Wisconsin Crop Manager

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Save the date: Agronomy/Soils Field Day August 27, 2014

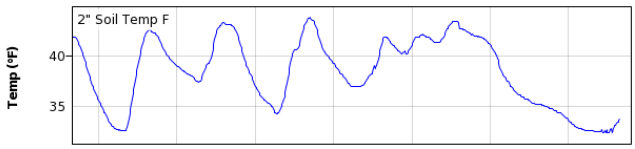
Carrie Laboski, Associate Professor & Extension Soil Scientist

The Agronomy/Soils Field Day will be held on **August 27, 2014** at the Arlington Ag Research Station. Details of topics and tours will be provided as they become available.

Top 5 Recommendations for Soybean Establishment and Yield

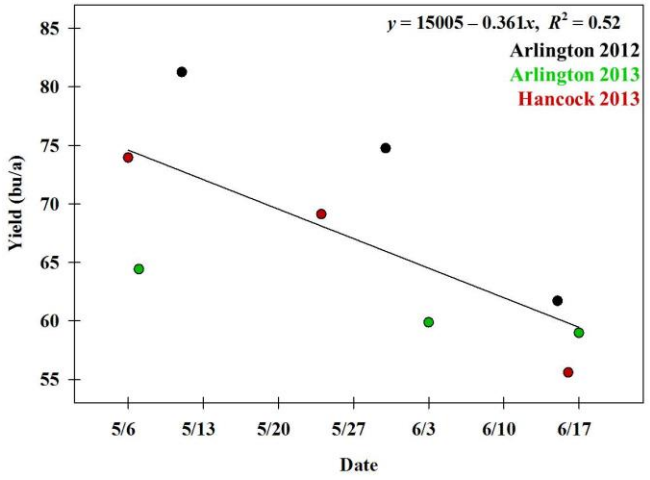
Shawn Conley, Soybean and Wheat Extension Specialist

I awoke this morning to the gleeful announcement from my two year old yelling at the top of her lungs "Dad....snow....outside". I feigned excitement only because I know we are still missing 75 entries for our soybean variety test program (**hint hint** to those that are delinquent) and suboptimal soil temperatures (Figure 1).



As past experience has taught many of us that live in the "frozen tundra", a WI spring can appear rapidly so here are a few thoughts to mull over before we all get busy and throw recommendations out the window to get those crops in the ground.

1. Planting date matters for northern soybean growers. Dr. Specht et al. from UNL did a very good job discussing "Why planting soybean early improves yield potential". Furthermore, our recent planting date data is also very supportive of early planting. Not only have we seen a synergistic yield response with today's genetics to early planting, we also average ~0.36 bu per day cost to delaying planting past the first week of May (please see Figure 2. below).



2. Use a fungicide and insecticide seed treatment. Given today's seed input costs and commodity price our data suggests reduced economic risk and increased profitability utilizing these inputs.

3. Plant your soybean seed 1" deep. I know I know MSU just came out with new information regarding soybean planting depth, but I am not completely sold on planting early soybean at 1.75 inches in Wisconsin. If it is June 5th, soil temps are 72 degree F, and I am planting to moisture due to drought conditions and no rain in the forecast then maybe I could be convinced.

4. In short....if rotating with corn no tillage is required!

5. Last but certainly not least, invest in a residual herbicide program for your soybean crop. Not only is it an effective tool for herbicide resistance management (remember we have two confirmed (one suspect) glyphosate resistant weed populations in WI) it also widens the application window for glyphosate and it often provides growers with a positive ROI.

The Corn-Soybean Rotation X Tillage Interaction: No Tillage Required When Rotating

Joe Lauer, Corn Agronomist

Crop rotation is the easiest yield you can get. I call it "the gift that keeps on giving." Corn yield increases 10 to 19% when rotated with soybean, while soybean yield increases 14 to 23% when rotated with corn. For a summary of these rotation responses click here and here. This rotation effect is even more dramatic in stressful years.

The rotation effect lasts at most two years and depends upon the length of the break between similar crops. When you have two or more break years, then the yield of second-year corn is 7 to 8% greater than continuous corn. If there is only one break year than the yield of second-year corn is the same as continuous corn.

Tillage used to be about controlling weeds and preparing a seedbed. Today it is all about stand establishment. We have many excellent herbicides and advanced technology on our planters. So tillage is often not necessary in today's corn production systems, except in continuous corn. Tillage responses are more often measured in the northern corn belt and can increase yield 5 to 7%.

How does crop rotation and tillage interact to affect grain yield?

A corn-soybean rotation X tillage study was begun in 1983 at Arlington, WI. The rotation treatments consist of continuous corn, continuous soybean, alternating corn and soybean, and five years of corn followed by five years of soybean. Every phase of these 14 rotation treatments is grown every year. Two tillage treatments designated no-till (NT) and conventional-till (CT) have been practiced. since 1987. No-till consists of one-pass with a 13-wave coulter, followed by trash whippers and then double disc seed openers. Conventional-till is fall chisel plow followed by two spring field-cultivator operations. The continuous corn and soybean plots have been in place 30 years. The results for the previous 20 years (1993-2012) are shown in Figure 1 for corn and Figure 2 for soybean.

Little corn yield differences are observed in rotated corn (CS) and first-year (1C) corn following 5-years of soybean (Figure 1). During the second-year of corn plots that had conventional tillage increased yield 5% over no-till plots (2C). Yield was 10 to 11% greater for conventional-till plots than for no-till plots as the number of continuous corn production years increased (3C, 4C, and 5C). So, tillage is not needed when corn is annually rotated with soybean. Tillage can make up some of the rotation effect over time in continuous corn, but it does not bring yield back to rotated corn yield levels.

