

MSU Extension Crops Newsletter for Northwest Michigan

Northwest Michigan Crop Producer,

August 2013

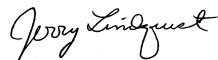
From too wet to too dry, and then from too hot to too cool the summer of 2013 has had many weather extremes. The impact of this variable weather has created agricultural crops that are highly variable as well. Some corn and soybean fields look like they will make for a harvestable crop if the killing frost arrives at its normally scheduled time. However other fields have a long way to go and will need an extended growing season with some rain and more heat than we are currently receiving to reach maturity.

Hay yields and wheat yields also have shown great variability thus far. Hays fields that were fertilized and that got the June and early July rains have responded with great yields. Take away one of those two key ingredients and the hay yields were not much better than they were in the drought year of 2012. Wheat yields have ranged thus far from 40 bushel to 70 bushel per acre across the region.

Along with this race to maturity for the grain crops we also have a falling corn price that needs to be watched and managed carefully when pricing this year's crop (if you have not already done so). The grain markets will also be a factor in the new planting decisions for 2014 crops, which will have to be made starting with wheat planting in September.

If farming were a profession with a guaranteed path to wealth everyone would want to do it and then you know all too well what would happen. Still it is a noble profession and I know the farmers of Northwest Michigan will find a way to preserve and find success. Stay safe and healthy this upcoming harvest season. Here's hoping we find some rain and heat to round it out!

Jerry Lindquist



MSU Extension
Grazing & Field
Crops Educator

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Agriculture and Natural Resources
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Economic Development
Family Nutrition Program

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**MICHIGAN STATE
UNIVERSITY**

Extension

MSU Extension Forage & Bio-Fuels Field Day

This program will expose forage and biomass producers to some of the new practices, equipment and options available for harvesting. Join us for educational sessions and view equipment for shreddlage, corn windrower, and other forages.

Dates/Times

10:00 a.m. – 2:00 p.m.

Monday, August 19

Ottawa County MSU Extension
12220 Fillmore St.
West Olive, MI 49460

- or -

Tuesday, August 20

W of the intersection of M-142 and
Sturm Rd, Pigeon, MI
(Huron County)

For more information, please contact
Dennis Pennington at (269) 838-8265 or
Phil Kaatz at (810) 667-0341



There is no registration fee and lunch will be provided.

To register for the Ottawa County

Program call Wendy Hunt at
(269) 945-1388
blakel13@msu.edu

To register for the Huron County

Program call Tina at Lapeer County
MSU Extension at (810) 667-0341
houset@msu.edu

Please call and register so we can properly plan for lunch!

Registration due:
Friday, August 16th

Thanks to our generous sponsors:

- ◆ Greenstone Farm Credit Services
- ◆ John Deere
- ◆ TNT Equipment
- ◆ Burnips Equipment
- ◆ New Holland



Topics and Speakers:

- AFEX treated corn stover, Bryan Bals, MBI
- Lime treated corn Stover, Steve Petersen, Monsanto
- Corn windrower head, Jim Straeter, Cole Sanford, New Holland
- How much corn stover should I remove, Kurt Thelen, MSU
- Chopping vs. shredding, Ross Dale, Shredlage, LLC

The biofuel industry is ramping up for large scale production of second generation biofuels made from renewable feedstocks like corn stover and switchgrass. Various equipment companies have been working to develop harvesting methods to efficiently and cost effectively collect corn stover for feed or biofuel production purposes.

Morgan Composting Inc

Phone: 231-734-2451

Fax: 231-734-6259



www.dairydoo.com

2013 Soil Seminar Open House

“Layering of Good Practices to Build Healthy Soils”

Thursday, August 15, 2013

9:00am-4:00pm

9:00-9:30am **Registration and short farm tours**

9:30-9:45am **Welcome:** Brad Morgan, Owner and CEO of Morgan Composting Inc.

9:45-10:45am **Key Note Speaker:** Dr. George Bird, MSU Nematologist, **“The Science of Soil Health”**

11:00-11:45am **Session 1** (Choose One)

- a) Paul Gross & Jerry Lindquist, MSU Extension – An Overview of Soybean Production
- b) Craig Schaaf, Golden Rule Farm – Intensive Vegetable Farming
- c) Senator Darwin Boohar, State Rep Joel Johnson and Jim Byrum – Future of Michigan Agriculture

11:45-1:00 **Lunch** – Will be provided by Morgan's Healthy Options includes a pig roast.

