INSECTS UPDATES

BRYAN JENSEN, UW DEPARTMENT OF ENTOMOLOGY AND DIVISION OF EXTENSION

The follow are a few thoughts regarding insects and potential short-term problems.

Potato leafhopper (alfalfa). From what I am hearing, reading and seeing, leafhopper adult number are there and if we get some warmer/drier weather those populations could really increase in a hurry. Time will tell. Start (or continue) to look at both established stands and new seedings. Pay special attention to the new seedings especially because nymphs are hatching now.

Armyworm (corn, wheat, pastures). Significant number of adults of have been noted in black light traps, yard lights and grassy areas. I have received a few reports of small armyworm larvae which suggests scouts need to look very close for damage or it can be easily overlooked. In wheat and pastures, look for feeding damage and larvae on the soil surface. In corn, certainly look for the feeding damage but often plentiful amounts of frass in the whorl is hard to miss.

Cereal leaf beetles (wheat). So far this insect may fall into the curiosity category, but larvae are active, and you may notice some feeding damage (striping) on the upper leaves in small grains. Time will tell how much defoliation or how widespread the problem is. Typically, however, they are controlled by natural enemies.

Seedcorn Maggot (corn and soybean). Now would be a good time to monitor stands to determine if seedcorn maggots may have had an impact on germination and emergence. We had (in southern WI) a peak flight of adults a few weeks back impact on stands can be noticed now. If seedcorn maggots impacted plant populations I would expect to see above ground symptoms not just skips within the row. In soybean those “other” symptoms would include “snakeheads” (which is a symptom we use to describe when the cotyledons are chewed off and only the hypocotyl exists) and feeding damage or scarring to cotyledons. In both corn I would also expect to see holes in the cotyledons as well as holes in the unifoliate leaves of soybean.
European corn borer (corn). Parts of southern Wisconsin are entering the period when damage may be noticed in corn that is taller than 18 inches extended leaf height. I don’t expect many problems again this year, but those very early planted fields may be attractive to the adults.

GUIDANCE WHEN USING CORN AS A COVER CROP

DR. JOE LAUER, UW-MADISON AGRONOMY AND EXTENSION STATE CORN SPECIALIST

This year traditional cover crop seed is hard to find. However, corn and soybean can be considered a cover crop (click here and here). Corn is deep-rooted and by the end of the growing season can produce significant residue even when planted in July. The first thing you must do, however, is talk to your crop insurance agent and make no decisions without their input.

“Farmers taking the full prevented plant indemnity should note that they cannot ever harvest the cover crop for grain or seed. RMA rules allow, only after September 1, grazing and harvest as hay (for bedding or feed) and now for silage, haylage or baleage. If a farmer wants to harvest it as grain or seed, then they should declare it as an alternative crop and only collected the partial (35%) prevented plant indemnity.” --- Paul Mitchell, UW Ag Economist

The end of the late planting period is set by USDA-RMA (Risk Management Agency) and is posted for most of Wisconsin as June 25 for corn grain and June 30 for corn silage. A farmer is not allowed to take the full prevented plant indemnity, using the same crop as a cover crop before these dates. If planted before these dates, the farmer should report it as late planted with a reduced guarantee.

As corn planting moves into June, yield swings (risk) increases. Some years can result in good grain yields, other years not so much. Early June planting dates often produce high yielding corn silage of good quality. Late June planting dates are difficult to predict for grain or silage production. Planting corn in July rarely results in adequate grain production so silage quality is poor. Corn makes an excellent “emergency” forage when planted in July. During 2005 and 2006, corn planted July 1 had forage yields ranging from 5.9 to 7.7 Tons Dry Matter / Acre (T DM/A). For corn planted July 15, forage yields were 3.5 to 5.6 T
DM/A, and corn planted July 31 forage yields were 0.7 to 2.8 T DM/A.

