

ONLINE CLASS : PLANT PATHOLOGY

STREAMING ON -07.11. 2020 BY DEPARTMENT OF BOTANY, GGDC AT KALIGANJ

FOR 2ND SEMESTER HONS

CC04 UNIT 09

Department of Botany
GGDC AT KALIGANJ

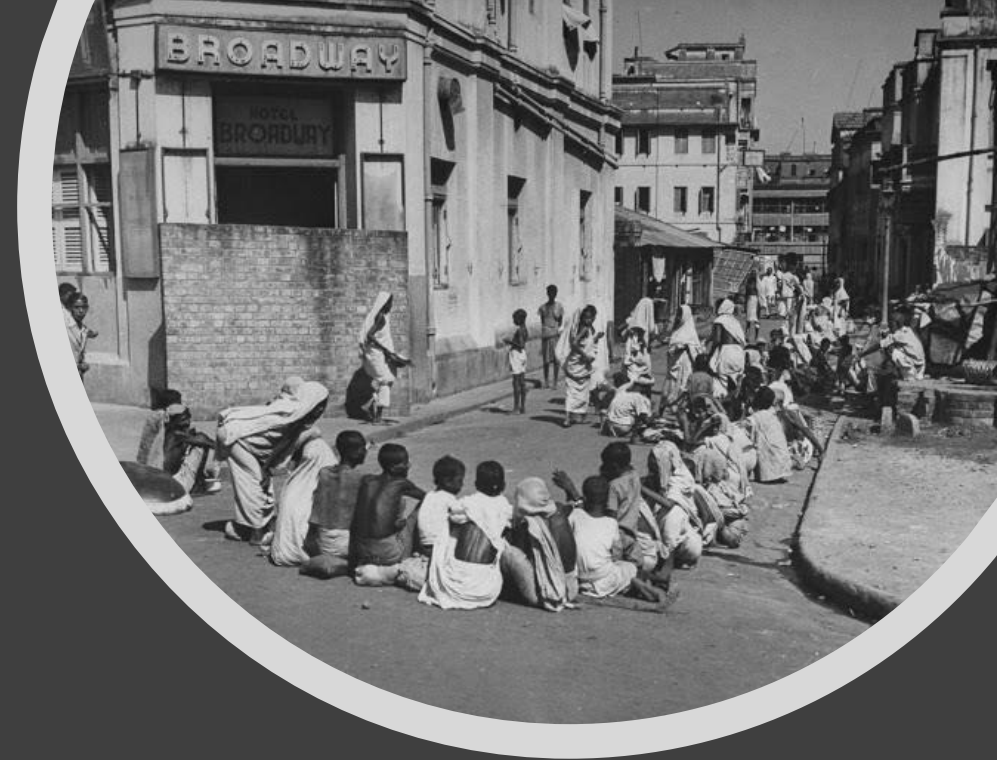
BROWN SPOT OF RICE

ABOUT THE DISEASE

The Brown spot (also known as *Sesame spot*, *helminthosporiosis*, *seedling and leaf blight*) is a widespread disease in almost all the rice growing areas of the world. In India it is most prevalent in all rice growing areas, especially in heavy monsoon areas in West Bengal, the eastern part of U.P., Assam, Tamil Nadu and parts of Kerala.

Bengal Famine (1943)

- The **Bengal famine of 1943** (পঞ্চাশের মন্বন্তর) struck the Bengal Province of pre-partition India. Estimates are that between 1.5 and 4 million people died of starvation, malnutrition and disease, out of Bengal's 60.3 million population, half of them dying from disease after food became available in December 1943.



SYMPTOMS

- *All aerial parts show symptom of diseases; irregular, rectangular brown spot with dark centre appear on the coleoptile, leaf blade, leaf sheath and glumes but most commonly on leaves.*





- *Spots appear at first as minute brown dots, later becoming ellipsoidal or oval to circular and when fully developed, have a light brown , tawn or grey centre and a dark or reddish-brown margin.*
- *Seedlings often infected heavily with numerous spots about 2.5 mm in diameter; in such cases leaves dry out and die.*





- *Seedling although not killed usually The spots appear on the older leaves which are larger than on the seedlings (upto 1mm).*
- *On Glumes, spots are dark brown or black oval spots.*
- *On the coleoptiles the spots are brown and small.*
- *When the attack is more severe, the whole surface of the grain may be blackened and seeds may be shriveled and discoloured.*

