

# Wisconsin Crop Manager

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## Palmer amaranth is in Wisconsin crop production fields

Vince M. Davis, Annual Cropping Systems Weed Scientist

Palmer amaranth (*Amaranthus palmeri* S. Watson) is a very problematic annual broadleaf weed for many cotton and soybean producers in the Southern and Mid-southern U.S. It is a 'cousin' to other pigweed species more commonly found in Wisconsin crop production fields such as redroot pigweed (*A. retroflexus*), smooth pigweed (*A. hybridus*), and common waterhemp (*A. rudis*). It is especially problematic in areas where biotypes are resistant to glyphosate and ALS inhibitor herbicides, which drastically limits control options. It is also problematic because it is a highly competitive weed, and it has been shown to be the most competitive of the pigweed species. It has an extended germination and emergence window, rapid growth rates, high water use efficiency, and produces large quantities of seed. Moreover, Palmer amaranth is dioecious meaning there are male and female plants like waterhemp, and also like waterhemp, it expresses the ability to quickly evolve biotypes resistant to herbicides. Palmer amaranth is reported to have glyphosate-resistant biotypes in Georgia, North Carolina, Arkansas, Tennessee, New Mexico, Alabama, Missouri, Louisiana, Virginia, Illinois, and Michigan. The weed also has reported biotypes resistant to ALS inhibitors in Tennessee, Kansas, Arkansas, North Carolina, South Carolina, Georgia, and Florida. And, it has biotypes resistant to photosystem II inhibitors (triazines) in Texas, Kansas, and Georgia.

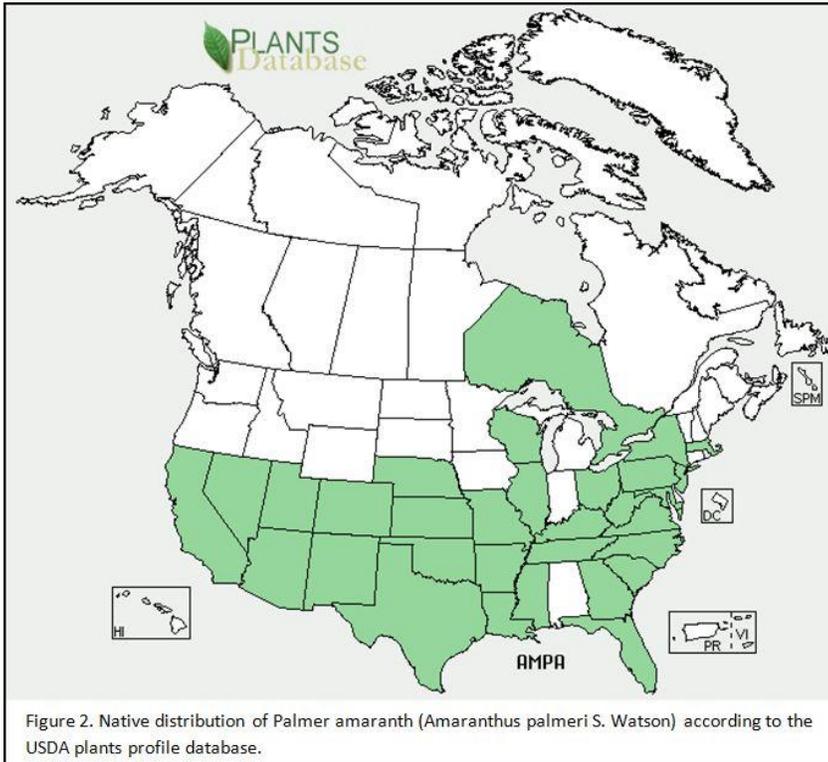
### Why do we care about the difficulties producers in the South are having with this weed problem?