The following agronomic guidance is given when growing corn as a cover crop. The goal of a cover crop is to protect the soil from erosion (wind and water), to improve water quality by capturing nutrients, to build organic matter, and to suppress weeds. Ultimately the decision to use corn as a cover crop is the cost of production. Typically, it would cost $400 to $450 per acre to establish corn.

Practices that maintain ground cover or establish a crop canopy quickly include:

Seed: Conventional hybrids and open-pollinated varieties are less expensive than bio-engineered hybrids. Neither seed nor grain from bio-engineered corn hybrids can be used as cover crop seed. Upon purchase of bio-engineered hybrids, farmers sign a contract that: 1) limits usage of grain to specific end product channels, 2) restricts ownership of bio-engineered traits, and 3) requires a refuge (stewardship). There has been some discussion of using the F2 (grain) of 2018 production (“bin-run” seed/grain). A 10-20% grain yield drag would be expected for F2 seed, however, little grain yield is expected anyway with July planting dates. Using bin-run grain as seed might be possible for conventional hybrids and open-pollinated varieties. Check seed labels and grower agreements to make sure. Again, it is illegal for bio-engineered hybrids. For specifics about contracts for bio-engineered hybrids, see https://www.agcelerate.com/Home.

Narrow row spacing: Corn is a row crop. Using a narrower row corn planter (<30-inches), twin-row planter, or a grain drill can lead to faster ground cover by the corn canopy and weed suppression. Criss-crossed rows can lead to quicker canopy cover.

Plant population and seed costs: Higher populations lead to faster ground cover and helps with weed suppression. Minimum populations of 35,000 plants/A and upward are needed. However, seed costs can also be prohibitive for high populations.

Crop rotation: Rotating crops helps with interrupting pest cycles and promotes early growth and quicker canopy coverage. The choice of the cover crop this year should be based upon the subsequent crop intended next year. For example, if soybean is planned for the field next year then corn (or some grass crop) should be the cover crop this year.

Planting into residue: Seeding into fields with > 30% residue provides some ground cover between planting and canopy establishment.

Pesticides: Herbicides should be used to help with weed control. Use care about pre-grazing and/or pre-harvest restrictions after September 1.

Nitrogen: The most important nitrogen applied to corn is the first 40 to 60 lb N/A. Even this may not be needed if N credits can be taken. Reducing N rate would improve cost of production, especially since little grain is expected.

July plantings rarely result in grain production in Wisconsin. If grain is produced and kernels develop beyond the milk to dough (R3-R4) stage then the crop should be cut with a haybine.
FULL OR LATE SEASON COVER CROP OPTIONS ON PREVENTED PLANT ACRES

This timely four-page factsheet provides ideas and guidelines for planting a cover crop on fields where the planting of an intended commodity crop, within the federal crop insurance eligibility dates, was prevented due to excessively wet conditions. It focuses on cover crop applications, where the crop is grown exclusively for soil cover and associated benefits to soil health, weed management and the crop rotation, rather than for use as an annual forage. Basic selection and management information for some of the most common and economical species used as summer or fall planted cover crops in Wisconsin is provided. See flyer attached to end of newsletter.

Read the full article at: https://ipcm.wisc.edu/download/pubsNM/2019_Cover-CropPreventPlant_final.pdf

CROP PROTECTION NETWORK TO OFFER CERTIFIED CROP ADVISOR CONTINUING EDUCATION CREDITS

CCA credits will be awarded to participants that earn a passing score on quizzes related to CPN publications. The Crop Protection Network (CPN) is pleased to announce an addition to its collection of resources available to farmers, crop advisors and others involved in crop management and production. Certified Crop Advisors (CCAs) will now have the opportunity to obtain continuing education units (CEUs) under the Integrated Pest Management (IPM) Category, through CPN in the form of educational quizzes.

A total of 19 quizzes are currently available through the website, and are each based on CPN publications covering areas such as: diseases and management, pest resistance and mycotoxins. After reading CPN publications, CCAs can take the corresponding quiz for 0.5 CEUs, simply by entering their names and CCA number, and starting the exam. Participants must earn a passing score of 70 percent or more on a quiz to qualify for credits. Results will be sent monthly to the American Society for Agronomy (ASA) for processing, and participants will be presented with a certificate for their records. Participants can take these quizzes at no cost, either through a dedicated web page, or as a link with corresponding publications. Each quiz was written and reviewed by CCAs and extension specialists for difficulty and accuracy.

