

## Lecture 05 - Diseases of Pomegranate and Papaya

### Pomegranate

**Cercospora fruit Spot:** *Cercospora* sp.

#### Symptom



The affected fruits showed small irregular black spots, which later on coalesce, into big spots.

#### Management

The diseased fruits should be collected and destroyed. Two to three spray at 15 days interval with Mancozeb 0.25%.

**Leaf Spot or Blight:** *Colletotrichum gloesporioides*; *Pseudocercospora punicae*; *Curvularia lunata* and *Cercospora punicae*)

#### Symptom

The disease is characterized by appearance of small, irregular and water-soaked spots on leaves. Affected leaves fall off.

#### Pathogen

Conidiophores are olivaceous brown, short, fasciculate, sparingly septate. Conidia are hyaline to pale olivalceous cylindric and septate.

#### Mode of spread and survival

The pathogen spread through wind borne conidia.

#### Management

Spraying Mancozeb 0.25 % at 15 days interval gives good control of the disease.

**Alternaria fruit spot:** *Alternaria alternata*



## Symptom

Small reddish brown circular spots appear on the fruits. As the disease advances these spots, coalesce to form larger patches and the fruits start rotting. The arils get affected which become pale and become unfit for consumption.

## Management

All the affected fruits should be collected and destroyed. Spraying Mancozeb 0.25 % effectively controls the disease.

### Fruit Rot (*Aspergillus foetidus*):



The symptoms are in the form of round black spots on the fruit and petiole. The disease starts from calyx end and gradually the entire fruit shows black spots. The fruit further rots emitting a foul odour.

## Management

The disease can be controlled by spraying of Bavistin (0.5%), Dithane M-45 (0.25%) or Dithane Z-78 (0.25%) at an interval of 10-15 days from the onset of flowering.

## Papaya

### Stem rot / Foot rot – *Pythium aphanidermatum*

## Symptoms



Water soaked spot in the stem at the ground level which enlarge and girdle the stem. The diseased area turns brown or black and rot. Terminal leaves turn yellow droop off. The entire plant topples over and dies. Forward by rain. *R. solani* is favoured by dry and hot weather. Common in 2-3 year old trees.

### **Pathogen**

Mycelium is septate, brown and much branched. The sclerotia are black, spherical to irregular shape and produced in abundance.

### **Management**

Seed treatment with Thiram or Captan 4 g/kg or Chlorothalonil.

Drenching with Copper oxychloride 0.25 % or Bordeaux mixture 1% or Metalaxyl 0.1%.

### **Powdery mildew – *Oidium caricae***

#### **Symptoms**



While mycelia growth appear on the upper surface of the leaf, flower stalks and fruit. Seven attack causes yellowing and defoliation of leaves.

### **Pathogen**

It is an obligate parasite. The mycelium is hyaline, septate and haustoria develop in epidermal cells. Conidia are hyaline.

### **Mode of spread and survival**

The pathogen spread through wind borne conidia.

### **Management**

Spray Wettable Sulphur 0.25% or Dinocap 0.05% or Chinomethionate 0.1% or Tridemorph 0.1%.

### **Papaya ring spot – Papaya ring spot virus**

#### **Symptoms**



Vein clearing, puckering and chlorophyll leaf tissues lobbing in. Margin and distal parts of leaves roll downward and inwards, mosaic mottling, dark green blisters, leaf distortion which result in shoe string system and stunting of plants. On fruits circular concentric rings are produced. If affected earlier no fruit formation.

### **Pathogen**

The virus particles are rod shaped and thermal inactivation point of the virus lies between 54 and 60°C.

### **Mode of spread**

Vectored by aphids *Aphis gossypii*, *A. craccivora* and also spreads to cucurbits not through seeds.

### **Management**

Raise papaya seedlings under insect-proof conditions. Plant disease free seedlings. Raise sorghum / maize as barrier crop before planting papaya. Rogue out affected plants immediately on noticing symptoms. Do not raise cucurbits around the field.

### **Leaf curl – Papaya leaf curl virus**

#### **Symptoms**



Curling, crinkling and distortion of leaves, reduction of leaf lamina, rolling of leaf margins inward and downward, thickening of veins. Leaves become leathery, brittle and distorted. Plants stunted. Affected plants does not produce flowers and fruits.

### **Mode of spread**

Spread by whitefly *Bemisia tabaci*.

### **Management**

Uproot affected plants. Avoid growing tomato, tobacco near papaya. Spraying with systemic insecticides to control the vector.

### **Anthracnose – *Colletotrichum gloeosporioides***

## Symptom



If affect leaf and stem on erotic spots are produced. On fruit initially brown superficial discoloration of the skin develops which are circular and slightly sunken. Then they coalesce in which sparse mycelial growth appear on the margins of a spot. Under humid condition salmon pink spores are released. Fruits mummified and deformed.

## Mode of spread

Infection is caused by fruit from field. Secondary spread by conidia by rain splashes

## Management

Spray with Carbendazim 0.1% (or) Chlorothalonil 0.2% or Mancozeb 0.2%.



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