Wisconsin Crop Manager

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Vegetable Crop Update 9/5/14

The 21st issue of the Vegetable Crop Update is now available. This issue contains late blight updates, P-Days and DSVs for early/late blight disease forecasting, Cucurbit downy mildew updates , and Cucurbit powdery mildew – fungicide trial status updates (Cashton and Hancock). Click here to view this issue.

Odds My Soybean Crop Will Mature Before a Killing Frost Hits

Shawn Conley, Soybean and Wheat Extension Specialist

The Wisconsin soybean crop is slowly starting to mature, however many growers and crop consultants are still concerned about the risk of frost damage to late planted fields. In soybean an extended period (several hours) of temperatures 28 degrees F or lower is required to completely kill a soybean plant, though temperatures 32 degrees or less can still damage top growth. Those growers considering the state of their soybean crop and wondering the odds of making it to maturity before significant yield loss occurs must first correctly identify the soybean growth stage.

Once the crop growth stage has been determined we can estimate the number of days it will take for your field to reach R7 or physiological maturity. Across our Arlington and Hancock field sites in 2014 it has taken 5-8 days to go from R3 to R4, 7-8 days to go from R4 to R5, 10-14 days from R5 to R6 and 15-20 days from R6 to R7. As a point of reference our June 20th planted soybean at both locations just hit R6 this week. Next using the three figures below that show the 10th percentile, median, and 90th percentile date when you can expect a freeze event you can estimate the risk of a frost based on your crop growth stage.

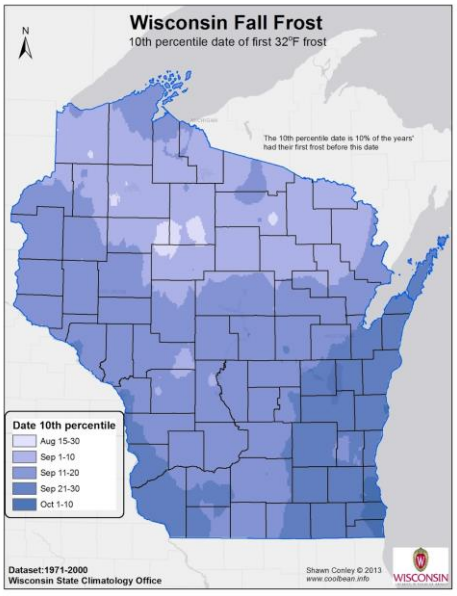
For example: If you lived in SW Marathon county there is a 10% chance that a freeze event would have occurred prior to September 11-20, a 50/50 chance that a freeze event would occur prior to September 21-30, and a 90% chance a freeze event would have occurred prior to October 1-10. So if your soybean crop just entered the R5 crop growth stage today 9/8/14 there is a greater than a 50/50 chance that crop won't make grain based on historical weather data.

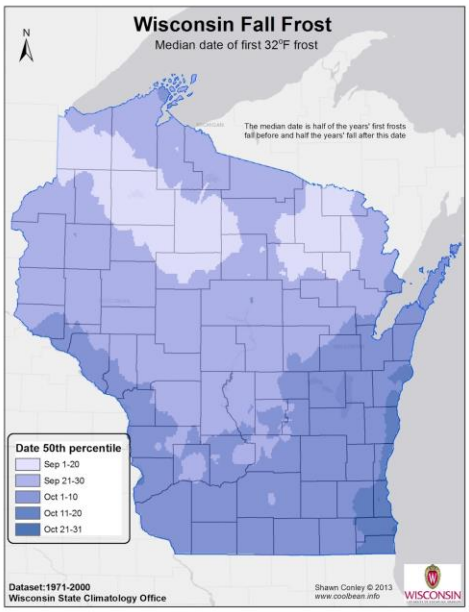
Lastly if you are concerned about a freeze event please refer to Table 1 below that provides yield loss estimates of freeze damage by crop crop stage. This may help you decide whether you should risk taking the late planted soybean field as a grain crop or would that field be more valuable as a forage or green manure?

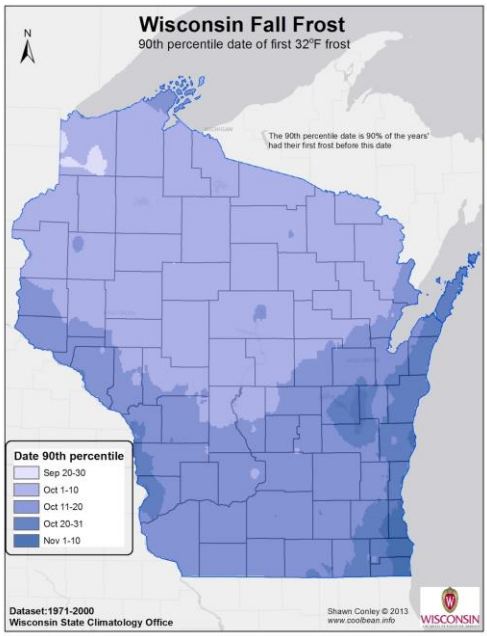
Table 1. Soybean Response to Freeze Damage