“Crop Protection Network publications provide research-based information on field crop diseases and agronomic issues, and now these high-quality publications can also provide continuing education for Certified Crop Advisors,” said Kiersten Wise, CPN co-director and plant pathologist with the University of Kentucky. “We are excited to provide this free resource to CCAs through CPN, and look forward to developing additional resources that keep CCAs informed about the latest research on field crops.”

Each year, CCAs are required to obtain a certain amount of CEUs to maintain certification. This can be accomplished by attending in-person events or using online resources. More recently, the ASA has allowed CCAs to read peer-re-
viewed literature and conduct a short quiz after reading for CEU credit. The CPN's model is similar to this, as its publications are peer reviewed by a network of extension specialists across the country.

CPN is a multi-state and international partnership of university and provincial extension specialists, and public and private professionals that provides unbiased, research-based information. Our goal is to communicate relevant information to farmers and agricultural personnel to help with decisions related to protecting field crops.

**SUMMER ANNUAL COVER CROP CONSIDERATIONS FOR PREVENTED PLANTING**

MATT RUARK IN COLLABORATION WITH THE MIDWEST COVER CROP COUNCIL

The Midwest Cover Crops Council (MCCC) recommends the use of cover crops for prevented plant acres when feasible and cover crops can be a good way to take advantage of an otherwise unfortunate situation. A full season cover crop is a great opportunity to improve soil health and function. Most cover crops can help to reduce soil erosion and compaction, capture nutrients, suppress weeds, moderate soil moisture, and build soil health, and legume cover crops can provide nitrogen to the subsequent crop. Planting during summer months provides an opportunity to use underused cover crop species as well as use cover crop mixtures, potentially gain benefits of each many different plants. Before making any decisions, it is important to consult with your insurance agent the Farm Service Agency.

**Recommendations for summer annual cover crops**

Planting cover crops during the summer months provides an opportunity to plant summer annual cover crops, which may not be typically considered. Planting recommendations are described in the table below:

<table>
<thead>
<tr>
<th>Species</th>
<th>Drilled Seeding Rate (for single species, reduce rate in mix)</th>
<th>Drilled Seeding Depth</th>
<th>Minimum Soil Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grasses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sorghum-Sudangrass</td>
<td>15-30 lbs/A</td>
<td>¼ - ½ in</td>
<td>65°</td>
</tr>
<tr>
<td>Sudangrass</td>
<td>15-20 lbs/A</td>
<td>⅛ - ½ in</td>
<td>65°</td>
</tr>
<tr>
<td>Pearl Millet</td>
<td>10-15 lbs/A</td>
<td>⅛ - ½ in</td>
<td>65°</td>
</tr>
<tr>
<td>Japanese Millet</td>
<td>12-15 lbs/A</td>
<td>⅛ - ½ in</td>
<td>65°</td>
</tr>
<tr>
<td>Teff</td>
<td>4-8 lbs/A</td>
<td>⅛ - ½ in</td>
<td>65°</td>
</tr>
<tr>
<td>Legumes (inoculate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cowpea</td>
<td>60-120 lbs/A</td>
<td>1 - 2 in</td>
<td>65°</td>
</tr>
<tr>
<td>Sunn Hemp</td>
<td>10-15</td>
<td>¼ - ½ in</td>
<td>42°</td>
</tr>
<tr>
<td>Non-Legumes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buckwheat</td>
<td>20-35 lbs/A</td>
<td>⅛ - ½ in</td>
<td>50°</td>
</tr>
<tr>
<td>Sunflower</td>
<td>5-7 lbs/A</td>
<td>1 - ½ in</td>
<td>44°</td>
</tr>
</tbody>
</table>

**Consult your local extension educator or trusted seedsman to adjust seeding rates based on variety and goals.**

However, it is important to note that sunflower is susceptible to white mold and buckwheat goes to seed quickly. We only recommend buckwheat to those who have worked with it in the past. If planning on planting winter wheat this year, we recommend cowpea as it is a nitrogen fixing legume that will grow well over a short time period. Sunn hemp should also thrive in warm climates,
but may be more beneficial in the southern U.S. compared to the upper Midwest.