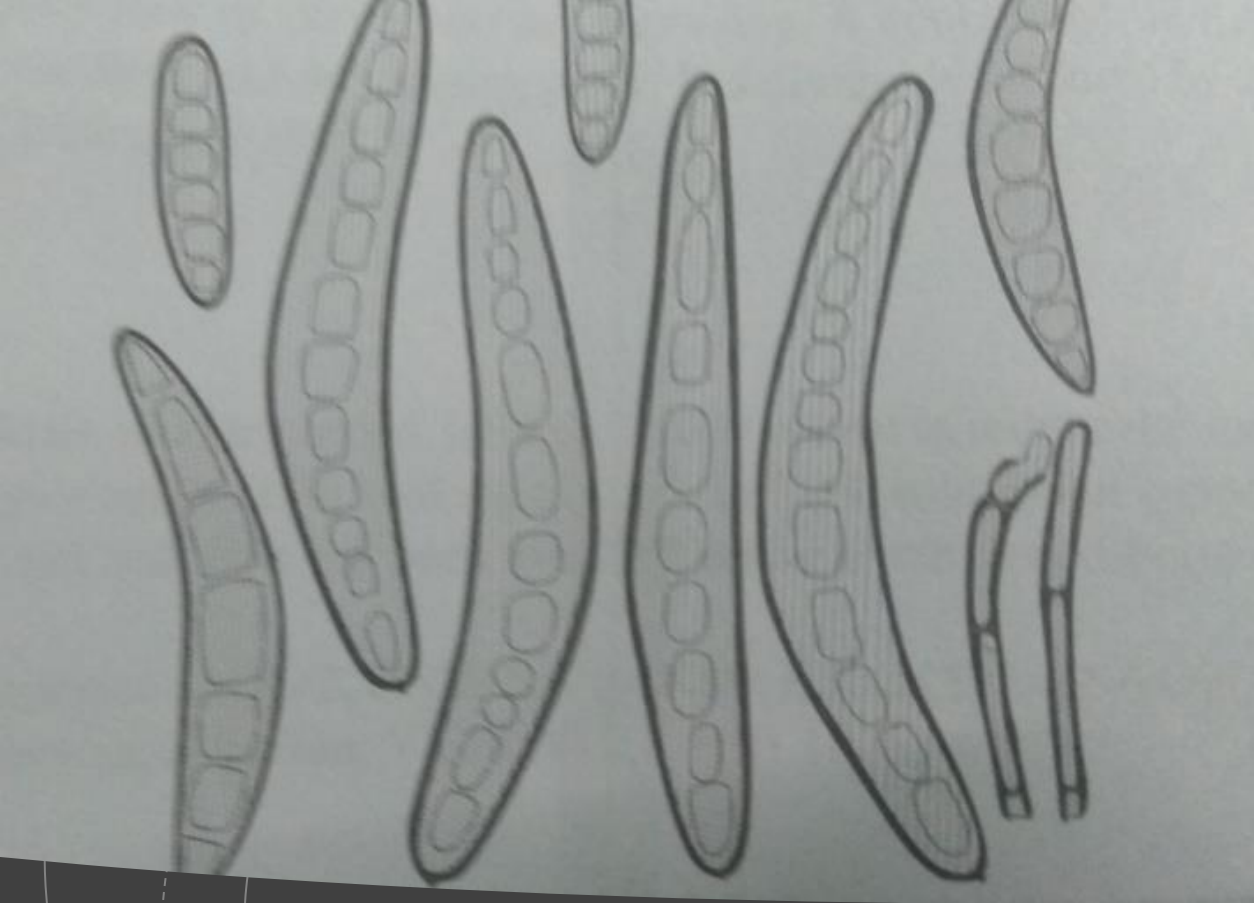
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- *Thus there are three types of infections resulting losses.*
 - *The first due to poor germination of Infected seeds*
 - *The second is leaf infection resulting in the reduction of leaf surface*
 - *The third is the attack on the grains themselves.*
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THE PATHOGEN

- The Pathogen is-
- *Drechsler oryzae* earlier called as
- *Helminthosporium oryzae*
- [= *Cochliobolus miyabeanus*].

