



DISEASE OF FIELD AND HORTICULTURAL CROPS – I

**SESSION 10 & 11
BAJRA AND RAGI**

Important Diseases

❖ Major Diseases

1. DMD - *Sclerospora graminicola*
2. Ergot - *Claviceps fusiformis*

❖ Minor Diseases

1. Rust - *Puccinia penniseti*
2. Smut - *Moesziomyces bullatus/
Tolyposporium penicillariae*
3. Blast - *Pyricularia grisea*

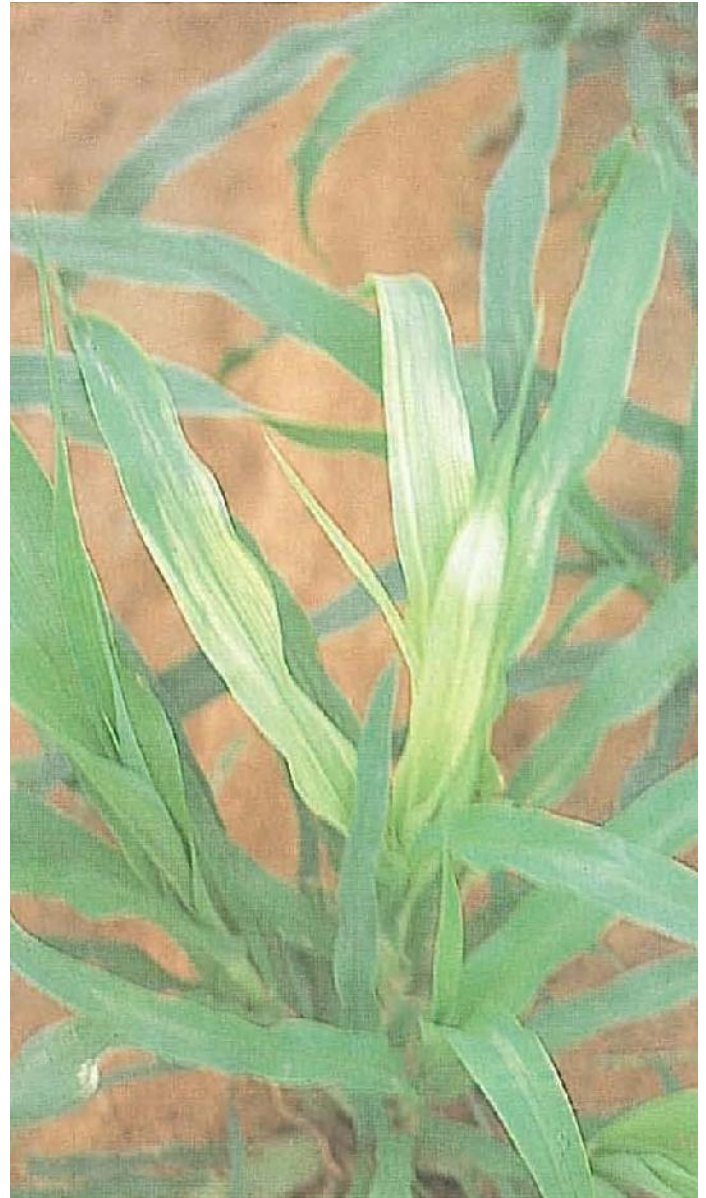
DOWNY MILDEW

❖ *Sclerospora graminicola*

❖ ~Green ear disease

❖ Symptoms

1. Chlorotic streaks appear on upper leaf surface; lower surface -
Downy growth
2. Chlorotic areas turn necrotic and shredding of leaf occurs
3. Bunchy appearance
4. Inflorescence – turn into green leafy structures



