



Red Rot Disease of Sugarcane: Symptoms, Cycle and Control

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Red Rot, caused by the fungus *Colletotrichum falcatum*, is often referred to as the 'cancer' of sugarcane. It is one of the most widespread and economically damaging diseases of sugarcane in tropical and subtropical regions. The disease significantly reduces juice quality, sucrose content, and overall cane yield.

Symptoms

- Early Symptoms:
 - The first signs appear as yellowing and drooping of the upper leaves (the 3rd or 4th leaf from the top).
 - The leaf margins wither, and eventually, the entire crown dries up.
- Internal Symptoms (Diagnostic):
 - When the affected cane is split open longitudinally, the pith shows characteristic red tissues interspersed with white transverse patches (white spots).
 - The infected tissue emits a distinct sour, alcoholic smell due to the fermentation of juice.
- External Symptoms on Stalks:
 - The rind loses its luster and becomes shriveled. Small black dots (acervuli) may appear near the nodes.

Disease Cycle

The disease cycle of *C. falcatum* involves survival, primary infection, and secondary spread:

- Survival: The fungus survives in infected setts (seed pieces), crop debris, and the soil in the form of dormant mycelium or thick-walled spores.
- Primary Infection: Infection starts when diseased setts are planted. The fungus travels from the sett into the growing shoot.
- Secondary Spread: During the rainy season, spores (conidia) are produced and spread to healthy canes via irrigation water, rain splashes, and wind. Boring insects like the stalk borer also facilitate entry through wounds.

Control and Management Strategies

1. Cultural Control

- Healthy Seed Selection: Use only disease-free setts from nursery crops for planting.
- Crop Rotation: Practice a 2-3 year crop rotation with non-host crops like paddy or green manure to reduce soil inoculum.
- Field Sanitation: Uproot and burn infected clumps immediately (roguing) and clear trash after harvest.
- Resistant Varieties: Planting resistant varieties is the most effective long-term solution.

2. Physical and Chemical Control

- Hot Water Treatment (HWT): Treating setts in hot water at 50°C for 2 hours or Aerated Steam Treatment (AST) helps eliminate internal infection.
- Sett Treatment: Dip setts in fungicide solutions like Carbendazim (0.1%) before planting.

3. Biological Control

- Application of *Trichoderma viride* or *T. harzianum* to the soil or as a sett treatment can suppress the growth of the Red Rot pathogen.

Conclusion

Red Rot management is heavily dependent on preventive measures. Since the pathogen resides inside the cane, once the disease is established in a standing crop, it is difficult to cure. A combination of using resistant varieties, healthy seed programs, and strict field sanitation is essential for sustaining sugarcane productivity.