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## Common smut more common than usual

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# Common smut more common than usual

## **Abstract**

Dark, dusty clouds are lingering behind many combines this fall as smut-infected ears are harvested. During the latter half of the season I received more calls than usual about this disease, and reports of smut have accelerated as some of the previously unnoticed fields were harvested. Common corn smut, caused by the fungus *Ustilago zaeae* or *Ustilago maydis*, is a well-known disease that usually does not cause economic damage.

## **Keywords**

Plant Pathology

## **Disciplines**

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# INTEGRATED CROP MANAGEMENT

## Common smut more common than usual

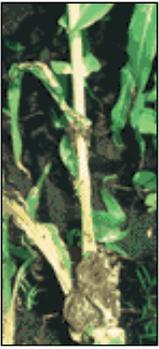
Dark, dusty clouds are lingering behind many combines this fall as smut-infected ears are harvested. During the latter half of the season I received more calls than usual about this disease, and reports of smut have accelerated as some of the previously unnoticed fields were harvested.

Common corn smut, caused by the fungus *Ustilago zaeae* or *Ustilago maydis*, is a well-known disease that usually does not cause economic damage. This year it's clear that the disease has caused economic losses in some fields. In a few fields, more than 40 percent of the ears were partially consumed by the fungus. Most of the reports I have had this year have been related to smut on the ears, but a few have included infections of other parts of the plant. Smut can infect any part of the plant, especially actively growing meristematic tissue. Infections of the stalk, ear, or tassels result in smut galls, which are distorted growths that have a shiny, silvery-white surface. These galls eventually rupture to release millions of powdery black teliospores (Photo 1). Stalk infections often cause stunting or death of the top of the plant (Photo 2), frequently followed by lodging. Leaf infections cause wart-like growths that are yellow and then turn brown. These infections can sometimes be confused with other leaf diseases. The leaf infections do not usually produce spores. When young plants are infected, the disease can destroy the growing point, killing the plant. The base of these plants may be swollen and the leaves in the whorl transformed into a smut gall (Photo 3). The spores released by the smut galls usually do not infect plants during the same season, but fall into the soil where they can survive many years. If the spores fall onto susceptible plants parts, such as silks, infection may occur in the same season. Silk infection results in ear infection.



**Ruptured smut galls and black spores on corn ear.**

[Enlarge](#) [1]



**Smut gall on corn stalk.**

[Enlarge](#) [2]



**Smut gall forming in whorl of small corn plant.**

[Enlarge](#) [3]

By harvest, the smut galls have mostly ruptured and dried, leaving nothing but masses of black spores that become airborne when the plant is disturbed. Harvested kernels are not infected but may have many spores clinging to them externally. These spores are not a threat of further infection, nor are they harmful to livestock or humans.

I think that the higher prevalence of smut was largely related to poor pollination in specific fields. Our dry spell during the mid-season was detrimental to pollination for many hybrids. When pollination is poor, the silks remain susceptible to smut for a longer duration, and eventually they become infected. This explanation is not applicable to every situation where smut was a problem this year. Some plants appeared to have been infected before silking (Photo 4); increased susceptibility at this stage was probably due to some other environmental factor that affected plant development. Differences in smut incidence among hybrids were evident this year. These differences were undoubtedly due not only to variable smut susceptibility but also to hybrid-specific responses to the growing environment and subtle differences in silking dates.



**Prepollination infection. Transformation of ear shoot into smut gall.**

[Enlarge](#) [4]

There are no fungicidal treatments for smut. Some hybrids and inbreds are more resistant, so avoid those that seem consistently susceptible. Hybrid decisions, however, should not be based on experience in a single year. The disease is favored by excess nitrogen or manure, herbicide injury or damage by cultivation, hail, or blowing soil. Avoiding these conditions, where possible, reduces the disease incidence. Crop rotation has little effect because the spores survive for several years.

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