



CRAZY TOP OF CORN

Crazy top of corn, caused by the fungus *Sclerophthora macrospora* (*Sclerospora macrospora*), has occurred widely but sporadically in Illinois. The disease is seldom prevalent enough to cause much damage, although losses of at least 60 percent in grain yields have been reported in parts of some fields. Crazy top, when it does occur, is invariably found in localized areas of fields and gardens where the soil becomes waterlogged or flooded between the time the corn kernels germinate and the seedlings are 6 to 10 inches tall.

The causal fungus attacks all types of corn and more than 140 species of wild and cultivated grasses. The disease hosts include oats, rice, sorghums, wheats, crabgrasses, witchgrasses, foxtails, and barnyardgrass. The fungus is incapable of developing in the absence of a host plant and must reinfest living corn or grass plants each season. In the absence of corn, the crazy top fungus maintains itself on wild grasses.

Symptoms

The symptoms vary greatly according to the time of infection and the degree of host colonization by the fungus. The most conspicuous symptom is the partial or complete replacement of the normal tassel by a large, bushy mass of small leaves (Figures 1-3). These modified leaflike inflorescences are described as "crazy top." No pollen is produced, since normal flower parts in the tassel are completely deformed. Ear formation may also be checked, causing the ear shoots to be numerous, elongated, leafy, and barren (Figure 3). Plants affected by crazy top vary greatly in height. Some may be severely stunted, with narrow leaves that are strap-like, leathery, yellow to brown, and streaked, and with 6 to 10 tillers per plant (Figure 2). Generally, excessive tillering, rolling, and twisting of the upper leaves appear first. Other plants may be taller than average, with additional nodes and leaves above the ear and in the shank (Figure 3). The principal effect, however, is the development of the tassel and ears into leafy tissues. Common corn smut frequently occurs on these abnormal leafy growths.

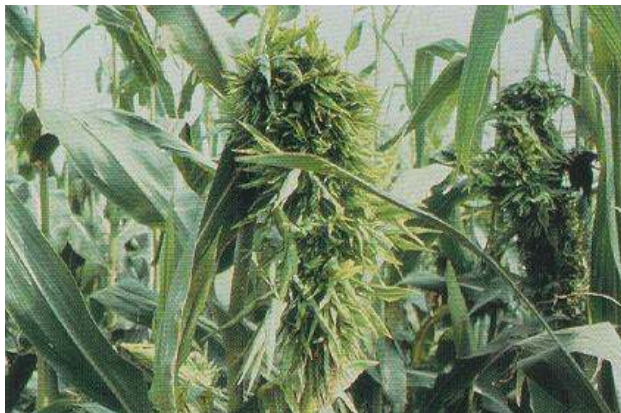


Figure 1. Crazy top with abnormal tassel. (Courtesy D.G. White)



Figure 2. Crazy top and tillering. (Courtesy D.G. White)

Disease Cycle

The *Sclerophthora* fungus overseasons in diseased corn or grass residue as microscopic roundish oospores that are thick-walled and colorless to yellowish. The numerous oospores presumably germinate in soil that is saturated for 24 to 48 hours, forming a thin-walled tube that bears a lemon-shaped sporangium. The sporangium, in turn, germinates to produce numerous motile zoospores. After swimming about in the soil water for a short time, the zoospores encyst and produce a germ tube that penetrates seedling host tissue sometime during the period from shortly after sowing to before the plants are in the 4- to 5-leaf stage. Following infection, the fungus develops systemically and invades the entire corn plants, being most abundant in meristematic tissues.



Infection occurs over a wide range of soil temperatures. The optimum for sporangial germination is 53° to 63°F (12° to 16°C). Seed transmission of the *Sclerophthora* fungus has been demonstrated but is generally considered unimportant in the dissemination of the fungus.

Figure 3. Crazy top of corn excessive number of nodes and leaves on upper half; a bunch of leafy growth in place of the tassel flowers on lower area.

Control

Crazy top is seldom important enough to warrant special control measures. However, the following steps may be taken:

1. Provide adequate soil drainage.
2. Control grassy weeds.
3. Do not plant corn in low, wet spots.

Very little is known about the relative resistance of inbred lines of corn and of hybrids to this disease. Seed treatment has **no** effect.