1:00-1:45 **Session 2** (Choose One)

- a) Christina Curell, MSU Extension – Building Soil Health
- b) Dr. Jason Rowntree, MSU Beef Grazing Specialist – Soil Biology of Pasture Management
- c) Dan Busby, MAEAP – What Can MAEAP Do For Your Farm?: The Process and Benefits of MAEAP Verification

2:00-2:45 **Session 3** (Choose One)

- a) Paul Gross, MSU Extension – Important Practices to Improve Soil Health and Why
- b) Dr. Biernbaum, MSU Horticulture Department – Closing the Food Cycle Loop with On-Farm Hoop House Worm Composting of Food Preparation Scraps
- c) Greg White, NRCS & R.J. Rant, Morgan Composting – Natural Resource Conservation Service (NRCS) Programs/Bringing it All Together...Utilizing What You’ve Learned and Putting it into Practice

2:45-3:00 **Break**

3:00-3:45 **Session 4** (Choose One)

- a) Laren Avery – Michigan Brewing Industry/The Growth Potential of Hops Production in Michigan
- b) RJ Rant, Morgan Composting – Homeowner Gardening
- c) Vicki Morrone, MSU – "All Those Labels on the Food at Your Table-What Do They Really Mean?"

3:45-4:00pm **Short Farm Tours and Dismissal**

Location Key: **Session A** – New storage barn; **Session B** – Barn #3 (near worm barn); **Session C** – Upstairs office of the Retail Store

MORGAN COMPOSTING, INC.

2013 SOIL SEMINAR



Educational Workshop



GRAB A FRIEND AND REGISTER TODAY!

This years theme:
"Layering of Good Practices to
Build Healthy Soils"

EVENT INFORMATION - THURSDAY, AUGUST 15

- 9:00-9:30am Registration and short farm tours
- 9:30-9:45am Welcome
- 9:45-10:45am Key Note Speaker
- 11:00-11:45am Session 1
- 11:45-1:00pm Hog Roast Lunch!
- 1:00-1:45pm Session 2
- 2:00-2:45pm Session 3
- 2:45-3:00pm Break
- 3:00-3:45pm Session 4
- 3:45-4:00pm Short Farm Tours and Dismissal



Highlights!



Speakers

Dr. George Bird, Nematologist, Keynote Speaker
Dr. Bird will be opening the program with a discussion on "The Science of Soil Health"

Senator Boohar and State Representative Joel Johnson
Michigan Agriculture/Farm Bill

Jim Byrum, Michigan Agribusiness Association
Large Agriculture Production

Dr. Jason Rountree, MSU Assistant Professor, Beef Cattle and Forage Utilization
Soil Biology of Pasture Management

Dan Busby, MAEAP Verifier
Overview of MAEAP Verification Process

Laren Avery, Head Brewer at Mountain Town Station Brewery
Michigan Brewing Industry/Hops

Vicki Morrone, Organic Farming Specialist
Food Labels: Organic, Sustainable, GMO's...An In-Depth Discussion

REGISTRATION INFORMATION:

Cost - \$20 preregistration (online at www.dairydoo.com, phone: (231)734-2451 or through mail) or \$25 at the door
To preregister, please return this portion, with payment, to 4353 E US Highway 10, Sears, MI 49679. Checks can be made payable to Morgan Composting.

Name(s): _____ Company/Farm: _____

City: _____ Phone: _____ Email: _____

Amount Enclosed: # of Registrations: ____ x \$20.00 = _____

Foxtail Barley in and around Horse Pastures

Foxtail barley may occasionally be found in and around horse pastures, management precautions must be taken when horses and other livestock graze it.

Riley Collins, and Tom Guthrie, Michigan State University Extension

Foxtail barley is an attractive short-lived native perennial cool season bunchgrass that ranges in height from one to three feet tall. Common places to find foxtail barley include: pastures, roadsides, meadows, moist soils and disturbed areas [throughout Michigan](#).



Foxtail barley

This plant has fair to good forage value for horses up to the time when seed heads develop. During the vegetative stage before seed head development, foxtail barley can be safely grazed. However, as common with most grasses, forage quality begins to decrease after seed head development. Once seed development begins, typically from May to August, grazing foxtail barley can cause problems for horses and other livestock that graze it.

