Wisconsin Crop Manager

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Wisconsin Soil Health Trainings

Erika Kluetmeier, Conservation Professional Training Program, University of Wisconsin-Extension

The University of Wisconsin's Conservation Professional Training Program, in partnership with Wisconsin NRCS and the Great Lakes Regional Water Program, is offering a new training series on soil health. The trainings are designed to expand participant knowledge of the biological, chemical and physical components of soil, providing information on the latest practices that boost crop production, mitigate the effects of extreme weather events, and create sustainable, lower cost operations. Learning opportunities include hands-on classroom and field workshops and a series of online courses.

Healthy Soils Wisconsin courses are designed primarily for CCAs/crop advisors, conservation agency staff, technical service providers and farmers, but are open to anyone interested in learning about the complex relationship between crops and the soil that sustains them. See the course listings below for dates and locations. Click on the course links to register. CCA CEUs are available.

Soil Health Intro Course:

Introduction to Soil Health (1-Day Classroom Component)

Date: August 1, 2013

Locations: Marshfield, Shawano, Richland Center, Spooner, Juneau

Introduction to Soil Health (Hands-on Field Day)

Dates/Locations:

August 6, 2013 – Gilman

August 7, 2013 – Dodgeville

August 13, 2012 – Augusta

August 20, 2013 – Oconomowoc

August 22, 2013 – Omro

Note: This is a two-part course. Field component is included in the cost of the classroom workshop.

Online Courses:

Conservation Planning Web Tools

Date: Register now through August 31, 2013

Understanding the Wind Erosion Prediction System (WEPS)

Date: Register now through August 31, 2013

Understanding the Revised Universal Soil Loss Equation (RUSLE2)

Date: Register now through August 31, 2013

Record when a Field Tassels to Predict Corn Silage Harvest Date

Joe Lauer, UW Extension Corn Agronomist

The 2013 growing season was one of the most extended planting seasons since record-keeping began in 1979. Numerous rainfall events delayed spring field work resulting in planting dates that often range from April to June on the same farm. The range in planting dates will have implications at harvest time, especially for silage.

A good thing to do right now is markdown when corn fields tassel, or more ideally when they silk. Usually silking occurs a couple of days after tasseling, but there have been recent situations were silking is either slightly premature or significantly delayed relative to tasseling. But by knowing your tassel (silk) date, you can begin to predict when a field will be ready for silage harvest.

Use the following in-season guidelines for predicting corn silage harvest date:

1. Note hybrid maturity and planting date of fields intended for silage.
2. **Note tasseling (silking) date.**
    - **Kernels will be at 50% kernel milk (R5.5) about 42 to 47 days after silking.**
3. After milkline moves, use kernel milk triggers to time corn silage harvest.
    - Use a drydown rate of 0.5% per day to predict date when field will be ready for the storage structure.
    - See http://www.uwex.edu/ces/ag/silagedrydown/
4. Do a final check prior to chopping.

Late Summer Planting Legumes to Produce Nitrogen Credits for Next Year

Dan Undersander, Department of Agronomy, Carrie Laboski, Department of Soil Science

The high price of nitrogen fertilizer has increased interest in planting a legume crop after wheat or canning crop harvest as a green manure to provide some nitrogen credits for next year's crop. This practice can provide some nitrogen and organic matter as well as increase ground cover to reduce erosion from fields. However, it may not be cost effective.

The following provides some data to help growers decide about options for producing nitrogen credits from late summer planted legumes.

How much nitrogen credits can we expect? The table 1 below shows the green manure nitrogen credits for several legumes. The nitrogen credit depends on the amount of crop growth and when the legume was planted. Nitrogen credits are 50 lb N/a lower on sandy, coarse-textured soils. Legumes other than those listed below would likely produce a range of N credits similar to those in table 1; however, not enough data exists on N credits to corn from these crops.

Table 1. Green manure nitrogen credits[1].

