Controlling northern corn leaf blight

last week, I discussed how farmers have to decide whether to select more expensive hybrid seed corn with genetic engineering, or use non-GMO seed types.

But farmers also have to consider other features besides genetic engineering and yield when selecting a hybrid, such as foliar disease resistance.

By selecting hybrids with good foliar disease resistance, farmers may be able to avoid costly fungicide applications in the summer. They may also avoid application difficulties since these fungicides are sprayed around tasseling time and require special equipment, called Hi-boys, or aerial application.

Foliar diseases have become more of a problem since farmers have adopted conservation practices that leave residue on the soil surface. Even when rotating between corn and soybean crops, the residue from previous corn crops remains on the surface, providing a source of fungal spores under the right weather conditions.

Foliar diseases prefer warm and humid conditions, so disease pressure is greater in wet years, but may not occur at all in drier years. As a result, farmers have to consider yield potential and weather risks when deciding on disease-resistant hybrids.

The two fungal diseases of most concern are gray leaf spot and northern corn leaf blight. Northern corn leaf blight has been more of a problem in the past 10 years.

This discussion will focus only on northern corn leaf blight. It is caused by the fungus Exserohilum turcicum. The fungus overwinters as mycelia and conidia on corn residues left on the soil surface.

As temperatures rise in the spring, spores are produced that reach corn leaves by rain splash or blowing winds. Infection occurs during wet and humid weather when temperatures are between 64 and 81 degrees Fahrenheit. The fungus requires six to 18 hours of water on the leaf surface to cause infection.

Symptoms first appear as long, narrow, tan lesions that will be parallel to the leaf margin. Lower leaves are generally affected first, since spores generally have to be splashed onto the plant from residue on the soil surface.

As the lesions develop, they will become longer and take an oblong or cigar-shaped form and may appear tan or gray in color. Olive-green to black spots will develop in the lesions when humidity is high, causing the lesions to look dirty and dark.

Depending on hybrid susceptibility, lesions may range from 1 to 7 inches long. Multiple lesions may form on one leaf. Often lesions will merge together to form large areas of dead tissue with irregular margins.

Large lesions with irregular margins is a key feature to identify northern corn leaf blight from gray leaf spot. Gray leaf spot lesions tend to be rectangular in shape and usually less than an inch long, but occasionally may reach 2 inches.

Yields are affected by northern corn leaf blight by reducing the photosynthetic area of leaves early in the season. A 30 percent yield loss may occur if lesions reach the ear leaf or higher two weeks before and after tasseling.

Yield losses are minimal if lesions do not appear on upper leaves until late in the season. However, even though yield has not been reduced, northern corn leaf blight can contribute to stalk rot, which may cause stalk lodging at harvesttime.

The most cost-effective method to manage northern corn leaf blight is to plant resistant hybrids. There are two types of resistant hybrids available to control northern corn leaf blight: partial resistance and race-specific resistance.

Partial resistance provides some protection from all four of the known races of the fungus. Partial-resistant hybrids are most common, but there are some hybrids with partial and race-specific resistance. Where northern corn leaf blight is a chronic problem, select hybrids with race-specific resistance.

Some seed companies rate the degree of resistance. However, the industry does not use a standard rating scale, so be careful when comparing hybrids between companies.

Another method of controlling northern corn leaf blight is to manage corn residue.

Practices that encourage decomposition of corn residue will reduce the amount of fungus. In no-tillage or reduced-tillage fields with a history of northern corn leaf blight, a two-year rotation out of corn may be required to reduce the spores.

Fungicides are usually only needed to control northern corn leaf blight when susceptible hybrids are planted. If lesions appear on the leaf below the ear leaf on 50 percent of plants, and a susceptible hybrid is planted, then a fungicide application is warranted.

Fungicides applied at tasseling to early silking have the greatest likelihood of economic return. The most effective fungicides include Aproach, Headline, Proline, Folinc, Quilt Xcel, Prima, Headline AMP, and Stratego YLD.

Farmers have to consider many factors in selecting the proper corn hybrid. Foliar disease-resistant hybrids may reduce fungicide input costs.

On a different note, the next Extension agriculture program will be Feb. 13. “Spring Nitrogen, Sulfur, and Other Nutrient Decisions for High Yield Wheat” will be presented at the Hancock County Agriculture Center from 10 to 11:30 a.m. Call 419-422-3851 to register. The program is free to the public.

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Lenz can be heard with Vann Wickerham on weekdays at 6:35 a.m. on WFIN, at 5:43 a.m. on WKXK-FM, and at 5:20 a.m. at 106.3 The Fox.