THE START OF THE #PLANT20 GROWING SEASON HAS BEEN MORE FAVORABLE TO MANY MIDWESTERN FARMERS. OVER THE LAST MONTH AND MORE SPECIFICALLY THE LAST 10 DAYS TWITTER AND MY EMAIL HAS BEEN FILLED WITH IMAGES OF EARLY PLANTED SOYBEAN GOING INTO THE GROUND AND WE ARE JUST STARTING TO SEE THE FIRST IMAGES OF SOYBEAN BEGINNING TO CRACK AND EMERGE. AS FARMERS, AGRONOMISTS AND TECHNICAL SERVICE PROVIDERS BEGIN TO ASSESS THE 2020 SOYBEAN STANDS HERE ARE A FEW ITEMS TO CONSIDER BEFORE RE-PLANT RECOMMENDATIONS ARE MADE.

GET AN ACCURATE STAND ASSESSMENT. WE ARE OFTEN DRAWN TO THE WORST AREAS OF FIELDS AND OVER-BLOW HOW BAD THE OVERALL STAND REALLY IS. YOU CAN GO OLD SCHOOL AND USE THE TAPE OR HULA-HOOP METHOD OR TRY A DIGITAL APPROACH SUCH AS BEAN CAM THE WSMB FUNDED SOYBEAN REPLANT APP! LINK TO THE APP STORE FOR iPHONE AND iPAD LINK TO THE APP STORE FOR ANDROID

USE THE POPULATION COUNT. AN EFFECTIVE STAND IS OBVIOUSLY IMPORTANT TO MAXIMIZE SOYBEAN SEED YIELD. HOWEVER THE DOWNSIDE YIELD RISK FOR A SUB-PAR STAND IS MINIMAL UNLESS STANDS FALL BELOW 50,000 PLANTS PER ACRE.

THE SYNERGY OF EARLY PLANTING COUPLED WITH BREEDERS ADDING 3X YIELD TO SOYBEAN BRANCHES AT LOW POPULATIONS HAVE EFFECTIVELY REDUCED THE YIELD PENALTY FOR THINS STANDS BY 1/2 (SUHRE ET AL. 2014).
Therefore we recommend the following.

- Early planted soybean yield is maximized with stands that range from 100,000 (high yield environment) to 135,000+ (low yield environment) plants per acre.
- When soybean stands are less than 50,000 plants per acre, inter-plant new seed with a similar maturity into the existing stand. DO NOT TEAR UP THE STAND AND START OVER.
- When stands fall between optimal and 50,000k plants per acre Think Twice Before Replanting Soybeans! Our data shows a nominal ~2 bu yield increase in this situation. Even if you have a “free replant” guarantee the numbers don’t make economic sense. As a grower you are better off investing $$$ in an effective in-season residual herbicide to control weeds such as Palmer and waterhemp.

References:


MILLIPEDES ARE NOT CONSIDERED A CROP PEST, HOWEVER

BRYAN JENSEN, DEPT OF ENTOMOLOGY AND UW INTEGRATED PEST MANAGEMENT PROGRAM

Let’s deal with this “critter” before the field season gets started. Millipedes are not an insect but belong to a class of arthropods named Diplopoda. That seemingly useless fact does have some importance. Insecticide seed treatments do not do a good job of controlling them. Not that they really need to! Millipedes are not considered a crop pest and usually feed on decaying organic matter. However, after two “moist” growing seasons I would expect their prevalence to be much higher than normal and perhaps a few (very few) situations where millipedes could be a problem.

Millipedes are small (¼ - 1 inch long), cylindrical and hard-shelled. However, unlike insects, millipede have numerous body segments and each segment will have two pair of unjointed legs. (See picture above of Millipedes, note the light fringe of legs.) The common millipede is dark-colored and curls into a c-shaped pattern.

Wireworms larvae are the most common field crop insect pest which millipedes are
confused. Wireworms are also hard-shell but are copper colored, have 3 sets of jointed legs and are subterranean.