	Growth at the time of killing	
Crop	< 6" [2]	> 6" [2,3]
	lb N/a to credit	
Alfalfa	40	60 – 100
Clover, red	40	50 – 80
Clover, sweet	40	80 – 120
Vetch	40	40 – 90

[1] From UWEX Publication A2809 *Nutrient application guidelines for field, vegetable, and fruit crops in Wisconsin.*
[2] Reduce credits by 50 lb N/a on sandy, coarse textured soils.
[3] Use the upper end of the range for spring seeded green manures that are plowed under the following spring. Use the lower end of the range for fall seedings. If top growth of vetch is more than 12" before killing the cover crop, credit 110 – 160 lb N/a.

It is important to note that crops will perform differently from year to year depending on rainfall patterns, temperature and other considerations as shown by data from Power and Koerner (table 2). Thus **the amount of fall forage dry matter production from August seeded legumes is highly variable from year to year** depending on the specific pattern of rainfall and growing degree days, as well as the length of the fall period.

Table 2. Crop dry weight for plantings in Lincoln, NE

	Aug 7, 1985	Aug 26, 1986
	tons/acre	
Austrian winter pea	0.45	0.35
Hairy vetch	1.40	0.41
Alfalfa	0.47	0.15
Rye	0.57	0.62
Black medic	0.60	0.08
Arrowleaf clover	0.40	0.04

Data from Power and Koerner, 1994, Agron J

If we then consider the seed cost (table 3) and seeding cost ($15 to $25/acre) the establishment cost of a legume (other than alsike) will be $32 to $69/acre. At nitrogen cost of nearly $1.00/lb, the legume would have to produce 32 to 69 lbs of nitrogen to break even with fertilizer cost. The economics of planting a late summer seeded legume for nitrogen credits is

questionable for most situations because there is no guarantee that at least a 40 lb N/a credit can be obtained.

Table 3. Seed cost of potential legumes for late summer seeding			
Legume	Seed Cost per lb	Seeding Rate (lb/acre)	Seed cost/acre
Red clover	$2.70	10	$27.00
Berseem clover	$2.10	10	$21.00
Hairy vetch	$2.24	20	$44.80
Alsike Clover	$1.40	3	$4.20
Alfalfa	$5.00	12	$60
Austrian winter pea	Seed not available		
Medic	Seed not available		

There are two situations were where late summer seeded legumes may be beneficial. One is where a cover crop is needed to reduce erosion over winter. Any cover crop planted will have some cost so, for example if rye is generally planted as a cover crop, the seed cost is $15 to $20/bu rye this year. A legume could be planted for the ground cover at approximately the same cost and then the nitrogen fixed is a bonus. A better possibility may be to seed oats at ¾ to 1 bu/a oats along with the clover to provide rapid ground cover and still have some nitrogen fixing ability from the clover.

August seeding of legumes for nitrogen credits may also be valuable in organic systems where commercial fertilizer is not an option.

How to estimate value of legume green manure. Many who will plant a legume this fall must estimate the nitrogen credits next spring from the growth that occurred this fall. As shown above fall growth (and nitrogen fixation) is extremely variable. A simple method of getting a estimate of the nitrogen credits is to determine the yield of forage at frost this fall. Nitrogen credits come from both top growth and root growth. For perennials one can assume that half growth is above ground and half below. For annuals (like berseem, hairy vetch, and pea) one can assume that 60 to 70% of the total growth is above ground.

Thus, for perennials, determine the above ground growth and multiply by 2 to determine total biomass; then assume 3% nitrogen to determine nitrogen credits. For example, if a ton of forage is produced: assume 2 tons or 4,000 lbs total biomass times 3% = 120 lb nitrogen/acre.

For annual legumes, determine the above ground growth and multiply by 1.4 to determine total biomass; then assume 3% nitrogen to determine nitrogen credits. For example if a ton of forage is produced, assume 1.4 tons or 2800 lbs total biomass times 3% = 84 lb nitrogen /acre.

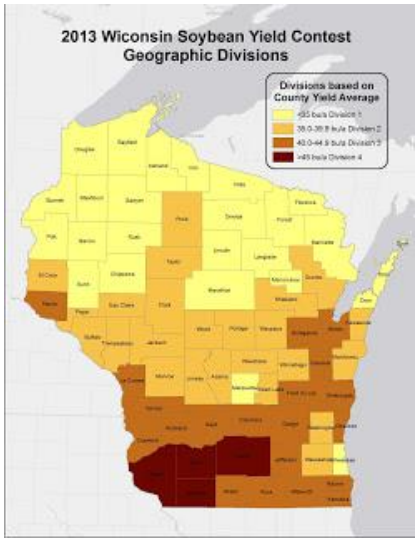
Actual nitrogen credits can be verified if the remainder of the N requirement for corn will be sidedressed next spring, then the pre-sidedress nitrate soil test (PSNT) can be used to verify N credits instead of using values from table 1.