What about the traditional cover crop species?

It is important to be aware that planting some species out of season is not ideal. Cool season cereals (rye, wheat, and barley) should not be planted in the heat of the summer to ensure good biomass production and (in the case of rye or winter wheat) their ability to overwinter. Oats may be the best commonly used grass cover crop to plant in summer months and would be recommended if sorghum-sudangrass or millet are unavailable. Brassicas such as radish and mustard planted before August will begin to bolt before peak biomass is obtained; this can be controlled with mowing. Thus, only consider these species on compacted or tight soils and if you’re willing to invest in an additional field operation. Many other factors should be considered when planting cover crops such as weed pressure, seed availability, if the cover crop can/could be grazed, and residual herbicide effects. Weed and disease issues need to be heavily considered in the decision-making process. Additional information related to management of cover crops can be found at: fyi.extension.wisc.edu/covercrop/ and mccc.msu.edu

This article is modified from a Midwest Cover Crop Council Bulletin http://mccc.msu.edu/wp-content/uploads/2019/06/2019_MCCC_Cover-Crop-Considerations-for-Prevented-Planting.pdf

WISCONSIN TAR SPOT UPDATE- JUNE 25, 2019

DAMON SMITH, EXTENSION FIELD CROPS PATHOLOGIST, DEPARTMENT OF PLANT PATHOLOGY, UNIVERSITY OF WISCONSIN-MADISON

Figure 1 shows the calculated risk from Tarspotter for June 25, 2019, for various locations in Wisconsin. Figure 2 provides a zoomed view for southern and south-central Wisconsin. As you can see, the present risk is very high for tar spot development in all locations examined. This is due to the fact that the weather continues to be relatively cool and wet for the past 30 days across the entire state. Tar spot is favored by persistent temperatures between 60 and 70 F and high relative humidity averaging above 75% for a 30-day period. We have been right in the zone for conducive conditions for this disease.

The Recommendation

While weather continues to be conducive for tar spot, evaluate the likelihood that tar spot might develop early in your field. Remember, if you have no history
of the disease, then the likelihood of local inoculum being present is low. Saving the fungicide application for later in the season might be a better option. If you have a history and you know you have a susceptible hybrid coupled with a no-till situation, then the risk is higher and you need to evaluate the economics of doing an application of fungicide as early as V6. Remember, if you do a V6-V8 application of fungicide, conditions could stay conducive later in the season for tar spot. Those early applications will “burn out” by the time the tasseling period rolls around. So if you do put a fungicide spray on at V6, you might have to come back at VT with another application to protect plants during the reproductive phase, should we stay in favorable conditions for tar spot. Keep an eye on the weather and keep scouting!

MOBILE APPS FOR AGRICULTURE MAKE THE FRONT PAGE

The cover story for the summer issue of the Grow magazine is about agriculture related smartphone apps. All of the featured apps use research from the UW specialists you are familiar with because of the articles they post every week in the Crop Manager. You can read an online version of the story now. Grow is a magazine devoted to the agriculture and life sciences published by the University of Wisconsin-Madison College of Agricultural and Life Sciences (CALS).

‘App’-riculture: CALS experts develop mobile apps to bring science to farmers anytime, anywhere: https://grow.cals.wisc.edu/departments/features/app-riculture

COMBINE CLEANING CLINIC

An upcoming field day on July 16th at the Marshfield Ag research station (MARS) in Stratford will provide insight into limiting the spread of weed seeds. The field day will start with Dr. Rodrigo Werle (UW-Madison and Extension..
WCM-79

Cropping Systems Weed Scientist) and Nick Arneson (UW-Madison Outreach Specialist, Cropping Systems Weed Science Program) will be discussing weed seed production, viability, and the spread of common weeds. Then there will be a demonstration of how to clean a combine to limit the spread of weed seeds by Dan Smith (Southeast Regional Specialist, Nutrient & Pest Management Program, UW-Madison). The field day will being at 1:00 pm and conclude by 4:00 pm. The field day is free.