I mentioned millipedes are usually not considered a crop pest but feed on decaying organic matter. However, I could understand isolated situations when they could reduce germination or feed on seedling plants. Those field situations would have wet soil conditions, close to a marsh or other perennially moist habitat and fields with high organic matter content. Furthermore, cool growing conditions would exacerbate the amount of damage. I doubt millipedes would damage a significant amount of hard seed but the potential for damage does exist during that period of time between swelling and emergence. I have also heard of a few situations where millipedes feed on succulent above ground plant parts like soybean cotyledons.

There are many, many reasons for early season stand loss and millipedes may be just a by-stander in these situations. Avoid jumping to a conclusion using the “guilty by association” syndrome!

SAFE RATES OF SEED PLACED STARTER FERTILIZER

CARRIE LABOSKI, PROFESSOR & EXTENSION SOIL SCIENTIST, SOIL FERTILITY/ NUTRIENT MANAGEMENT, UNIVERSITY OF WISCONSIN-MADISON

Without fail every year after planting, questions start popping up about pop-up fertilizer. The questions always occur when there are emergence or germination issues. So before planting gets into full swing, let’s think about seed placed starter. For the purpose of this article I will use seed placed, pop-up, and in-furrow interchangeably.

Why are fertilizer salts a problem?

Excessive concentrations of fertilizer salts near a germinating seed or seedling root causes injury. The injury is caused when the concentration of ions in the soil is greater than the concentration of ions within the plant cells. The high osmotic pressure created by the fertilizer salts causes water to move out of the plant cells and into the soil. As water moves out of the plant cells, the tissue desiccates and becomes blackened; hence the term fertilizer burn. The result is the eventual death of the plant tissue.

Some nitrogen fertilizers may cause more seedling and germination injury than expected based on their salt content alone if they liberate ammonia when applied to the soil. Free ammonia is toxic and can move freely through the plant cell wall (Havlin et al., 1999). Urea, UAN, ammonium thiosulfate and DAP can cause more damage from ammonia toxicity than MAP, ammonium sulfate, and ammonium nitrate (Havlin et al., 1999; Reid, 2006; Mortvedt, 2001). Moderate alkaline soil conditions, either in the bulk soil or caused by reaction of the fertilizer, will promote ammonia production.

Factors affecting fertilizer burn

Crops vary in their tolerance to salts. A list of common crops and their relative sensitivity to salts is given in Table 1. Reid (2006) suggests that no fertilizer be placed with the seed of super sweet hybrids of sweet corn, soybean, edible beans, and peas because of their sensitivity to salts.
Table 1. Relative sensitivity of common crops to fertilizer salts.*

<table>
<thead>
<tr>
<th>Crop</th>
<th>Relative sensitivity †</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>Least sensitive</td>
</tr>
<tr>
<td>Corn</td>
<td></td>
</tr>
<tr>
<td>Forage legumes</td>
<td></td>
</tr>
<tr>
<td>Soybean and Edible bean (dry or snap)</td>
<td>Most sensitive</td>
</tr>
<tr>
<td>Vegetables including sweet corn</td>
<td></td>
</tr>
</tbody>
</table>

† Least sensitive does not mean that the crop is not sensitive to salt.

* Reproduced from Reid (2006).

Soil conditions are important for determining why injury may occur in one year and not another. Fertilizer salts diffuse away from the band in moist soils and becomes diluted, reducing the osmotic pressure. Little diffusion takes place in dry soils and the fertilizer remains concentrated with a high osmotic pressure presenting a greater risk to plant injury. Soils with low cation exchange capacity (CEC) (coarse-textured with low organic matter content) have a lesser ability to react with the fertilizer compared to high CEC soils (fine-textured) meaning that the concentration of fertilizer salts in the soil solution remains high (Reid, 2006). Thus, fertilizer burn is a bigger issue on sandy, low organic matter soils particularly in dry springs. Soil temperature also plays a role. Roots grow slowly in cold soils; thus, the root is exposed to the higher concentration of fertilizer for a longer period of time.

