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 olivaceous 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)*:

![Image](image.png)

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**

![Image](image.png)
Water soaked spot in the stem at the ground level which enlarge and griddle 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 hit 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 attak causes yellowing and defiation 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**

![Leaf curl symptoms](image)

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%.