Wisconsin Crop Manager

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Pasture Weed Management after a Drought

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Although spring precipitation has alleviated some concern about a continued drought, we can expect some lingering effects in 2013. Many pastures last summer were overgrazed, and only the weeds remained green until the late rains in September. I expect the combination of slow regrowth this spring and overgrazing of pasture forages last year will result in significant changes in pasture plant composition in 2013, with the potential for weed species to increase. Below are several management practices to consider in pastures related to weed management.

Pastures that were overgrazed in 2012 had little residual cover present over the winter (<4 inches). Because of this we will likely see increased seed germination this spring. These species germinating may be weeds or desirable plants such as clover, so early identification will be important to determine what species are present. Once this information is available, a management plan can be developed based on the weed and its density in your pasture. Unknown plants should be identified as these could be toxic or regulated invasive plants, both of which should be controlled immediately. There are several weed identification resources identified at the end of this article.

If poisonous plantsare found, avoid animal contact with plants, especially when limited forage is available (early spring). We recommend removing animals from areas with highly toxic plants and controlling populations with the appropriate management at the correct stage of growth. This could be well into summer depending on the species. If using an herbicide to control the poisonous plant, make sure to keep animals off the treated area for at least 14 days to allow the foliage to senesce. Herbicides can increase the palability of many poisonous plants, increasing their intake, and resulting in animal toxicity, a situation that can be avoided by delaying turnout. Not sure what the common poisonous plants in Wisconsin are, or what the symptoms of poisoning might be? See: http://www.uwex.edu/ces/crops/uwforage/PoisonPlants8-12.pdf

Canada thistle and other perennial weeds will likely also be more common in 2013. Canada thistle is of the greatest concern as this plant can greatly reduce forage productivity and utilization of forage grasses. I suggest intensive scouting and management of Canada thistle and other perennial pasture weeds (e.g. horsenettle, hoary alyssum) to prevent spread. See weed management resources below for more information on control options for perennial weeds.

Biennial weeds like plumeless thistle, wild carrot (Queen Anne's lace) and burdock will likely germinate in high numbers this spring. As biennials require a year of overwintering to flower, I don't expect to see dramatically larger flowering populations until 2014 as plants will be seedlings and rosettes in 2013. While competition with desirable forages may not be critical this year, plants should still be targeted for management as controlling these plants as rosettes is the most effective strategy. See weed management resources for more information on control options for biennial weeds.

Annual weeds that are common in annual row crops will be more common in pastures in 2013 (e.g. lambsquarter, ragweed, yellow foxtail). These will start germinating from mid-April through June and have the potential to continue germinating through August. See the weedometer for germination timings of specific weed species: http://weedecology.wisc.edu/weedometer/ . Annual weeds are most problematic in continually grazed pastures, as they are rarely eaten in continuously grazed situations and deter animals from feeding on desirable forage growing among the weeds. Rotationally grazing your animals can alleviate many of the negative effects of these species if timed correctly. Most

broadleaf weeds have good forage quality if eaten before they flower. Encourage animals to feed on broadleaf plants before they flower to prevent seed production and maximize forage quality. Broadleaf herbicides can also be used to suppress populations. If the correct herbicide is selected and applied at the correct time, one can expect effective removal without harming established grasses. However, these herbicides will also injure desirable legumes in the pasture, so if desirable legumes are common in the pasture, avoid broadcast spraying.

Annual grasses will also be more common, especially yellow foxtail. While annual grasses can be grazed like broadleaf weeds (before they flower), their forage quality is low. No herbicides are registered for use to control annual grasses in Wisconsin pastures, therefore the best approach to manage these plants is to prevent emergence and promote the growth and competitiveness of the desirable forage present. To prevent emergence of annual grasses and broadleaf weeds leave a minimum of 6 inches (8 inches is ideal) of forage in the pasture (residual or actively growing) when germination of the weed occurs. This can be difficult to accomplish for some species as they can emerge throughout the entire growing season.

