

Wisconsin Crop Manager

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Which Thistle is in my Pasture and How to Control it

Mark Renz Extension Weed Specialist; University of Wisconsin-Madison & Extension

Thistles are all up and actively growing. While we have a variety of thistles, typically pastures have one of 5 common weedy thistles in Wisconsin. Not sure which one? The first step is to determine if it is a perennial or biennial thistle.

Biennial thistles appear as individual plants and when dug do not have roots connected to multiple shoots (taproot only).

Examples of common biennial thistles include plumeless, bull, and musk. Wisconsin is also seeing more and more of Eurasian marsh thistle (common in northern WI, but spreading south). Below are pictures of rosettes taken in mid-May. Also included is a picture of a Canada thistle shoot. Canada thistle should not be as developed as the biennial thistles and are currently more upright compared to biennial thistles. This will persist only for 2-3 more weeks. Remember Canada thistle is a creeping perennial plant and therefore will have a suite of different management techniques/timings associated with this species compared to the biennial thistles.



We have created a table (below) that compares common traits to help with identification. We also have videos of [plumeless thistle](#) and [Canada thistle](#) available at (fyi.uwex.edu/weedsci ; click on the video tab or search by thistle name).

For control, all biennial thistles behave similarly to control tactics. Mowing when plants just begin to flower prevents seed production, but herbicides are best applied to rosettes in the fall or spring. While herbicides that contain aminopyralid (e.g. milestone, forefront) have the best control, a broad range of herbicides will suppress above ground growth enough to prevent forage loss. See our [factsheet](#) for detailed information on biennial thistle control.

For Canada thistle, control is more challenging. Please consult [this factsheet](#) for more information on control of this problematic species in pastures.

Table 1. Summary of how to differentiate between common thistles found in Wisconsin.

	Canada thistle	Musk thistle	Plumeless thistle	Bull thistle	European marsh thistle
Leaves	Irregularly lobed. Tips have small spines.	Moderately lobed with white midrib.	Heavily lobed.	Deeply lobed with distinct spines on leaf edge.	Heavily lobed with dark edges.
Hair on Leaves	None.	None.	Bottom of leaf and petiole hairy.	Coarse hair on top of leaf, soft hair on bottom of leaf.	Sticky hairs.
Stems	Not spiny.	No spines on upper stem below flower.	Spiny.	Spiny, appears winged.	Appears winged.
Flowers	Fingertip size. Not spiny. Bracts.	1-2". Stiff bracts.	Fingertip or slightly larger. Prominent bracts.	1-2". Teardrop shaped.	0.75". Not spiny. Purple tipped bracts.

Diagnosing Early Season Below Ground Insect Damage

Bryan Jensen- IPM Program

A lot of corn and soybeans has been planted over the past few weeks and emergence has begun. Now, and over the next few weeks, is a good time to evaluate these stand for emergence problems cause by early season below ground insects. Knowing the exact cause of poor emergence can be helpful to explain low yields and for preparing future pest management plans. Below are some troubleshooting observations.

Keep in mind that crop growth stage can affect damage symptoms and that fields symptoms are not always “classical” in appearance. Look at a range of plant symptoms and try to locate the insect causing the problem. Finally, look at injury patterns within the field and determine if these patterns match your diagnosis.

Seedcorn Maggot: Larvae are small, white, legless and cigar-shaped. Feeding occurs below ground and larvae can feed on either the seed and/or emerging shoot. Remember,

there are other similar looking saprophytic maggots which can feed on decaying seed previously killed by other insects and/or pathogens. These are not considered pests, but more precisely opportunistic organic matter feeders. If seedcorn maggots are causing the injury, you should also notice above ground symptoms that include small holes in either the first and/or second leaf in corn. Damage to soybean includes scarred cotyledons, holes in the unifoliate leaves or severed hypocotyls. Seedcorn maggot damage is usually uniform across fields and more severe under cool/wet growing conditions. Damage may also be more severe when corn/soybeans are planted into recently tilled fields, fields with a green manure or in fields with heavy applications of livestock manure. Still unsure? Try using degree days to “back calculate” if corn or soybeans were planted during a peak adult flight. There are several generations of seedcorn maggots, however, the first two adult flight periods cause the most damage. These peak flight periods occur at 360 and 1080 DD (Base 39° F). To calculate seed corn maggot degree day accumulations at the time of planting, navigate to the **Degree Day Calculator** at the **UW Extension Ag Weather website** http://agwx.soils.wisc.edu/uwex_agwx/thermal_models/degree_days The calculator will ask you for your Latitude/Longitude, type of degree day model to use (sine), biofix date (January 1), end date (planting date), lower threshold (39 degrees) and upper threshold (84 degrees). Your last prompt is for the type of report you would like.

