



# UNIVERSITY OF ILLINOIS EXTENSION

College of Agricultural, Consumer, and Environmental Sciences

## *Illinois Fruit and Vegetable News*

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*a newsletter for commercial growers of fruit and vegetable crops*

*"We are what we repeatedly do. Excellence, then, is not an act, but a habit." Aristotle*

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editor, Rick Weinzierl, 217-333-6651, [weinzierl@uiuc.edu](mailto:weinzierl@uiuc.edu). The *Illinois Fruit and Vegetable News* is available on the web at: <http://www.ipm.uiuc.edu/ifvn/index.html>. To receive email notification of new postings of this newsletter, call or write Rick Weinzierl at the number or email address above.



Striped cucumber beetle on a pumpkin seedling.

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## ***Regional Updates***

**At the Dixon Springs Agricultural Center**, apples tree pruning continues and the Proceedings for the Illinois Small Fruit and Strawberry Schools are being assembled. Tomato transplants for high tunnel research are growing. We are trying to identify sources for compost in southern Illinois and would appreciate source names and phone numbers from anyone who has purchased compost. Additional projects slated to be added this year at DSAC include a new blackberry cultivar trial and a comparative study of tomato cultivar performance in traditional vs. organic production systems. We also plan to do some observation work with the herbicide Matrix on tomatoes.

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**In northern Illinois**, day temperatures have been in the low 30s to upper 50s and night temperatures in the low teens to 30s so far this February. The area recorded less than 1 inch of rainfall and about 2 inches of snow by February 16. The February rainfall is far below the amount recorded in the area during the same period last year. The warm weather has enabled many orchardists to prune most of their mature fruit trees. Pruning of small fruits and young fruit trees is going on in a few orchards.

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## ***Upcoming Meetings and Programs***

### **February 28-March 1, 2006, Greenhouse Tomato Short Course ...**

... in Jackson, Mississippi. A tentative agenda is posted at <http://www.greenhousetomatosc.com>. For more information, contact Rick Snyder at 601-892-3731 or [RickS@ra.msstate.edu](mailto:RickS@ra.msstate.edu).

### **March 7-8, 2006, Small Fruit & Strawberry Schools ...**

... at the Mount Vernon Holiday Inn. For more information, contact Elizabeth Wahle at 618-692-9434 or by email at [wahle@uiuc.edu](mailto:wahle@uiuc.edu), or Bronwyn Aly at 618-695-2444 or by email at [baly@uiuc.edu](mailto:baly@uiuc.edu). Also check for information at "News for Southern Illinois Growers" at: <http://web.extension.uiuc.edu/regions/hort/>.

More on this program ... The 2006 Illinois Small Fruit School will include presentations on disease management by Mike Ellis, Ohio State University, and information on new raspberry varieties as well as old favorites from Courtney Weber, Cornell University. As many operations have increased their pre-picked marketing efforts and consumers have become savvier, the importance of food safety has increased. Growers will receive tips on how to be more food safety-conscious from Elizabeth Bihn, Cornell University. A grower panel will also provide attendees with information on marketing, pricing, and variety selection, and Bob Fournie will share his experiences with growing brambles.

The Illinois Strawberry School will provide information for both matted row and plasticulture growers. Topics that will be covered include pest management, variety selection, and food safety. Two special concurrent sessions will provide information on how to assess your operation's food safety practices and how to get started growing strawberries. Illinois growers will share their experiences with marketing, pricing, and varieties. Bill Bass will provide an overview of his experiences with plasticulture, and Dale Conrady will provide a grower's perspective on experiences with frost control.

The registration fee of \$30 per farm family includes admission to the educational sessions and trade show as well as one copy of both the *2006 Proceedings* (printed version or CD-ROM) and the *2006 Midwest Commercial Small Fruit and Grape Spray Guide*. Those unable to attend may purchase a copy of both the *2006 Proceedings* (printed version or CD-ROM) and the *2006 Midwest Commercial Small Fruit and Grape Spray Guide* for \$12 by using the [registration form](#).

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## ***Notes from Chris Doll***

Not a bad February to follow the warm January ... two weeks of freezing temperatures with the lowest being 16 degrees has slowed bud development. So far, no injury has been found in the Back-40, but the weekend forecast may cause more gray hair from worry. Dr. Kushad wrote about winter cold and freezing of plant tissues and also explained the processes during the Regional Fruit Schools. He said that there is little a grower can do once the trees are in the ground. Before that, site selection for good air drainage is important as well as selection of varieties with some cold hardiness or delayed blooming characteristics. The use of cryoprotectants or sprinkling has not worked. Heating is now too expensive, and air movement with helicopters is also expensive.

