

TIMELY INFORMATION

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Corn Disease Situation for 2008

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Given the right weather and a susceptible hybrid, diseases such as southern rust as well as a variety of leaf spot and blight diseases can cut corn yields. With the current cash price for corn approaching \$8.00 per bu, there may be a fair amount of interest in protecting corn yields by applying a fungicide.

Hybrid selection, planting date, and rainfall patterns have a sizable impact on the development of yield robbing diseases such as southern rust, northern corn leaf blight, southern corn leaf blight, and possibly gray leaf spot in corn. Hybrids from the major seed corn suppliers that are best adapted to the southeast usually have some resistance to all or nearly all common diseases. Damaging disease outbreaks may be likely on off-brand hybrids. Regardless of rainfall patterns, early-planted corn usually matures before diseases really start to move into corn. Dry weather patterns after tasseling will suppress the movement of diseases into corn.

Several diseases have started to move into corn. Southern rust, which has the greatest potential to reduced corn yield, has shown up in fields in southwest Alabama, Georgia, and Florida panhandle. Northern corn leaf blight and possibly southern corn leaf blight have also made their appearance in these areas. Yield of early March corn that is already in the dent or black layer stage will not be hurt by a little southern rust or other diseases. In the above areas, late March and early April-planted corn, particularly under irrigation, may have serious rust problems.

In central Alabama, southern and northern corn leaf blights have made their appearance in an irrigated corn variety trial at the Plant Breeding Unit. If showers persist over this area for the next week or two, damaging outbreaks of one or both of these diseases may be seen in well-watered dry land as well as irrigated corn fields. Similar disease outbreaks may be seen in other parts of the state that have gotten good rains over the past two or three weeks.

Routine application of fungicides to corn in the absence of damaging diseases has been controversial. In the Midwest, yield gains have been reported when fungicides such as Headline were applied at or shortly after silking. In previous Alabama and Georgia field trials, sizable fungicide-induced yield gains have been seen only in conjunction with southern rust. When there was no rust development, yields for the non-treated and fungicide-treated corn were very similar.

The decision to apply a fungicide to corn should be based on crop maturity, yield potential, and the weather forecast. The later corn is planted, the more likely a damaging outbreak of rust or other disease is likely to occur. Risk of a damaging disease outbreak is also higher for irrigated than dryland corn. Corn should have a yield potential in the 120+ bu/A range before considering protective fungicide treatments. In good corn, fungicide treatments are more likely to pay off when there's a good chance of rain during silking and early grain fill. Farmers interested in using fungicides on corn should scout their fields for rust as well as southern and northern corn leaf blights at tasseling and silking. There is no reason to apply any fungicide once corn reaches the 'dent' stage.

While rotation pattern has no impact on the occurrence of southern rust, rotation studies at several Alabama sites suggest that tillage and corn cropping frequency do not have a major impact on northern or southern corn leaf blight. So, outbreaks of the above diseases appear to be no more likely in continuous no-till corn than corn cropped behind several years of cotton or peanut on turned land. So far, the disease that is worse on no-till than conventional tilled corn is eyespot. While I have seen a little eyespot this spring, symptoms are no where near as severe as they were in 2005.

Fungicides cleared for use on corn are listed in the Corn IPM Publication 2008IPM-428.

Late Corn

In response to that \$8 per bu price, some corn has been planted after wheat or other small grains. There may be some corn following early corn as well. Most likely, most of this late corn will be irrigated. Impact of diseases on the yield of late planted corn is largely unknown. My best guess is that late-planted irrigated corn is a sitting duck for southern rust. Plentiful late summer and early fall rains like those we've had the past two years could flare outbreaks of southern and northern corn blight as well as other diseases. As a result, protective fungicide treatments may pay much bigger dividends on late than early corn.

Results of 2007 Corn Fungicide Trial at Fairhope

On 19 March, Pioneer 33M53 corn was planted at the Gulf Coast Research and Extension Center on a site cropped to corn the previous two years. While the study was not irrigated, rainfall distribution was adequate through most of the production season for good dryland corn. Fungicides were applied on 22 June and again on 2 July with a highboy sprayer in 15 gallons of spray volume per acre. Southern rust ratings on the ear leaf were made on 18 July on a scale of 0 to 10 where 0 = no disease, 1 = 1 to 10%, 2 = 11 to 20%, etc. of leaf area diseased. Plots were harvested on 30 August. Yields are reported in the table at 15.5% moisture.

While overall rust ratings were low, significant reductions in rust incidence were obtained with Quadris, Bravo Ultrex, and Stratego when compared with the untreated control (Table 1). Incidence of southern rust on the Tilt 3.6E-treated corn and untreated control was similar. Yield for the Stratego-treated corn was significantly higher than the untreated control and the other fungicide treatments except for Quadris. Yield response with Bravo Ultrex, Tilt 3.6E, and Quadris was similar to that obtained with the untreated control. Based on the results of this and the previous Georgia study, Stratego and possibly Quadris may look like the fungicides of choice for rust control on corn. However, the performance of Headline on corn also needs to be assessed.

Table 1. Comparison of fungicides for the control of southern rust on corn, 2007.

Fungicide and rate/A	Rust rating*	Yield bu/A
Tilt 3.6E 4 fl oz	1.1**	111.3
Quadris 15.4 fl oz	0.1	130.7
Bravo Ultrex 1.4 lb	0.3	102.6
Stratego 10 fl oz	0.5	146.3
Untreated Control	1.1	117.3
LSD (P=0.05)	0.3	24.2

*Southern rust was rated on the ear leaf on a 0 to 10 scale.

**Means separation was according to Fisher's protected least significant difference (LSD) test ($P=0.05$).

A fungicide screening trial similar to the study was conducted at the GCREC in 2008. While a low level of northern corn leaf blight and eyespot was noted, no southern rust was found. Similar results were also seen in another fungicide screening trial at the Brewton Agricultural Research Unit.