Horses and livestock consuming seeds of foxtail barley can be troublesome. When the seeds form, awns with small sharp barbs along the edge extend from the seed. These awns can abrade or become lodged in the skin, mouth, nose, and eyes of grazing horses and livestock. Signs that your horse or livestock have grazed foxtail barley or consumed hay contaminated with foxtail barley may consist of: drooling and lack of appetite. Drooling and loss of appetite are caused by awns that are lodged in the mouth and most likely caused the mouth to become inflamed and sore, resulting in the formation of abscesses.

Horses and other livestock typically avoid grazing foxtail barley once seed head formation occurs if other forage is available. [Michigan State University Extension](#) advises that feeding hay contaminated with foxtail barley seed heads should be avoided.

Good forage management practices will help to reduce the amount of seed produced by foxtail barley as well as minimize the recruitment of new foxtail barely plants in pastures. This can be accomplished either mechanically or chemically. Mechanical control can start early in the season with mowing and intense grazing to help reduce or prevent seed growth. Mowing should be conducted within 10 days of seed head emergence. Foxtail barley that grows in smaller bunches can be chemically spot treated. It is important to always read labels for grazing restrictions when using any chemical on pastures or hay fields. In extreme cases, where pastures or hay fields have been invaded by foxtail barley, these areas may need to be reseeded.

This article was published by [Michigan State University Extension](#). For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

What's the Nutrient Value of Wheat Straw?

Don't sell yourself short when determining the nutrient value of wheat straw.

Paul Gross, Michigan State University Extension

As wheat harvest continues, the question always comes up regarding the value of wheat straw sold out of the field. From a pure fertilizer standpoint, wheat straw contains very little in terms of phosphorus (P_2O_5), but moderate amounts of nitrogen (N) and potassium (K_2O). According to the [Michigan State University Extension](#) Bulletin E-2904, "[Nutrient Recommendations for Field Crops in Michigan](#)," the actual amounts of N, P_2O_5 and K_2O contained in a ton of wheat straw are 13, 3.3 and 23 pounds, respectively. Actual nutrient content can vary based upon environmental conditions during the growing season and after the grain is harvested as well as soil nutrient supply, so if one really wants to know the actual value, straw analysis can be conducted by any lab that processes plant samples.

How much is that straw worth from a nutrient perspective? Well, it obviously depends upon the current market value of nutrients. Using today's prices, a pound of N, P_2O_5 and K_2O costs \$0.65, \$0.52 and \$0.55, respectively. Thus, a ton of straw will contain \$22.91 worth of nutrients. Again, this number can be variable, but it gives you a starting point for your own economic analysis.

It's always best if prices are determined on a "per ton" basis rather than "per acre" basis. This takes the guess work out of determining actual yield. Average wheat straw yields are about 1.5 tons per acre. However, exceptional wheat can yield over two tons per acre or yields can be one ton if stubble is cut high or wheat yield was poor.

The seller has to determine how much profit over the cost of fertilizer is reasonable and put a value on the organic material that is leaving their farm. Farmers should consider planting cover crops or applying manure to replace this organic material. The buyer must consider the harvest costs which vary based on harvest method.

This article was published by [Michigan State University Extension](#). For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

Phytophthora Root and Stem Rot Showing up in Soybeans

Growers should scout for symptoms of *Phytophthora* root and stem rot in soybeans, especially in poorly drained soils.

Martin Chilvers, Michigan State University Extension, Department of Plant, Soil and Microbial Sciences

Phytophthora root and stem rot of soybeans caused by the fungal-like organism *Phytophthora sojae* is a disease that we typically see in heavy, poorly drained soils. Diseased plants will often be associated with low lying areas of the field that are prone to waterlogging, where symptomatic plants can occur as clusters or individuals. Although *Phytophthora sojae* can infect the soybean plant at any growth stage, the next few weeks are a key time to scout for symptoms of this disease. Symptoms can vary depending on the soybean variety, including stunting and wilting of infected plants. However, the most characteristic symptoms of the disease include a dark brown or purpling of the stem that will initiate at or below the soil and extend up one side of the stem. This lesion can eventually girdle the stem and kill the plant.



Stunted and wilting of infected soybean plants caused by *Phytophthora sojae*.



Dark brown stem caused by *Phytophthora sojae*.

The pathogen is capable of surviving in the soil for a number of years as resistant microscopic spores called oospores. It is these oospores that during periods of moderate soil temperature and free moisture form and release zoospores. Free water for the swimming zoospores is essential for the lifecycle of this pathogen. These zoospores have flagella that they use to swim towards roots that they sense via root exudates. After initial infection of the roots, the infection can spread up the stem.

