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Smut of Turfgrass – Symptoms – Causes – Control  
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## Smut of Turfgrass

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Stripe smut is a major disease of Kentucky bluegrass and creeping bentgrass in Michigan. In most instances, the effects are very subtle and are difficult to detect (Fig. 1). The disease is often not recognized until damage to the turf area is fairly extensive. Because the smut fungus, *Ustilago striiformis*, is easily transmitted by people, animals or machinery, the disease can become widespread before symptoms become severe enough to recognize.

### Symptoms

This disease becomes active when temperatures reach 50° to 60°F and grass begins to grow. Infected areas of turf are stunted and slow to initiate growth in the spring, hence the lawn may show tufting in initial phases of growth. Foliar symptoms are difficult to find on short-mowed turf. Symptoms on infected grass blades are pale green coloration with black longitudinal streaks along the veins (Fig. 2). The black streaks are masses of fungal spores contained within pustules. When mature, the pustules burst open to liberate the black spores. During the spore liberation, infected blades fray, segment, twist and turn white (Fig. 3). The disease is usually seen at this time due to these symptoms or because people using the turf area find black or dark smudge marks on their shoes or clothes. The foliar symptoms virtually disappear in the summer, making diagnosis difficult if not impossible. However, in heavy traffic areas stripe smut-infected plants are slow to recover.

### Causal agent and disease cycle

Stripe smut overwinters in infected clumps of grass as a systemic perennial infection in the tissues. Since only meristematic (early, formative) tissues of the grass are susceptible to infection by the spores of the smut fungus, most rapid and severe infection occurs when the host is actively growing in the spring and fall. Spores are disseminated by wind, water, equipment, and human or animal traffic.



Figure 1—Smut is a “hands and knees” disease. It is difficult to detect unless the observer examines the affected area closely. Note the few twisted and frayed leaf blades near the pen point.

*U. striiformis* becomes dormant during hot summer weather and its presence is difficult to detect. Most turf loss occurs during this time due to heat and drought stress on the weakened, stripe smut-infected plants. Quackgrass and other weeds often invade areas where the turf has been thinned by the infection. The stripe smut fungus resumes activity in the autumn when average temperatures are again 50° to 60°F.

### Control

Cultivars of Kentucky bluegrass and creeping bentgrass differ greatly in their susceptibility to stripe smut. Windsor, Merion, Fylking, Pennstar, Galaxy and Rugby are the most susceptible Kentucky bluegrass cultivars. Toronto and Penulu are the most susceptible





**Figure 2—Smut-infected tillers of bluegrass showing longitudinal black streaks on the leaf blade.**

creeping bentgrass cultivars. Avoid these varieties whenever possible.

Most other Kentucky bluegrass and creeping bentgrass cultivars show moderate to high resistance. However, remember that the stripe smut fungus is quite variable and new strains can develop which could attack some resistant cultivars which have been well established. Resistant cultivars should be used in blends to help ensure longevity of the turf. If a new strain of stripe smut should develop, the combination of cultivars in the blend will still provide a satisfactory turf.

Once established turf becomes infected with stripe smut, control is difficult and temporary at best. Several fungicides can be used to *suppress* stripe smut for up to two months (see Table 1). The chemicals should be applied according to label direction. They must be applied when the turf is dormant, and some require drenching to be effective. They are most effective when applied early in the spring.

Chemical control can only suppress stripe smut for a short time. Follow good cultural practices throughout the growing season to manage this disease. Application of moderate levels of nitrogen should reduce disease incidence. No more than 1/2 lb of actual nitrogen per



**Figure 3—Late stages of smut infection showing deformed, twisted and frayed leaf blades of bluegrass.**

1000 sq ft should be applied in any month and no more than 3 lb actual nitrogen per 1000 sq ft per season. There is a direct correlation between the amount of nitrogen applied and turf losses due to this disease. Light, frequent watering (daily, if possible) during hot weather will help prevent turf losses where stripe smut has weakened the plants. Do not allow a stripe smut-infected lawn to wilt or go into summer dormancy from lack of water, as stripe smut-infected plants will die.

**Table 1. Recommended fungicides for the management of stripe smut.**

Common Name	Trade Name	Manufacturer
Benomyl	Tersan 1991	du Pont
Fenarimol	Rubigan	Elanco
Propiconazole	Banner	Ciba Geigy
Thiophanate-methyl	Fungo 50	Mallinckrodt
Thiophanate	Cleary's 3336	W. A. Cleary
Triadimefon	Bayleton	Mobay

**Note: Always use pesticides carefully, and follow label directions. Any use of a pesticide inconsistent with the label is illegal.**