Department of Crop Sciences---University of Illinois
COLLEGE of AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

March 2008 Newsletter

Issue 25:2

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2008 Weather Data

	January	February
Monthly Average High	29.1	26.8
Monthly Average Low	10	12.5
Daily Average	20	19.8
Departure from Average (42 year)	-0.8	-5.7
Observed High (date)	61.7 (7)	40.7 (17)
Observed Low (date)	-17.5 (25)	-6.5 (10)

2008 Precipitation (Inches)

Month	Total	Departure from Average	Year Accumulation	Total Departure 127 Year
January	0.97	- 0.58	0.97	- 0.58
February	2.28	+0.84	3.25	+0.27

Fungicides on corn:

Between three and four million acres of corn in Illinois were treated with a tassel time +- fungicide spray in 2007. The results varied from good yield response to stories of poor ear development. However, without check strips being left, it is difficult to determine if the fungicide applications paid for themselves or not. Dr. Carl Bradley, U of I Extension Plant Pathologist was involved in several corn studies looking at disease control and yields with different fungicides, rates and hybrids. Following is a summary of his work and work from other areas that Carl has summarized and shared with us..

These results are from 2007 studies conducted in Illinois, Indiana, Iowa, Kentucky, Maryland, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Ontario, and Wisconsin. These trials had at least three replications of each treatment and were a mixture of on-farm strip trials and small-plot trials. Fungicides were applied between VT and R1 growth stages with ground applicators in all but three of the trials. At the time that Carl calculated the fungicide and application costs and corn price, it was determined that there needed to be a 6 bushel/acre yield increase to pay for the fungicide application.

Overall, 63 of the 168 studies had a yield increase of 6 or more bushels/acre. By sorting the hybrids according to the company ratings of the resistance to Gray Leaf Spot (GLS), the number of 6 bushel per acre yield responses increases when fungicides were used on hybrids with fair to poor GLS resistance. This level or higher of yield increase occurred 52% of the time. The percent of yield increases of 6 bushel/acre or greater when applications were made to hybrids with good to excellent resistance to GLS was 39% of the time. The reason the average of the two is not 29% is because in some cases, either the hybrid or level of resistance of the hybrid was not known.

Since there is a change that the farmer may not get the cost of a fungicide application back or even lose yield, when should fungicides be applied? Or how can a farmer improve the odds of improving his return on his fungicide applications? There is also the additional concern of the development of resistance to the fungicide by the fungus. How should this disease management tool be used wisely? Following are Dr. Bradley's guidelines for fungicide application for corn based on research and observations. For further information, you can contact Dr. Bradley at: carlbrad@uiuc.edu or 217-244-7415.

Base corn fungicide application decisions on risk factors and disease observation:

Risk factors:

Previous crop (corn-on-corn; especially under conservation tillage)
Hybrid susceptibility to disease
Weather (rainfall and humidity)
Planting date (late planting)

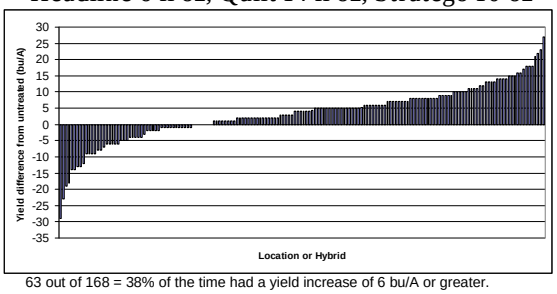
Disease Observations:

Susceptible or moderately susceptible hybrids: consider fungicide if disease is present on 3rd leaf below ear or higher on 50% of the plants prior to tasseling.

Intermediate hybrids: consider fungicide if field has history of disease; previous crop was corn with at least 35% residue; disease s present on 3rd leaf below ear or higher on 50% of the plants prior to tasseling; warm and humid weather thru July and August.

Moderate resistant or resistant hybrids: fungicide is generally not recommended, but field scouting is still important.

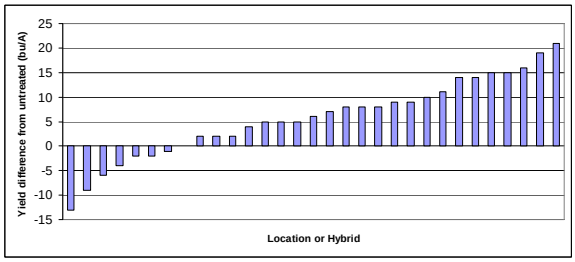
Headline 6 fl oz, Quilt 14 fl oz, Stratego 10 oz



63 out of 168 = 38% of the time had a yield increase of 6 bu/A or greater.

Mean = 3 bu/A increase over the untreated

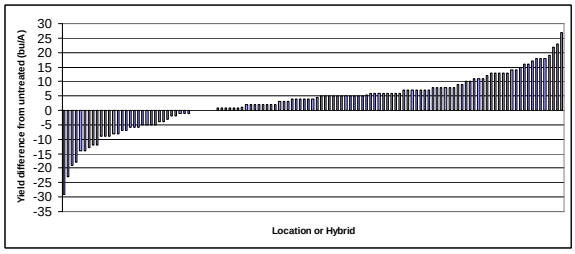
Hybrids w/ Fair to Poor Resistance to Gray Leaf Spot



16 out of 31 = 52% of the time had a yield increase of 6 bu/A or greater.