There are two types of resistance that are available for management of *Phytophthora* root and stem rot: race specific resistance (*Rps*) genes and partial resistance. Race specific (*Rps*) genes confer resistance to specific pathotypes (races) of *Phytophthora sojae*, while partial resistance confers resistance to all pathotypes (races). In some instances, the pathogen has overcome some of the most widely deployed resistance (*Rps*) genes. While partial resistance is effective against all pathotypes (races), it is not expressed in very young plants, so

[Michigan State University Extension](#) recommends a seed treatment of Metalaxyl/Mefenoxam is also utilized to minimize very early infection.

This season, we will be looking to collect isolates of *Phytophthora sojae* to examine which pathotypes (races) are present in Michigan; this will help us determine which resistance genes will be effective for disease management. If you have a field with symptoms that we can sample, contact your [local MSU Extension educator](#) or me, Martin Chilvers, at chilvers@msu.edu.

Michigan hay markets beginning to show signs of price relief

After record-setting prices in the winter of 2013, hay prices in Michigan are showing some signs of softening.

Jerry Lindquist, Michigan State University Extension

The Michigan hay markets are beginning to show signs of price relief for buyers from the drought-driven high prices of 2012-2013. Rainfall has returned across much of Michigan and hay yields have rebounded on the first cutting harvest.

Even so, prices have not fallen to pre-2012 levels. There are a number of reasons for this very slow decline including:

1. The total carry-over supply of hay coming out of the winter was the lowest in the last fifty years as most hay barns were empty
1. Hay acres are also at the lowest levels in recent times as many sod fields have been planted to row crops because of the high market prices for these grain crops
2. Poor hay baling weather this June because of the abundant rainfall caused some hay intended for baling to be chopped
3. Reports from Wisconsin and Minnesota of severe winter kill of their alfalfa fields which will place some demand on Michigan hay
4. Alternative feeds prices, including the grains crops, are staying relatively high so there are few cheaper sources of feed to switch to

Still yields on first cutting, the biggest cutting of the season, have returned to near normal levels. Dairy quality alfalfa hays that were harvested in early June were slightly below normal. Some alfalfa fields were thinned by winter kill, but nothing as serious as the farms in Wisconsin and Minnesota. Even with this thinning, abundant soil moisture kept these yields near normal. Later-harvested first cutting hay intended for beef cattle and other livestock actually received some significant rainfall in June across much of the state and the yields of those alfalfa and alfalfa/grass mixed hays jumped significantly in yield.

In 2012, there was not a pronounced price difference between high-quality alfalfa hays and low-quality grass hays. They all were very highly priced because of the lack of supply of all types of hay. In 2013, the normal price spread between high- and low-quality hays is beginning to return. The abundant rainfall that hit Michigan at the beginning of the hay baling season limited the amount of early maturity, high-quality alfalfa hay that could be baled. Thus, those hays are still in low supply and are still currently highly priced. With the moisture that is still in the soil, it is anticipated that second cutting alfalfa yields could be good, and if favorable drying conditions prevail, higher quality hay supplies will begin to materialize.

At this point in the growing season, it is always difficult to predict what the seasonal price of hay will be by fall and over the winter. There is still a significant portion of the hay harvest season to complete, and the grain futures market is forecasting a falling grain price into the fall. If the grain price drop does materialize, feed prices will move lower which could start to decrease demand for hay.

The bottom price line is easier to predict for hay. [Michigan State University Extension](#) budgets for 2013 predict that the average Michigan producer with hay yields around 4 ton per acre of dry hay will realize a cost of production in the range of \$105 – 115 per ton at 16 percent moisture hay. Thus, most hay sellers that know their true cost of production will not be selling hay for less than \$115 per ton unless the hay supply greatly outpaces demand. [This higher cost of hay production can be related to the still relatively high input costs](#) such as fertilizer, land cost, fuel cost, and the cost of machinery and the related repairs on equipment.

Hay prices in Michigan are currently experiencing a wide range of prices as some buyers have drought phobia and are willing to pay as much as they did last winter for hay. But prices have moderated slightly on the lower quality first cut alfalfa/grass mixed hays. Those hays in round bale packages are bringing \$120 - \$180 per ton. In big and small square bale packages this same type of hay is bringing \$135 - \$245 per ton. The high-quality alfalfa hays are still in very short supply and are bringing \$200 - \$320 per ton with not much price difference between the round and square bales. Within these ranges lower quality and rained on hay runs at the lower end of the price range as does hays that are picked up at the field.

