BETWEEN THE ROWS

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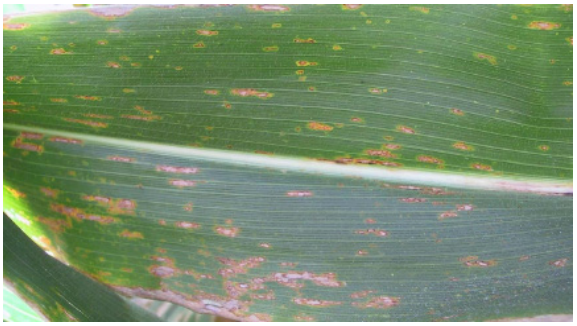
Much of our marketing area experienced above normal rainfall during the first half of the growing season. Usually, above normal rainfall will contribute to high yield levels. But high rainfall early in the season also can increase the presence of leaf disease. Having free moisture on the leaf surface, coupled with corn residue on the soil surface, provides plentiful inoculum for infection.

GRAY LEAF SPOT

Gray leaf spot was evident early in the season, and warm and moist conditions have enhanced its development and spread. Moderate temperatures of 70-90 degrees Farenheit promote development. The initial lesions on lower leaves are small, somewhat irregular or rectangular, and tan or brown in color.



Pictured above: Close-up of gray leaf spot on corn plant.

These small lesions expand in length, sporulate and infect additional areas of the leaf. The lesions remain parallel to leaf veins, continuing to expand and possibly affecting entire leaves late in the season. Fungicide applications to help control gray leaf spot have demonstrated effective response (two to three weeks of control), and have generally contributed to improved plant integrity and stalk quality toward the end of the season.

When leaf diseases like gray leaf spot spread and impact large areas of the leaf tissue before maturity, yield and standability could be affected. Reduced leaf area adds stress to the corn plant as it tries to fill the maturing kernels. Limited leaf area causes the plant to translocate carbohydrates from the roots and stalk, which can increase stalk rot potential.

When leaf diseases spread rapidly, plants may die prematurely (before black layer) resulting in slowed field dry down and increasing risk of stalk lodging. Besides the presence of gray leaf spot or other leaf diseases in a wet year, Nitrogen (N) loss from denitrification and leaching due to saturated soils is evident. This nutrient deficiency can increase the stress on the plant, as well as increase the potential for stalk rot to develop.

Because of these two major agronomic conditions, field scouting for stalk quality issues that could impact the harvest schedule is critical.

About two weeks before harvest, observe the fields scheduled to be harvested the earliest for potential stalk lodging. Fields with significant leaf disease presence, N deficiency symptoms and high yield potential are likely candidates for stalk diseases.

The pinch test can detect soft stalks (possible presence of stalk rot) early and help identify fields for an early harvest to avoid weather induced stalk lodging. Pinch the lower one or two internodes of 50-100 plants in several areas of the field to determine stalk strength. If 10-15 percent of stalks exhibit soft stalks, this field may need further evaluation and an earlier harvest schedule.

Fields may need re-evaluated in seven to 10 days. Field dry down under normal maturity conditions in September is usually quite good. But stalk rot can cause premature death, resulting in harvest consequences like stalk lodging and incomplete grain fill, affecting grain dry down.

Pictured above: Gray leaf spot, in the field.

There are no truly resistant hybrids, but tolerant hybrids will only develop small fleck type lesions and disease development is limited. Susceptible hybrids will develop lesions early with the right weather conditions, and the disease development can affect the whole plant by the end of the growing season. When disease lesions infect the leaves above the ear, yield will likely be reduced. The leaves above the ear provide at least 75 percent of the necessary sugars needed for grain fill.

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MANAGEMENT PRACTICES TO CONSIDER

Several cropping practices have favored the development of gray leaf spot over much of the Midwest. Corn following corn, no-till and reduced tillage that leave corn residue on the surface provide considerable inoculum for starting infections early in the season when weather conditions are favorable. To lower the risk of continued gray leaf spot infections, the following agronomic practices can be implemented:

1. Hybrid selection: use hybrids with greater gray leaf spot tolerance.
2. Residue management: till to bury as much residue as possible.
3. Fungicide applications: apply when the disease pressure is significant, and when the hybrids affected are known to be susceptible.
4. Crop rotation.

Residue management can help, but as little as 10 percent residue coverage can still lead to significant disease development under favorable weather conditions. Implementing these agronomic practices can, at best, either delay the onset of the disease or slow the rate of development.

The product guide contains ratings of our hybrids for tolerance to gray leaf spot. Continual warm and wet conditions will enhance development of leaf diseases. Lower rated hybrids should be monitored to determine the potential impact at harvest.