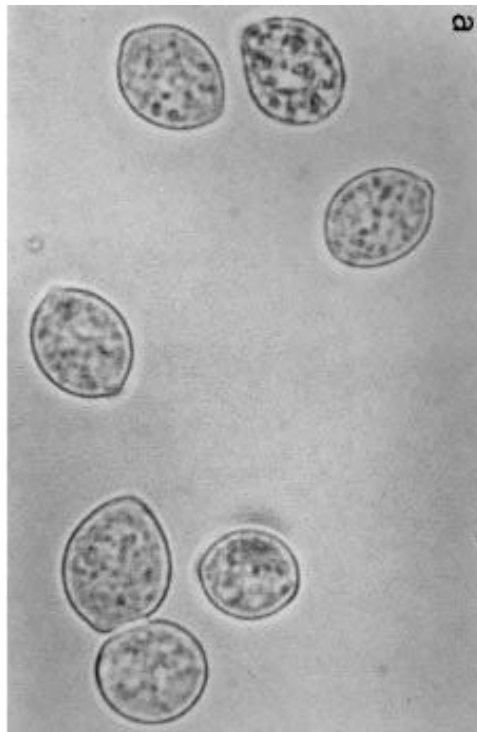
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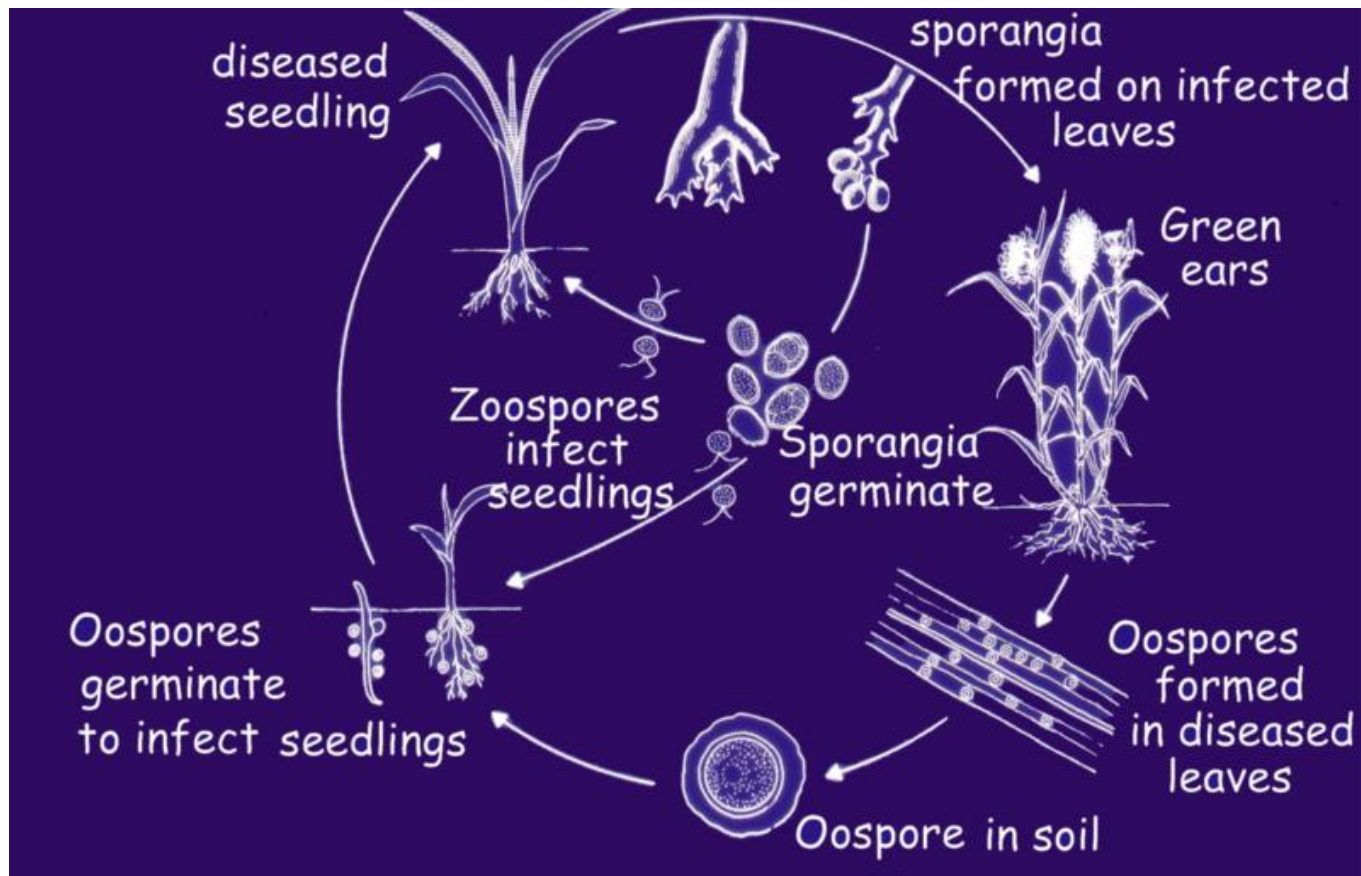
Etiology