Once the last cuttings are harvested in the fall and the yields are compiled, the hay prices will start to adjust accordingly. MSU Extension forage staff advises those needing forage to feed their animals to maximize their yields this summer, and buyers looking for hay to buy, not wait too long hoping for cheap hay. Based on the many reasons mentioned above it may take several years to return the hay price to a pre-2011 price level and it will take a surplus hay year to do that.

To locate hay for sale or to list hay for sale go to the [Michigan Hay Sellers List](#) which can also provide an update on the average asking prices of hay for sale in Michigan. For more information, contact MSU Extension educators Phil Kaatz at kaatz@anr.msu.edu or 810-667-0341, and Jerry Lindquist at lindquis@anr.msu.edu or 231-832-6139.

Successful Corn Pollination is Dependent Upon Many Factors

A simple ear shake test can assess kernel set shortly after pollination.

Marilyn Thelen, Michigan State University Extension

Tasseling and pollination is a critical time in the life of a corn plant. These two functions work in concert to allow the pollen to fertilize the ovule, resulting in a kernel. Pollen shed occurs over a two-week period. During that time, silks must emerge and be fertilized. Although this seems simple, there are several things that [Michigan State University Extension](#) explains can impact the success and, therefore, impact the number of kernels.

- **Moisture.** Drought stress throws silking and pollination out of sync, slowing silk elongation and accelerating pollen shed.
- **Temperature.** Temperatures greater than 95 degrees Fahrenheit with low relative humidity will damage exposed silks. In addition, temperatures in the mid-90s or greater will render pollen no longer viable.
- **Insects.** Corn rootworm beetles feed on silks, pollen and kernels. Japanese beetles will feed on silks. Control will be dependent upon number of beetles throughout the field and the stage of pollination.
- **Hail.** [Hail damage at tasseling](#) is more serious than at any other stage of development as it can lead to the complete loss of a pollen source.

Many fields began to tassel during the week of July 15, 2013, one of the hottest weeks of the 2013 growing season where temperatures hit 97 F in parts of Mid-Michigan, [according to Enviro-weather](#). This week (week of July 22), temperatures fell to below normal and while parts of Michigan acquired needed rain, there are other areas where corn is showing drought stress. In addition, corn development is quite variable. With all this variability, is there a way to assess how successful pollination was in your corn field?

John Nielson, agronomist at [Purdue University](#), demonstrates an [Ear Shake Test](#) to determine how many kernels have pollinated. The simple test involves selecting an ear where silks are emerged and possibly beginning to turn color on the ends, indicating the pollination period is nearly complete. Cut the butt end of the ear cross-ways, exposing the cob and the ring of kernels. Carefully slit the husks lengthwise so the husks can be gently peeled off, leaving just the silks covering the cob. Gently shake the cob, allowing the detached silks to fall. This will expose the kernels that have been pollinated.

Although there are still many factors that can impact yield, this test gives an indication of pollination success and kernel set.

For more information:

[Evaluating Hail Damage to Corn](#), University of Nebraska Lincoln Extension, EC126

Video of [Ear Shake Test to Determine Corn Pollination Progress](#)

This article was published by [Michigan State University Extension](#). For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

MSU's 2013 wheat variety performance results are available

The Michigan State University Wheat Performance report for 2013 is now available, serving as an invaluable tool for selecting and managing wheat varieties.

Martin Nagelkirk, Michigan State University Extension

Each season, [Michigan State University Extension's](#) wheat breeding team evaluates the performance of numerous soft red and soft white winter wheat varieties. The [results for the 2013 season](#) are available at the [MSU Wheat Performance Trials](#) website.

The commercial version of the report summarizes data taken across six state-wide sites. It provides comparative numbers and scores for 63 (52 soft red and 11 soft white) commercial varieties on grain yield, test weight, harvest moisture, plant lodging, maturity, disease susceptibility and baking qualities.

The performance report is the single best reference for growers to use when selecting new varieties. When considering varieties, growers are encouraged to use the multi-year and multi-site data. This helps insure that varieties are selected that will likely perform under a range of conditions.

The report is also a helpful reference for management decisions. The information on lodging, maturity and disease resistance can aid growers in fine-tuning strategies relative to nitrogen fertilization and fungicide programs.