For additional details please contact Ashley (Lorence) Blackburn (North Central Regional Specialist, Nutrient & Pest Management Program, UW-Madison) at 608-381-6702. See flyer attached to end of newsletter.

WATERHEMP MANAGEMENT CHALLENGE

RODRIGO WERLE; NICK ARNESON; DANIEL H. SMITH

According to our recent survey, waterhemp has become the most concerning weed species in Wisconsin row crop production. The University of Wisconsin Nutrient and Pest Management Program (NPM) and the WiscWeeds Program would like to invite farmers, agronomists, industry representatives, and educators to attend the 2019 “Waterhemp Management Challenge” Plot Tour on Wednesday, July 10, 2019 at the Lancaster Agricultural Research Station (7396 State Rd 35 & 81, Lancaster, WI 53813).

We will showcase studies comparing:

- 29 PRE-emergence soybean herbicides
- The value of no-till and cover crops for waterhemp suppression
- Systems approach for weed control in Xtend soybean
- Waterhemp management in corn through the use of residual herbicide, no-till, and cover crops

Registration starts at 8:30 AM with coffee and donuts provided by the Wisconsin Soybean Marketing Board. Please RSVP by July 7, 2019 with Dan Smith (NPM Southwest Regional Specialist) via https://go.wisc.edu/281qsg

See flyer attached to end of newsletter.

VEGETABLE CROP UPDATES NEWSLETTER, JUNE 23, 2019

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

Update 9- June 23, 2019

In this issue the UW-Madison Division of Extension Vegetable Crop Updates Newsletter #9:

- Introduction to new WI seed potato certification director and assistant prof in plant pathology
Potato and vegetable production updates
Potato and vegetable insect updates
Potato disease forecasting updates - getting close to DSV 18 threshold for early/mid planted potatoes in Gr. Marsh


WISCONSIN FRUIT NEWS VOL. 4, ISSUE 6

CHRISTELLE GUEDOT, FRUIT CROP ENTOMOLOGY AND EXTENSION SPECIALIST, WISCONSIN-MADISON FRUIT PROGRAM

Welcome to the latest issue of Wisconsin Fruit News. This week you will find articles on:

First Detection of Spotted Wing Drosophila in Wisconsin for 2019
Governor Evers Declares Wisconsin Vineyard Week, July 14-20
Grape Scouting Report: Low Insect Pressure
Grapevine Phenology for Mid-June
Promoting Return Bloom in Apples
Some Cold, Hard Facts about Winter Injury on the First Day of Summer
Door County Report

The Wisconsin Fruit website is being updated, so please click on the links to read these articles.

WISCONSIN PEST BULLETIN

KRISTA HAMILTON, ENTOMOLOGIST, WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

Volume 64 Issue No. 09 of the Wisconsin Pest Bulletin is now available at: http://datcpservices.wisconsin.gov/pb/index.jsp

LOOKING AHEAD: Spotted wing drosophila fly emergence beginning
FORAGES & GRAINS: Potato leafhopper nymphs appearing in alfalfa
CORN: Reports of black cutworm and true armyworm damage
SOYBEAN: Rose chafer and sand chafer noted this week
FRUITS: Update on black stem borer ambrosia beetle in Wisconsin
VEGETABLES: Cutworm problems reported by vegetable growers this season
NURSERY & FOREST: Invasive red lily leaf beetle confirmed in two more counties
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 June 15, 2019 through June 21, 2019.