Clovers: In addition to weeds, I expect this year to have high levels of clover emergence due to limited residual cover and reduced competition from existing forage. While many graziers add clover seed to pastures periodically, these legumes have a hard seed coat that allows them to survive in the soil for many years. So even if clover seed was not added for several years there is a chance that clover will germinate and appear in your pasture. Some of these clovers will likely be desirable (e.g. red clover), while others may not (e.g. prostrate, feral white clover). If desirable clovers are present, manage weeds and desirable forage so that they do not out-compete establishing clovers. This can be done with grazing, or clipping/mowing. Typically clovers readily establish as long as they get an opportunity to emerge and develop a root system. I expect the slow regrowth of pasture grasses and low residual cover will be enough for good establishment in most pastures. Avoid over-grazing these areas, especially in spring, as this can reduce establishment. Also avoid broadcasted herbicides as they will injure or kill establishing clovers.

In addition to these weed management tips, several agronomic practices will help alleviate some of the effects of the drought. Please refer to this excellent publication from UWEX grazing specialist Rhonda Gildersleeve for information on assessing pasture condition, soil fertility, grazing management, and pasture renovation options: http://fyi.uwex.edu/grazres/files/2013/03/Spring-Pasture-Mgt-Tips2013final.pdf

WEED IDENTIFICATION RESOURCES:

1. Weed Identification website : http://weedid.wisc.edu
2. The dirty dozen and beyond: http://fyi.uwex.edu/weedsci/2004/10/30/the-dirty-dozen-and-beyond/
3. Invasive plant identification videos: http://www.youtube.com/user/uwweedscience

WEED MANAGEMENT RESOURCES

1. Pest Management in Wisconsin Field Crops: Forages and Pasture weed management section pages 182-191: http://learningstore.uwex.edu/Assets/pdfs/A3646.pdf
2. Weed Control in Pastures Without Chemicals: http://www.uwex.edu/ces/crops/uwforage/nonchem.pdf
3. Canada thistle Management in Pastures: http://fyi.uwex.edu/weedsci/2013/04/18/canada-thistle-management-in-pastures/
4. Thistles in Pastures and Beyond: http://fyi.uwex.edu/weedsci/2007/09/30/thistles/
5. Multiflora rose: http://fyi.uwex.edu/weedsci/2007/06/30/multiflora-rose/
6. Specific Invasive plant control factsheets: http://fyi.uwex.edu/weedsci/category/invasive-plants-of-wisconsin/
7. Brush Management in Wisconsin: http://fyi.uwex.edu/weedsci/2007/08/30/brush-weeds/

Vegetable Crop Update 4/20/13

The 2nd issue of the Vegetable Crop Update is now available. This issue contains information on managing early season disease in potatoes. Click here to view this update.

The Best Corn Planting Dates are yet to Come

Joe Lauer, University of Wisconsin

This year farmers have been challenged by cool, wet conditions during April. Snow is again forecast for later this week. Even though planting dates seem like they have been delayed, especially compared to 2012, we still have not passed the optimum planting dates for corn. Wisconsin farmers can plant a large number of acres quickly. Since 1979, there have been 5 years when 40% or more of the acres were planted in one week (1981, 1984, 1999, 2000, and 2004). Between May 2-9, 1999 and April 30-May 7, 2000 farmers planted 1.5 million acres in one week (42% and 44% of the acres planted in those years).

At the University of Wisconsin Agricultural Research Station in Arlington, we have established planting date trials since 1974. Multiple hybrids are established as soon as field conditions allow. In many years, snow is still in roadside ditches when the first planting date occurs. I pooled data for full-season hybrids with Relative Maturity ratings of 104 to 108 RM for the last 10 years (2003-2012).

The corn grain yield response to planting date is shown in Figure 1. The planting date producing maximum grain yield during this period is April 28. Yields were within 95% of the maximum yield from April 15 to May 12, a 28-day period. By May 10 grain yield is decreasing 0.9 bu/A per day and then accelerates to 2.6 bu/A per day on June 1. Grain yield risk (the spread of the data points around the regression line) is lowest

in April and early May at ± 14 bu/A and increases to ± 45 bu/A in late May and early June.

