

**Smut Disease** Causal organism: *Ustilago scitaminae*.

This is a major fungal disease, caused by the fungus *Sporisorium scitamineum* and observed on almost all the varieties commercially cultivated in India. High temperature in April–May, dry weather and acute shortage of water leading to high incidence of smut. Ratoon crops are suffering more than the plant crops. This disease brings down the cane yield substantially.

### Symptomatology

- The patent symptom of the disease is the production of a black whip like structure from the central core of the meristematic tissue. This flagelliform appendage, commonly called the whip, is straight when young & irregularly curved when it grows more. A thin, white and papery membrane covers the whips when young, this is the epidermis of the host. When it matures, the millions of black spores (teliospores) liberated and disseminated by the wind after rupturing the epidermis.
- On infection, the stool gives short canes having thin & stiff leaves and produce more tillers than the healthy ones.
- After the production of a terminal whip, the lateral buds begin to sprout and may produce shoot smut whip smutted side shoots can also occur on normal cane by secondary infection (aerial infection).
- Affected canes after whip emergence dies and withered.



### Transmission

The primary transmission of the disease is through diseased seed pieces, while the secondary transmission is through wind blown spores. In addition, spores or sporidia, present in or on the soil surface, are also carried to different fields through rain or irrigation water.

### Control

Adopting one or more of the following measures can minimize the disease incidence.

- Planting of healthy disease and pest free sets.
- Inspection and roguing of smutted clumps / stools in the field to be done regularly.

Before roguing of smutted clumps / stools, whips of smut should be collected in plastic bags.

- Discouraging ratooning of diseased crop if incidence is more than 20%.
- Use of resistant variety.
- Treatment of sets with fungi-toxicants before planting. (0.1% Bavistin or 0.1 % Bayleton – 100gm. of fungicide in 100 Liter of water, sett dipping for 10 to 15 min.)
- Use of heat therapy for breeder seed production. (Moist hot air treatment (MHAT) at 54°C for 150 minutes or Hot water treatment at 50°C for 2 hours).
- Crop rotation.



**Smut Disease affected fields:**