Many fields in Wisconsin were too wet this spring for timely planting of an intended commodity or feed crop. As these fields dry out, consider planting a cover crop. Quickly defined, a cover crop is established for benefits to the soil, cropping system, and environment; no biomass is harvested. Establishing a cover crop on these “prevented plant” acres will reduce soil erosion and weed growth, add soil organic matter (carbon) and enhance soil health. An actively growing and managed cover crop will also prevent yield reduction in the following year’s crop due to “fallow syndrome”.

Selection of cover crop species should be based on many factors, including but not limited to availability and cost of seed, planting date and equipment available, ease of management and termination, and timing within the crop rotation. For best results, cover crops should be managed like a cash crop, including adding required fertility and monitoring in-season weed, disease and insect pests.

This publication provides basic selection and management information for the most common and economical plant species used as cover crops in Wisconsin. It is not an exhaustive list of possible species or management requirements.

Two general points to consider when planting cover crops on prevented plant acreage:

**It is imperative to consult your crop insurance agent** regarding cover crop planting and potential forage harvest if a prevent plant insurance indemnity is being taken. There are several rules concerning planting and harvesting dates, as well as the impact on APH yield history for the farm. Crop insurance payments may be reduced or lost entirely if planting and harvest rules are not followed. For more information, see: *Late and Prevented Planting Options and Crop Insurance for Wisconsin Farmers* at [https://renk.aae.wisc.edu/wp-content/uploads/sites/2/2019/05/Late-and-Prevented-Planting-May-30-2019.pdf](https://renk.aae.wisc.edu/wp-content/uploads/sites/2/2019/05/Late-and-Prevented-Planting-May-30-2019.pdf)

**Previous herbicide use** can impact cover crop establishment, as well as its potential use as a forage. Review your herbicide use history and herbicide labels for the previous two cropping seasons for potential rotational and forage limitations. For more information, see: *Herbicide Rotational Restrictions in Cover and Forage Cropping Systems* at [https://snapplus.webhosting.cals.wisc.edu/download/pubsPM/2019_RotationalRestrictions_final.pdf](https://snapplus.webhosting.cals.wisc.edu/download/pubsPM/2019_RotationalRestrictions_final.pdf)

For the purposes of this publication, U.S. Highway 10 is the dividing line used for the Northern and Southern regions of the state. Note that these regions are defined differently for crop insurance purposes.

### FULL SEASON COVER CROP PLANTING DATES
- **Northern**: June through July
- **Southern**: Mid-May through July

### COVER CROP | SORGHUM-SUDANGRASS

**Advantages/disadvantages**

If planting in the first three weeks of July, consider a sorghum-sudangrass hybrid for fast, high-yielding biomass production. Three to five tons of dry matter (TDM) per acre or more is possible if growing conditions are warm and with 60-80 lb/A available soil nitrogen (N). Sorghum-sudangrass is drought tolerant once established and excellent for suppressing weeds, reducing erosion, scavenging/recycling nutrients and adding organic matter. Cooler than average conditions will limit growth, making sorghum-sudangrass less desirable in northern counties.

**Planting recommendations**

**Seeding rate for cover crop:** 15-20 lb/A drilled, 18-24 lb/A broadcast/lightly tilled-in

**Depth:** ¾-1 inch deep

**Soil temperature:** minimum of 60 degrees F

(continued on next page)
Management requirements
Mowing will likely be required to keep biomass manageable for planting the subsequent crop and to prevent seed production. Mowing and light fall tillage will help minimize N immobilization to a following corn crop.

**Approximate seed cost = $15-24/A**

If corn is planned for the next year, a seed mix of sorghum-sudangrass and soybeans may provide soil health, rotational and conservation benefits. Many farms likely have soybean seed left over from unplanted acres that cannot be returned. While not a common practice, limited Wisconsin research has shown soybeans (planted at 150,000 seeds/A) will grow within a sorghum-sudangrass canopy. If inoculated, soybeans may produce N for the following corn crop and/or enhance the decomposition of the sorghum-sudangrass residue, reducing early spring N immobilization.

