

**SUGARCANE RED ROT DISEASE**

Red rot is one of the oldest known diseases of sugarcane. It occurs in most cane-growing countries. Although it continues to be a threat in certain subtropical countries.

**CAUSAL AGENT**

*Colletotrichum falcatum*,

*Glomerella tucumanensis* (Perfect stage)

**Order:** *Melanconiales*

**Family:** *Melanconiaceae*

**SYMPTOMS:**

1. Red rot occurs in various parts of the cane plant but it is usually considered a stalk and a seed-piece disease.
2. Its symptoms are highly variable depending upon the susceptibility of the sugarcane variety and the environment.
3. Symptoms may not be readily apparent in the field, especially in the early stages of the disease. In the later stages of the disease, red rot may cause standing cane to "break down."
4. Diagnostic symptoms can best be observed by splitting the stalk lengthwise. The infected tissues have a dull red color interrupted by occasional whitish patches across the stalk
5. These white patches are specific to the disease and are of significance in distinguishing red rot from other stalk rots.
6. Reddened vascular bundles may also pass through to the healthy tissues. In susceptible varieties the red color, sometimes along with some gray color, may be seen throughout the length of the stalk. The infection is largely confined to the internodes in resistant varieties.
7. On the leaves, the pathogen may produce elongated red lesions on the midribs, reddish patches on the leaf sheaths, and, infrequently, small dark spots on the leaf blades. The lesions may eventually develop a straw color in the center.
8. In seed pieces, the entire seed piece may become rotted and the internal tissues turn various shades of red, brown or gray.

**Causal Organism of Red Rot of Sugarcane:**

Red rot of sugarcane disease is caused by *Colletotrichum falcatum* Went, the perfect stage of which is *Glomerella tucumanensis* (Speg.) Arx and Muller. There has been considerable



difference in opinion as to the nature of the fungus that causes this disease. Some insisted that this fungus is more strictly saprophytic than parasitic, and that it cannot attack healthy canes.

Others said that it cannot attack mature canes except through wounds, but that it can attack young plants. However, the young canes are usually protected by the leaf sheaths. In some places the fungus has been reported to grow on the dead canes only and the disease is not known.

The mycelium of the fungus grows both inter- and intracellularly in the parenchymatous cells of the host tissue. The hyphae are colourless, slender, freely branched and septate. Acervuli appear just above or below the nodes along the depressions or ridges.

### **SPREAD OF THE DISEASE**

Diseased stalks generate a great deal of inoculum.

Dissemination of the inoculum takes place by wind, rain, heavy dews and irrigation water.

Infected plant material can readily spread or cause secondary infections.

Crop debris or stubble may also provide inoculum to infect a new crop.

Climatic factors affect both the spread and severity of red rot. In newly-planted cane, the disease is favored by excessive soil moisture, drought conditions, and low temperatures.

### **MANAGEMENT**

1. The use of resistant varieties is the most effective method of prevention.
2. The incidence of red rot can be reduced through good cultural practices, such as clearing fields of excessive trash and efficient drainage. Agronomic practices that hasten germination are important in reducing seed rotting and obtaining good stands.
3. The avoidance of planting susceptible cultivars during excessively cool and wet weather has been effective in several countries.
4. Regular rouging of diseased plants, burning of trash, plowing out badly affected fields, maintenance of proper soil moisture, and prompt harvesting of infected or susceptible crops are other management practices recommended for red rot control.
5. Fungicides have not been effective in the control of red rot. However, better crop stands have been achieved from enhanced germination obtained by treating seed pieces with a fungicide before planting. This treatment reduces the incidence of red rot infection in the treated seed piece.
6. Heat treating of seed cane has also been effective in controlling seed piece infection of red rot.