Wisconsin Crop Manager

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Organic Workshop and Field Day

UW-Madison CALS is hosting an ***Organic Workshop and Field Tour*** on September 4, 2008 at the Arlington Agricultural Research Station from 1:00 to 5:30 pm. This year's workshop focuses on two main challenges: weed management and soil fertility.

The afternoon kicks off with three presentations by national experts followed by a field tour. Growers, consultants, industry, researchers, and the public are all invited to join a discussion about organic research needs.

Continuing Education Units (CEU's) will be available for the educational sessions. Contact Erin Silva (608-890-1503, emsilva@wisc.edu) for further information.

Workshop

1:00 pm Check-in

1:15 pm Welcome,
Erin Silva, UW Agronomy/Center for Integrated Agricultural Systems

1:30 pm Weed Management in Organic Vegetable Production
Jed Colquhoun, UW Horticulture

2:00 pm Organic Soil Fertility: From the Ground Up,
Michelle Wander, Soil Science, University of Illinois

2:30 pm Using Cover Crops to Reduce Tillage in Organic Farming Systems,
Dale Mutch, Michigan State University, Kellogg Biological Station

Field Tour

3:30 pm Organic No-till Research: Soybean/rye/roller crimper discussion,
Emily Bernstein/Josh Posner, UW Agronomy

4:00 pm Field crops in organic transition: soil fertility, crop nutrition and insect IPM,
Eileen Cullen and Robin Mittenthal, UW Entomology; Kevin Shelley, UW NPM

5:00 pm Discussion of Organic Research Needs

5:30 pm Adjourn

Estimating Common Rust on Corn

Paul Esker, Extension Plant Pathologist

Based on various reports from around the state in 2008, probably the number one disease of corn that has been noted and mentioned has been common rust, caused by *Puccinia sorghi*. Common rust often forms throughout the entire plant because the infection took place when leaf tissue was still in the whorl. This is a distinguishing characteristic that separates common rust from southern rust (*Puccinia polysora*), which would have fewer pustules in the lower canopy.

In most of our research and demonstration plots, we have found common rust throughout the plant, however, the severity of the symptoms has been considered low. In many cases, we have found only one or two pustules on the ear leaf, with a few more pustules on the leaves directly below or above, but still at levels we would consider to be 1% or less. Reports from around the state have varied, including areas where the severity has been higher. Given the differences in the reports, the goal of this article is provide a method to help in estimating the severity of common rust on the leaf surface.

In Figure 1 (next page), four images are shown that were made using Severity.Pro software (F. W. Nutter, X. Zhang, and D. L. Heidfeld, Iowa State University) and illustrate 1%, 5%, 25%, and 50% severity of common rust on a corn leaf. The lesion type used for these examples was circular.