Concentration of fertilizer salts is another factor that determines whether or not fertilizer burn occurs. Broadcast fertilizer applications do not often injury seedlings because the fertilizer is dispersed through a large volume of soil. Banded starter fertilizers placed two inches to the side and two inches below the seed are more likely to cause injury than broadcast applications because banded applications are much more concentrated in a small area near the seed. However, at typical starter fertilizer application rates, fertilizer burn from banded starter fertilizer is unlikely. In-furrow (pop up or seed row) placed fertilizers are typically applied at low rates but their very close proximity to the seed means that they are more likely to cause injury than 2x2 banded applications because there is little opportunity for the root to grow out of the zone of concentrated fertilizer salts before it dies. In general to avoid stand loss from fertilizer injury, no more than 10 lb/a of N + K2O should be applied in-furrow regardless of soil texture. The most suitable fertilizers for in-furrow applications will have: 1) low salt index, 2) high water solubility, 3) no compounds that liberate NH3, and 4) use potassium phosphate instead of KCl as the K source (Mortvedt, 2001).

**Safe rates of in-furrow fertilizer**

Salt index (SI) of a fertilizer is a measure of the salt concentration that fertilizer induces in the soil solution (Mortvedt, 2001). However, there are many steps in calculating salt index and it can be a bit confusing. South Dakota State University developed a Fertilizer Seed Decision Aid spreadsheet and web calculator based on field and greenhouse research. The Fertilizer Seed Decision Aid requires users to select the crop to be grown, fertilizer type, seed furrow width, row spacing, tolerated stand loss, soil texture and soil moisture at planting. The tool will then output a maximum rate of fertilizer to apply with the seed. The tool is really handy in assessing scenarios. For example, what if the soil was wetter or drier; what if I can accept more or less stand loss. Using the tool you will find that some relatively common practices may be a little riskier than...
you think. A good example of this is using ammonium thiosulfate in seed placed starters. You can access the Fertilizer Seed Decision Aid here: http://www.ipni.net/article/IPNI-3268

References


NEW 2020 PEST MANAGEMENT FAST FACTS AVAILABLE ONLINE!

MIMI BROESKE, NUTRIENT AND PEST MANAGEMENT PROGRAM

New for 2020! The NPM and IPM Programs have updated the Pest Management Fast Facts publication with new information on weed resistance, insect pest thresholds and fungicide management information.

The 4 page publication is available to view online but will be available in June as a full color 11 x 17 folded sheet that can be three-hole punched and easily added to binders. The publication can be viewed or downloaded by clicking the link.

2020 CONSIDERATIONS FOR COVER CROP TERMINATION

RODRIGO WERLE, UNIVERSITY OF WISCONSIN-MADISON CROPPING SYSTEMS WEED SCIENTIST AND EXTENSION SPECIALIST

The adoption of cover crops in corn-soybean production systems can help growers improve cropping system resiliency to extreme weather events, improve soil conservation and health, and slow the evolution of weed herbicide resistance. To get the most out of cover crops prior to corn and soybean establishment, growers should have a sound termination plan in mind to maximize cover crop benefits and successful establishment of the following cash crop.

Subjects covered in the full article (linked below):

• Cover Crop Termination with Herbicides
• Considerations for Herbicides following Cover Crop Termination
• Using a Roller-Crimper for Termination
• Nebraska and Wisconsin Planting Green Cover Crop Survey

Click here to view the article. It’s about a 10 minute read.
INTERESTED IN LEARNING MORE ABOUT COVER CROPS?

DANIEL H. SMITH, SOUTHWEST REGIONAL AGRONOMIST- NUTRIENT AND PEST MANAGEMENT PROGRAM, UNIVERSITY OF WISCONSIN-MADISON

The University of Wisconsin’s Nutrient and Pest Management (NPM) Program is home to numerous cover crop publications and videos detailing how to establish, terminate, utilize for forage, and manage cover crops.