Because it is apparently moving North, and it is [now ?] in Wisconsin! This weed was found in a soybean production

field in south central Wisconsin, Rock county (Figure 1). According to the USDA NRCS plants database, Palmer amaranth (*Amaranthus palmeri* S. Watson) is a native amaranth of Wisconsin (Figure 2). However, as of early October 2011, there were no reports and no current distribution information at the Wisconsin State Herbarium or the Robert W. Freckmann Herbarium, University of Wisconsin – Stevens Point. On the Robert W. Freckmann Herbarium website, it was classified as 'excluded'. Moreover, Dr. David Stoltenberg said Palmer amaranth is not a weed he has ever known to be found in Wisconsin crop production fields. So, while it may be considered as a native plant species to WI, it certainly has been a 'very rare' weed at best.



Figure 1. Palmer amaranth (*Amaranthus palmeri*) in a soybean field identified in Rock County, WI, September 30<sup>th</sup> 2011.



Available at: <http://plants.usda.gov/java/profile?symbol=AMPA>

This finding is important to share because it is consistent with recent findings in Illinois and Michigan. Dr. Aaron Hager of the University of Illinois noted in 2005 that while Palmer amaranth can be found in the southern 1/3 of Illinois, it was moving north in the state similar to the movement of common waterhemp in the 1990's. By 2010, glyphosate-resistant biotypes were confirmed in Illinois. In Michigan, the USDA database does not show Palmer as a native plant species in the state. However, in 2010 Palmer amaranth was found in production fields with control failures in St. Joseph county Michigan which is a southern county bordering Indiana. By April of 2011, those populations were confirmed to be resistant to glyphosate. These are trends that we prefer not to repeat in WI.

### What should be done this year?

Consistent with my previous article about the importance of late season weed scouting, if you have pigweeds that escaped control in soybean or corn fields this year, you should take the time to correctly identify what type of pigweeds they are. It is very difficult to accurately distinguish between many of the pigweed species without flowering parts, so now is the time to identify these correctly, not next spring. Instead of me rewriting detailed instructions in this article that enable you to distinguish between pigweed species, I'll direct you to the *Identification of the weedy pigweeds and waterhemp of Iowa* publication with the website URL posted below. It is a very good resource put together at Iowa State University, and it is well illustrated and detailed. Some key identification points to alert you to whether you should go to the detailed characteristics are: the stems lack hair (like waterhemp), the flower heads are long and somewhat skinny, and the flower heads are sharp (prickly) to the touch with bare hands. The flower heads are sharp to the touch because of long and ridged

tepels that cover the seeds on the female plants. If you are pretty sure you have Palmer amaranth escapes in production fields, please send me an email and let me know. If you'd like to have me double check their identification, collect several female plants in a brown paper bag and get them to me. If you do this, please note the location of the sample collection (with GPS coordinates if possible), and also provide any production history if possible. If you send these samples through the mail, place in a box that is very well sealed with tape to prevent the chance seeds will escape the box.

### References:

- Identification of the weedy pigweeds and waterhemp of Iowa. Pratt, D. B, M.D.K. Owen, and L.G. Clark. April 1999. Available at: <http://www.extension.iastate.edu/publications/PM1786.pdf>
- International survey of herbicide resistant weeds. Heap, I. 2011. Available at: <http://www.weedscience.org>
- Glyphosate-resistant Palmer amaranth in Southwest Michigan. Sprague, C. April 2011(b), available at: <http://anrcom.msu.edu/uploads/files/122/4-28Palmer%20Glyphosate%20ConfirmationCHRISTY.pdf>
- Palmer amaranth in Michigan. Sprague, C. April 2011(a), available at: <http://anrcom.msu.edu/uploads/files/122/4-28Palmer%20IdentificationCHRISTY.pdf>
- Palmer amaranth: Today's pigweed of concern. Hager, A. 2005. *The Bulletin* Article 6/November 11, available at: <http://bulletin.ipm.illinois.edu/article.php?id=432>
- Robert W. Freckmann Herbarium, University of Wisconsin – Stevens Point: <http://wisplants.uwsp.edu/index.html>
- Wisconsin State Herbarium: <http://www.botany.wisc.edu/herbarium/>

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## 2012 Field & Vegetable Crop Commercial Pesticide Applicator Training Sessions

The locations and dates of the 2012 Field & Vegetable Crops commercial pesticide applicator training sessions are as follows; the pre-registration deadline is two weeks prior the session date.

