



Extension FactSheet

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Corn Smut

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Corn smut is an extremely common disease of sweet, pop, and dent corn in Ohio and throughout the world. It is usually not economically important, but yield losses in sweet corn may be as high as 20%. In Mexico, immature smut galls are consumed as an edible delicacy known as cuitlacoche, and sweet corn smut galls have become a high value crop for some growers in the northeastern United States who sell them to Mexican restaurants.

Symptoms

The corn plant may be infected at any time in the early stages of growth, but becomes less susceptible after the formation of the ear. Above-ground parts may be infected, but it is more common to see the smut galls on the ears, tassels, and nodes than on the leaves, internodes, and brace roots. The smut gall is composed of a great mass of black, greasy or powdery spores enclosed by a smooth white covering of corn tissue. The gall may be 4-5 inches in diameter. When leaves are infected, small pustules develop, usually on the midrib, causing

some leaf distortion. After the spores mature, the covering becomes dry and brittle, breaks open, and the spores sift out. Greatest yield losses occur when the ear becomes infected or if the smut gall forms on the stalk immediately above the ear.

Causal Organism

Corn smut is caused by the fungus, *Ustilago zea*, that survives as a resistant spore over winter, and possibly for 2 to 3 years in the soil. These spores (teliospores) can be blown long distances with soil particles or carried into a new area on unshelled corn and in manure from animals that fed on infected corn stalks. The teliospores germinate in moist air and give rise to tiny spores called sporidia. The sporidia bud like yeast, forming new spores that germinate in rainwater that has collected in the leaf sheaths. This leads to infections that are visible in 10 days or more. Wounds from various injuries (including hail, wind, and insects) provide points for the fungus to enter the plant.

The smut fungus is sensitive to temperature and moisture



Common corn smut.



Smut tassel.

changes. In a warm season, the amount of smut is related closely to the amount of moisture in the soil especially during June. When temperatures are lower than normal, there may be little smut even though soil moisture may be high.

Control

1. Seed treatment is of no value for smut control because few spores are on the corn seed.
2. Removing smut galls before they break open and burying or burning them may help in home gardens if done on a community basis. Smut gall removal is not practical in commercial production.
3. Spraying for corn borer control helps in cases when insect populations are high.
4. Avoid injury of roots, stalks, and leaves during cultivation.
5. Deep plowing of diseased corn stalks in the fall will help give some control.
6. Use resistant varieties. Dent corn is generally more resistant than sweet corn or popcorn. Contact your seed dealer for information on resistance in hybrids and varieties.

Additional information is available from your local Extension office or The Ohio State University web site Ohioline at: <http://ohioline.ag.ohio-state.edu>

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