Mean = 6 bu/A increase over the untreated

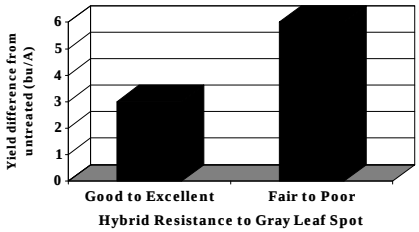
Hybrids w/ Good to Excellent Resistance to Gray Leaf Spot



47 out of 121 = 39% of the time had a yield increase of 6 bu/A or greater.

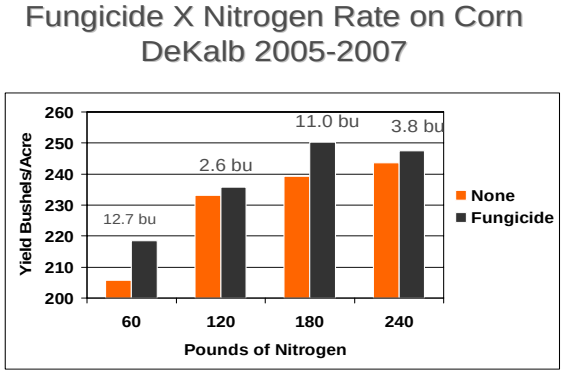
Mean = 3 bu/A increase over the untreated

Response of Hybrids with different levels of Gray Leaf Spot Resistance to Fungicides

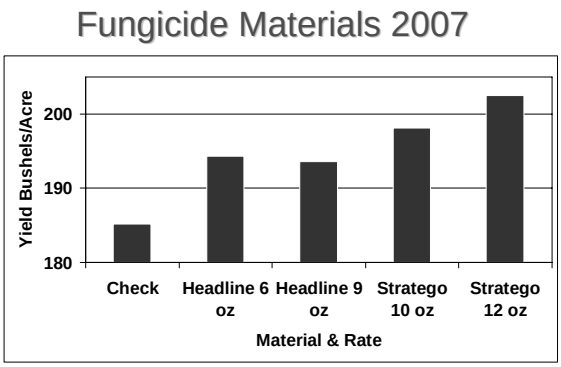


Other fungicide work:

In addition to Carl Bradley's work, Dr. Emerson Nafziger had a nitrogen and fungicide study conducted for the past three years. This study at NIARC has shown a positive response to the fungicide regardless of the nitrogen rate, but the response has not been consistent across the nitrogen rates. The three year average yields are shown in the following table. The six or more bushel per acre yield increase level occurred at the nitrogen rates of 60 and 180 pounds of nitrogen per acre, but not at the 120 and 240 pounds per acre rate. The overall average increase was 7.5 bushel per acre. When the study started, with the lower corn price, a greater increase was needed to make the fungicide application pay for itself. The average increase may not have paid for the fungicide over all years of the study.



This year we conducted another study looking at different products and rates of fungicides. The study was a relatively small study with only 2 products and 2 rates of fungicide. The hybrid used was DeKalb DKC 60-18 which has fair resistance to grey leaf spot. All products reduced disease pressure and had a yield increase that would have paid for the fungicide application. The Headline yields were not statistically different from the yields of the untreated check.



How critical is the "picket fence" stand?

We have just had a local seed dealer work on our planter to update the finger pickup units to modify them to do a better job of planting. Before the work was done, the planter was planting 98.6% accurately with medium rounds, but only 91-92% with small seed. For our purposes, the more uniform the stand and uniformity from row to row will help insure that any yields differences are the result of the treatments and not a function of planter unit differences.

Dr. Emerson Nafziger has been working with the timing of plant removal to evaluate the effects of hail or other stand problems occurring later in the season. A side effect of his work has been a better picture of the effect of the uniformity of the corn stand. Several people have said that if you don't have a "picket fence" uniform stand, your yields will be greatly reduced. Emerson's work, however, indicates that this may not always be the case.

For the past two years, corn has been planted and then thinned to various populations and at various times during the summer. Some of the plots were uniformly thinned (uniform) by removing every other, third or sixth plant. Other plots were thinned (random) by removing random plants so that there were larger and smaller gaps in the stand. Gaps in the stand were up to 2 ½ feet.

Following are the results of part of Emerson's study at NIARC. The listed numbers are the results of the corn that was

thinned to the populations at the 7 emerged leaf stage or V-5 stage of growth. The variation in the distance between plant stalks was measured before harvest. The number that is in the chart is the standard deviation SD of the differences in the distance between the corn plants. That is a statistical method used to measure the how the differences in distance between plants varied from the average distance between plants. If the SD is 0, then all plants would be exactly the same distance apart. The lower the number, the more uniform the stand.

2006 – 2007			
Population	Thinning	Standard Deviation	Yield Bu/Ac
18,000	Random	7.57	181.0
18,000	Uniform	3.23	180.5
24,000	Random	4.77	198.8
24,000	Uniform	3.85	206.7
30,000	Random	3.63	217.1
30,000	Uniform	3.01	219.0
36,000	Uniform	2.33	226.5

Uniform stands are a desirable goal, but the lack of one will not mean a crop disaster.

Summer Field Day:

Thursday, July 17, 2008

Crop Training Center dates and programs have not been set at this time.

If you have ideas of topics that you would like discussed, please e-mail them to me and we will see if we can get them worked in.