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Michigan State University Extension

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Editor: Diane Brown  
Editorial Assistant:  
Jamie Styburski

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# BERRIEN COUNTY FRUIT & AGRICULTURE NEWS

*Dear Fruit and Agriculture Producers, as harvest season draws to a close, take time to reflect on the growing season-all that went right and what you would like to improve for next year. There are many programs and winter meetings coming up that can help provide answers to business, production, and pest management questions you have, to make 2014 a more profitable growing year. My time here is also drawing to a close. It has been a privilege to work with you and to be a part of this important agricultural community. I'll be moving on to a new position with Extension in Ingham County, January 2, 2014. Diane Brown, MSUE Horticulture Educator.*

## AFFORDABLE CARE ACT & FRUIT CROP INSURANCE UPDATE WORKSHOPS

### Workshop locations:

**October 24, 2013** - Ottawa County Fillmore Complex, (Main Conference Room) 12220 Fillmore Street, West Olive, MI 49460. Hosted by: Carlos Garcia. **Online registration deadline: October 21.**

**October 29, 2013** - SW Michigan Research & Extension Center, 1791 Hillandale Rd., Benton Harbor, MI 49022. Hosted by: Mark Longstroth. **Online registration deadline: October 24.**

### Agenda

- ◆ 6:00 p.m. - 6:05 p.m. Introduction
- ◆ 6:05 p.m. - 7:45 p.m. Affordable Care Act

**Dr. Adam J. Kantrovich, MSU Extension Farm Management Educator,** will discuss the Affordable Care Act and how it affects farms, small businesses and individuals. The Affordable Care Act is far-reaching legislation that covers every business, industry and individual. There are no "loop-holes" that provide any type of exemption. There are many layers to the Affordable Care Act, this will be a broad overview of the basics within the 90 minutes that are available. Topics include: General Rules, Employer Shared Responsibility (ESR) Mandate, Rules for counting

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### Meeting calendar

- Great Lakes Fruit, Vegetable and Farm Market EXPO Michigan Greenhouse Growers Expo, December 10-12, 2013. DeVos Place Convention Center, Grand Rapids, MI
- Pesticide RUP review and testing, December 17, 2013 Berrien County office, 8 am-3 pm. See page 2 for details.
- Michigan Wine Grape Vineyard Establishment Conference Date: January 21 & 22, 2014 Day 1 12:00-5:00 PM; Day 2 8:30 AM-12:00 PM. Contact Joanne Davidhizar for more details; 269-944-4126
- Ag Action Day, January 31, 2014. 8:00 am-4:00 pm. Kalamazoo Community College, Oshtemo, MI
- Southwest Hort Days, Mendel Center, Benton Harbor, MI. Feb 5-6, 2014

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## FAREWELL OPENHOUSE FOR DIANE BROWN SCHEDULED FOR NOVEMBER 7, 2013

**Y**ou are invited to attend an open house farewell for Diane Brown, Berrien County MSUE Extension Commercial Fruit Educator, on November 7th, from 1-4 pm at the Berrien County Extension Office, 1737 Hillandale Rd., Benton Harbor, Michigan. Brown, who has been in Berrien County since June 2009 will be moving on to a Horticulture and Commercial Fruit Educator position in Ingham County, beginning January 2, 2014. Please stop by to say goodbye and wish her well in her new job.



**RESTRICTED USE PESTICIDE APPLICATOR TESTING AND REVIEW SESSIONS SCHEDULED FOR BERRIEN COUNTY**

**RUP EXAM REVIEW SESSIONS AND TEST DATES:  
Review-December 17, 2013 and March 13, 2014 8 am-noon  
Testing-December 17, 2013 and March 13, 2014 12:30-3 pm**

The workshop is designed to provide a review of the Pesticide Applicator Core Training Manual (Extension Bulletin E-3007) and to administer the Restricted Use Pesticide Certification Exam. Participants are advised to obtain and study the manual mentioned above prior to the workshop. Please note: There will be no review of specific commercial categories. If you are taking the review session for credit, three commercial or private core credits have been requested for the review.

Exams will be given from 12:30– 3 pm on review dates only. To reserve a space at the workshop, please return your registration form and check to the Berrien County MSU Extension office five days in advance of the class. The registration fee for the review is \$25.00. Make this check payable to: Michigan State University. Let us know whether you are taking just the review, or both the review and exam and we will register you for the exam (Dec. 17 and Mar. 13 only).