Year affects the planting date when maximum yield occurs, the date of 95% maximum yield, and the yield loss acceleration during late May and early June (Table 1). The date when maximum yield occurs varies from April 10 to May 3. We were still within 95% of the maximum until April 29, 2005 and May 19, 2011.

Figure 1. Corn grain yield response of a full-season hybrids (104-108 RM) to planting date during 2003 to 2012 at Arlington, WI (N= 208 plots).

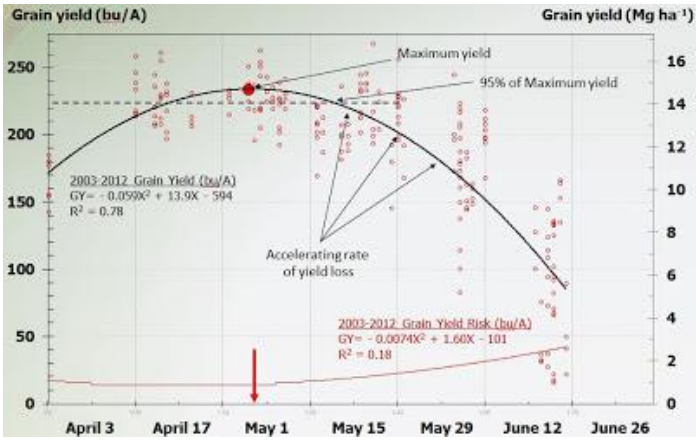


Table 1. Corn grain yield response of a full-season hybrids (104-108 d RM) to planting date at Arlington, WI.

Year	N	R^2	Maximum yield Bu/A	Date of: Maximum yield	Date of: 95% of max yield	Rate of yield (bu/A) loss on: May 10	Rate of yield (bu/A) loss on: May 20	Rate of yield (bu/A) loss on: June 1
2012	35	0.71	232	May 1	May 16	0.5	1.3	2.1
2011	17	0.80	232	April 30	May 19	0.4	0.9	1.4
2010	17	0.94	267	April 29	May 12	1.2	2.3	3.7
2009	22	0.76	242	April 26	May 12	0.9	1.5	2.2
2008	17	0.95	231	May 2	May 15	0.7	1.6	2.7
2007	17	0.91	225	May 3	May 14	0.9	2.1	3.7
2006	17	0.86	238	April 29	May 11	1.2	2.3	3.6
2005	10	0.87	223	April 10	April 29	0.5	0.5	0.5
2004	15	0.95	230	April 25	May 7	1.5	2.5	3.7
2003	15	0.78	223	April 29	May 15	0.7	1.2	1.9
Average	208	0.78	234	April 28	May 12	0.9	1.6	2.6

Like last year the important thing to remember is patience. Be ready to go so that when field conditions are fit, you are ready to plant. Our standard planting date recommendation is to plant as quickly and safely as possible after April 20 in southern Wisconsin, and after April 30 in northern Wisconsin.

Wisconsin Winter Wheat Disease Update – April 24, 2013

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison

On April 24 wheat plots were scouted at the Arlington Agricultural Research Station located in Columbia Co., Wisconsin. In general, wheat plants looked much better than they did at the beginning of April. Moisture and warmer temperatures has resulted in decent green-up.

It is still pretty early to readily find symptoms and signs of disease. However, careful scouting of multiple locations in several fields at the research station resulted in identification of localized areas of Septoria blotch (Fig. 1). Septoria blotch is a disease that is often found in a complex with other leaf blotches. Recently we published a new fact sheet about leaf blotch complex of wheat and how to manage it. You can download a PDF of this fact sheet at this link: http://fyi.uwex.edu/fieldcroppathology/files/2013/04/Leaf-Blotch-Diseases-of-Wheat-1.pdf.