Dr. Kushad mentioned that the temperatures that might cause 10 and 90 percent bud kill are on pages 53 and 54 of the 2005 Commercial Fruit Tree Spray Guide – the same guide is now distributed in Illinois, Indiana, Iowa, Kentucky, Missouri, Ohio, and Wisconsin. Dr. Ed Proebsting of Washington did the research that set the data in those charts. As we think about bud swell and potential for more de-hardening, I found a statement by Dr. Proebsting in *Temperate Zone Pomology* that indicates that hardening below 28 degrees F occurs at a much slower rate than does dehardening above 28 degrees. Continuous cold results in 0.5-2.0 degree hardening per day, while mild temperatures can reduce hardening by 0.5 degree per hour.

Years ago, I had samples of the cryoprotectants Frost Free and Frost Guard that were applied at full bud and bloom on peaches and strawberries and could never show any reduction in injury. Foliar fertilizers were touted for a while, and showed no benefit that I could determine. A peach grower made an SOS call wanting my approval of such an application on a 32 degree day to a full bloom peach orchard. All I asked for was some unsprayed check trees. He reported that the spray was successful and so I had to see the check trees, which were three unsprayed trees at the bottom of the slope and everything else was at a higher elevation. Another grower thought that the moving air from a speed sprayer might help protect some blooming apples. Nothing positive could be seen and lots of flower injury was caused by the moving cold air near the blower outlet. A thinking grower remembered the concept of bare soil giving off more heat than a snow cover and used his brush rake to brush four inches of snow from under his budded peach trees (at night). Everything survived that night and his neighbors had a new opinion of his operation.

Some bud break has been noted on both red raspberry and Kiowa blackberry plants. These tender leaves are susceptible to herbicide injury if either or both contact and residual products like Princep are used. However, a little injury might be better than lots of weeds.

The Illinois Small Fruit and Strawberry School will be held on March 7 and 8 at the Mt. Vernon Holiday Inn. A good program covers lots of production and marketing, and can be a lot help to beginning growers in the "Getting Started with Strawberries" session.

Apple pruning is pretty far along for most growers. Those who aren't finished should get the fire blight-susceptible trees and varieties pruned while still dormant. Peach growers can think about pruning, but the potential for crop determination and more rapid wound healing are reasons for holding off. Fifty percent of the nitrogen can be applied to peach trees now. If other nutrients are needed based on soil tests or poor tree growth, they are best applied now also. The rest of the nitrogen can be applied after bloom if needed.

A University of Kentucky publication "2004 Fruit and Vegetable Crops Research Report" has a section titled *Our Yields vs. Your Yields*. It explains why some of the yields from research sites may be considerably higher than what growers get. Yields are calculated from small plots, and extrapolated to acres, without considering empty spaces like drive rows and row ends. Harvesting methods are usually more thorough and may include some uneconomical harvests. An additional article is on *Making Sense of Statistics* which I will let someone else write about.

***Chris Doll***

## ***Fruit Production and Pest Management***

### ***Periodical cicadas in northern Illinois – 2007, not 2006***

Several people have asked if and where any broods of periodical cicadas will emerge in Illinois in 2006. The answer is no, not in 2006. However, 2007 will be the year for an emergence in northern Illinois, including the Chicago metropolitan area. Marlatt's Brood XIII, of the 17-year cicada, also known as the Northern Illinois Brood, will emerge in 2007 in the area marked XIII on the map at the right. Expect emergence when soil temperatures just below the soil surface reach 64 degrees F – by mid May to early June of 2007. Cicadas damage trees and shrubs by using their saw-like ovipositor (egg-laying organ) to cut a slit in twigs or shoots, then they lay their eggs into the slit. Nymphs later hatch and drop to the ground, where they burrow down to roots and begin their 17 years of feeding and development below the soil surface.

Years of emergence for the other broods shown on the map at right are as follows:

- Lower Mississippi River Valley Brood (Marlatt's XXIII): 13-year cycle, last emerged in 2002; next emergence in 2015.
- Iowan Brood (Marlatt's III): 17-year cycle, last emerged in 1997; next emergence in 2014.
- Great Southern Brood (Marlatt's XIX): 13-year life cycle, last emerged in 1998; next emergence in 2011.
- Great Eastern Brood (Marlatt's X): 17-year cycle, last emerged in 2004; next emergence in 2021.
- Northern Illinois Brood (Marlatt's XIII): 17-year cycle, last emerged in 1990; next emergence in 2007.

For an interesting look at cicadas (and even recordings of the songs of different species), check out the University of Michigan's Periodical Cicada Page at: [http://insects.ummz.lsa.umich.edu/fauna/michigan\\_cicadas/Periodical/Index.html](http://insects.ummz.lsa.umich.edu/fauna/michigan_cicadas/Periodical/Index.html) .

