



Extension FactSheet

Plant Pathology, 2021 Coffey Road, Columbus, OH 43210-1087

Northern Leaf Spot of Corn

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The occurrence of Northern leaf spot (also known as Carbonum leaf spot) has increased over the past few years probably due to the increased use of reduced-tillage management systems and the introduction of corn hybrids with some level of susceptibility to the disease. Although Northern leaf spot can be found in conventionally tilled fields, it has only been a significant problem in reduced tillage fields where the new crop is planted directly into a heavy cover of old corn residues. According to research in Illinois, Northern leaf spot does not have potential to cause severe yield losses in hybrids, particularly when compared to losses caused by Gray Leaf Spot. Some inbreds, on the other hand, are quite susceptible and the disease poses a potential hazard in some seed production fields.

Symptoms

Northern leaf spot is recognized by characteristic narrow linear lesions ranging in width from 1/8 to 1/4 inch and having a maximum length of 1/2 to 3/4 inch. Multiple lesions may develop along the leaf veins making lesions appear longer. Lesions are grayish-tan and are usually surrounded by a pigmented border. The lesions usually elongate linearly between the veins of the leaf. The shape and color of the lesions may vary depending on the hybrid or variety. The leaf, leaf sheath, husks, and ears may become infected.

Causal Fungus

Northern leaf spot is caused by the fungus *Bipolaris zeicola* (*Helminthosporium carbonum*). This fungus has five distinct races: Race 0 is nearly



Corn leaf spot.

avirulent to corn, Race 1 is highly pathogenic on a few inbred lines, Race 2 is much less pathogenic with no distinct specialization as to the host, and Race 3 occurs on commercial hybrids and some susceptible inbreds. A fifth race has been reported. Race 3 of *B. zeicola* causes Northern leaf spot and is the race of primary concern.

Disease Cycle

The fungus overwinters in infected leaves, husks, and stalks of corn. The cells of the spores can be transformed into thick walled resistant spores, called chlamydospores, that are capable of surviving adverse winter weather. Primary infection occurs on young plants that grow up through residues of the previous corn crop. Infection and spread of the disease is favored by moderate temperatures (65°-80°F) and heavy dews during the growing season. Dry weather severely retards spread of the disease.

Spores may be wind blown over long distances to other cornfields. During prolonged damp weather, spores are produced abundantly on diseased leaves.

Control

1. Planting resistant hybrids offers the best means of control. Sweet and popcorns may also be susceptible; therefore proper variety selection is necessary with these crops as well.
2. Use a one- to two-year crop rotation away from corn, or deeply bury infested corn residues by plowing, before planting susceptible corn hybrids. Both of these methods will reduce the overwintering of the fungus in the field.
3. Chemical control with labeled fungicides is only recommended in high value crops such as seed production fields where susceptible inbreds are grown.

Additional information on Northern leaf spot of corn is in the Ohio State University Extension Bulletin 802, *Corn Disease Control in Ohio*, available from your local Extension office or the Ohio State University web site Ohioline at: <http://ohioline.ag.ohio-state.edu>

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