- ❖ Sporangiohores branch at tip
- ❖ Sporangia – Hyaline, elliptical, produce zoospores
- ❖ Oospore



❖ Disease cycle

- ✓ Primary inoculum - Soil borne oospore, Rarely seed borne
- ✓ Secondary spread - Air/Water - Sporangia and zoospore



❖ Favourable Conditions

✓ T~20 °C; RH>90%

❖ Management

1. Resistant variety - HB-1, Mallikarjun, ICMH 88088
2. Use disease free seeds
3. Field sanitation & Roughing
4. Crop rotation
5. Deep summer ploughing
6. Seed treatment - Thiram 75% WP - 3 g/ Kg seed
- Metalxyl 35%SD – 6g/ kg
7. Foliar spray - Metalaxyl MZ 72% WP – 2g/L

Ergot

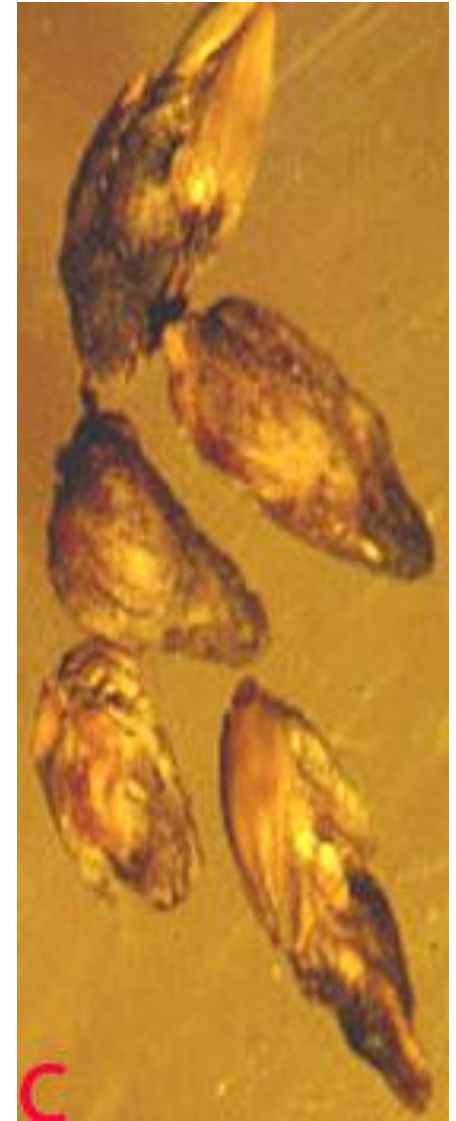
❖ *Claviceps fusiformis/C. microcephala*

❖ Symptoms

1. The disease is confined to individual spikelets.
2. Secretion of honey dew (creamy sticky liquid) from infected florets.
3. Grain is replaced by long, horn like cream dark coloured, hard sclerotia.