**RUP EXAM- TEST ONLY DATES**

- January 15, 2014 9 AM – 3 PM
- February 19, 2014 9 AM – 3 PM
- April 16, 2014 9 AM – 3 PM

To register for the exam only, regardless of the date, call the MDA at 1-800-292-3939 or register online at: [www.michigan.gov/pest\\_exam](http://www.michigan.gov/pest_exam)

The location for all the test and review dates is the Berrien County MSU Extension office, 1737 Hillandale Rd., Benton Harbor, MI 49022. Phone: 269-944-4126.

Michigan Department of Agriculture procedures require that applicants pay fees (\$50 private; \$75 commercial) by check or money order (NO CASH!) at the exam site.

*Meeting calendar, cont.*

- IPM Academy, February 18-19, 2014, Kellogg Center, East Lansing, MI. More info: contact Erin Lizotte, 231-946-1510
- Winter Crops Management Meeting , February 19, 2014. ISD Conference Center, Lawrence, MI More info: contact Bruce MacKellar at the Van Buren Co. Extension Office.

Identification and renewal notices (for recertification exams) are also needed in order to take the test.

Checks and money orders for exam are made payable to the State of Michigan.

Some commercial category manuals may be available through the MSU Extension office or may be purchased online at:

<http://bookstore.msue.msu.edu>

**RUP APPLICATOR WORKSHOP**

Registration Form

NAME(S) \_\_\_\_\_  
\_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE \_\_\_\_\_

I wish to register for the following workshop:

**December 17, 2013** \_\_\_\_\_

**MARCH 13, 2014** \_\_\_\_\_

**TYPE OF APPLICATOR:**

New \_\_\_\_\_ Renewal \_\_\_\_\_

Private \_\_\_\_\_ Commercial \_\_\_\_\_

Commercial Category \_\_\_\_\_

Exam is payable to **State of Michigan** (bring check or money order day of exam)

Enclosed is: \$ \_\_\_\_\_

(\$25 per person for the review session only)

**REVIEW ONLY** \_\_\_\_\_ (I AM NOT TAKING THE EXAM)

Make check for the **review** payable to:  
(\$25.00 per person)

**Michigan State University**

Return check, with registration form, to:

Berrien County MSU Extension

1737 Hillandale Road

Benton Harbor, MI 49022-9630

3 commercial or private RUP credits have been requested for the review session

**AFFORDABLE CARE ACT & FRUIT CROP INSURANCE UPDATE WORKSHOPS**  
(CONTINUED FROM PAGE 1)

employees under (ERS), Employer Alternatives, Small Business Health Care Tax Credit, the Health Insurance Market Place (Exchange) and Shop for Employers and Individuals, the Individual Shared Responsibility Mandate, and Employer Requirements for 2013 to 2015.



**8:00 p.m. - 9:00 p.m. Crop Insurance for Cherries or Blueberries**

Chris Shellenbarger, of Spartan Insurance or Dr. Roy Black, MSUE specialist will discuss crop insurance for fruit growers specifically the new Tart Cherry Crop Insurance program at the Benton Harbor and Traverse City workshops. Chris will focus on blueberry crop insurance with the option of the AGR policy at the Ottawa County workshop.

To register by mail, send in registration and payment to: MSU ANR Events Services, Justin S. Morrill Hall of Agriculture, 446 W. Circle Drive., Room 11, East Lansing, MI 48824. Check made payable to: Michigan State University. Please indicate which location and session you will be attending.

**Registration Fee:**

\$10.00 per person -this covers handouts and materials.

**Register online at:** <http://events.anr.msu.edu/ACACROP/>

**Or, to register by mail, send in registration form and payment to:**

MSU ANR EVENTS SERVICES  
Justin S. Morrill Hall of Agriculture  
446 West Circle Drive, Room 11  
East Lansing, MI 48824-1039

**Make check payable to:**

**Michigan State University**

**Seating is limited. Please R.S.V.P. early.**

**Registration Form**

**Affordable Care Act & Fruit Crop Insurance Updates**

**Cost: \$10.00 per person**

Includes all materials and refreshments

       **Yes (I, We) Plan to attend**

**Participants:** (please print) :

1) \_\_\_\_\_

2) \_\_\_\_\_

**Business Name & Address:**

\_\_\_\_\_

\_\_\_\_\_

**Email:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Sign Up For:** (please check which location)

       Traverse City, October 16, 2013

       Ottawa County, October 24, 2013

       Benton Harbor, October 29, 2013

       I will attend both sessions

       I will attend the Affordable Care session only

       I will attend the Crop Insurance session only

**To register Online go to:**

<http://events.anr.msu.edu/ACACROP/>

**To register by mail, send in registration and payment to:**

MSU ANR Events Services  
Justin S. Morrill Hall of Agriculture  
446 W. Circle Drive, Room 11  
East Lansing, MI 48824

