
Eyespot of Corn

Eyespot, caused by the fungus *Aureobasidium zeae* (previously known as *Kabatiella zeae*), has become a common disease in Midwest corn. It is prevalent in the north central and northeastern states and in Ontario and Quebec, but sometimes extends much farther south. In Iowa, it is most often found in the northern half of the state. The disease also is found in Europe and South America.

The disease is commonly associated with continuous corn culture and reduced tillage practices. The adoption of high-residue farming practices has contributed to the increasing importance of eyespot.

The fungus survives in corn residue and spores are produced on the residue under moist conditions. These spores are splashed or blown away by wind onto corn leaves. Leaf wetness is required for infection, so rainy conditions or persistent dews will result in disease outbreaks. The incubation period from infection until symptoms appear is about 9-10 days. Eyespot lesions can be seen on seedlings early in the spring; they then spread to higher leaves in the late spring and early summer. Light or moderate early season infection causes little or no yield loss, but if the disease is severe at this stage, some barrenness may occur. Spread of the disease to the upper leaves can

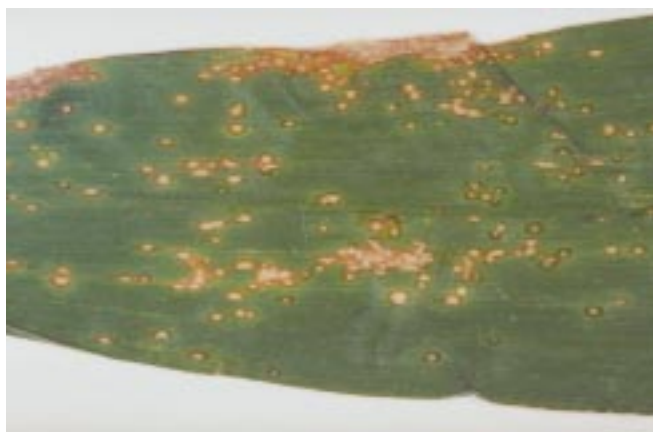


Figure 1



Figure 3



Figure 2



Figure 4

cause considerable destruction of photosynthetic leaf area, resulting in yield reduction. Severe disease will commonly predispose the corn plants to stalk rots.

Symptoms

The disease usually spreads from the lower leaves upward. When spores are blown in from neighboring fields, lesions can be random or concentrated in the upper leaves. Infections appear initially as small, water-soaked, circular lesions that are about 1/16 inch in diameter. The lesions can enlarge to about 1/8 inch in diameter, and become chlorotic, then necrotic, with a tan center and a darker brown or purple margin (Figures 1 and 2). The spot is usually surrounded by a larger yellow “halo” which is most visible when light passes through the leaf (Figures 3 and 4). You can observe the halo by holding a leaf up toward a blue sky background.

Spots can vary in size and color depending on the hybrid. Spots can coalesce into larger necrotic areas (Figure 5). It is common to observe bands of lesions across a leaf, indicating that infection took place in the moist environment of the whorl after a period of spore dispersal. Lesions often are concentrated along the leaf edges and leaf tips. Severely infected leaves can be entirely blighted. The dark margins of the lesions remain visible on dead leaves.

Eyespot symptoms can be confused with physiologic or genetic leaf spots, which are noninfectious, or with insect feeding wounds. Eyespot also can be confused with *Curvularia* leaf spots and the early symptoms of northern leaf spot or gray leaf spot. Noninfectious leaf spots sometimes do not develop a necrotic center, and if they do, it does not have the darker margin. Northern leaf spot lesions can enlarge to be substantially larger than eyespot lesions, and usually are less circular in shape. Fully developed gray leaf spot lesions are long, rectangular and easily distinguished from eyespot.

Control

Some hybrids are less susceptible to eyespot and these may be recommended by your seed dealer. Select resistant hybrids when the disease has previously been severe in the area. Rotation with crops other than corn allows the corn residue to decompose and the fungus will die before another corn crop is planted. Usually one year out of corn will reduce the inoculum adequately to grow another corn crop, but it may take longer under reduced tillage conditions. Tillage will hasten the decline of fungus survival, because contact with the soil results in faster residue decomposition and exposes the pathogen to antagonistic microorganisms.

Applying fungicide sprays early in the epidemic can have a significant impact on the disease and yield. Fungicides can be economically beneficial, especially in seed corn production. Fungicides should be considered only when corn grown in the field the previous year was affected by eyespot and reduced tillage practices are being used. Resistant hybrids should be the first choice.



Figure 5

... and justice for all

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