

## Nigrospora Patch on Kentucky Bluegrass

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Since the summer of 1980, Michigan lawn care professionals have suffered losses to a new disease of Kentucky bluegrass, Nigrospora patch. A seemingly healthy stand of turf begins to show circular areas of yellowing grass that have ceased growth. Within several days the plants die resulting in the final characteristic, sunken patch.

### DIAGNOSIS

When observing the symptoms of a Nigrospora patch outbreak, the most important point to note is the patch orientation. There are also foliar lesions that accompany a Nigrospora patch infection. These may be present as reddish-brown necrotic areas on the blade or streaking the sheath. White transverse bands on the blades have also been frequently observed.

One of the major problems encountered so far has been misdiagnosis. The symptoms are somewhat similar and may be confused with those found as a result of the incidence of other diseases, various cultural practices or insect damage. Fusarium blight, drought, sod-webworm or billbug damage, chemical burn and mole or dog damage are just a few examples of conditions that produce symptoms which may be confused with Nigrospora patch. Some points that may aid in making the distinction are:

- 1a. The typical Fusarium blight symptom is the "frog-eye" which appears as a 6-24" ring of dead grass with the interior remaining healthy and green. The typical Nigrospora patch symptom is a 4-6" circular patch without a healthy center.
- b. The ring of dead grass present with a Fusarium blight infection is preceded by a wilting phase when the ring appears a purplish color. No similar phase has been observed with a Nigrospora patch infection.
- c. Fusarium blight is seldom seen as a foliar blight, rarely having specific foliar lesions. In contrast, two types of lesions have been noted to accompany a Nigrospora patch infection.
2. The gross symptom of drought damage is usually a general browning, whereas Nigrospora produces distinct patches.
3. Sod-webworms and billbugs both produce pock-marks in the turf. Closer examination will reveal the presence of green droppings (frass) or chewed stems with a "saw-dust" like material present if insects were the cause.
4. Chemical burn symptoms are apparent 2-3 days after application. The damage appears at the same time and the symptoms develop synchronously. In contrast, it takes several days for Nigrospora patch symptoms to progress from the initial foliar yellowing to the final pock-marked stage. Within one turf area different developmental stages may be visible at the same time.

## IDENTIFICATION OF THE CAUSAL ORGANISM

When isolations were done on diseased Kentucky bluegrass tissue, one of the most commonly isolated fungi was a species of Nigrospora. On closer examination of the tissue, Nigrospora spores could be seen protruding through the epidermis of the necrotic blades. Nigrospora is a weak pathogen, but is known to incite disease on a wide variety of host plants. In order to demonstrate its pathogenicity on Kentucky bluegrass, healthy pots of Adelphi and Touchdown Kentucky bluegrass were inoculated with a suspension of Nigrospora spores in water. Foliar symptoms similar to those found in the field were reproduced and Nigrospora was subsequently reisolated from the tissue. Electron microscopy also showed the presence of Nigrospora spores within the mesophyll cells of necrotic blades. Other organisms have been associated with this problem, but never as consistently as Nigrospora. These organisms may be involved as part of a complex of biological and physical factors responsible for inciting this disease.

This disease has been called Nigrospora patch because Nigrospora has been identified as the pathogen most often associated with the symptoms and because the term patch best describes the overall symptomology.

It is probable that the factors or conditions that predispose disease outbreak include a stressful environmental condition and a newer cultivar of Kentucky bluegrass. Symptoms have appeared after an extended period of hot, dry weather.

At this time there are no cultural or chemical recommendations from MSU.

### References

Vargas, J. M. 1981. Management of Turfgrass Diseases. Burgess: Minneapolis, Minnesota, pp. 20-24.