- Janesville: March 12
- Baraboo: March 14
- Eau Claire: March 15
- Oshkosh: March 19

Pre-registration is required to attend any commercial applicator training session. The fee to attend a live training

session is \$25; this is in addition to the \$45 base training fee for the manual. You may register online using a credit card from our home page <http://ipcm.wisc.edu/pat/> and click on Register Online. If you prefer to pay by check, you can download a registration card from our website (from the home page, click on downloads, then click on "Commercial Applicator Registration Card." Fill out the card and mail it with your check to our office. You can also obtain a card by calling or emailing our office: (608) 262-7588; [PAT-program@wisc.edu](mailto:pat-program@wisc.edu). From the home page, you also may download the complete training session schedule with registration instructions and directions to training sites from the download page.

Please note that the format for these meetings has been changed to half-day sessions.



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## Fertilizer Calculator Spreadsheet

Craig Saxe, Agriculture Agent, UWEX Juneau Co.

An Excel spreadsheet is now available to help with the math when applying fertilizer to a garden, lawn or small field plot. Using a soil test report and six simple steps, this spreadsheet calculates the amount of fertilizer to be applied to a specific area. Application rates and possible nutrient surpluses or deficiencies are calculated for sixteen commonly used fertilizers (including manure options). Other fertilizer choices can be added or with some additional inputs, the spreadsheet will create a more personalized fertilizer blend. This spreadsheet should not be considered a substitute for a nutrient management plan or a replacement for software programs like SNAP-Plus. To download a copy go

to: [http://www.soils.wisc.edu/extension/materials/UWEX\\_Fertilizer\\_Calculator.xlsx](http://www.soils.wisc.edu/extension/materials/UWEX_Fertilizer_Calculator.xlsx) (Excel 2007 or newer required). Please share comments or suggestions with Craig Saxe, Juneau County UW-Extension, 211 Hickory Street Rm. 302 Mauston WI 53948. 608-847-9329 or [craig.saxe@ces.uwex.edu](mailto:craig.saxe@ces.uwex.edu)

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## Does Soil Fertility Excite You?

Carrie Laboski, Extension Soil Scientist, Dept. of Soil Science, Univ. of Wisconsin-Madison

Does soil fertility excite you? If so, then you won't want to miss the 41<sup>st</sup> North Central Extension-Industry Soil Fertility Conference. The conference is being held in Des Moines, Iowa on November 16-17, 2011. A full range of soil fertility topics is on the agenda for this year's conference. A few hot topics include: N fertilizer additives, variability of soil test K, micronutrients in starter fertilizer, and novel inputs on soybean. The full program and registration information can be found at: <http://www.ipni.net/ipniweb/conference/ncsfc2010.nsf/gx/general-information>

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## Soil Fertility & Nutrient Management Meetings Announced

The UW-Madison Dept. of Soil Science has released the dates, times and locations for the annual Soil Fertility and Nutrient Management Meetings. They will occur at eight locations across Wisconsin on December 1, 2, 5, and 6. Exact locations, times, dates, and registration instructions can be found [here](#) or at the end of this issue of the *Wisconsin Crop Manger*.



*SOIL FERTILITY & NUTRIENT MANAGEMENT MEETINGS  
DECEMBER 1, 2, 5, and 6, 2011*

The Department of Soil Science, in conjunction with University of Wisconsin-Cooperative Extension, will conduct eight Soil Fertility and Nutrient Management Meetings in 2011, albeit somewhat differently this year. The previous eight-day schedule has been condensed to four half-day meetings. Morning sessions will be 8:30 to 11 am (7:30 to 8:30 am for breakfast). Afternoon sessions will be 1:00 to 3:30 pm (12 noon to 1 pm for lunch). The purpose of these meetings is to provide research updates in the field of soil fertility and nutrient management. Matt Ruark, Carrie Laboski, John Peters, and Sue Porter will present current soil fertility and nutrient management information. All speakers may not be present at all meetings. A \$25.00 registration fee (which includes either breakfast or lunch) will be charged for the meeting. Certified Crop Adviser CEU credits (2.5 in nutrient management) have been requested. Make reservations with the host agent at least 1 week before the meeting you wish to attend.

