Diseases of Sun Flower and their Management

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Sunflower is an important oil yielding crop. Its plant protection measures should be taken at an early best to minimize the loss caused by insect, pest and diseases. Among the insect, pest and diseases, diseases alone cause 10% yield loss in the field itself. So the important diseases and plant protection measures are described below.

The important diseases of sunflower are

1. ALTERNARIA BLIGHT: Causal organism is Alternaria solani.

It appears on leaves, petioles, stem, sepals and petals. Dark brown to black circular to oval shapes spots ranging from 0.2 to 0.5mm in diameter develop in leaves. This spots are often surrounded by a chlorotic zone with grey white necrotic center. Under high atmospheric humidity spots are enlarge in size and coalesce and causing blighting of leaves and sometimes rotting of flower heads. The disease also affects the quality of seeds by reducing the germination percentage.

2. HEAD ROT: Causal organism is Aspergillus sp.

It appears under surface of the heads due to water soaking. The symptoms appear as brown in colour and discolouration extends to the stalk to a distance of about 10 to 15 cm. The discoloured under surface of the head becomes very soft and pulpy. The fungus enters into the head through the holes made by the insect attack and attacks the inner parts of the head of the developing seeds. In severe cases, the head will transformed into a black powdery mass.

3. CHARCOAL ROT: Causal organism is Macrophomina Phaseolina.

It is a seed borne disease which occurs usually after flowering. The most important symptoms are sudden wilting of plants with huge number of microsclerotia fallen on the rotten portion of the affected plant.

Control Measure for Alternaria Blight, Head Rot and Charcoal Rot of Sunflower
2. Seed treatment with carboxin @ 3gm / kg.
3. Drenching the base of the affected plant with carbandizim @ 2gm / litre of water or during land preparation broadcasting of enriched FYM trichoderma @ 2.5kg. Trichoderma per 250 kgs of FYM/ha should be applied in the line.

4. SCLEROTIAL WILT/COLLAR ROT: causal organism is Sclerotium rolfsi

Initial symptoms of the disease appear 40 days after showing. Infected plants can be spotted from a distance by seen sickly appearance. Later the entire plants withers and dies. White cottony mycelium and mustard seed sized sclerotial bodies are formed on the affected stems near soil level.

Control Measure:
5. Seed treatment with carboxin @ 3gm / kg.
6. Drenching the base of the affected plant with carbandizim @ 2gm/litre of water or during land preparation broadcasting of enriched FYM trichoderma @ 2.5kg. Trichoderma per 250 kgs of FYM/ha should be applied in the line.

5. DOWNY MILDEW: It is caused by a fungus that is Plasmopara halstedi.

The symptoms are chlorosis of Midribs causing ultimately abnormally thick, downward curled leaves that so prominent yellow and green apyphyllous mottling. A hypophyllous downy growth of the fungus developed. Flower heads of the affected plants remains sterile. Local foliar lesion symptoms are characterized by small angular greenish yellow spots on leaves. In the affected plants flower heads are erect.

**Control measure:** Seeds treated with ridomil MZ @2gm per kg. of seed and floriar spray @2.5ml/ltr twice at 30 and 45 days after planting give good result.

6. POWDER MILDEW: It produces under dry conditions towards the end of winter season. It produces white powdery growth on leaves, white to grey mildew appear on the upper surface of the old leaves. As the plant matures black pin head sized cleistothecia are visible in white midrib areas. The affected leaves lose lusture, curl become chlorotic and die.

**Control Measure:** Spraying wettable sulfur @ 3gm per ltr or calixin @ 1ml per ltr.

7. Mosaic diseases: It spreads through white flies (Bemisia tabaci).

The virus survive in amaranthus. The virus is transmitted through sap, seed and white flies. There is cupping and malformation of leaves.

**Control Measure:** Rouging of infected plants and spray with insecticide rogour or metasystex @2ml per litre of water at 10 days interval gives better result.

8. Rust: The disease is caused by Puccinia helianthi

It is found mostly in winter months and causes a considerable yield reduction in early stage of crop growth.

**Symptom:** Small redish brown spots covered with rusty colour dust, appear on the lower leaves first. But can spread to all leaves and even living parts of the head. The leaves may turn yellow but rarely fall on the plants. The first pycnial and aecial infections usually occur on volunteer seedlings, growing among the debris of the previous crop. The incolum from the affected crop is spread by wind.

**Control Measure:**
1. Sowing of resistant varieties,
2. Field sanitation and crop protection and destruction of voluntary seedlings
3. Spray the crop with mancozeb @ 3gm per ltr. 2 times. 10 days after sowing after 35 days of planting.

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![Fig. A and B shows the plants affected by sclerotial wilt caused by fungus sclerotium rolfsii](image)