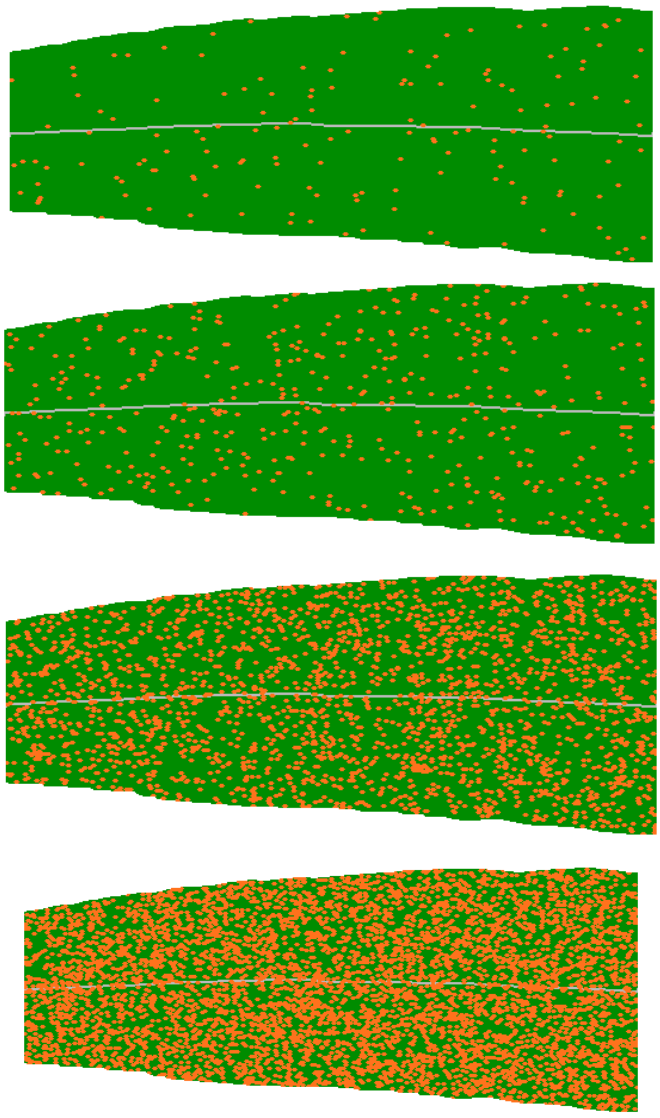

Figure 1. Images of common rust of corn created using Severity.Pro software representing from the top 1%, 5%, 25%, and 50% severity. Printed, these images measured 8.5 inches long and approximately 3 inches wide (on average).

Furthermore, to estimate how many pustules were found for the different severity levels, a count was made on each leaf. For 1% and 5%, full counts were made on the leaves shown in Figure 1, while for 25% and 50%, a grid was placed over the leaf (each grid measured approximately 1 inch by 1 inch) and a sample of three counts were made and then the average number of pustules was used to calculate the total on the leaf surface. Results of these counts indicated that there were 162 pustules when the disease severity was 1%, 478 pustules for 5%, 1,905 pustules for 25, and 3,465 pustules for 50%. These results indicate that it takes a large infection before a substantial physiological loss of healthy green leaf tissue occurs. Another consideration of the severity of common rust is the type of pustule, meaning does it appear that the lesion appears is still active (e.g., the pustule would be surrounded by green tissue) compared with non-active (e.g., the pustule would be surrounded by necrotic tissue) pustule. Using the combination of these factors will help to determine the overall effect of your management tactics this year.

Late Season Foliar Diseases of Corn

Paul Esker, Extension Plant Pathologist

As we have moved into our late season disease assessments for 2008 in corn around the state, we have noted the following diseases throughout the year (Figures 1-6):

1. Common rust (Puccinia sorghi)
2. Eyespot (Kabatiella zeae)
3. Northern corn leaf spot (Bipolaris zeicola)
4. Northern corn leaf blight (Exserohilum turcicum)
5. Anthracnose (Colletotrichum graminicola)
6. Gray leaf spot (Cercospora zeae-maydis)

Figure 1. Common rust of corn (Image source: P. Esker, UW-Madison).

Figure 2. Eyespot of corn (Image source: C. Grau, UW-Madison).

Figure 3. Northern corn leaf spot (Image source: P. Esker, UW-Madison).

Figure 4. Northern corn leaf blight (Image source: P. Esker, UW-Madison).

Figure 5. Anthracnose leaf blight symptoms on corn (Image source: P. Esker, UW-Madison).

Figure 6. Gray leaf spot of corn (Image source: G. Munkvold, Iowa State University).

Overall, disease pressure has been light and variable depending on location. In areas where we know there is a history of anthracnose, pressure has been higher. Also, we have had more reports of common rust from around the state. The reports have ranged from severity at very low levels (a few pustules on a single leaf) to those with higher levels on the ear leaf, especially in the eastern part of the state. Also, these observed differences in severity have often been hybrid specific.