Make check payable to:  
**Michigan State University**

## 2,4-D AND DICAMBA RESISTANT FIELD CROPS AND THEIR IMPLICATIONS FOR SUSCEPTIBLE NON-TARGET CROPS

**H**erbicide resistant weeds are becoming a more widespread problem in the U.S. Although herbicide resistance has most commonly occurred in the south in cotton and soybeans, it is increasing in other regions as well. According to a team of agricultural researchers from Pennsylvania State University, University of New Hampshire and Montana State University, too much reliance on glyphosate-type herbicides for weed control on U.S. farms has created a dramatic increase in the number of genetically-resistant weeds.

"I'm deeply concerned when I see figures that herbicide use could double in the next decade," said David Mortensen, professor of weed ecology at Penn State. "During the period since the introduction of glyphosate-resistant crops, the number of weedy plant species that have evolved resistance to glyphosate has increased dramatically..." Mortensen said. This list includes many of the most problematic weed species, such as common ragweed, horseweed, johnsongrass and several of the most common pigweeds. According to the research team, reporting in *Bioscience* (January 2012), despite company-sponsored research that indicated resistance would not occur, 21 different weed species have evolved resistance to several glyphosate herbicides, 75 percent of which have been documented since 2005.

"In practice, the problem of glyphosate resistance goes far beyond a species count," Mortensen said. "More important, perhaps, is the increase in acreage infested with glyphosate-resistant weeds". A separate survey of thousands of U.S. farmers across 31 states conducted over three years by Stratus Agri-marketing Inc. showed 49% of the farmers surveyed

reporting glyphosate resistant weeds on their farm in 2012, up from 34% in 2011. The reported acreage infested with glyphosate resistant weeds has risen from 32.6 million acres in 2010 to 40.7 million acres in 2011 and 61.2 million acres in 2012. According to the survey, 27% of the farms have more than one species of glyphosate resistant weed. Marestalk (horseweed) was the most commonly reported weed with glyphosate resistance, followed by Palmer amaranth.

"We do understand why farmers would use the glyphosate and glyphosate-resistant crop package," Mortensen said. "It is simple and relatively cheap, but we have to think about the long-term consequences." "Several species have developed amazing biochemical ways to resist the effects of the herbicide," said J. Franklin Egan, doctoral student in ecology at Penn State. "If weed problems are addressed just with herbicides, evolution will win." Egan noted that some weeds have evolved to make an enzyme that remains unaffected by the herbicide and still functions within the cells, while other weeds have developed ways for the plant to move the herbicide away from targeted enzymes. "For instance, glyphosate-resistant strains of horseweed sequester glyphosate in leaf tissues that are exposed to an herbicide spray so that the glyphosate can be slowly translocated throughout the plant at nontoxic concentrations," Egan said. "To the horseweed, this controlled translocation process means the difference between taking many shots of whiskey on an empty stomach versus sipping wine with a meal."

Due to the increasing number of weeds resistant to current applications, new generations of seeds under development are being genetically modified to resist multiple herbicides. "Specifically, several companies are actively developing crops that can resist glyphosate,

2,4-D and dicamba herbicides," said Mortensen (see sidebar, page 5). "What is [more] troubling is that 2,4-D and dicamba are older and less environmentally friendly [than glyphosate]." Vapor drift of more toxic herbicides has been implicated in many incidents of crop injury and may have additional impacts on natural vegetation interspersed in agricultural landscapes, Mortensen stated. Scientists have documented that nontarget terrestrial plant injury was 75 to 400 times higher for dicamba and 2,4-D, respectively, than for glyphosate. The continual insertion of more genes into crops is not a sustainable solution to herbicide resistance, according to the researchers. They add that companies are creating a genetic modification treadmill similar to the pesticide treadmill experienced in the mid-20th century, when companies produced increasingly more toxic substances to manage pests resistant to pesticides.

Egan said there are several problems with the treadmill response. First, weeds will eventually evolve combined resistance to dicamba, 2, 4-D and glyphosate herbicides. Globally, there are already many examples of weeds simultaneously resistant to two or more herbicides. Increased use of 2, 4-D and dicamba applied over the growing corn and soybean means much more of these herbicides will be applied at a time of year when many sensitive crops like tomato and grapes are most vulnerable to injury. Such injury results when these herbicides move from the targeted field during or following an application.