If the damage is severe and you are still in doubt, please send the maggots to the UW Extension Insect Diagnostic Laboratory, c/o PJ Liesch, Dept. of Entomology, 1630 Linden Dr, Madison, WI 53706.

Wireworms: Larvae feed below ground and injury can occur to the corn seed or to the emerging shoot. Injury to the seed will reduce plant stand. Shoot feeding results in the newly emerging leaves showing signs of wilting if the feeding site is at or below the growing point or as holes in the newly emerging leaves if feeding site is above the growing point. Wireworms are somewhat easy to find around damaged plants. However, larvae will migrate deeper into the soil profile as soils warm. Therefore a quick response to complaints is helpful. Damage is more common in corn planted after sod and distribution maybe spotty. Injury may also correspond with soil types. Wireworms have an extended life cycle. Depending on species present, they may take 1-5 years to mature. This information is an important predictor of damage potential if corn is to be planted next year.

True White Grub: Damage by larvae is always below ground. White grubs will not injure corn seed, however, larvae feed on corn roots or underground stems causing stunted or wilted plants, respectively. Larvae require two growing seasons to complete their development. As a result, both large and small larvae may be present. Damage is usually clumped within a field and is more common in corn planted after sod or after any crop that had grassy weed problems. Grubs can be relatively easy to find around most, but not all, damaged plants.



Figure 1 Above ground seedcorn maggot injury symptoms



Figure 2 White grubs and injury



Figure 1 Wireworm larvae. Photo Credit: Frank Peairs, Colorado State University, Bugwood.org

Save the Date – Agronomy/Soils Field Day at Arlington Ag Research Station on August 19th

The Departments of Agronomy and Soil Science in conjunction with the Arlington Agricultural Research Station will host their annual field day on August 19, 2015. The field day will highlight UW-Madison research on all facets of crop production and soil management. More details coming in June.

Managing Nutrients on Wisconsin Soils Online Video Workshop – 2015

Scott Sturgul – NPM Program

Managing Nutrients on Wisconsin Soils is a self-paced seven hour online video workshop designed for agency and industry personnel who desire to have a more in depth knowledge of intermediate to advanced topics in soil fertility and soil management. The learning objectives are to provide individuals with a fundamental understanding of Wisconsin's nutrient application guidelines, advanced soil fertility management tools, and soil management practices to reduce nutrient loss.

This online video series is available for viewing from May 4 to July 31, 2015. It is presented by the UW-Madison Department of Soil Science and UW-Extension's Nutrient & Pest Management Program. Featured speakers include: Carrie Laboski, Robert Florence, Matt Ruark, Francisco Arriaga, Kevin McSweeney, Laura Ward Good, Haily Henderson, and Scott Sturgul.

Topics include:

- Soils and landscapes of Wis. and their influence on nutrient loss
- Understanding soil groups and soil yield potential
- Phosphorus (P) and potassium (K) recommendations & management
- Manure and legume nutrient credits
- Liming: keystone to soil fertility
- Nitrogen (N) rate guidelines for profitable crop production
- Soil nitrate testing
- Understanding N stabilizers/extenders
- Crop canopy reflectance as an in-season N management tool
- Assessing potential for N loss after exercise rainfall
- Secondary and micronutrients
- Starter fertilizers as part of a nutrient management plan
- Uses and limitations of plant analysis
- Use and limitations of the end-of-season stalk nitrate test
- Soil management practices and their impact on nutrient loss
- Soil management practices in RUSLE2
- Using the Wisconsin phosphorus index
- Cover crops & nutrient management
- Tile drainage & nutrient management

A brochure for *Managing Nutrients on Wisconsin Soils* can be found here:

http://ipcm.wisc.edu/download/ManagingWISoilsWebinar_2015.pdf.

