



# 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, 217-244-2126, [weinzierl@illinois.edu](mailto:weinzierl@illinois.edu). The *Illinois Fruit and Vegetable News* is available on the web at: <http://www.ipm.illinois.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.

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### ***Upcoming Programs***

- **North American Fruit Explorers. August 19-21, 2010.** Best Western Motel/Conference Center, Lafayette, IN. To view the program and registration form, check: <http://web.extension.illinois.edu/edwardsvillecenter/foodcrophort3031.html>. For additional details or questions: contact Ed Fackler at [cefackler@gmail.com](mailto:cefackler@gmail.com) or 812-366-3181.
- **2010 Sustainable Agriculture Tours**
  - **August 13, Romance Tour – Flowers and Wine**, Bright Flower Nursery and Famous Fossil Vineyard & Winery, Jo Daviess County and Stephenson County
  - **September 15, Agritourism – Farm Fresh Fun**, Country Corner, Henry County.A fee of \$20 per person will be charged for each tour, which includes lunch. This year two adults pay \$30 when registered together and children under the age of 10 attend free. Registration at least one week in advance is required. Visit [http://web.extension.illinois.edu/smallfarm/ag\\_tours.cfm](http://web.extension.illinois.edu/smallfarm/ag_tours.cfm) to register and for more details about each of the tours including a map and agenda. To register by phone, contact Donna Cray at 217-241-4644. For more information, contact Deborah Cavanaugh-Grant (217-968-5512; [cvnghgrn@illinois.edu](mailto:cvnghgrn@illinois.edu)).
- **2011 Illinois Specialty Crops Conference. January 5-7, 2011.** Springfield, IL. We are in the planning stage for this program ... **mark your calendars, and if you have any suggestions for the program, please contact Rick Weinzierl at [weinzierl@illinois.edu](mailto:weinzierl@illinois.edu) or 217-244-2126.**

### ***Chicago Schools Seek Illinois Fruits and Vegetables***

Chartwells-Thompson Hospitality (CTH), the major food service provider for the Chicago Public School system, in a local procurement partnership with FamilyFarmed.org, a Chicago-based non-profit organization, is asking Illinois farmers to contract for \$500,000 of fresh and frozen fruits and vegetables for the 2010-2011 School Year. For those interested, please complete the "Request for Information from Illinois Farmers, Processors, and Distributors" which can

be accessed at <http://www.familyfarmed.org/wp-content/uploads/2010/07/RFI-7-14.pdf>, by August 13, 2010. Purchases will begin in September of 2010. Please fax, e-mail or mail this form, plus your attachments, to: FamilyFarmed.org, 7115 W. North Ave., #504, Oak Park, IL 60302; fax: 708-763-9925; email: [Schoolproduce@FamilyFarmed.org](mailto:Schoolproduce@FamilyFarmed.org)

## ***Temporary Agricultural Jobs Registry***

The U.S. Department of Labor recently launched an online registry allowing the public to retrieve information about temporary agricultural jobs that fall under the H-2A program. The new tool was developed in compliance with regulations implemented by the department on March 15.

The H-2A temporary agricultural program establishes a means for agricultural employers who anticipate a shortage of domestic workers to bring nonimmigrant foreign workers to the U.S. to perform agricultural labor or services of a temporary or seasonal nature. Before the [U.S. Citizenship and Immigration Services \(USCIS\)](http://www.uscis.gov/) (<http://www.uscis.gov/>) can approve an employer's petition for such workers, the employer must file an application with the Department of Labor stating that there are not sufficient workers who are able, willing, qualified, and available, and that the employment of aliens will not adversely affect the wages and working conditions of similarly employed U.S. workers. The statute and regulations provide for numerous worker protections and employer requirements with respect to wages and working conditions that do not apply to nonagricultural programs. The Department's [Wage and Hour Division](http://www.dol.gov/whd/) (<http://www.dol.gov/whd/>) has responsibility for enforcing provisions of worker contracts.

Any employer who has been certified for a specific number of H-2A jobs must have initially attempted to find U.S. workers to fill these slots. Even after H-2A workers are recruited employers must continue to engage in "positive recruitment" of U.S. workers.

The H-2A job registry provides a single, easily searched point of entry for the public to retrieve information about agricultural jobs filed under the H-2A program. It offers a range of customizable searches and gives users the ability to view, print or download information about agricultural jobs easily and without the need to file a request under the Freedom of Information Act. The tool will display all active agricultural jobs until 50 percent of the period of employment has elapsed, and it will offer an archive of certified agricultural jobs for up to five years. The Labor Department estimates that more than 700 H-2A applications — for more than 13,000 workers — have been received since March 15.