NPM’s Cover Crops webpage

This webpage compiles cover crop publications from the NPM program. These publications provide information on frost seeding red clover, using winter rye for forage, interseeding cover crops, rotational herbicide restrictions, termination, and general cover crop management.

Cover Crop Webpage: [https://ipcm.wisc.edu/covercrops/](https://ipcm.wisc.edu/covercrops/)

YouTube channel with agricultural videos

This popular channel has over 100 videos (with over 1.7 million views so far) detailing information on general agronomic management topics, including nutrient and pest management, cover crops, soil conservation, pest scouting, and forage management. YouTube Channel: [https://www.youtube.com/user/uwipm](https://www.youtube.com/user/uwipm)

Cover crop resources created with stakeholders

Over the past year, cooperate efforts between multiple organizations have developed two new resources listed below. Collaborators include Michael Fields Agricultural Institute, UW-Madison Nutrient and Pest Management Program, UW-Madison Integrated Pest Management Program, Wisconsin Conservation Cropping Systems Coalition, Arlington Agricultural Research Station, University of Wisconsin-Madison College of Agricultural and Life Sciences, and University of Wisconsin-Madison Division of Extension.

Cover Crops 101 Publication

This publication provides recommendations on selecting species, establishment timing, termination, and overall benefits to incorporating cover crop into a cropping system. The publication is available here (free pdf): [https://learningstore.extension.wisc.edu/products/cover-crops-101](https://learningstore.extension.wisc.edu/products/cover-crops-101)

Cover Crops following Corn Silage Video Series

This series of short and to the point videos takes you into the field with several Wisconsin agricultural specialists to learn about establishing and using a rye or similar cover crop following corn silage harvest.

The 9 videos in the playlist above include:

- Planting Cover Crops Early by Interseeding
- No-till Drill Establishment of Cover Crops
- The Soil Health Benefits of Cover Crops Planted in a Corn Silage system
- Fall Cover Crop Growth, Above and Below the Surface
In addition to the resources listed above, the NPM program works with UW-Madison agricultural specialists to create resources on various nutrient and pest management topics, and is home to the Wisconsin Crop Manager newsletter. The program also maintains the farmer nutrient management curriculum which provides basic training on nutrient management for farmers interested in writing their own nutrient management plan.

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### SOYBEAN FIELD SOIL HEALTH SURVEY UNDERWAY

**SHAWN P. CONLEY, SOYBEAN AND WHEAT EXTENSION SPECIALIST, AND LINDSAY CHAMBERLAIN, DEPARTMENT OF AGRONOMY, UNIVERSITY OF WISCONSIN**

Consider sending soil samples to determine if Soil Health Predictors really matter in soybean! The project uses four soil health measures that center on both soil carbon and nitrogen stocks: Permanganate Oxidizable Carbon (PoXC), Mineralizable Carbon, Potentially Mineralizable Nitrogen (PMN), and Autoclave Citrate Extractable Protein (ACE Protein). These four measures are relatively inexpensive, and can be conducted on dried, stored samples. Additionally, these measurements were chosen as estimators of soil health that are likely to relate to crop performance.

The survey is recruiting growers with a variety of management practices, from all over Wisconsin. [Click to view the protocol! Does Soil Health Really Matter in Soybean?](#)

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### WISCONSIN VEGETABLE CROP UPDATE FOR 2020

**AMANDA GEVENS, ASSOCIATE PROFESSOR & EXTENSION SPECIALIST, POTATO & VEGETABLE PATHOLOGY, PLANT PATHOLOGY DEPARTMENT**

Vegetable Crop Update newsletter for 2020: A newsletter for commercial potato and vegetable growers is prepared by the University of Wisconsin-Madison vegetable research and extension specialists.

You’ll find updates throughout the year at the: [Wisconsin Vegetable Crop Update blog site.](#)

- Vegetable Crop Update #3
- Vegetable Crop Update #2
- Vegetable Crop Update #1