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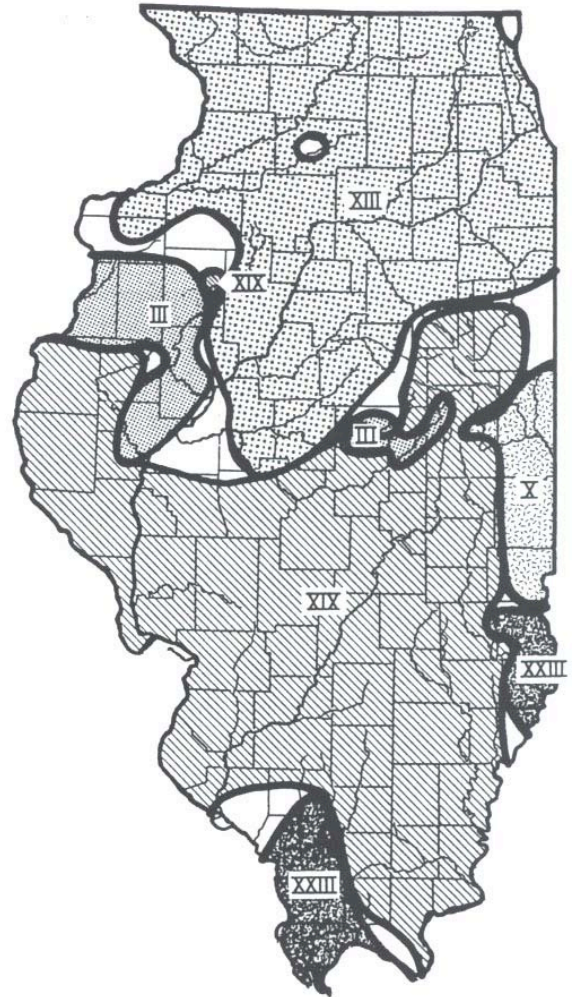
## ***Vegetable Production and Pest Management***

### ***Tomato Yellow Shoulder Disorder***

The Southern Illinois Vegetable School was held February 16 at Mt. Vernon. Tomato yellow shoulder disorder (YSD) was among the topics for the day. This problem, which seems to be related to potassium, appears as though it will persist although its severity varies from year to year. Information on tomato YSD is available at the Ohio State website, [Managing Tomato Color Disorders](#) . This site includes a calculator where you can enter your soil test results and output the "Hartz" ratio for your soil. This calculator is a tool that can be used by tomato growers when making decisions about potassium fertilizer applications. This may be of interest to tomato growers that have encountered problems with tomato YSD.

Additional resources for tomato growers to use when making fertilizer input decisions can be found at the University of Kentucky [2006-2007 Vegetable Production Guide](#), University of Tennessee [Tomato Production Guide](#), and the [Midwest Vegetable Production Guide for Commercial Growers](#).

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## ***Pest Management Adoption Surveys from the Great Lakes Vegetable Working Group***

For the past six months, university personnel who specialize in vegetable research and extension programming, along with industry stakeholders, have been working together to develop vegetable IPM adoption surveys. This is the first major initiative of the Great Lakes Vegetable Working Group (GLVWG) formed in October, 2004. The mission of the working group is to foster communication and collaboration between vegetable specialists in the Great Lakes region, including Ontario, Canada, and to address priorities in vegetable production through research and extension programs. For more information about this working group and our mission, visit our website at (<http://glvwg.ag.ohio-state.edu/>).

The GLVWG decided that understanding IPM adoption in key vegetable crops across the region is essential to focus our resources and direct our outreach and research efforts. To that end, with input from university and industry representatives, we have developed state and crop specific IPM adoption surveys. The intent of the surveys is to determine which IPM practices are commonly used among growers. The results of these surveys will influence future research and extension efforts. By completing the survey, you help us continue to develop programs important to you.

These surveys are designed to be completed over the Internet. Most questions require only a click to select the proper response(s); very little typing is involved. Your responses will be kept confidential. Sections of each survey will evaluate general pest management knowledge, training needs, and actual pest management practices from a preplant through post harvest time frame. These surveys are designed to take 10-15 minutes to complete. One completed survey per state per crop will be chosen at random to receive a free gift such as a current vegetable production guide or sweatshirt from that state or province.

To begin the survey, either double click the link directly below in this article or cut and paste the link into your web browser's URL address bar (Netscape, Internet Explorer, Firefox, etc.). Contact Jim Jasinski ([jasinski.4@osu.edu](mailto:jasinski.4@osu.edu), 937-484-1526) if you do not have access to the Internet and need a hard copy of the survey.