The Septoria component of the leaf blotch complex is caused the fungus Septoria tritici. In winter wheat the fungus often infects in the autumn after leaves of newly planted wheat emerge. Symptoms may not appear until the following spring. The primary symptom of Septoria leaf blotch is the appearance of elliptical tan lesions. Black, pimple-like fruiting bodies (pycnidia) are usually readily visible inside the lesions (Fig. 2). When weather is extremely wet and humid, spores can be spread from the fruiting bodies and splash to other leaves and cause infection. Typically two or more consecutive days of rain and wet weather are needed for infection to take place. If weather continues to be favorable, lesions can expand resulting in leaf blighting, and in more mature plants, spores can be dispersed upward into the plant canopy.

Lesions observed during our most recent scouting trip are likely a result of infections that took place late in the fall of 2012. Symptoms and fruiting bodies are now being observed because weather is warming. Spread of this pathogen will be favored by continuous, wet weather. It is possible that some spores were spread in the last week to 10 days. However, looking at the most recent forecast, it looks like warm and dry weather will prevail for the next week or so. This should slow down any epidemic of Septoria blotch that was underway in most fields.

Care should be taken to scout fields frequently for leaf blotches and other diseases as we move into spring weather. As mentioned in the fact sheet, management of leaf blotch can be accomplished through an integrated approach that combines use of resistant varieties, pathogen-free seed, crop rotation, proper crop debris management, volunteer wheat eradication, and fungicide treatments. At this point of the season, fungicides are not recommended. In areas with a history of severe leaf blotch diseases, and on wheat varieties susceptible to leaf blotch, preventative applications of fungicide to protect the flag leaf (Feekes 8 and 9 growth stages) may be necessary. Decisions to apply fungicides should be based on regular, careful scouting. Because heavy rainfall favors leaf blotch development, rain patterns should be considered when determining the frequency of monitoring for disease development. To assess the need for treatments, scout five locations within a given wheat field. Once two of the five areas have 25% or more of leaves showing symptoms of leaf blotch, scouting should be repeated approximately every 4 days. Once three of five areas have 25% or more of leaves exhibiting symptoms, then fungicide applications should be considered.

Plant Disease Diagnostic Clinic

Brian Hudelson, Ann Joy, and Andrew Pape, 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 13, 2013 through April 19, 2013.

PLANT/SAMPLE TYPE	DISEASE/DISORDER	PATHOGEN	COUNTY
VEGETABLES			
Tomato	Edema	None	Dane

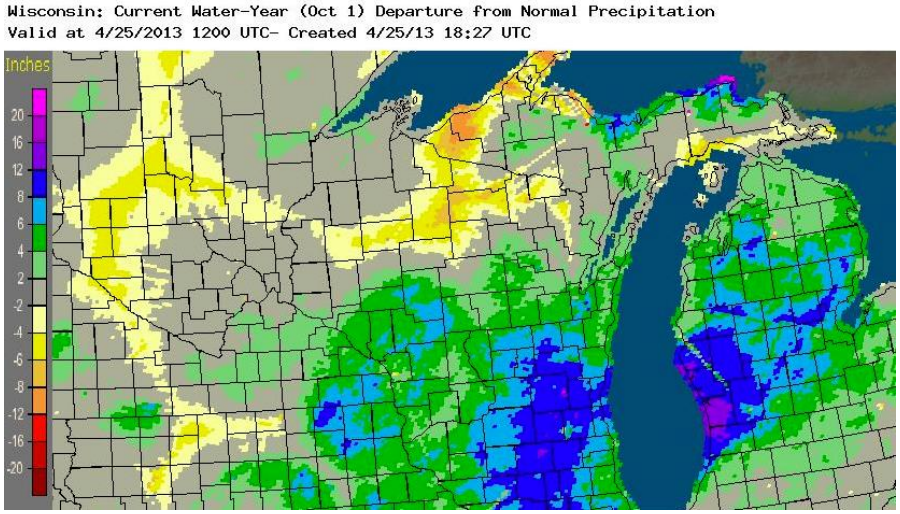
For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.

Are Chances for Carry-over Nitrogen Diminishing?