Growth Stage	Yield Reduction
R4 - Full pod	70%-80%
R5 - Beginning seed	50%-70%
R6 - Full seed	15%-30%
R7 - Beginning maturity	0%-5%
R8 - Full maturity	0%

Source: Saliba et. at. Kansas State University, 1982







Videos: Soil pit showing long-term conventional vs. no-tillage

Francisco Arriaga, University of Wisconsin Extension Soil Scientist

1. Long-Term Conventional and No-tillage Systems Compared

Soil pit discussion of two tillage systems (conventional vs. no-tillage) that have been managed for over 25 years in a corn-soybean rotation. Differences in soil profile, root growth, and general soil properties are discussed.

2. Soil Organic Matter Accumulation and Oxidation

Demonstration and discussion of soil organic matter accumulation of a silt loam soil managed with two long-term (>25 years) tillage systems. The tillage systems consist of fall chiseling with spring soil finisher (conventional) and no-tillage. These two tillage systems are also compared to an intensive tillage management, which consists of 5 or more rototilling operations each year.

3. Soil Aggregation and Water Infiltration

Soil slake test and infiltration demonstration of a silt loam soil managed with conventional (fall chisel and spring finisher) versus no-tillage and an intensive tillage system (rototilling 5+ times a year). The soil slake test is used to show the stability of soil aggregates, which are very important for soil water relations.

Video: Brown stem rot of soybean

Dr. Damon Smith, University of Wisconsin, talks about brown stem rot (BSR) of soybean. BSR can be a significant problem in years where the spring is wet and cool resulting in infection by the fungus Phialophora gregata soon after emergence. However, BSR is often not noticed until the reproductive growth stages when foliar symptoms typically develop. The discussion here includes tips on spotting BSR, determining the difference between BSR and sudden death syndrome and how to manage the disease.

For more information about BSR visit the Soybean Disease webpage at http://fyi.uwex.edu/fieldcroppathology/soybean_pests_diseases/and scroll down to the "Brown Stem Rot" section.

Disease Considerations for Soybean and Corn Harvest

Damon L. Smith – Extension Field Crops Pathologist, University of Wisconsin

As the fall is approaching and crop harvest plans are being made, it is important to continue to assess disease issues in corn and soybean. These assessments aren't being made in order to make plans for in-field management, but to potentially improve the quality of grain that is harvested.

Some Diseases to Consider in Corn at Harvest

Figure 1. Gibberella stalk rot on corn. Severe stalk rot on the left and less severe stalk rot on the right.

Now is the best time to begin scouting corn for stalk rot issues and also fungal ear rot potential. Diseases such as Anthracnose stalk rot and Gibberella stalk rot are becoming apparent in corn. Inspect the stalks integrity on the outside. Be sure to squeeze the outside of the stalk to gauge the potential severity of the rot on the inside of the stalk. Cut a few stalks from diverse areas of the field to see how rotted stalks might be. In figure 1, the stalk on the left has a severe case of Gibberella stalk rot, while the stalk on the right is far less rotted. The more severely rotted stalks are, the more likely they will lodge. Therefore timely harvest is important. Growers should target harvest on fields with severe stalk rot before fields that have less stalk rot, in order to minimize harvest losses due to lodging.

Figure 2. Diplodia ear rot.

Ear rots can also be an issue at harvest time. Fusarium ear rot, Gibberella ear rot, and Diplodia ear rot (Fig. 2) are just a few that can damage corn in Wisconsin. Ear rots are becoming evident in some corn I have scouted in the last week or so. It will be critical to check fields in the next several weeks in order to make decisions on what fields to harvest first. Harvest priority should be placed on fields with a high level of ear rot. As corn stands late into the fall, certain ear rot fungi can continue to grow, damage ears, and cause increases in mycotoxins in grain. The quicker these fields dry and can be harvested, the more likely the losses due to ear rot and mycotoxin accumulation can be minimized.

Soybean Disease Considerations at Harvest

Figure 3. Sclerotia of the white mold fungus inside a soybean stem.

In Wisconsin, the main disease to consider when making harvest plans in soybean is white mold. White mold is present in some soybean fields in the state and has caused considerable damage in a few of those fields. Remember that the white mold fungus not only causes stem blight and damage, but also causes the formation of sclerotia (fungal survival structures that look like rat droppings) on and in soybean stems (Fig. 3). These scelrotia serve as the primary source of fungal inoculum for the next soybean crop. They also get caught in combines during harvest. These sclerotia can then be spread in combines to other fields that might not be infested with the white mold fungus. Therefore, it is important to harvest non-infested soybean fields first, followed by white mold-infested fields, to be sure the combine does not deposit any residual sclerotia in the non-infested fields. If this is not an option and you must harvest white mold infested fields before non-infested fields, be sure to clean the combine between fields.

For more information about white mold management in soybean you can click here and scroll down to “white mold” or watch a video by clicking here.

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