



**FACULTY OF AGRICULTURAL SCIENCES AND ALLIED INDUSTRIES**

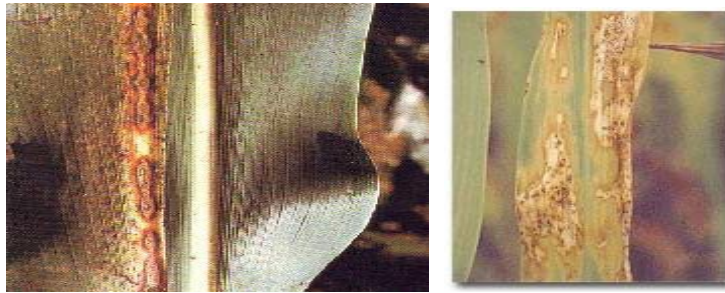
**DISEASES OF FIELD&HORTICULTURAL CROPS&  
Management 1 PPA - 312**

## 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

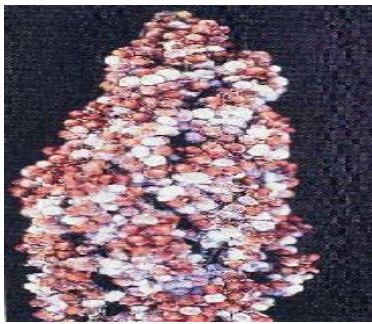
## . Head mould/Grain mould/Head blight

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.