Deadline Approaching for Entering the 2013 Wisconsin Soybean Association Yield Contest

Shawn Conley, Soybean and Wheat Extension Specialist

Late planting and overall wet conditions across many areas in WI have dampened (unfortunate but true pun) the excitement of last year's yield contest where the 1st place winner in Division 4, Bahr Farms of Belmont grew Trelay 24RR19 and harvested 82.6 bu/a. In Division 3, RnK DeVoe Farms of Monroe won 1st place with Pioneer 93Y43 at 75.2 bu/a while Division 2 winner, Jerry Koser of Almena achieved 73.7 bu/a from Pioneer 91M10. Last but not least Kloos Acres from Stratford took Division 1 at 61.2 bu/a planting Pioneer 91Y30. If we do get into a normal rainfall pattern there is still significant yield to be gained so as a friendly reminder:

- The deadline to enter the 2013 WI Soybean Yield Contest is 8/1/13.
- The objective of this contest is to encourage the development of new and innovative management practices and to show the importance of using sound cultural practices in WI soybean production.
- Districts are based on long term county soybean yield averages (Image 1 below).
- For more information please see the contest brochure or review contest rules and entry form.



Vegetable Crop Update 7/15/13 with Disease Supplement #4

The 12th issue of the Vegetable Crop Update is now available. This issue contains information on DSV's/Blitecast for late blight management and PDays for Early Blight management in potato. Click here to view this update.

The 4th Disease Supplement of the Vegetable Crop Update is also available. This supplement provides growers and

consultants with information to help develop a fungicide program for potato late blight control in the conventional, commercial crop. This supplement also contains a list of 2013 Wisconsin fungicides for late blight control in potato for further reference. Click here to view this supplement.

Survey on Weed Management in Switchgrass and Other Perennial Crops

Ariel Larson and Mark Renz, Graduate Student and Extension Weed Scientist, University of Wisconsin-Madison

We are currently researching weed management requirements in establishing switchgrass for bioenergy. To compliment our current efforts to create weed management recommendations during establishment, we have created a survey in order to gather information. We are interested in how **growers and individuals that advise growers in the Upper Midwest** perceive and manage weeds in perennial cropping systems, and given information on establishment and productivity success, how they would make weed management decisions while establishing switchgrass.

We ask that you please fill out our online survey from this link:

https://uwmadison.qualtrics.com/SE/?SID=SV_8uC2tSZmUe7uZ5H

It will take 5 to 10 minutes of your time, and will greatly assist us in our efforts to make weed management recommendations for growing switchgrass for bioenergy. There are no anticipated risks to you, and your participation will benefit the agricultural community by increasing our understanding of the decision making process related to weed management during the establishment of a perennial crop. This survey is voluntary and all responses are anonymous. You may withdraw at any time. Again, we would greatly appreciate your participation!

If you have any questions, or would like to talk further about the project, please contact Ariel Larson, at adebroux@wisc.edu.

Big Weeds Found at the Weed Doctor's Booth at Farm Technology Days in Barron County

Mark Renz, Extension Weed Scientist

This year we had 8 entries into the biggest weed contest. We aren't sure why fewer entries were submitted, maybe northern Wisconsin has fewer big weeds? While the earlier date of FTD clearly affected weed size, we received two samples over 13 feet tall. Submissions included the usual suspects of burdock, giant ragweed, and plumeless thistle, but we also had two vines entered (hedge bindweed and wild cucumber). Unfortunately since the winner is calculated by multiplying the height times the width none of these came close to the top submissions. The FTD winner this year was a massive Japanese knotweed plant, submitted by DeWayne Benedict from River Falls, Wisconsin. This plant was 15 ft tall and 6 ft wide. Giant ragweed samples submitted by Aubrey Behling (Wednesday's winner) and Bryce Luchterhand (Thursday's winner) were a third of the size of this champion knotweed. Interestingly all samples were next to barns indicating these protected areas are great places to look for big weeds. We will again be doing the event next year, so start your fertilization program early if you want to compete in the biggest weed contest next year in Portage County.