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Etiology

- ❖ Conidia - single celled, hyaline, elliptic or oblong in shape
- ❖ Sclerotia – 10-12 mm long



Disease cycle

- ❖ **Primary infection** – Sclerotia in seed/Soil
- ❖ **Secondary infection** – Conidia – Insects/Air

Favourable condition

- ❖ T ~ 20 °C; High RH, Frequent rains

Management

1. Adjust the date of sowing
2. Resistant varieties - PHB 10, 14; Co 2, 3 and Bajra 24
3. Deep summer ploughing
4. Soaking seeds with 20% saline solution
5. Seed treatment - Captan or Thiram @ 4g/kg
6. Spray **Ziram** or Mancozeb @ 0.2% at emergence of earhead (5-10 per cent flowering stage) followed by a spray at 50 per cent flowering
7. Systemic - Fungicides Propiconazole or Tebuconazole @ 1ml/L

Rust

❖ *Puccinia penniseti*

❖ Symptoms

1. Reddish brown flecks on both surface of the leaves
2. Yellow halo may be present
3. Elliptical Pustules rupture to release reddish brown uredospores
4. Telia are more elongate and dark brown

❖ Disease cycle:

- ✓ Macrocytic and Heteroecious;
- ✓ Alternate host – Brinjal



SMUT

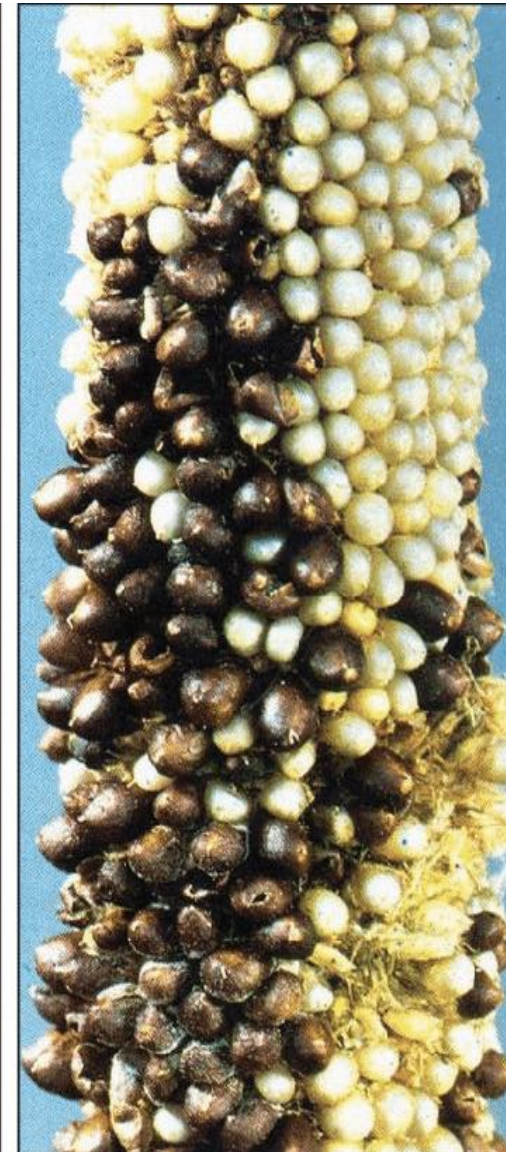
❖ *Moesziomyces bullatus*

❖ Symptoms

1. Only few grains are infected
2. Sori replace grains

❖ Disease cycle:

✓ Soil borne



BLAST

❖ *Pyricularia grisea*



Important Diseases of Ragi

❖ Major Diseases

1. Blast - *Pyricularia grisea*
2. Leaf spot - *Cercospora penniseti*

❖ Minor Diseases

1. Wilt - *Sclerotium rolfsii*
2. Seedling blight - *Drechlera nodulosus*
3. Smut - *Melanopsichium eleusinus*

❖ Blast Resistant varieties- Ratnagiri, Padmavati, Gowtami and Godavari