To access the H-2A job registry, visit <http://icert.doleta.gov>

*(This information was provided by Annette Vitale-Salajanu, Immigration Educator, University of Illinois Extension in Cook County, 2205 Enterprise Drive, Suite 501, Westchester, IL 60154. Ph: 708-449-4320.)*

## ***Regional Updates***

**In southern and southwestern Illinois**, one word says it all ... Hot! Heat indices throughout the region have stayed well above the 100° F mark due to high temperatures and relative humidity. Several heavy rainmakers have passed through the more northern portion of the region, only adding to the oppressive outdoor conditions. Wilting and curling-in of leaves can be seen throughout the waterlogged areas as plants react to unfavorable conditions. In response to the recent gully washers, as a general rule of thumb assume that any pesticide residue has been "washed off" after a two inch rainfall and should be reapplied immediately for continued plant protection.

Regardless of the oppressive heat, harvest is ongoing for major crops like peaches, blackberries, sweet corn, peppers, cantaloupe, watermelons and tomatoes. Peach harvest has moved into the larger, freestone peaches. The primocane crop of everbearing raspberries will be in harvest within the week. The apple crop is sizing well. Table grape harvest has started and wine grapes are in various stages of véraison.

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**In the northern region**, hot weather also has prevailed. Many areas in the region received less than 1 inch of rainfall during the last two weeks, and soil moisture content is very low in many areas.

Apples and pears are sizing well, and early-maturing apple varieties will be ready for picking very soon. Sour cherry picking is done in many orchards in the region. Peaches will be ready for picking in some orchards later this week. The berries of some early maturing grape varieties started changing color, so the protection of grape berries from bird damage needs to be implemented soon. I have observed apple scab on apple leaves in some orchards, and the Japanese beetle population is very high in much of the region. I also received a report on peach fruits being damaged by earwigs.

Sweet corn harvest is ongoing, and bell pepper and tomato harvest is also underway on some farms. Harvesting of summer squash, cucumbers, green beans, beets, and cabbage also continues. Muskmelon and watermelon fruits are sizing well and will be ready for picking in about a week on some farms. It is also the time to side-dress pumpkins with nitrogen fertilizer as the vines begin to run. Tomatoes in the region show signs of early blight, bacterial spot, and bacterial speck in some fields. Foliar diseases such as anthracnose and angular leaf spot have shown up in some cucurbit fields. I also received reports of phytophthora in pumpkins. Tomato hornworms, cucumber beetles, and western corn rootworm beetles are common, and onion thrips have been observed on onion leaves. I also have received reports of squash vine borer, and infestations of imported cabbage worm, diamondback moth, and cabbage looper have warranted treatment in cabbage and broccoli.

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

The warm weather of June has continued into July to make it seem like Midwest peach season. And the peach harvest is moving on at a rapid pace with above normal temperatures and ample rain for most areas. Locally, the July precipitation is about 5 inches and the year's total of 22.1 inches is about normal. Tom Schwartz reports that the Centralia area is very wet with over 8 inches for the month and many areas north of here have also had lots of rain.

Red Haven harvest is well advanced, and the multitude of varieties nowadays makes it difficult to say what is in season. But with that said, Loring and Bounty are sizing and about ready in this latitude. There are not many early apples for the commercial market in this area, but Pristine and Arking looked good in the past 10 days, and Redfree is nearly ripe. The high temperatures have not been conducive for red color development and that is a negative. I saw a few blocks of Jonathan yesterday in which Rubyjon were showing color. Galas were beginning to get some yellow ground color, and any color on Red Delicious has been tinged with burning. The season continues on an "ahead of normal" basis, and some are wondering how early apple and peach harvest might end.

For the record, the codling moth degree day figure from biofix is now at 1912, and the wetting hours is over 322 in the Back 40 at Edwardsville..

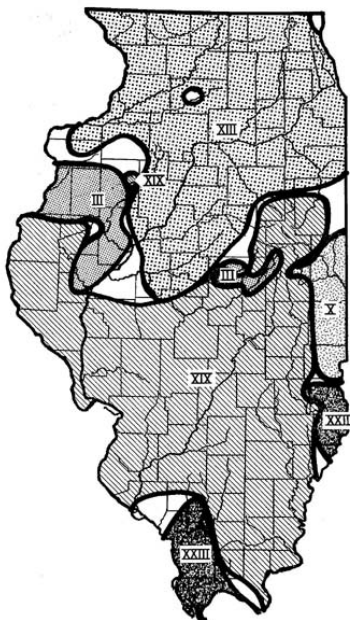
Retain (AVG) is not the most widely used PGR in this area due to our high temperatures during the application time. The product is supposed to block the formation of ethylene in the fruit and this slows fruit maturity and the effects of ethylene on abscission and dropping. And usually if the fruit hangs on longer into some cooler weather, more red color develops on red varieties. The application timing for AVG to work is usually 30 days before anticipated harvest when the fruit has reached its normal time for ethylene production. According to the Rutgers newsletter this week, early maturing varieties like Gala need only a half-rate application, in contrast to the major fall varieties. Our Spray Guide has the details for this.