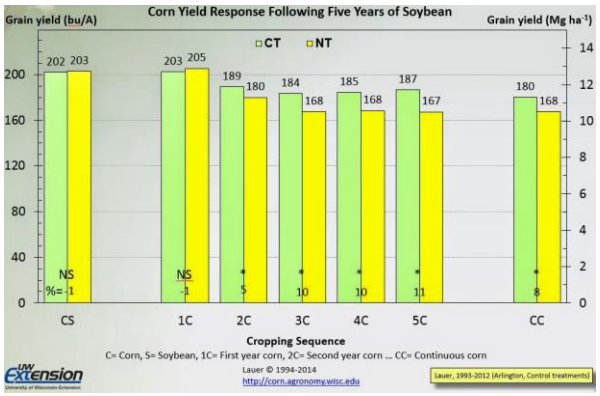


Figure 1. Corn yield response to rotation and tillage following five years of soybean during 1993 to 2012 at Arlington, WI. Asterisks indicate statistical differences at $P < 0.05$. NS= non significant. Percentage values indicate relative differences between tillage systems for a phase in the rotation sequence.

The story is somewhat different for soybean. Grain yield is 3 to 5% greater in no-till than conventional till for the rotated soybean (SC), first- (1S) and second-year (2S) soybean following five years of corn (Figure 2). There is no tillage effect as the number of years of continuous soybean production increases (3S, 4S and 5S) Conventional-till does increase yield over no-till in soybean plots that have been in continuous production for 30 years (SS). So, tillage is not needed when soybean is annually rotated with corn.

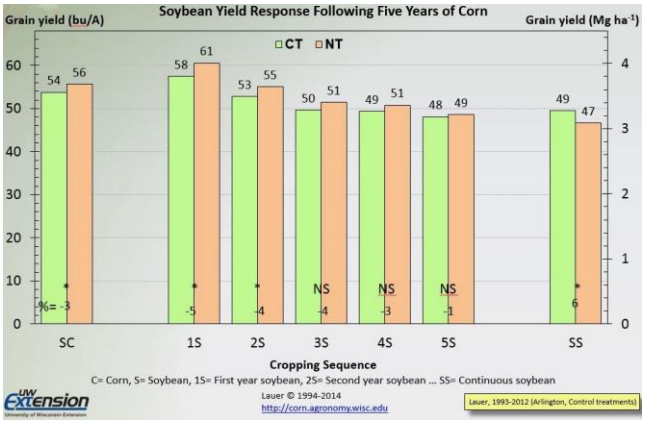


Figure 2. Soybean yield response to rotation and tillage following five years of corn during 1993 to 2012 at Arlington, WI. Asterisks indicate statistical differences at P < 0.05. NS= non significant. Percentage values indicate relative differences between tillage systems for a phase in the rotation sequence.

Vegetable Crop Update 4/16/14

The 2nd issue of the Vegetable Crop Update is now available. This issue contains information on nitrogen decision making, early season disease concerns in vegetable crops, and an introduction to some of the disease forecasting tools offered through UWEX Vegetable Pathology. Click here to view this update.

Calibrate manure spreaders to determine nutrient credits

Kevin Shelley, UW NPM Program

As much of Wisconsin continues to either thaw out, or dry out, now might be a good time for manure spreader weighing and calibration on dairy and livestock farms. Determining the weight of an average load of manure is an important step in the process of determining valuable nutrient credits from a farm's solid or semi-solid manure applications. Accurate nutrient crediting depends on knowing both the application rate and the nutrient content of the manure. Knowing how much manure is being applied from each load helps determine the application rate part of the equation.

Farmers can get a load weight by weighing a "representative" load of the solid or semi-solid manure they have on the farm. This can always be done by driving a load to the nearest scale, such as at a grain elevator, feed mill or gravel pit. If there are no stationery scales nearby, portable weigh pad scales can be brought to the farm. Many county land and water conservation agencies or extension offices have scales, or have access to them through the University of Wisconsin Nutrient and Pest Management Program (NPM). Farmers or farm consultants can check with their County Cooperative Extension agricultural agent to see who in the county has scales.

Once the average load weight is known, manure application rates in tons per-acre can be calculated by keeping track of the number of loads spread on a field or area of known acreage. Knowing the application rate, together with the nutrient content of the manure, will allow calculation of the amount of N, P and K that can be credited toward crop needs as recommended by a soil test.

The Nutrient and Pest Management Program has produced an instructional video on determining manure application rates by weighing a spreader with portable scales. The step by step process of weighing the tractor and spreader, both full and empty, is shown. Manure spreader calibration is also discussed. In the video, calibration is shown as measuring an area to which two or more loads have been spread, calculating the application rate in tons per-acre, and then making ground speed or discharge rate adjustments to achieve a specific application rate goal.

The NPM video, *Calibrating a Manure Spreader*, can be viewed on YouTube. https://www.youtube.com/watch?v=m9LAsOgVN-g

Educational publications and worksheets useful for spreader calibration can be accessed on the IPCM website at http://ipcm.wisc.edu. Click on "publications" and then "nutrient management" to find publications such as:

Know How Much You haul
http://ipcm.wisc.edu/download/pubsNM/KnowHowMuchYouHaul.pdf

Manure Load Worksheet
http://ipcm.wisc.edu/download/pubsNM/ManureWS.pdf

Nutrient Management Fast Facts provides guidelines for estimating manure nutrient content
http://ipcm.wisc.edu/download/pubsNM/NutrientManagementFastFacts.pdf.

Plant Disease Diagnostic Clinic (PDDC) Update

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 April 5, 2014 through April 11, 2014.

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

VEGETABLES,

Potato, Pink Eye, Unknown, Barron

Potato, Potato Virus S, *Potato virus S*, Barron

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

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