately coated with chaubatia paste containing 4 parts of copper carbonate, 4 parts of red lead and 5 parts of linseed oil.



## **Black Spot [*Diplocarpon rosae*]**

The main symptoms are spotting and etiolating of the leaves followed by defoliation and drastic reduction in the size and number of flowers.

Dark brown to black spots occur mostly on the upper surface of leaves and rarely on the lower surface.

Fully developed spots are 7-12 mm in diameter, circular or sub circular and usually separate and distinct.

Spray of Bavistin (0.1%) followed by Benlate (0.1%) at 15 days interval has been found to be highly effective in checking the diseases. Dithane M-45 and Dithane Z-78 (0.2%) are also useful.



## **Anthracnose [*Sphaceloma rosarum*]**

Small, circular, brown spots with purplish border appear on leaves which increase in size and cover the entire lamina and severe infection leads to complete defoliation.

In some cases the diseased tissue falls out, giving the leaves a shot-hole appearance.

Collect all affected leaves and destroy by burning. The disease can be successfully controlled by spraying of Benlate (0.1%).



## Botrytis bud and twig blight [*Botrytis cinerea*]

The fungus mainly attacks flowers and flowering stems.

The symptoms are noticed as brownish patches on petals of flower buds which enlarge and cover the entire surface.

The infected buds droop down. The sunken grayish black lesions extend to the stem from the base of the bud.

Prolonged periods of free moisture favour infection.

Spraying with Bavistin (0.1%) or Mancozeb (0.25%) has been found to be useful in controlling the disease.

All fallen leaves, bloom and other plant debris should be removed and destroyed.



## **Diseases of marigold**

### **Damping Off [*Rhizoctonia solani*]**

Symptoms appear as brown necrotic spots, girdling the radical which later on extend to plumule and cause pre-emergence mortality.

Post- emergence symptoms appear on lower part of hypocotyls as water soaked, brown, necrotic ring leading to collapse of seedling when infected seedling are pulled, the root system appears partially or fully decayed.



Soil drenching with Carbendazim (0.1%) should be followed to manage the malady. Three-four years crops rotation should be followed.

### **Leaf Spots and Blight [*Alternaria spp.*]**

Minute Brown, circular spots appear on lower leaves leading to premature defoliation, reduced flower size and ultimately death of the plants.

Sprayed with Dithane M-45 @ 0.2% or Carbendazim (.05%) at fortnightly intervals



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## Flower Bud Rot [*Alternaria dianthi*]

Disease appears mainly on young flower buds and results into their dry rotting with brown scorched, necrotic discoloration of sepals and stalk.

The ray and disc florets also turn brown. Symptoms are less prominent on mature buds but these buds fail to open. Brown necrotic spots are visible on margins and tips of older leaves.

To control this disease regular spraying of Dithane M-45 @0.2% should be followed



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## **Diseases of chrysanthemum**

### **Bacterial Blight [*Erwinia chrysanthemi*]**

The pathogen causes wilting of plants on bright days. The stem tips turn brown, brittle and collapse. Stem becomes hollow with brownish streaks extending up to base.

The methods to minimize the disease include destruction of affected plants, soil sterilization, using disease free cutting and avoiding contamination during pinching.

Spray of Streptocycline (0.01%) has been found to be effective.



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## **Root Rot [*Pythium spp. and Phytophthora spp.*]**

Roots get destroyed. Diseased plants are stunted and appear pale yellow. The infected plants can be pulled out easily. Among cultural practices soil solarization, removal of infected plants and good drainage facility are important.

Fungicides recommended against the disease are:  
Metalaxyl, Mancozeb, Captan, and Fosetyl-Al.



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## **Powdery Mildew [*Erysiphe cichoracearum*]**

Appearance of White powdery growth on the upper surfaces of the leaves is chief diagnostic symptom of the disease. The pathogen also attacks the stem and flower.

Spraying with Karathane (0.025%), Bavistin (0.1%) or sulphur based fungicide (0.2%) and providing a dry environment helps to check this disease.



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## **Grey Mould [*Botrytis cinerea*]**

The pathogen attacks flower in moist green houses causing the development of brown water soaked spots. Infected parts become covered with a grayish brown powdery mass of spores.

A control measure consists of providing better ventilation and good aeration by providing adequate planting distance. Spraying with Bavistin (0.1%) and Copper oxychloride (0.2%) gives good results.



## Diseases of jasmine

### Leaf Blight [*Cercospora jasminicola*, *Alternaria jasmini*]

Disease spreads rapidly in the rainy season. Reddish brown circular spots, 2 to 8 mm in diameter are produced on the upper surface of the leaves. Affected leaf margins show inward curling and become hard and brittle. In severe cases of infection, vegetative buds and young branches dry up.

Spraying with Bavistin (0.1%) or Copper oxychloride (0.3%) at monthly interval commencing from May onwards up to pruning helps to control the disease. Diseased leaves should be collected and burnt.



## Rust [*Uromyces hobsoni*]

The leaves show the presence of orange coloured aerial cups on both sides. Numerous blisters are produced in advanced stage of infection causing yellowing and crinkling of the leaves.

The stems and branches are also infected, causing splitting of barks and subsequent death of the branches.

The disease can be controlled by dusting Sulphur @ 20-25 kg/hectare. Spraying with Bordeaux mixture or Copper oxychloride (0.3%) is also recommended for the control of the disease.



## Wilt [*Fusarium solani*, *Sclerotium rolfsii*]

The early symptom is yellowing of lower leaves which gradually spread upwards and finally resulting in death of the plant.

The infected plant base shows a network of fan-shaped mycelial strands of the fungus which later on produce mustard like brown sclerotia.

Drenching the soil around the plants with 1% Bordeaux mixture prevents the disease spread. Soil application of talc based commercial formulation of *P. fluorescens* @ 20g/pot, *B. subtilis* and *T. viride* @ 25g/pot effectively reduced the wilt disease incidence in the pot culture experiment.



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