In terms of disease management, we are for the most part past the optimal stages (from tasseling through blister) where one would consider the application of a foliar fungicide. However, there are still reports of fields being sprayed and this again an excellent time to emphasize that if a field is to be sprayed, a check strip is important in order to assess the overall impact of the fungicide application through active scouting of treated and nontreated (i.e., check strips) sections of the field. Also, based on our own observations from the field this year, differentiating among eyespot, northern corn leaf spot, and gray leaf spot has been a little more difficult. These three can easily be confused with one another, but do have some distinguishing characteristics:

Eyespot symptoms typically include small, circular lesions or spots that are surrounded by a red and yellow halo and are often found in zones or patches on the leaf surface.

Northern corn leaf spot symptoms differ depending on the race (five occur), but of those races, Race 3 is most important. Symptoms often include narrow, linear lesions that can be found on the leaf blades, sheaths, and husks. Lesions are grayish-tan with a pigmented border and multiple lesions often form along veins.

Gray leaf spot lesions are often yellow to tan in color at the earliest stages. These can be similar to other diseases expect there is a faint watery halo (Fig. 7). As the lesions expand, they will become tan to brown and rectangular in shape.

Figure 7. Early gray leaf spot of corn symptoms (Image source: P. Esker, UW-Madison).

UW-Extension/Madison Plant Disease Diagnostic Clinic (PDDC) Update

Brian Hudelson, Ann Joy, Amy Gibbs, and Brooke Weber, Plant Disease Diagnostics Clinic

The PDDC receives samples of many plant samples from around the state. The following diseases/disorders have been identified at the PDDC since July 16, 2008:

PLANT	DISEASE/DISORDER	PATHOGEN	COUNTY
FIELD CROPS			
Corn	Anthracnose	*Colletotrichum graminicola*	Sauk
	Northern Corn Leaf Spot	*Bipolaris zeicola*	Dane
Soybean	Charcoal Rot	*Macrophomina phaseolina*	Monroe, Jo Davies (IL)
	Dicamba Injury	None (Chemical)	Dane, Racine
	Root rot	*Pythium* sp., *Fusarium* sp.	Iowa, Monroe, Richland, Sauk, Washington, Jo Davies (IL)
	Stem Canker	*Phomopsis* sp.	Iowa
Wheat	Foot Rot	*Fusarium* sp., *Helminthosporium* sp.	Shawano, Washington
	Leptosphaeria Leaf Spot	*Leptosphaeria* sp.	Dane, Shawano
	Scab	*Fusarium graminearum*	Dane
FRUIT CROPS			
Apple	Fire Blight	*Erwinia amylovora*	Marathon
Blueberry	Cytospora Canker	*Cytospora* sp.	Jackson
Cranberry	Heat/Water Stress	None (Environmental)	Sauk
Grape	Black Rot	*Guignardia bidwellii*	Marathon
SOIL			
Soil	Soybean Cyst	*Heterodera glycines*	Eau Claire, Pepin
VEGETABLES			
Garlic	Basal Plate Rot	*Fusarium* sp.	Dane
Lima Bean	Bacterial Brown Spot	*Pseudomonas syringae* pv. *syringae*	Fond du Lac
Onion	Anthracnose	*Colletotrichum* sp.	Green Lake
	Downy Mildew	*Peronospora destructor*	Dane
	Purple Blotch	*Alternaria porri*	Green Lake
	Sour Skin	*Burkholderia cepacia*	Waushara
	Stemphylium Leaf Blight	*Stemphylium* sp.	Dane
Pea	Root Rot	*Pythium* sp.	Trempealeau
Potato	Shoot Blight	*Rhizoctonia solani*	Jefferson
Snap Bean	Bacterial Brown Spot	*Pseudomonas syringae* pv. *syringae*	Sauk
Tomato	Anthracnose	*Colletotrichum coccodes*	Green Lake
	Leaf Mold	*Fulvia fulva*	Green Lake
	Root Rot	*Pythium* sp.	Green Lake
	Septoria Leaf Spot	*Septoria lycopersici*	Dane

For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.