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Considerations for Spraying Foliar Fungicides in Soybean

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As the soybean crop moves into the R3, or early pod development, growth stage, we have received numerous calls regarding the use of foliar fungicides and insecticide tank-mix partners (a.k.a. plant health programs). Outside of a few areas where we have received reports of Septoria leaf spot (Figure 1), incidence of early season foliar diseases of soybean has been low. Furthermore weather conditions have not been conducive in most areas of Wisconsin for disease development to occur. Therefore, the use of foliar fungicides would not be advised for soybean at this time.



Figure 1. Septoria leaf (brown) spot (*Septoria glycines*) of soybean. (Photo credit: C. Grau, UW-Madison)

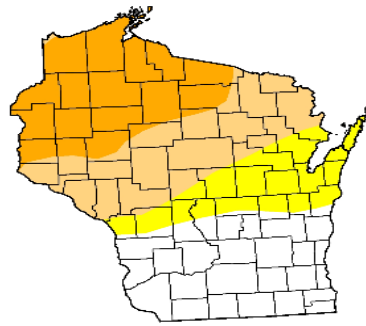
To support our non-recommendation we first site the July 14 U.S. Drought Monitor map that indicates that the northern 2/3 of the state has moved into the abnormally dry to severe drought stage (Figure 2). This was very evident to us in our travels to both the northwest and northeastern portions of the state where we saw many soybean (and corn) fields rolling early in the day in spite of the lack of hot weather.

U.S. Drought Monitor

Wisconsin

July 14, 2009
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	29.7	70.3	54.5	28.0	0.0	0.0
Last Week (07/07/2009 map)	45.0	55.0	50.6	26.2	0.0	0.0
3 Months Ago (04/21/2009 map)	31.2	68.8	57.8	40.5	0.0	0.0
Start of Calendar Year (01/06/2009 map)	20.0	80.0	62.7	26.2	0.0	0.0
Start of Water Year (10/07/2008 map)	13.9	86.1	68.3	9.3	0.0	0.0
One Year Ago (07/15/2008 map)	99.5	0.5	0.0	0.0	0.0	0.0



Intensity:
■ D0 Abnormally Dry
■ D1 Drought - Moderate
■ D2 Drought - Severe
■ D3 Drought - Extreme
■ D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

<http://drought.unl.edu/dm>



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Author: Eric Luebehusen, U.S. Department of Agriculture

Figure 2. U.S. drought monitor conditions through July 14, 2009. As indicated in the Table, drought conditions increased by 15% of the state area from July 7. (Source: <http://drought.unl.edu/dm>)

Next we examined our set of weather stations at Arlington, Chilton, Janesville, and Lancaster. At these locations we have seen stark differences in the amount of rainfall in the past month (June 19 to July 19), ranging from 0.5 inches at Chilton to approximately 2.3 inches at Lancaster. This is important when we consider that most pathogens of soybean that cause foliar disease require leaf wetness in order to cause the initial infection. For all of our weather stations, we have mounted two leaf wetness sensors, one at 30" and the other at 48" to mimic different crop canopy heights. An increased risk of infection occurs as the number of hours of leaf wetness during the overnight period increases. To compare and contrast conditions around the state, Figure 3 shows the percentage leaf wetness from Chilton and Lancaster, respectively for June 19 to July 19. Conditions at Chilton have been much less favorable for infection, as evident by increased periods of drying especially during the overnight period. Even at Lancaster where there has been a greater frequency of rain, we see intermittent periods of leaf drying overnight. While the overall rainfall total has been good, the frequency of rains has been patchy.

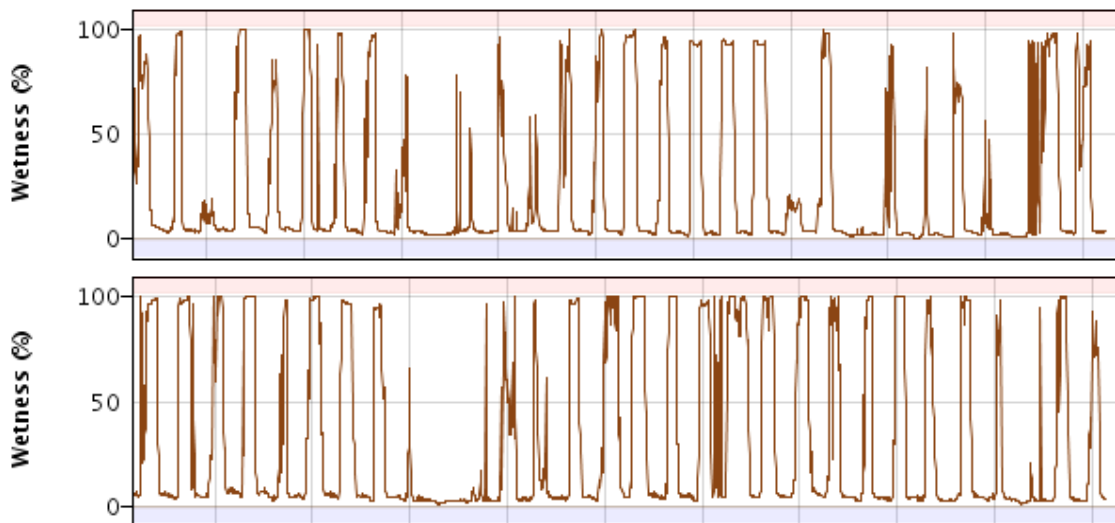


Figure 3. Leaf wetness sensors for Chilton (top) and Lancaster (bottom) for June 19 to July 19.

The last point to address is the blind (no scouting) addition of insecticides to the fungicide application. We want to emphasize this is not a prudent decision, since natural enemies of soybean aphid, including

beneficial fungi are keeping soybean aphid populations in check at the moment and the blind application of a fungicide/insecticide tank-mix would remove both the beneficial insects and fungi. This could require an additional application of insecticides later in the growing season. If soybean aphid population have reached threshold (250 aphids per plant) and numbers are rising then an insecticide application is warranted. Please see Dr. Eileen Cullen's Crop Manager article regarding soybean aphid.

In conclusion, conditions in Wisconsin do not warrant the application of a foliar fungicide for soybean. Active scouting and identification of foliar diseases of soybean are important before considering if a foliar fungicide is necessary. A new [Visual Quick Guide – Common soybean diseases in Wisconsin](#) is now available through UW-Extension publications and can be used to help in diagnosing foliar diseases in soybean fields as the season progresses.