There is also increased risk that farmers will use the herbicide during inappropriate or non-recommended weather conditions, leading to herbicides drifting from the targeted area and killing or harming other plants and crops. Additionally, the proposed herbicide programs don't substitute 2,4-D or dicamba for glyphosate, but advocate combining

## 2,4-D AND DICAMBA RESISTANT FIELD CROPS (CONTINUED FROM PG. 4)

current rates of glyphosate with the other herbicides, leading to additional herbicide use. Egan also said that if farms become too reliant on herbicides, farmers will find it more difficult to use integrated weed management approaches. Integrated weed management includes planting cover crops, rotating crops and using mechanical weed control methods. Farmers can use herbicides in this management approach, but must use them in a targeted, judicious fashion. The researchers said that in previous studies, integrated weed management had lowered herbicide use by as much as 94 percent while maintaining profit margins for the operations. "Integrated weed management is really the path forward," said Egan. "We believe these methods can be implemented and we already have a lot to show that they're effective and straight forward to incorporate." The Michigan State University Extension publication, *Integrated Weed Management—“One Year’s Seeding...”* (E-2931) provides information about weed lifecycles, rotation, tillage, and other practices related to managing weeds without depending entirely on herbicides.

### References:

David A. Mortensen, J. Franklin Egan, Bruce D. Maxwell, Matthew R. Ryan and Richard G. Smith. 2012. Navigating a Critical Juncture for Sustainable Weed Management. *Bioscience* 62(1):75-84.

Kent Fraser 2013. Glyphosate Resistant Weeds-intensifying. Stratus Agri-marketing blog, January 25, 2013. <http://www.stratusresearch.com/blog07.htm>

Penn State News, 2012. Integrated Weed Management Best Response to Herbicide Resistance. February 9, 2012. <http://news.psu.edu/story/151839/2012/02/09/integrated-weed-management-best-response-herbicide-resistance>

PhysOrg.com 2010. Growing Roundup-Resistant Weed Problem Must Be Dealt With, Expert Says.

Phys.Org website, September 14, 2010. <http://phys.org/news203697204.html>



### Hold the date-

**M**ichigan Wine Grape Vineyard Establishment Conference,

- ◇ Benton Harbor,
- ◇ Traverse City,
- ◇ Novi, MI

Date: January 21 & 22, 2014  
Day 1 12:00-5:00 PM; Day 2  
8:30 AM-12:00 PM.

Details and online-registration coming soon at:

**<http://msue.anr.msu.edu/events>**

### ENGINEERING FIELD CROPS WITH RESISTANCE TO 2,4-D AND DICAMBA

- ✘ Enlist corn is resistant to both 2,4-D and “fop” herbicides (used to control grasses). Enlist soybeans are resistant to 2,4-D. The Dow Agrosciences formulation of 2,4-D (2,4-D choline) is less volatile than 2,4-D amine and will be marketed in a premix with glyphosate (called Enlist Duo) for use on Enlist crops, and could be available for the 2015 growing season. Approval of Enlist crops has been delayed by the additional requirement for an Environmental Impact Statement by EPA. Enlist soybeans will be stacked with both glyphosate and glufosinate resistant genes as well, which would also allow the use of glyphosate and Liberty herbicides on those crops.
- ✘ Xtend traits are being developed by the Monsanto Company. These traits confer resistance to dicamba herbicide. This would allow direct application of dicamba to soybeans to help address glyphosate-resistant weeds, as well as alleviate concerns about dicamba drift onto Xtend crops. BASF and Monsanto are developing a new formulation of dicamba with lower volatility than Clarity, which already has lower volatility than Banvel. Monsanto will sell a premix of glyphosate and the new formulation of dicamba under the product name of Roundup Xtend. The new dicamba formulation will also be available by itself under the product name of XtendiMax for Monsanto and Engenia from BASF. Xtend crop technology introduction has also been delayed by the additional requirement of an Environmental Impact Statement. Xtend soybeans could be available as early as 2015. Dicamba- and 2,4-D-resistant soybeans are not cross-resistant, so application of dicamba on Enlist crops or 2,4-D on Xtend crops would still result in severe injury or plant death. As mentioned above, new formulations of dicamba and 2,4-D are being developed with reduced volatility, but spray drift will still be a concern onto susceptible or non-resistant crops.