The crops selected for the IPM survey in Illinois and their web address are as follows:

Pumpkin (<http://www.surveymonkey.com/s.asp?u=330741063607>)  
Horseradish (<http://www.surveymonkey.com/s.asp?u=127711483703>)  
Sweet corn (<http://www.surveymonkey.com/s.asp?u=152181482908>)

These surveys will remain on line and active until March 12th, 2006 at which time they will be taken off line. Results of these surveys will be analyzed and reported in a future edition of this newsletter. For more information concerning the survey, please contact Jim Jasinski, at [jasinski.4@osu.edu](mailto:jasinski.4@osu.edu) or 937-484-1526.

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## ***Admire for Cucumber Beetle Control in Cucurbits***

Many cucumber, melon, squash, and pumpkin growers have experience with striped cucumber beetles moving onto newly emerged seedlings or newly set transplants ... they seem to come from nowhere in huge numbers, and before a foliar spray can be applied, they've already done considerable feeding damage and – more importantly – transmitted the bacterial pathogen that causes wilt, especially in muskmelons and cucumbers. The beetles don't really materialize from thin air ... they overwinter as adults in ditch banks, waterways, and wherever some standing plants or debris provides a little protection from winter temperatures. The wilt pathogen overwinters in the beetle's gut, so beetle survival is essential for the disease to carry over from season to season.

To control cucumber beetles and bacterial wilt, soil-applied systemic insecticides or foliar applications of insecticides to seedlings are recommended. A state 24(c) label allows the use of Furadan in a band with seed for systemic uptake and cucumber beetle control (the granular formulation was used until several years ago and more recently the 4F liquid

formulation). A few years ago the Admire formulation of the neonicotinoid imidacloprid was labeled for similar use. The text below summarizes its effectiveness in a field-scale trial conducted in 2005.

Admire 2F was applied in the seed furrow at 16 fl oz per acre to pumpkins direct-seeded in Iroquois County in early June. To assess its effectiveness, leaves were taken from plants in treated fields and from nontreated plants and bioassayed using striped cucumber beetles collected from untreated volunteer pumpkins in a field where pumpkins were produced in 2004. Beetles were collected using a battery-powered aspirator, then held in cages in the laboratory under constant light. Beetles held in cages fed on cucumbers (plants or fruits) for up to 5 days before use in bioassays. Immediately prior to use in bioassays, beetles were aspirated from the cages and chilled in a refrigerator until they were inactive and could be transferred onto leaves. Leaves taken from plants were placed into 8-fl oz plastic containers, one leaf per container, one beetle was added to each container, and lids were put into place (Figure 1). Ten leaves of any stage were bioassayed per sampling date. Containers holding beetles and pumpkin leaves were held for 3 days in a growth chamber at 24C (75F) and a 16:8 light:dark cycle before assessing beetle mortality at 72 hours. Beetles were considered dead if they did not walk when prodded. Results are summarized in Table 1.

**Table 1.** Mortality of striped cucumber beetles on pumpkin foliage collected on specified dates after planting and seedling emergence. Planting date: 06 June 2005; seedling emergence 14 June 2005.

<b>Date of Tissue Collection:</b>	<b>14 June</b>	<b>20 June</b>	<b>27 June</b>	<b>05 July</b>
	<b>Percent Mortality, Striped Cucumber Beetle</b>			
Admire-treated, Cotyledons	100	100	90	40
Nontreated, Cotyledons	20			
Admire-treated, First Leaf		90		
Nontreated, First Leaf		30		
Admire-treated, Third and Fourth Leaf			10	
Nontreated, Third and Fourth Leaf			30	
Admire-treated, Fifth Leaf				10
Nontreated, Fifth Leaf				20

The limited nature of these observations – a single location and soil type, unreplicated within or among fields – limits the conclusions that can be drawn from it. Additionally, this site was very dry at the time of these observations, plants showed water stress, and movement of insecticide into plants may not have occurred as it would in wetter conditions. Nonetheless, it is clear that cotyledons of plants in the Admire-treated field were highly toxic to striped cucumber beetles for at least 2 weeks after seedling emergence. Two and three weeks after seedling emergence, third- through fifth-leaf tissue from plants in the treated field was much less toxic. This preliminary study provides a framework for further, more detailed research investigating the effectiveness of seed furrow treatments, other application methods, and the effects of irrigation.

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## *Words of Wisdom*

This issue's gems include entries from a list provided by John Miller ...

- The early bird gets the worm, but the second mouse gets the cheese.
- It's not hard to meet expenses ... they're everywhere.
- Age doesn't always bring wisdom; sometimes age comes alone.
- The only difference between a rut and grave is the depth.

And a picture that lives up to the adage about being worth 1,000 words:



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