Disease Profile: Sclerotinia Stem Rot (White Mold) of Soybean

Quinn Watson, Plant Pathology, UW-Madison Damon L. Smith, Plant Pathology, UW-Madison/Extension

Wilting and plant death as a result of Sclerotinia stem rot. Photo Credit: Craig Grau.

What is Sclerotinia Stem Rot?

Sclerotinia stem rot (SSR), also known as white mold, is a serious and often lethal fungal disease of many different plants in the North Central U.S., especially soybean. SSR of soybean arises from infection by the fungus *Sclerotinia sclerotiorum.* Cool, moist environments favor SSR development, with the most severe epidemics found in soybeans that have dense, fast, growing canopies, in high yielding environments.

What does Sclerotinia stem rot look like?

Sclerotinia stem rot causes immediate wilting of leaves and plant death. In addition, bleaching occurs along the base of the stem and in more moist conditions, white cottony mycelial growth occurs. If the infected area is broken open, small black survival structures called Sclerotia can be found.

Where does Sclerotinia stem rot come from?

Sclerotinia sclerotiorum overwinters in dead plant material as small survival structures called Sclerotia. Sclerotia can survive prior to germination for up to 3-5 years in soil. Overall, cool and moist environments favor SSR development from sclerotia. During periods of wet, cool or humid weather, *Sclerotinia* germinates in two ways. The first is through the production and release of airborne spores over a period of several days from mushroom-like structures called apothecia. The spores can be spread by wind, insects, or rain splash, and

colonize the surfaces of dead or declining plant material, like flower petals or leaves. From the initial colonization, SSR soon spreads to healthy plant material. The second manner of SSR proliferation is from direct plant contact and exchange of fungal growth present either on neighboring infected plants or from the soil.

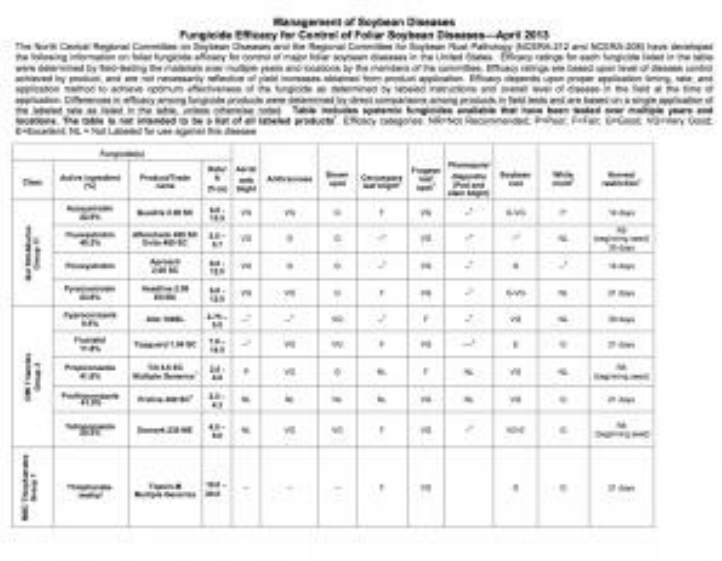
How do I save plants from Sclerotinia Stem Rot?

SSR is difficult to control once the disease has manifested. Fungicide application after infection will not cure a symptomatic plant of the disease. Research has demonstrated that application of fungicide to control Sclerotinia stem rot is most successful at the R1 growth stage and less successful at the R3 growth stage. Fungicide application after R3 is not recommended, as the risk for new infections is very low after flowering is complete.

How do I avoid problems with Sclerotinia Stem Rot in the future?