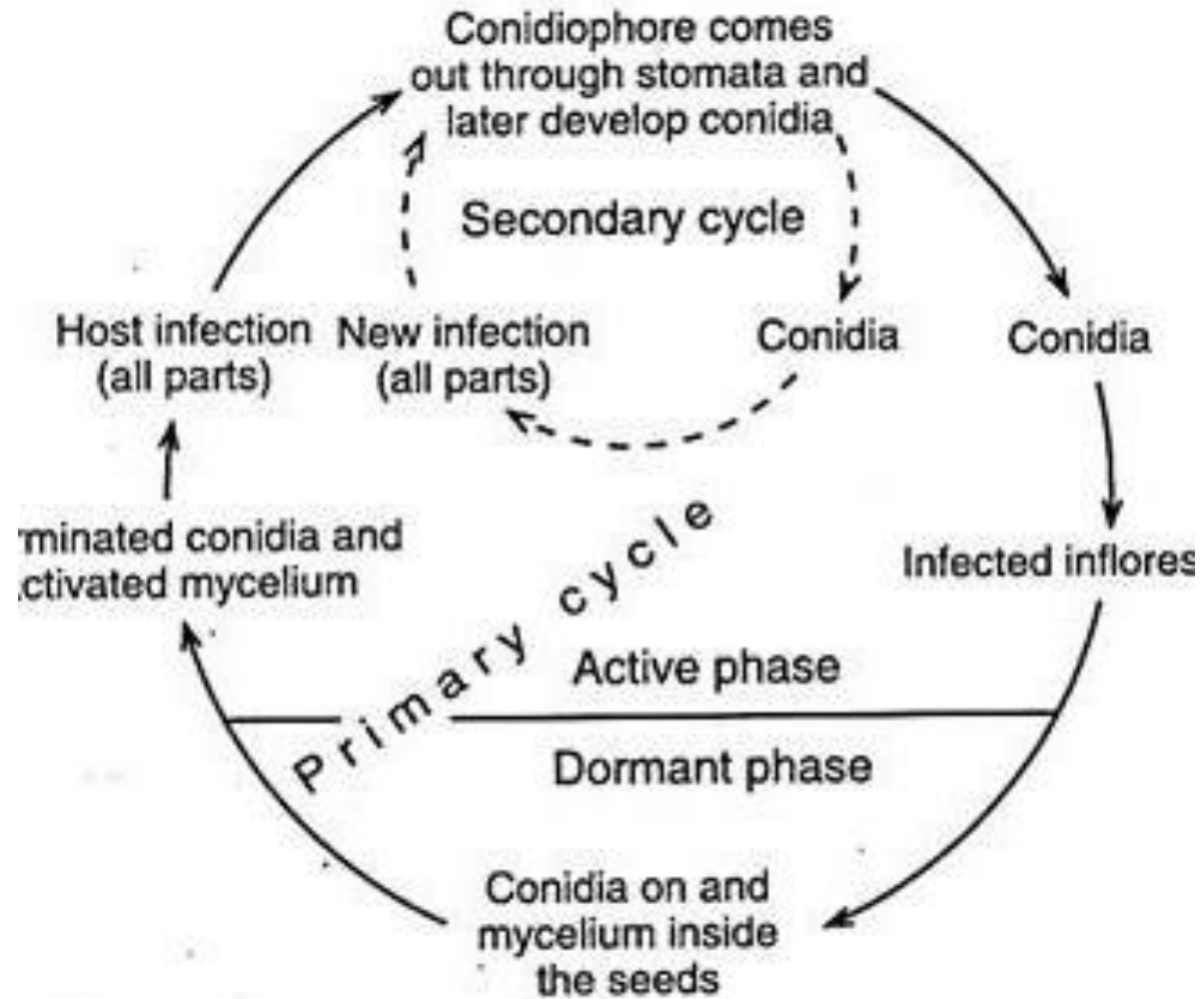


Fig. 5.8 : Disease cycle of Brown spot of rice

DISEASE CYCLE

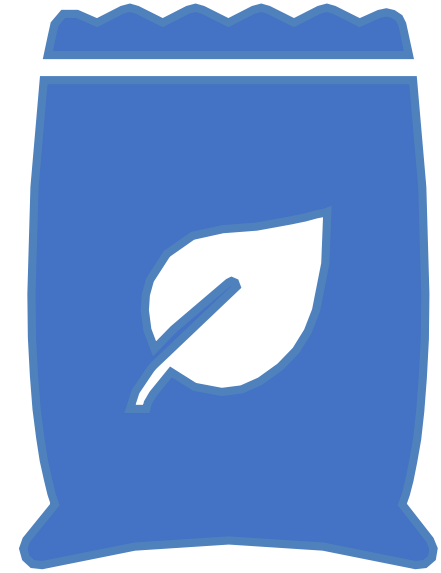
CONTROL

CULTURAL METHODS-

- **Field Sanitation- Burn of stubbles**
- **Removal of alternate hosts (*Setaria*, *Leersia*, *Echinochloa*).**
- **Careful irrigation- Water should not come from infected field .**
- **Leaching down of the important elements like K, Fe, Mn during rains should be checked as leaching of these elements from soil increase susceptibility.**
- **Avoiding dry condition- flooding field in 20-28° C prevent conidial germination.**

- **CHEMICAL CONTROL-**
- **Seed Treatment-** Ceresan or Agrosan GN, HgCl₂, AgNO₃, CuSO₄.
- **Use of fungicides (as spray)-**
 - Dithane M-45 (0.3%)
 - Brestanol,
 - Tricyclazole-0.08%
(Systematic fungicide)
- **Some antibiotics such as Aureofungin (200ppm) in combination with copper sulfate can give good control to the disease.**

- **BIOLOGICAL CONTROL-**
- **USE OF RESISTANT VARIETIES-**
 - Padma
 - IR-24.



A wide landscape of a golden field under a clear blue sky. The field is in the foreground, and the sky is a gradient of blue. There are some small trees or bushes in the middle ground. The overall scene is bright and open.

THANK YOU