Read the [MSU Wheat Performance Trials: 2013](#)

The trials are conducted by MSU's Lee Siler, Sue Hammer and Eric Olson.

This article was published by [Michigan State University Extension](#). For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

Palmer amaranth in Michigan

Keys to Identification

Christy Sprague, Extension Weed Science

www.MSUweeds.com

April 2011



MICHIGAN STATE UNIVERSITY WEED SCIENCE

MSUWS01-2011

This past season a grower in southwest Michigan reported that he was not able to control “pigweed” in his soybean field with glyphosate (Roundup). The pigweed was later identified as Palmer amaranth (*Amaranthus palmeri*). Palmer amaranth is not native to Michigan or to other states in the northern U.S. In fact, there are no reports of Palmer amaranth ever being found in Michigan according to Michigan State University’s and other universities’ herbarium records. Palmer amaranth is a pigweed that is native to the desert Southwest and is one of 10 common pigweeds in the Great Plains and the Southeast U.S.



Palmer amaranth in Michigan soybean field

Characteristics:

Palmer amaranth or “Palmer pigweed” as it is referred to in the South, is the most competitive and aggressive of the different pigweed species. The characteristics that make growers fearful of this weed include:

- Extended emergence patterns (May to mid-July in the Southern U.S.)
- Rapid growth rate (up to 2½ inches per day)
- High water use efficiency “drought tolerance”
- High seed production (avg. 400,000 seeds per plant)
- Dioecious (separate male and female plants) – leads to high degree of genetic diversity
- Potential hybridization with other pigweeds
- Rapid development of herbicide resistance



Palmer amaranth can exceed 8 feet tall

Identification:

Palmer amaranth is difficult to distinguish from Michigan’s common pigweeds (redroot pigweed, smooth pigweed, and Powell amaranth). However, there are some distinguishing characteristics that will help in identifying Palmer amaranth.

Seedling Palmer amaranth:

- Leaves egg-shaped, hairless
- A small point or “spike” may be present on the leaf tip



Seedling Palmer amaranth

Photo credits:
Dan Rajzer, MSU Extension
Christy Sprague, MSU Weed Science

Palmer amaranth in Michigan



Palmer amaranth stem is smooth
Powell amaranth, redroot pigweed, and smooth pigweed stems are hairy



Long petiole of Palmer amaranth (top),
Powell amaranth leaf (bottom)



Symmetrical arrangement of leaves

**" PALMER
AMARANTH IS THE
MOST
COMPETITIVE AND
AGGRESSIVE OF
THE PIGWEED
SPECIES"**



Female Palmer amaranth inflorescence
Leaf axil flowers, prickly to touch

Identification (continued):

Immature Palmer amaranth:

- The stem and leaf surfaces of Palmer amaranth are smooth (few to no hairs), distinguishing it from redroot pigweed, smooth pigweed, and Powell amaranth
- Petioles are often as long or longer than the leaf blades
- Leaves are in a symmetrical arrangement, similar to a poinsettia (can have v-shaped watermark on each leaf)

Mature Palmer amaranth:

- Male and female flowering structures are on separate plants
- Flowering structures (inflorescence) are thick, non-branched, and 1 to 2 feet long
- Male flowering structures feel soft and shed pollen; female flowering structures have pointed bracts and are sharp or prickly to the touch and contain seed
- Flowers can also be found in the leaf axils

Documenting the spread of Palmer amaranth:

Palmer amaranth has only been identified in a small geographic area in St. Joseph County. This population has been confirmed **resistant to glyphosate**. See the fact sheet "Glyphosate-resistant Palmer amaranth in Southwest Michigan: Confirmation and options for management". It is important to keep Palmer amaranth from spreading to surrounding areas.

If you suspect that you have glyphosate-resistant Palmer amaranth, please contact Bruce MacKellar, Michigan State University Extension Educator, Van Buren Co. Office, mackella@msu.edu, 269-657-8213 or Christy Sprague, Michigan State University Weed Extension Specialist, sprague1@msu.edu, 517-355-0271 x. 1224.

Location of Palmer amaranth in Michigan



Osceola County MSU Extension

301 West Upton
Reed City, MI 49677

Non-Profit Organization

Bulk Rate

US Postage Paid

Permit No. 62

Reed City, MI 49677



Phone 231-832-6139

Fax 231-832-3381

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