The weather vagaries of 2010 most likely have or will affect the uptake of calcium by the apple trees. Conditions that can inhibit calcium absorption by the roots are too hot, too cold, too wet and too dry. Trees with a light fruit set also can exhibit calcium deficiencies. These are the reasons for season-long sprays of calcium to prevent bitter pitting and corking of the fruit. Another benefit of adequate calcium is increased firmness and storage life of the apple. With that in mind, continued inclusion of a calcium product up to harvest is suggested.

*Chris Doll*

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

### ***Periodical Cicadas in the Southern Half of Illinois in 2011***



Broods of periodical cicada in Illinois.

Just a reminder ... the Great Southern Brood of 13-year periodical cicadas (Marlatt's XIX) will emerge next spring in the southern half of Illinois. 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 13 years of feeding and development below the soil surface. If you plan to plant new trees next spring, be prepared to protect them cicada injury, either by netting the trees to exclude cicadas or by using pyrethroid insecticides.

Years of emergence for the cicada broods shown on the map above 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 2007; next emergence in 2024.

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). Also see the University of Illinois web site on cicadas at: <http://web.extension.uiuc.edu/cicadas/index.html>.

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

### ***Postharvest Practices for Commercial Fruit and Vegetable Production***

Most growers know that they have a limited period for marketing their produce. This is because the harvested product is alive. It continues to be physiologically active but no longer has the whole plant to support the activities of metabolism, moisture uptake, temperature control, and other important life-support activities. It is essentially the beginning of death

when a product is harvested. To be successful in the marketplace, it is critical to preserve as much of the fresh value of the product as possible. That is the purpose of exercising postharvest preservation practices – to preserve the food and market value of harvested produce.

Once harvested, the produce immediately begins to change. One of the conditions that occurs quickly that accelerates the change is the build-up of heat in the produce. This is a natural result of the process of respiration in the plant. Heat is the enemy of quality in produce as it accelerates the internal physiological processes of the produce. These processes consume sugar, reducing product quality and generating more heat. As heat builds up, more respiration occurs, stimulating more generation of heat. So it becomes an exponential acceleration of the build-up of heat. If that cycle of heat-build-up can be arrested, the preservation of quality in the harvested product becomes much easier. The window of opportunity for satisfying the market and consumers becomes much easier.

Cooling the produce is the answer to arresting heat build-up. Of course, this takes technology and requires energy resources, which are expensive. Many growers concerned about the cost of post-harvest technology take advantage of nature and the opportunities it provides to minimize the challenge of preserving produce quality. One way they can do this is to harvest when the produce is naturally coolest. This occurs just before sunrise. Assembling harvest crews early to have them ready just as the morning light becomes adequate to see the harvest accomplishes a couple of worthy goals. The product is cool at harvest, reducing the risk of losing product quality to heat. Also, the harvest crew is enjoying their work under better conditions than later in the day, when temperatures rise. Of course, not all produce can be harvested that early.

Usually practices like harvesting early help, but the longer produce sits in distribution channels, even for direct-market operations, the more likely a grower needs to use more energy-intensive systems for preserving produce quality after harvest. This is a great topic for off-season study. Growers can benefit enormously from studying postharvest issues and capitalizing on tools for postharvest preservation. It should be a goal of every grower to improve postharvest handling practices to maximize success and minimize loss in the marketplace. This is a key to developing a reputation for quality. An excellent resource for growers to learn more about postharvest technology is a publication from the University of California at Davis: ***Small Scale Postharvest Handling Practices; A Manual for Horticultural Crops***. This manual is available online at <http://ucce.ucdavis.edu/files/datastore/234-1450.pdf>.