**MSUE AND COMMODITY GROUPS TO JOINTLY SPONSOR WINTER CROPS MANAGEMENT MEETINGS ACROSS MICHIGAN IN JANUARY AND FEBRUARY 2014**

The MSU Extension Field Crops Specialists and Educators are proud to announce the 2014 Winter Crop Management Update Program Series which will be held during January and February 2014 at 6 locations around Michigan. This year's format will be somewhat different than what we have seen in the past, with shorter but more focused talks designed to provide information that you can take to the field. Headline Presentations for this year's program include:

- ◆ **"Herbicide Site of Action, What's Next in Controlling Weeds on Your Farm"**, Dr. Christy Sprague, MSUE Weed Control Specialist
- ◆ **"Corn and Soybean Fungicides: To Spray or Not To Spray"**, Dr. Martin Chilvers, MSU Field Crops Pathologist
- ◆ **"What, When and How Much? Answers to Soil Fertility Uncertainties"**, Dr. Kurt Steinke, MSU Soil Fertility Specialist
- ◆ **"Getting Crops off to Good Start: When to Use Seed Treatments, Cover Crops and Bio-Fumigants"**, Dr. George Bird, MSU Field Crops Nematologist and Professor Emeritus
- ◆ **"Considered Alternative Forages or Cover Crops Lately? Getting the Best of Both Worlds"**, Dr. Kim Cassida, MSU Forage Specialist
- ◆ **"Market Fundamentals and Price Outlook for 2014 and Beyond"**, Dr. James Hilker, MSU Commodities Marketing Specialist

Regional topics of interest will also be discussed at these meetings. A special emphasis will be placed on answering questions following the presentations at these programs.

**Looking for programs about hop production this winter?**

The IPM Academy will have a full day of hop production classes on February 19, 2014 in Okemos, Michigan.



Details and online-registration coming soon at:  
<http://msue.anr.msu.edu/events>

**This year's programs will be held at the following locations:**

- January 16, 2014 Shifter's Restaurant, Alma
- January 17, 2014 Alpena Community College, Alpena
- February 13, 2014 Sanilac Career Center, Peck
- February 19, 2014 Van Buren ISD Conference Center, Lawrence (8:30-3:00)
- February 20, 2014 Zehnder's, Frankenmuth
- February 21, 2014 Cabela's, Dundee

All programs will run from 9:00 am until around 4:00 pm except at the Lawrence location (see above). Lunch will be provided. The registration fee for these programs will be \$20 a person, which will cover the meal, a 2014 Weed Control Guide and other printed material. RUP and CCA Credits will be available pending MDARD and ASSA approval. Special thanks to the Michigan Corn Marketing Board and the Michigan Soybean Promotion Committee for providing funding to keep the costs of these programs at the \$20 level.

You will be able to register for these programs online after October 25, 2013. To register for the session nearest you, you can visit the MSUE upcoming Educational Events page at: <http://msue.anr.msu.edu/events> following this date. For more information on these programs, you can contact the Van Buren County MSU Extension Office at (269) 657-8213.



**Mark your calendar—**

**Southwest Hort Days**  
**Is scheduled for February 5-6, 2014**  
**at Lake Michigan College**  
**Mendel Center**



**FIGHTING BACK AGAINST GLYPHOSATE RESISTANCE; SUCCESS SOMETIMES COMES WITH A PRICE**

The herbicide glyphosate is highly effective at controlling a broad spectrum of weeds in gardens and on farms. It has been sold for many years in products known commercially as "Roundup" and is used with conventional crops and with varieties of corn, cotton, soybeans, and canola that were developed specifically to withstand glyphosate.

Glyphosate use also has environmental benefits, such as simplifying weed control in reduced-tillage farming. It has allowed growers to switch from conventional tillage practices to no-till systems that reduce labor costs, improve soil quality, and help curb soil erosion. About 93 percent of soybeans, 78 percent of upland cotton, and 70 percent of corn produced in the United States in 2010 were glyphosate-tolerant varieties.

Glyphosate's popularity, and the common practice of using it with no other herbicides, has led to the emergence of a dozen glyphosate-resistant weeds. Growers who stop using glyphosate often go back to tilling their soil, reversing the improvements in soil quality seen over the past decade.

"Widespread use of glyphosate, often to the exclusion of

other herbicides, ensured that weeds capable of surviving glyphosate would thrive. Now that we're seeing that happen, we need to address it," says Dale Shaner, a plant physiologist who recently retired from the Agricultural Research Service Water Management Research Unit, in Fort Collins, Colorado.