Carrie Laboski, Extension Soil Fertility/Nutrient Management Specialist

With last summer's drought throughout much of the state, we headed into winter with variable and sometimes high (eg. 325 lb N/a) amounts of nitrate remaining in the soil profile. One of the key factors determining whether or not this excess N will be available for the 2013 crop is the amount of over-winter precipitation. When over winter precipitation is normal, the potential for N carry-over is low on sandy soils, medium on loams, and high on silt loams and silty clay loams. Precipitation throughout southern and central Wisconsin from October 1, 2012 through April 25, 2013 is greater than normal (Figures 1), which suggests that the potential for carry-over N *may* no longer be high on silt loam soils in southern and central Wisconsin.

Figure 1. Precipitation departure from normal, October 1, 2012 through April 25, 2013. From http://water.weather.gov/precip



The soil nitrate monitoring network was set up to track fall and spring soil profile nitrate concentrations following the 2012 drought. With the recent wet weather, only a few samples have been collected this spring and that data is not yet available. Keep checking the website (http://uwlab.soils.wisc.edu/soilnitratemonitoring/) for new spring sampling data.

An agronomist in southwest Wisconsin took soil profile nitrate samples to two feet from three fields on April 10 and then sampled three other fields on April 19. There was about 7 inches of rainfall between the two sampling dates. The average amount of nitrate in the top two feet of soil on April 10 was 118 lb N/a (range 77 to 154 lb N/a) and in the fields sampled on April 19 the average nitrate was 134 lb N/a (range 102 to 154 lb N/a). While the same fields weren't sampled on both dates, the agronomist said that they had similar soils and were managed similarly. The fields sampled on April 10 had a greater percentage of the nitrate in the top foot (45, 58, and 65%) compared to the second foot; while fields sampled on April 19, had a smaller percentage of the nitrate in the top foot (24, 27, and 38%). These data are suggesting that there is still a substantial amount of nitrate in the soil and the large amount of recent rainfall only pushed nitrates deeper in the profile, but not out of the crop root zone.

So what should a farmer or agronomist do? One thing that can be done is to keep checking the soil nitrate monitoring network website for data. A second thing that can be done is to take preplant nitrate samples in your fields. The preplant nitrate test (PPNT) requires sampling to two feet in one-foot

increments. This will give the amount of nitrate in the soil profile to two feet. During development of the PPNT in the early to mid-1990s, an equation was developed to estimate the amount of nitrate found in the third foot of soil (24-36 inches) based on the amount found in the second foot (12-24 inches). This estimation is necessary because there is often nitrate in the third foot of soil, but no one is really interested in taking samples to three feet. The amount of nitrate measured in the first and second foot of soil is added to the amount estimated for the third foot to obtain the total lb N/a. Background nitrate in a PPNT is 50 lb N/a; therefore 50 lb N/a must be subtracted from the total (0-3 foot) amount to obtain a N credit in lb N/a.

The equation used to estimate nitrate in the third foot of soil in a PPNT sample is: estimated lb N/a in 3rd foot = 10.1 + (0.72 x lb N/a in 2nd foot) It should be noted that the data used to develop this equation was not from years following drought. Therefore, the estimation of nitrate in the third foot may not be as accurate this spring. The only way to really know how much nitrate is in the third foot is to sample it.

The general guidance for taking soil samples for nitrate analysis is to take 15 soil cores randomly from 20 acres. In most years this sampling intensity would be appropriate. However, this year there may be quite a bit of variation in the amount of soil profile nitrate caused by the drought, but also caused by winter and early spring precipitation. Infiltration and percolation of this moisture was not even across fields. Infiltration and percolation will vary across the landscape because of changes in slope, topography, soil texture, frost, etc. Thus, we might expect that low areas of fields, where water may have been (or is) standing, could have lower nitrate concentrations because more water was (or will) move through the soil profile compared to areas of the field with slopes or knolls. When taking PPNT samples, consider a somewhat more intensive sampling scheme that includes separating sampling areas based on topography and memories of where corn yields may have been most impacted by drought in 2012. Use PPNT results to adjust 2013 N applications to improve profitability.

For more information on using the PPNT see Chapter 5 in UWEX Publication A2809 *Nutrient application guidelines for field, vegetable, and fruit crops in Wisconsin*.

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