



# Extension FactSheet

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## Common Smut of Corn

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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, although in some years 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 NE 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 formation of the ear. Above-ground parts may be infected, but it is more common to see smut galls on the ears, tassels, and nodes than on the leaves, internodes, and aerial roots (Figures 1 and 2). 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 outer covering becomes dry and brittle, breaks open, and the spores sift out. Greatest yield losses occur when the ear becomes infected or if smut galls form on the stalks immediately above the ears.



Figure 1. Sweet corn tassel with mature common smut galls.

### Causal Organism

Corn smut is caused by the fungus, *Ustilago zaeae*, that survives as a resistant spore in the soil over winter, and possibly for 2 to 3 years. These spores, called teliospores, can be blown long distances with soil particles or carried into a new area on unshelled seed corn and in manure from animals that are fed infected corn stalks. The teliospores germinate in moist air and



Figure 2. Mature common smut galls on corn ear.

give rise to tiny spores called sporidia. The sporidia bud like yeast, forming new spores that germinate in rain water that collects in the leaf sheaths. This leads to infections that are visible in 10 days or more. Wounds from various injuries provide points for the fungus to enter the plant.

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

## Management

1. Seed treatment is of no value because few spores are on the corn seed.
2. For the home garden, remove smut galls before they break open and bury or burn them. This must be done on a com-

munity basis, however, in order to be effective. Smut gall removal is not practical in commercial production.

3. In order to reduce infection points from insect injury, control corn borers as first tassels appear by application of insecticides when insect populations are high. Consult the Ohio Vegetable Production Guide (OSU Extension Bulletin 672) for current insecticide recommendations.
4. Avoid injury of roots, stalks, and leaves during cultivation.
5. Deep plow diseased corn stalks in the fall to bury surviving spores.
6. Use resistant hybrids or varieties. Dent corn is generally more resistant than sweet or popcorn. In sweet corn, the larger, later-growing varieties usually are more resistant than the smaller, early varieties. Highly susceptible sweet corn varieties include: Spring Gold, Duet, Golden Beauty, Silver Queen, and Country Gentlemen Hybrid.

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