Note: If a full prevent plant crop insurance indemnity is taken for 2019, soybeans can only be planted as a cover crop after the late plant date for your county. Further, the soybeans must be managed as a cover crop and cannot be harvested for grain or seed. See the factsheet *Can I Use Corn or Soybeans as a Cover Crop on Prevented Plant Acres?* [https://aae.wisc.edu/pdmitchell/Crop-Insurance/CornSoyasCoverCrop.pdf](https://aae.wisc.edu/pdmitchell/Crop-Insurance/CornSoyasCoverCrop.pdf)

**COVER CROP | CLOVERS: MEDIUM RED, BERSEEM AND CRIMSON**

**Advantages/disadvantages**
Unlike the cereals and forage grasses, clovers will supply their own nitrogen for growth and provide N credits for a subsequent grass crop, like corn or wheat. Berseem clover is a fast-growing, true annual clover that will winter-kill and has an upright growth habit. Crimson clover is a southern U.S. adapted winter annual that variably over-winters in Wisconsin and has a more prostrate, lower growing habit. If it survives the winter, crimson grows fast in spring by adding biomass and N accumulation. Plant annual legumes as cover crops until July 20 in northern WI and until August 1 in southern WI. Medium red clover is a short-lived perennial and will establish a little slower than the annual clovers, but can work well if planted by early July.

As an annual cover crop, clovers are best planted in a mix with oats or barley to help compete with weeds, add species diversity for soil health and to ensure good soil cover. Expect 1-3 TDM/A biomass production by fall. Growth and N accumulation may be limited under dry conditions. Alternatively, a recent field trial in eastern WI had good results with a mix of crimson and berseem. This mix combines the upright habit of berseem clover with the prostrate growth of crimson clover and was more competitive with weeds than either clover species alone.

Research trials suggest up to a 40 lb N credit from a well-established berseem or crimson clover cover crop, and up to 60 lb with medium red clover. However, nitrogen accumulation and release to a following crop can be variable and will depend on several crop and soil factors.

**Planting recommendations for all clovers** (use clover seed inoculant)

- **Seeding rate:** 10-12 lb/A alone or 6-8 lb/A in a mix with 20-30 lb/A oats or barley, **approximate seed cost (w/oats) = $26-37/A**
  - 6 lb/A berseem + 6 lb/A crimson, **approximate seed cost = $26/A**

- **Depth:** ¼-½ inch (oats or barley, 1-½ inch)

**Management requirements**
Clipping clovers in late summer will encourage new above-ground growth and additional root growth. Spring termination of crimson clover will be required if it overwinters.
COVER CROP | WINTER CEREAL GRAINS: **RYE, TRITICALE**

**Advantages/disadvantages**
Limited experience planting winter rye in mid-summer suggests it is an option. In a 2015 demonstration in southcentral Wisconsin, rye planted July 3 produced 1.6 TDM/A by September. Stem elongation will not occur without vernalization (cold temperatures), so growth is limited to tillering. Planted in summer, rye should produce a thick cover but may succumb to leaf rust infestation by fall. See section below in Late Season Cover Crop Planting Dates for guidelines.

**Winter rye or triticale can be planted August-September for a late summer and over-winter cover. Stem elongation will not occur without vernalization (cold temperatures). Planted in August, winter cereals will produce a thick cover, but usually less than 1 TDM/A biomass before winter dormancy and will grow rapidly in early spring. They can be somewhat difficult to manage with tillage after significant spring growth. Chemically terminated rye sometimes leaves soil conditions difficult for no-till planting the subsequent crop. Rye also releases allelopathic compounds that have sometimes shown toxicity to corn and alfalfa seedings following rye forage harvest. Soybeans may be the best option to follow triticale and especially rye.**

**Planting recommendations**
- **Seeding rate:** Rye for cover at 50-60 lb/A
- **Depth:** Drill 1 to 1-1/2 inches deep or broadcast and lightly till-in
- **Approximate seed cost = $17/A**

A mixture of 20 lbs rye and 40 lbs oats or barley will produce slightly greater above ground biomass production in late summer/fall while still providing some over-winter cover and can lessen the soil and subsequent crop management challenges associated with rye.