There are several methods that can aid in reducing or preventing SSR in fields with a history of the disease. Overall the most economical and long-term approach is to use cultivars of soybeans bred for resistance to Sclerotinia stem rot. Other options include using clean seeds that do not have any visible, small black Sclerotia. Planting with wide row spacing (30") and avoiding high plant populations ($\geq$ 175,000 plants per acre) to allow plenty of air circulation can also help reduce the incidence of SSR. Fields should be well drained and excessive irrigation should be avoided. Heavy fertilizer application that can result in vigorous, bushy plants should be avoided. A dense plant canopy can promote Sclerotinia stem rot. Soil tests should be conducted regularly in order to maintain adequate fertility and to reduce the risk of over fertilization. For fields that have *Sclerotinia* present, deep tillage has been shown to reduce Sclerotinia stem rot severity. Rotations of 2-3 years between soybean crops can help reduce the level of Sclerotinia stem rot in fields. Using corn or small grains crops such as wheat, barley, or oats in rotation with soybean is recommended.

Bleaching of stems as a result of Sclerotinia stem rot. Photo credit: Craig Grau.



Management of Soybean Diseases

Fungicide Efficacy for Control of Foliar Soybean Diseases—April 2013

Soybean Fungicide Efficacy Table

Furthermore, there are fungicides that can help reduce infections in a field. Fungicides effective in controlling Sclerotinia stem rot can be found in the accompanying table (use the column labeled "White Mold"). As mentioned previously, the best time to treat for Sclerotinia stem rot is at the R1 growth stage. Studies have demonstrated that successful control of Sclerotinia stem rot using fungicides is greatly reduced when they are applied after symptom development or at the R3 growth stage. Fungicide application after R3 is not recommended, as the risk for new infections is very low after flowering is complete.

Biocontrol agents are also available, the most effective being *Coniothyrium minitans*. *Coniothyrium minitans* is incorporated into the soil and attacks the sclerotia (survival structures) of *Sclerotinia sclerotiorum.* The application of *Coniothyrium minitans* will not eliminate all sclerotia. Furthermore, it takes time for *Coniothyrium minitans* populations to build up in the soil; as a result it can take time before favorable results are observed.

To download a full PDF of this article HERE.

More information on Sclerotinia stem rot:

Sclerotinia Stem Rot Review: Biology, Yield Loss, and Control of Sclerotinia Stem Rot of Soybean

Management of White Mold in Soybeans Podcasts, by North Central Soybean Research Program

White Mold in Wisconsin

Plant Disease Diagnostic Clinic (PDDC) Summary

Brian Hudelson, Ann Joy, Erin DeWinter and Joyce Wu, Plant Disease Diagnostics Clinic

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disorders have been identified at the PDDC from July 6, 2013 through July 12, 2013.

Plant/Sample Type, Disease/Disorder, Pathogen, County

FIELD CROPS,

Corn, Seedling Blight, *Fusarium* spp, Marinette

FORAGE CROPS,

Alfalfa, Aphanomyces Seedling Blight, *Aphanomyces euteiches,* Kewaunee

Alfalfa, Charcoal Rot, *Macrophomina phaseolina,* Jefferson

Alfalfa, Fusarium Wilt, *Fusarium oxysporum,* Jefferson

FRUIT CROPS,

Apple, Apple Scab, *Venturia inaequalis,* Monroe

Grape, Anthracnose, *Sphaceloma ampelinum,* Columbia

Grape, Herbicide Damage, None, Richland

Peach, Peach Leaf Curl, *Taphrina deformans,* Dane

VEGETABLES,

Cabbage, Black Rot, *Xanthomonas campestris* pv. *campestris,* Outagamie, Walworth

Potato, Black Leg, *Pectobacterium carotovorum,* Sauk, Sherburne (MN)

Potato, Early Blight, *Alternaria solani,* Dane

SOIL,

Field Soil, Soybean Cyst Nematode, *Heterodera glycines,* Dunn, Rock

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

Wisconsin Pest Bulletin 7/18/13

A new issue of the Wisconsin Pest Bulletin from the Wisconsin Department of Agriculture, Trade and Consumer Protection is now available. The Wisconsin Pest Bulletin provides up-to-date pest population estimates, pest distribution and development data, pest survey and inspection results, alerts to new pest finds in the state, and forecasts for Wisconsin's most damaging plant pests.

Issue No. 11 of the Wisconsin Pest Bulletin is now available at:

http://datcpservices.wisconsin.gov/pb/index.jsp

http://datcpservices.wisconsin.gov/pb/pdf/07-18-13.pdf

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