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### ***Causes and Remedies for Blossom End Rot***



Blossom-end rot in tomato

With lots of dry-wet-dry-wet fluctuation in soil moisture, I have seen quite a bit of blossom end rot in tomato, eggplant, and peppers. Blossom end rot is a physiological disorder caused by factors other than pathogens or insects. In 1914 Brooks described blossom end rot in tomato in the *Journal of Phytopathology* but did not explain its exact causes. The disorder appears as a water-soaked lesion, often chlorotic, on the blossom end of large fruited varieties of tomato, pepper, eggplant, watermelon, and zucchini grown either in the field or in greenhouses. Symptoms of blossom end rot usually occur within two weeks after fruit set. Blossom end rot symptoms usually occur on the earliest fruits, but they can also occur on later fruits if conditions are favorable. Long fruited varieties (Roma type) are more vulnerable to blossom end rot than round fruits, but blossom end rot can also occur on round fruits (as the picture shows). However, no blossom end rot symptoms have been seen on wild tomatoes and they rarely occur on small fruited varieties like

cherry tomatoes. The disorder can also occur on the inside of the fruit in the tissue surrounding the seed where it is called “black seeds”. The incidence of blossom end rot is infrequent in most properly managed fields, but it can be very serious under certain conditions.

Since 1942, most experts have agreed that the disorder is likely caused by calcium deficiency in the distal end of the affected fruits. However, there are other factors that have also been linked to blossom end rot incidence, including low tissue phosphorous and manganese, high tissue nitrogen, magnesium, and potassium, high soil salinity, drought stress, too much water, high temperature, high light intensity, location of the fruit on the plant, root damage, and cultivar. Most of these factors, however, appear to affect plant growth, and so their effect maybe indirectly related to the incidence of the disorder compared to calcium. Calcium controls the process of cell expansion and serves as a messenger for cell to cell communication. Calcium is delivered into the fruit via the xylem vessels. There are fewer and narrower xylem vessels at the blossom end of the fruit where the rot is likely to occur. Also the xylem to phloem ratio is low and there are fewer vessels in the seed cavity in the blossom end of affected fruits. Combined, these factors are believed to be the reason why the rot develops on the blossom end of the fruit.

Before you jump on your tractor and start spraying you need to be aware that blossom end rot is not a simple disorder that can be cured with calcium for many reasons. Studies have shown that there is no critical level for calcium that can induce the rot, other elements beside calcium can also contribute to rot development, and some hormones and high temperature have also been shown to induce the rot. Even when assuming that calcium is the main reason for the rot, some fruits like tomato are not likely to respond to calcium treatment. Tomato fruits do not have openings (stomata or lenticels) on their skin, and so it is difficult for calcium to move through the skin and into the fruit, especially during the critical times at the early stages of development. Here are a few tips on how to prevent blossom end rot from developing in your tomatoes, peppers or other fruits.

1. Check soil pH the fall before planting and add non dolomitic lime to correct low pH.
2. Check soil organic matter and nitrogen levels. Subtract the amount of nitrogen in the soil from the total amount of nitrogen that the plants need for optimum growth.
3. Avoid adding too much Mg, K, or other nutrients that compete with calcium unless the plants show visible signs of deficiency.
4. Do not use ammonia type fertilizers, use nitrate forms instead. Ammonia fertilizers compete with calcium uptake.
5. Choose cultivars that grow slowly, produce less foliage, and produce medium size fruits. Cherry tomatoes and cayenne peppers rarely develop blossom end rot.
6. Avoid planting too early in the season.
7. Do not severely prune the plants.
8. Avoid damaging the root system by cultivating away from the plants.
9. Adding too much nitrogen, especially early in the season will likely lead to blossom end rot development.
10. Maintain adequate soil moisture. It is better to irrigate frequently at low rate than to irrigate a few times at high rate.
11. Install drainage tiles or do not plant in areas where soil flooding is likely to happen.
12. Use of cover crops may reduce soil moisture fluctuation and blossom end rot.
13. No-till also is beneficial.
14. Blossom end rot is irreversible, so remove damaged fruits as soon as you see the symptom.
15. Blossom end rot does not happen after harvest (although in apples bitter pit, which is similar to blossom end rot, occurs mostly in storage).

Spraying calcium, regardless of its form, will not eliminate blossom end rot on affected fruits. The three most important factors that will likely minimize blossom end rot development in your tomatoes, peppers or eggplants are monitoring the level of nitrogen carefully (divided the rate into smaller doses and use nitrate nitrogen), prevent fluctuation in soil moisture, and keep the soil pH at 6.5 to 6.8. If you can manage these three factors, you can manage blossom end rot.

Blossom end rot sometimes is confused with sunburn. In almost all cases, sunburn occurs on the outside of the fruit surface facing the sun, while blossom end rot is less likely to occur on the outside fruits facing the sun. Also, unlike blossom end rot, sunburn is not limited to the calyx end of the fruit but can extend to the petiole end, as the picture below shows.



Sunburn in bell peppers.

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