**Approximate seed cost = $20/A** (continued on next page)
Management requirements
Terminate rye as a cover crop by late April before it grows too large to minimize allelopathy, N immobilization and difficult soil conditions. Terminate chemically, or with tillage 10 days to two weeks prior to planting the subsequent crop. Alternatively, some farmers have success “planting green” (no-till) into growing rye and then terminating chemically soon after planting.

COVER CROP | BRASSICAS AND MIXTURES

Advantages/disadvantages
Planting a multi-species mix that includes a grass, legume and brassica species (radish, turnip, rapeseed) may provide an ecological synergy creating biological and physical benefits improving soil health. Scientific substantiation, thus far, is minimal. However, when seeded in the proper proportions, brassica mixes are effective at reducing soil loss, competing against weeds and scavenging and recycling soil nutrients.

Daikon Radish is a fast growing root vegetable capable of producing a girthy taproot that can extend several feet deep if planted in July or August. Radishes are fast growing with competitive, leafy top growth. Mixes must consider compatible species and modest radish seeding rates. Radishes have been shown to be good scavengers of residual soil nitrate, but measured N release to a following crop has been variable.

Planting recommendations
Possible mixes and seeding rates for radish plantings (lb/A):
3 lb radish + 20-30 lb oats or barley
2 lb radish + 6 lb berseem (or medium red) clover + 20 lb oats 20 cereal rye
3 lb radish + 25 lb field peas + 20 lb oats or barley

Turnips and rape can, generally be substituted for radish. Rape should be seeded at rates similar to radish, but turnips should be about half.

Management requirements
The girthy growth of the radish taproot can have a loosening effect at the soil surface causing conditions susceptible to gully erosion. Radish should only be planted in combination with a grass crop to hold soil and prevent erosion.

Approximate seed cost for the above mixes = $20-35/A

FOR MORE INFORMATION
Kevin Shelley, UW NPM Program (southcentral Wisconsin) 608-575-4746
Jamie Patton, UW NPM Program (northeastern Wisconsin) 608-807-8530

ADDITIONAL RESOURCES
Wisconsin Cover Crops (UW Extension)
https://fyi.extension.wisc.edu/covercrop/
Midwest Cover Crops Council
http://mccc.msu.edu/
LIMITING THE SPREAD OF WEED SEEDS

COMBINE CLEANING CLINIC

Tuesday, July 16th, 2019

Marshfield Ag Research Station
208356 Drake Ave N Stratford, WI

Weed seed production, viability and the spread of common weeds

Dr. Rodrigo Werle, Extension Cropping Systems Weed Scientist and Nick Arneson, Outreach Specialist, Cropping Systems Weed Science Program, UW-Madison

Combine cleaning demo

Dan Smith, Southeast Regional Specialist, Nutrient and Pest Management Program, UW Madison

Event from 1 – 4 pm

Questions and Registration: Ashley Lorence, North Central Outreach Specialist, Nutrient & Pest Management Program Cell: 608-381-6702

Free event!

SPONSORED BY
College of Agricultural & Life Sciences
Division of Extension
Nutrient and Pest Management Program
Wisconsin Cropping Systems Weed Science
According to our recent survey, waterhemp has become the most concerning weed species in Wisconsin row crop production. Glyphosate-resistant waterhemp has been confirmed in 25 counties, and PPO-resistant waterhemp has been confirmed in 4 counties.

To learn more about waterhemp management in soybean, join us for a tour of our challenge plots that showcase comparisons of 29 PRE-emergence soybean herbicides, the value of no-till and cover crops for waterhemp suppression, and a systems approach for weed control in Xtend soybean. Additionally, waterhemp management in corn will be discussed and shown through the use of residual herbicide, no-till, and cover crops.

Questions?
Dan Smith
dhsmith@wisc.edu
(608) 219-5170

Register by July 1st
Scan to register!
or visit:
https://go.wisc.edu/281qsg