*Discussion Topics*

- Nitrogen management of small grains and sweet corn (Matt Ruark)
- Nutrient management for no-till production (Matt Ruark)
- Wisconsin's improving nutrient management (Sue Porter)
- Solid dairy manure may reduce P loss after silage harvest (Carrie Laboski)
- Limitations to plant tissue testing (John Peters)
- Should corn hybrid selection influence N fertilizer rate decisions? (Carrie Laboski)
- Variety/hybrid and location effects on soybean tissue and corn grain nutrient composition (Carrie Laboski)

→SCHEDULE←

| <u>Date</u>                           | <u>Location</u>   | <u>Host Agent</u>  |
|---------------------------------------|---|--|
| Thursday<br>December 1<br>{Morning}   | <b><u>Fitchburg</u></b><br>Lussier Family Heritage Ctr.<br>3101 Lake Farm Rd.   | <b><i>Nolan Andersen</i></b> , Dane Co., 1 Fen Oak Court, Rm. 138, Madison, WI 53718<br>608-224-3717 or 608-224-3705 |
| Thursday<br>December 1<br>{Afternoon} | <b><u>Dodgeville</u></b><br>Iowa Co. Health & Human Services Bldg.<br>303 W. Chapel St.<br>{2 blocks west of Iowa Co. Courthouse} | <b><i>Gene Schriefer</i></b> , Iowa Co. Extension Office, 303 W. Chapel St., Dodgeville, WI 53533<br>608-930-9850    |

(OVER FOR MORE)

| <u>Date</u>                          | <u>Location</u>  | <u>Host Agent</u>   |
|--------------------------------------|--|---|
| Friday<br>December 2<br>{Morning}    | <b><u>Eau Claire</u></b><br>Eau Claire Co. Expo Ctr.<br>Main Exhib. Bldg.<br>5530 Fairview Dr.<br>S. of 93 & I-94      | <b><i>Mahlon Peterson</i></b> , Eau Claire Co.,<br>227 1st Street West, Altoona, WI 54720<br>715-839-4712                 |
| Friday<br>December 2<br>{Afternoon}  | <b><u>Sparta</u></b><br>Jake's Northwoods<br>1132 Angelo Rd, Hwy 21  | <b><i>Bill Halfman</i></b> , Monroe Co., 14345 County<br>Hwy B, Rm. 1, Sparta, WI 54656<br>608-269-8722                   |
| Monday<br>December 5<br>{Morning}    | <b><u>Juneau</u></b><br>Dodge Co. Admin. Bldg.<br>127 E. Oak St.   | <b><i>Matt Hanson</i></b> , Dodge Co., Rm. 108<br>County Admin Bldg., 127 E. Oak St.,<br>Juneau, WI 53039<br>920-386-3790 |
| Monday<br>December 5<br>{Afternoon}  | <b><u>Kiel</u></b><br>Millhome Supper Club<br>3 miles E. on Hwy. 57/32   | <b><i>Mike Ballweg</i></b> , Sheboygan Co.,<br>5 University Dr., Sheboygan, WI 53081<br>920-459-5904                      |
| Tuesday<br>December 6<br>{Morning}   | <b><u>Shawano</u></b><br>Angie's Main Café<br>132 S. Main St.<br>{Parking available on<br>Main St. or behind the cafe} | <b><i>Katie Behnke</i></b> , Shawano Co.,<br>Courthouse, Rm. 101, 311 N. Main St.,<br>Shawano, WI 54166<br>715-526-6136   |
| Tuesday<br>December 6<br>{Afternoon} | <b><u>Marshfield</u></b><br>Marshfield Ag. Res. Strn.<br>2611 E. 29th St.  | <b><i>Don Genrich</i></b> , Adams Co., 569 N. Cedar<br>St., Suite 3, Adams, WI 53910<br>608-339-4237                      |



**2012 WISCONSIN CROP  
MANAGEMENT CONFERENCE**

January 10-12, 2012  
Alliant Energy Center, Madison

and



**CCA Exam Review Training**  
{New format; details to be announced}