



FACULTY OF AGRICULTURAL SCIENCES AND ALLIED INDUSTRIES

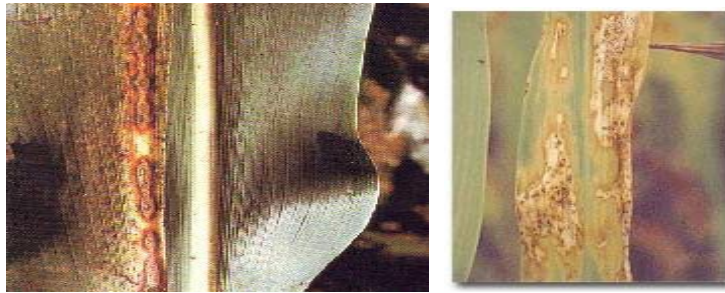
DISEASES OF FIELD CROPS PPA - 301

LECTURE 07

Anthracnose and red rot - *Colletotrichum graminicolum*

Symptoms

The fungus causes both leaf spot (anthracnose) and stalk rot (red rot). The disease appears as small red coloured spots on both surfaces of the leaf. The centre of the spot is white in colour encircled by red, purple or brown margin.



Symptoms

Numerous small black dots like **acervuli** are seen on the white surface of the lesions. Red rot can be characterized externally by the development of circular **cankers**, particularly in the inflorescence. Infected stem when split open shows discoloration, which may be continuous over a large area or more generally discontinuous giving the stem a marbled appearance.

Pathogen

The mycelium of the fungus is localised in the spot. **Acervuli** with setae arise through epidermis. Conidia are hyaline, single celled, **vacuolate** and **falcate** in shape.



Favourable Conditions

- Continuous rain.
- Temperature of 28-30°C.
- High humidity.

Disease cycle

The disease spread by means of seed-borne and air-borne conidia and also through the infected plant debris.

Management

- Treat the seeds with Captan or Thiram at 4 g/kg.
- Spray the crop with Mancozeb 2 kg/ha.

Grain smut/Kernel smut / Covered smut / Short smut - *Sphacelotheca sorghi*

Symptoms

The individual grains are replaced by smut sori. The sori are oval or cylindrical and are covered with a tough creamy skin (peridium) which often persists unbroken up to thrashing. Ratoon crops exhibit higher incidence of disease.



Disease Cycle

The primary source of infection is through the germination of sclerotia which release ascospores that infect the ovary. The secondary spread takes place through air and insect-borne conidia. Rain splashes also help in spreading the disease.

Management

- Adjust the date of sowing so that the crop does not flower during September- October when high rainfall and high humidity favor the disease.
- Spray any one of the following fungicides viz., Mancozeb 2 kg/ha (or) Carbendazim at 500 g/ha at emergence of ear head (5-10 per cent flowering stage) followed by a spray at 50 per cent flowering and repeat the spray after a week, if necessary

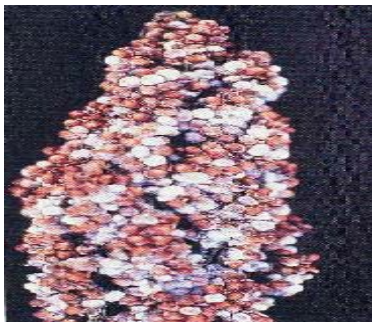
. Head mould/Grain mould/Head blight

More than thirty two genera of fungi were found to occur on the grains of sorghum.

Symptoms

If rains occur during the flowering and grain filling stages, severe grain moulding occurs.

The most frequently occurring genera are *Fusarium*, *Curvularia*, *Alternaria*, *Aspergillus* and *Phoma*. *Fusarium semitectum* and *F.moniliforme* develop a fluffy white or pinkish coloration. *C. lunata* colours the grain black. Symptom varies depending upon the organism involved and the degree of infection.



Favourable Conditions

- Wet weather following the flowering favors grain mould development.
- The longer the wet period the greater the mould development.
- Compact ear heads are highly susceptible.

Disease cycle

The fungi mainly spread through air-borne conidia. The fungi survive as parasites as well as *saprophytes* in the infected plant debris.

Management

- Adjust the sowing time.
- Spray any one of the following fungicides in case of intermittent rainfall during earhead emergence, a week later and during milky stage.
- Mancozeb 1 kg/ha or Captan 1 kg + *Aureofungin*-sol 100 g/ha.