Registration for viewing the video series is required for each participant and the fee is \$100 per person. Registration is open now and will close on July 1. Interested participants can register at: <https://patstore.wisc.edu/npm/register.aspx>. **A credit card is the only acceptable form of payment on this website.** A confirmation email that will include viewing instructions will be sent to each participant. For questions on registration contact Scott Sturgul (ssturgul@wisc.edu, 608-262-7486). For questions about program content contact Carrie Laboski (laboski@wisc.edu, 608-263-2795). **Please note: You must be able to access YouTube in order to view these presentations!**

CCA CEUs

Certified Crop Advisor (CCA) continuing education units (CEU's) for this workshop have been approved by the Wisconsin CCA Board. The workshop contains 9.5 credits in nutrient management and 4 credits in soil and water management.

Vegetable Crop Update 5-19-15

The 8th issue of the Vegetable Crop Update is now available. This issue contains late blight updates and disease forecasting information (PDays/DSVs are now being posted). Click [here](#) to view this issue.

Soybean Emergence and Germination Common Issues

Shawn Conley

Please click to view a YouTube video on [Soybean Emergence and Germination Common Issues](#)



UW-Madison/Extension Plant Disease Diagnostic Clinic (PDDC) Update

Brian Hudelson, Sean Toporek, Ann Joy and Joyce Wu

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 May 9, 2015 through May 15, 2015.

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

Fruit Crops

Apple, *Cytospora Canker*, *Cytospora* sp., Florence

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

Wisconsin Pest Bulletin 5-21-15

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. 5 of the Wisconsin Pest Bulletin is now available at:

<https://datcpservices.wisconsin.gov/pb/pdf/05-14-15.pdf>

Alfalfa Weevil Update

Bryan Jensen

UW Extension

I have been getting some questions regarding alfalfa weevil damage. First the good news. Harvest is well underway in southern Wisconsin and this is practice usually kills weevil larvae. The bad news is that it usually kills weevil larvae.

For those fields with higher than expected first crop damage be sure to inspect fields 3-4 days after harvest. Weevil larvae can feed on both crown and stem buds which delays regrowth and can reduce yield if feeding is severe. Make sure to inspect first crop closely. This year, temperatures have been cool which slows weevil development compared to alfalfa. Early instar weevil feeding can be difficult to detect and may require unfolding of the upper leaflets to expose damage.

In second crop stubble, look for signs of new stem or crown bud formation. Dry weather can slow bud development. In the absence of regrowth, look under leaf litter, in soil cracks and the juncture between crown and the soil to confirm presence of larvae. You may find larval survival higher under the old windrow. A treatment threshold is not available for stubble regrowth. However, confirm the presence of larvae before spraying.

This year, because of the difference in alfalfa and weevil development, larvae may continue to feed on regrowth for a period of time. Although difficult to predict how long, typically, by the time second crop regrowth is 10" tall larval feeding is over for that generation. In this situation, consider an insecticidal treatment if tip feeding is greater than 50%.

Pigweed Identification

Liz Bosak, Outreach Specialist, Department of Agronomy, University of Wisconsin-Madison

Weed identification at the seedling and immature stages can be difficult but is often necessary because scouting should occur before weeds reach 4 inches in height. At emergence before a full set of true leaves appear, pigweeds can be confused with other weed species such as wild buckwheat, eastern black nightshade, and ladythumb. In addition, the pigweeds: Palmer amaranth, waterhemp, redroot pigweed, Powell amaranth, and smooth pigweed, are not easily separated by species at the immature stages. The first step is to look at the leaves and stems because Palmer amaranth and waterhemp do not have any hairs compared to Powell, redroot, and smooth pigweed, which do have hairs but they may not be obvious at the immature stage. If the plant looks like it may be Palmer amaranth or waterhemp, then the next step is to look at the leaf shape and petiole. Palmer amaranth has a more rounded leaf shape and a petiole that is longer than the leaf itself, <https://youtu.be/NLGEwizXj-M?t=9m15s>. For a list of resources available by species, guides for the most common weed seedlings, and links to the WeedID smartphone apps, take a look at the Weed Info page on the WCWS website (<http://wcws.cals.wisc.edu/weed-info/>). There are several Extension resources available to help with pigweed identification including:

* "Identification of the weedy pigweeds and waterhemps of Iowa," Iowa State University, http://wcws.cals.wisc.edu/wp-content/uploads/sites/4/2013/12/weed_info_pigweed_identification_iowa_state_university.pdf

* "Pigweed identification: a pictorial guide to the common pigweeds of the Great Plains," Kansas State University, <http://www.ksre.ksu.edu/bookstore/pubs/s80.pdf>

* "Identifying Palmer amaranth in the field," Purdue University, 4 minute video, <https://youtu.be/aVbgPGg0GO0>

* "Palmer amaranth seedling identification," Purdue University, 7.5 minute video, <https://youtu.be/wNgRvvnPQJ8>

The videos provide a nice introduction to identification, particularly, if using the printed guides. Pigweeds present a tough set of management challenges, for instance, very high growth rates, extended emergence over most of the growing season, and high seed production. The United Soybean Board's TakeAction website, [www.takeactiononweeds.com](http://takeactiononweeds.com), has publications on management of Palmer amaranth (<http://takeactiononweeds.com/wp-content/uploads/2014/01/palmer-amaranth-management-in-soybeans.pdf>) and waterhemp (<http://takeactiononweeds.com/wp-content/uploads/2014/01/waterhemp-management-in-soybeans.pdf>). Populations of Palmer amaranth and waterhemp have been confirmed resistant to glyphosate in Wisconsin. To read more about glyphosate-resistant pigweeds in Wisconsin, please consult these fact sheets: http://wcws.cals.wisc.edu/wp-content/uploads/sites/4/2013/03/WCWS_206_palmer_amaranth_resistance_WEB.pdf and http://wcws.cals.wisc.edu/wp-content/uploads/sites/4/2013/03/WCWS_207_waterhemp_resistance_WEB.pdf.

New Fact Sheets on Stem Canker and Pod and Stem Blight

Damon Smith, Extension Field Crops Plant Pathologist

During the 2014 season, two diseases appeared to be quite widespread across the midwest on soybean. These diseases were stem canker and also pod and stem blight. Next to white mold, these diseases were common in many Wisconsin fields last year. In an effort to provide background and management information about these diseases, two fact sheets were recently developed by extension specialists in the North Central region. This effort was supported by the North Central Soybean Research Association and also the United Soybean Board.

You can download the stem canker fact sheet by clicking below >>>

[Stem canker fact sheet](#)

You can download the pod and stem blight fact sheet by clicking here >>>

[Pod and stem blight fact sheet](#)

Be prepared for the 2015 season by reading these fact sheets and scouting often. Happy Planting!

Wisconsin Winter Wheat Disease Update – May 20

Damon Smith, Extension Field Crops Plant Pathologist

Winter wheat plots were examined this week by my graduate student, Brian Mueller, near Sharon, WI (far southern Wisconsin). Flag leaves had recently emerged and wheat looked very good in this location. No rust or other diseases were observed in this part of the state. Further north, we examined winter wheat fields near Arlington, WI. No rust or other diseases were observed here either. Many varieties had fully emerged flag leaves and will soon be in the 'boot' stage.

Now is the time to consider fungicide applications for protecting flag leaves. Also, growers in the southern and south central portion of Wisconsin, should start watching the weather and checking the [Fusarium head blight \(scab\) Prediction Center](#) frequently to make a decision about applying fungicides to protect wheat against scab. Remember, the best time to apply fungicide to control scab is at anthesis and up to 5-7 days after anthesis. However, weather conditions prior to anthesis can affect the level of risk for scab, so start making weighing your options now. Remember, to scout, scout, scout!

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<https://datcpservices.wisconsin.gov/pb/pdf/05-21-15.pdf>

LOOKING AHEAD: Black cutworm primary damage period to begin May 27

FORAGES & GRAINS: Counts of alfalfa weevil larvae remain low

CORN: Another significant flight of armyworm moths reported from Janesville

SOYBEAN: Soybean aphids could begin colonizing soybeans by late May

FRUITS: Codling moth flight underway, biofix expected next week

VEGETABLES: Imported cabbageworm larvae emerging in southern WI

NURSERY & FOREST: Emerald ash borer trapping planned for 41 counties

DEGREE DAYS: Growing degree day accumulations through May 20, 2015

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