

# Stripe Smut Plant Parasite Of Turfgrass

By DR. JOSEPH M. VARGAS, JR.

Assistant Professor

Department of Botany and Plant Pathology  
Michigan State University

**S**TRIPE SMUT caused by the fungus *Ustilago striiformis* is probably the most destructive disease of Kentucky bluegrass, especially such cultivars as Merion and Windsor.

Light yellow blades of grass are the first symptoms to appear. As the disease advances the leaf blades begin to curl and have black stripes running parallel up and down the length of the blades. Older infected blades will be twisted, curled and shredded from the tips down. If these black stripes are touched a black soot-like dust will rub off on to your hands. This soot-like dust is the spores of the stripe smut fungus.

The stripe smut symptoms most commonly occur in the spring and fall during periods of wet cool weather when the day temperatures are below 70°F and gradually disappear as the temperatures become warmer. However, while the symptoms are most evident during periods of

cool weather very little turf is lost. Most of the infected turf is lost during the hot dry weather of the summer when the grass is under heat and drought stress or in open winters when the plants are subject to desiccation and cold temperature.

Stripe smut is a systemic disease which is perennial in the grass plant. Systemic means that the fungus is internal and can spread throughout the vascular system (veins) of the plant. The striping effect of the grass blades is caused by the fungus growing up the veins. Perennial means that once a grass plant is infected it will remain so for life although visual symptoms may not always be evident. The stripe smut fungus is able to survive adverse environmental conditions protected in the crowns of the grass plant where it can wait months or years for the ideal conditions to arrive before it becomes active again.

The stripe smut fungus can not attack through the foliage. It can

only attack through the lateral buds on the crowns and buds on the rhizomes. Rhizomes arising from such crowns are also infected. This limited type of infection probably explains why the disease is usually only a serious problem on turf areas three years or older. For similar reasons the disease only becomes a problem in sod fields that have been in cultivation for many years where the spores of the fungus have had time to build up. These spores are resistant and can remain alive in the soil for many years.

There are several Kentucky bluegrass cultivars available today which are believed to be resistant to stripe smut. However, this resistance is probably only temporary because of the numerous races the stripe smut fungus can produce. (Races are different strains or varieties of the stripe smut fungus, capable of attacking different varieties of Kentucky bluegrass).

And once a Kentucky bluegrass becomes widely grown, a race of the stripe smut fungus which can attack it will probably develop. That is not to say these resistant varieties are not preferable to those already susceptible, but merely a word of caution of what to be on the look-out for in the future.

One should check with the turfgrass expert in his region to find out about suitable stripe smut resistant Kentucky bluegrass cultivars in his area and then blend three or four of these together. Blending should slow down the development of races of stripe smut which can attack these resistant varieties of Kentucky bluegrass and both the sod producer and buyer will be happier in the long run.

Stripe smut is an internal disease  
(continued on page 46)

## Stripe Smut: The Systemic Disease



Stripe Smut in bluegrass.



Close-up of Stripe Smut on individual leaves.  
\*Color photos courtesy of E. I. Du Pont de Nemours & Co. Inc.



## STRIPE SMUT OF TURF

(from page 12)

and can be controlled chemically only by the use of systemic fungicides. For the systemic fungicides to be effective they must be drenched into the root system immediately after application. The best results are obtained in the fall when the temperatures cool or early spring when the grass plants are dormant. Benomyl (Tersan 1991), thiophanate-methyl (Cleary's 3336), and triarimol are systemic fungicides which have effectively controlled stripe smut. However, this is not a permanent solution and repeated application will be required in subsequent years.

In addition to the destruction caused by the stripe smut fungus itself, Kentucky bluegrass varieties infected with stripe smut lose their resistance to the *Helminthosporium* spp. The systemic fungicides also seem to cause the *Helminthosporium* resistant variety to become susceptible. It is recommended that turf areas infected with stripe smut, in addition to receiving applications

Area on right was treated with a systemic fungicide. Bluegrass plot on left is severely infected with Stripe Smut. Note straw color of infected turfgrass.



of systemic fungicide, also receive an application of a fungicide that will protect against *Helminthosporium* disease, too.

Cultural practices will aid in reducing the severity of the disease. They consist of applying minimum amounts of nitrogen (not more than 3 lbs. of total nitrogen per 1000 sq. ft. for the season) and not allowing the turf area to become dry.

In summary, stripe smut is a very destructive disease of Kentucky bluegrass. Once a plant becomes infected with the disease it will re-

main so for life. Varieties of Kentucky bluegrass resistant to the stripe smut races prevalent today are available, but in the future after these have been widely grown, they probably won't remain resistant as new races of stripe smut will arise. Chemical control can be obtained with the systemic fungicides although it is not permanent. Applying minimum amounts of nitrogen to stripe smut infected turfs and not permitting the infected turf areas to become dry will aid in reducing the severity of the disease. □

## Landscape Ambassador Joe Shaw Tells U. S. Story Abroad

The type equipment used and methods followed by landscape contractors in the United States was described by Joseph C. Shaw, South Miami, Fla., when he, the only participating American, recently spoke to members of the British Association of Landscape Industries' annual conference in London. He also attended the Sixth Congress of Land-

scape Contractors in Hamburg, Germany.

Shaw is head of Shaw Nursery & Landscape Co., and immediate past president of the 2000-member Florida Nurserymen and Growers Association. Particularly was the conference audience interested in his description of this, and other American trade associations. Many of the British contractors inquired about membership in the FNGA; some said they planned to attend the 1974 Florida convention.

He told his surprised listeners that competing American landscape contractors work together in staging training programs for their employees; that they are also urged to attend special schools pertaining to their work, as well as staff meetings.

In turn, Shaw was surprised to hear that the British landscape contractors charge their employees for attending similar events.

Another policy differing from that in the United States is their manner of competitive bidding. The high and low bidders are automatically excluded, leaving the selection to

come from the in-between bidders.

Shaw was invited to speak to the group again in 1974.

In Hamburg Germany, he admits being impressed with the convention facilities where talks are automatically translated into six languages, enabling an individual to hear a speech in his own country's language.

Shaw concludes that European landscape contractors are several years behind those in the U. S. in establishing standards and creating a professional image, both individually and industrywise.

This could be, he said, because for years landscape work was regarded as merely "gardening." However, attempts are now being made to upgrade the status of the landscape contractor-profession.

Two particularly outstanding events during the trip were the 140-acre flower show at Hamburg and the Tivoli Gardens in Denmark. Also, he and Mrs. Shaw visited the French Riviera where, he said, folks take great pride in the use of flowers and landscape plants. However, high rise apartment buildings already are replacing many greenhouses.

At one French nursery Shaw found an inventory of many plants peculiar to Florida and California, and even in some northern portions of the



Joseph C. Shaw