**Value of Early Detection**

One key to addressing the threat posed by glyphosate resistance is early detection.

"If resistant weeds are detected early, you can minimize the problem by either using another herbicide or, in the case of Palmer amaranth, one of the most difficult weeds to control, getting into the field to pull it out." Shaner says. Scientists can determine whether a weed will resist glyphosate by measuring the amount of a compound known as "shikimate" in its tissues.

Glyphosate kills weeds by interfering with production of aromatic amino acids, and shikimate plays a key role in producing those amino acids. It is the "shikimate pathway" that glyphosate disrupts, causing shikimate to accumulate. Plants susceptible to glyphosate will have high levels of shikimate, while resistant plants will not.

Existing methods for detecting shikimate in plants require sophisticated laboratory equipment, such as spectrophotometers that can measure ultraviolet light. Test results can take weeks. Now, Monsanto has developed a method for detecting shikimate in just 24 hours, using a dye that changes color. Shaner is working as a collaborator with Monsanto to develop a kit that growers could use to determine whether weeds in their fields are glyphosate resistant. He plans to help Monsanto fine-tune the technology so that it's ready for use nationwide.

As part of his work with Monsanto, Shaner is growing glyphosate-resistant and glyphosate-susceptible crops and weeds in a greenhouse. He will spray some of those plants with glyphosate and place leaves from others in glyphosate solutions and then determine the levels and rates of shikimate accumulation. The goal is to evaluate different methods for assessing shikimate levels and to determine the most effective way for growers to collect plant material for testing with Monsanto's system. The test kit's design has yet to be determined.

- Dennis O'Brien, Agricultural Research Service Information Staff.



**Glyphosate resistant Palmer amaranth in Michigan**

Although glyphosate resistant marestalk (aka horseweed) has been in Michigan for a few years, in 2011 a resistant pigweed known as Palmer amaranth made its appearance in southwest Michigan. Populations of Palmer amaranth have been confirmed in nine Michigan counties: St. Joseph, Kalamazoo, Cass, Barry, Ionia, Clinton, Shiawassee, Gratiot, and Livingston. This weed is not native to Michigan. Its resistance to glyphosate and other effective herbicides make this weed the toughest that Michigan growers have ever faced. In fact, in many Southern states where this weed is a problem it has been reported that the average increased cost to manage this weed ranges from \$30 to \$50 more per acre. Palmer amaranth is the most competitive and aggressive of the pigweed species and can grow up to 2 1/2 inches per day. It produces an average of 40,000 seeds per plant, is drought tolerant, develops herbicide resistance rapidly and can hybridize with other species of pigweed. Dr. Christy Sprague has developed several extension bulletins for identifying and managing Palmer amaranth that can be found at the [www.msuweeds.com](http://www.msuweeds.com) website.



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## Great Lakes Fruit, Vegetable and Farm Market EXPO Michigan Greenhouse Growers Expo

DeVos Place Convention Center and the Amway Grand Plaza Hotel, Grand Rapids, Michigan

The PREMIER SHOW for Fruit and Vegetable Growers, Farm Marketers and Greenhouse Operators **On-line registration is now available at: [www.glexpo.com](http://www.glexpo.com)**

**Pre-registration discounts apply through November 20th**

- ◆ **Informative education programs** for fruit, vegetable and greenhouse growers, and farm marketers -75 sessions and workshops over 3 days
- ◆ **Fruit and vegetable commodities**
- ◆ **Greenhouse production and marketing**
- ◆ **Organic production and marketing**
- ◆ **Farm marketing ideas and issues** General topics of special interest to growers
- ◆ **Trade show** with 400 exhibitors covering four acres of exhibit space in one hall!
- ◆ **Bus tour** on Monday for farm marketers

A special registration fee of \$40, (good for Thursday only) is available for admission to the trade show and education sessions on Thursday. The trade show will be open from 8 a.m. to 1 p.m. on Thursday. A Thursday-only registration does not include the free subscription offers that are included with the regular registration fees. It also does not include membership in the Michigan State Horticultural Society or the Michigan Vegetable Council. Additional registration information: Jim McClure, Registration Manager, Association Management Resources (AMR) 1390 Eisenhower, Ann Arbor, MI 48108 E-mail: [jmclure@managedbyamr.com](mailto:jmclure@managedbyamr.com) Phone: 734-677-0503 Fax: 734-677-2407.

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