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College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

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Editors: Nathan Johannig & Bronwyn Aly

A newsletter to provide timely, research-based information that commercial fruit & vegetable growers can apply to benefit their farming operations.

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editors, Nathan Johannig, 618-687-1727, njohann@illinois.edu or Bronwyn Aly 618-382-2662, baly@illinois.edu. The *Illinois Fruit and Vegetable News* is available on the web at: <http://ipm.illinois.edu/ifvn/>. To receive email notification of new postings of this newsletter, contact Nathan Johannig at the phone number or email address above.

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Upcoming Programs

Check the **Illinois SARE calendar** for a full list of programs and links for registration.

<http://illinoissare.org/> and <http://illinoissare.org/calendar.php>

Also see the **University of Illinois Extension Local Food Systems and Small Farms Team's website** at:

<http://web.extension.illinois.edu/smallfarm/> and the calendar of events at

<http://web.extension.illinois.edu/units/calendar.cfm?UnitID=629>.

- **Specialty Food Business Seminar Series. Christian County and Montgomery County Extension offices.** The seminars will be held the second Monday of each month starting in January and ending in May. The seminars are free and the public is invited to attend any or all of the seminars they choose.

Workshops include:

- **Social Media** - Monday, May 8, 2017 (1-3 pm). May's topic will be presented by Terri Miller, Promotion and Publicity Specialist, UI Extension. She will address best practices for social media and current trends.

There is no cost to attend the seminars, however advanced registration is required. Participants may register on-line at <http://web.extension.illinois.edu/cjmm/> or by calling either the Christian County Extension office in Taylorville at 217-287-7246 or the Montgomery County Extension office in Hillsboro at 217-532-3941. For more information contact: Lisa Peterson, Extension Educator, Nutrition and Wellness, lap5981@illinois.edu

- **“Put Small Acreage To Work” Workshop, Kankakee Community College, 100 College Drive, Kankakee, IL 60901, Saturday, April 22, 2017 9:00 a.m. to 3:30 p.m.** . Topics to be presented include soil management, equipment for a small farm, integrated vegetable production, growing fruits, small ruminant production, poultry production, adding value to farm products, and marketing specialty crops. To register visit <https://web.extension.illinois.edu/countyadmin/calendar/edit.cfm?ID=74330&OfficeID=472> or contact James Theuri at 815-933-8337 or jtheu50@illinois.edu.
- **Preparing for Increased Immigration Enforcement in Agriculture (Webinar) Tuesday, April 25th | 12:00 PM-1:00 PM CST.** This webinar is prepared in partnership with Fragomen Worldwide & the Illinois Farm Bureau. Topics include: Congressional legislative update on agriculture immigration policy, how

required: [click here to register](#). For more information contact Jim Fraley, Manager of the Illinois Specialty Growers Association at JFraley@ifba.org or 309-557-2107.

- **Bi-State Compost School, June 21-22, 2017, Henry White Experimental Farm & St. Louis Composting, Belleville, IL.** The school is an intensive 2 day program for new and experienced mid to large scale composting operators that will train participants in the science and art of composting. For more information or to register visit <http://go.illinois.edu/bistatecompost> or contact Duane Friend at friend@illinois.edu or 217-243-7424. Registration is limited to 30 participants.
- **ISHS 2017 Summer Horticultural Field Day, Thursday, June 8, 2017, 8 am – 3 pm.** Kurt and Connie Christ will be hosting the 2017 Summer Hort Day at their place, Christ Orchard, 4321 N Texas Rd, Elmwood, IL. Click here for on-line registration: <https://www.picatic.com/ilhortday2017> . Please don't hesitate to contact us at ilsthortsoc@gmail.com if you have any questions, comments or concerns you want to share.
- **Produce Safety Alliance Grower Training Course, Monday, June 26, 2017 8 a.m. – 5 p.m.** University of Illinois Extension Office, DeKalb County, 1350 W. Prairie Drive, Sycamore, IL 60178. Do you have concerns about safety in your produce operation? Are you concerned about compliance with FSMA? Do you want to know more about the difference between FSMA and GAPs? Then the Produce Safety Alliance Grower Training might be for you! To register or find more information visit <https://web.extension.illinois.edu/registration/?RegistrationID=16567> or contact Laurie George at (618) 242-0780 or ljgeorge@illinois.edu.

News & Announcements

Reminder on Pesticide Drift Complaints

As the season gets going, also comes the time when we start to encounter issues with pesticide drift. No matter what crop or product we are spraying (synthetic or OMRI approved) we are all responsible for making sure our pesticide applications stay where they are supposed to. As always, good neighborly relations are a positive start for prevention, but sometimes we don't have those relationships. In some cases, even when applicators are being careful, things can still happen.

The Illinois Department of Agriculture (IDoA) is the lead agency in the state for pesticide drift. If you suspect pesticide misuse and the situation results in your need to file a complaint, visit the IDoA "Pesticide: Use and Misuse" website at <http://www.agr.state.il.us/Environment/Pesticide/pestuses.html>. From there, you can download a complaint form that must be completed and submitted to IDoA within 30 days from the time you notice injury. If you don't have web access, you can still call 1-800-641-3934 (voice and TDD) or 217-785-2427 to request a complaint form. Once IDoA receives the complaint form from you, an inspector will be assigned your case number.

Regional Reports

From east central Illinois... In eastern and central Illinois, fruit trees are about done blooming and orchardists seem to be happy with the fruit set. Produce growers are shaping beds and laying plastic as the weather conditions allow. Early plantings of sweet corn were done between rains as well as some direct seeding of vegetables. Asparagus is in full production and yields are looking good. Early reports of significant Black Cutworm (*Agrotis ipsilon*) moth captures in the area (see black cutworm article later in this issue) as well as True Armyworm (*Pseudaletia unipuncta*) moths are indicators that farmers may want to monitor plantings for cutting and feeding damage toward the beginning of May.

Doug Gucker (217-877-6042; dgucker@illinois.edu)



Pawpaw bloom, which are pollinated by flies. The blooms measure about 0.7-1.0" across.

From the St. Louis Metro East... It looks like in the St Louis Metro East we will have an opportunity to validate the old weather saying, "If it rains on Easter Sunday, it will rain every Sunday for 7 weeks." Field operations of all types are readily obvious. Most early season vegetables have been planted, including high-tunnel tomatoes. Horseradish and main-season field tomatoes are going in now and asparagus is in harvest. Apples and cherries are moving past petal fall.

Elizabeth Wahle (618-344-4230; wahle@illinois.edu)

From southern Illinois... We have stayed fairly mild with many days in the 70s and lows in the 50s. We dodged some rain chances early the week prior to Easter which allowed our soils to dry and field work to take off. We finally did get some rain in various amounts on Easter Sunday and Monday. Here in Murphysboro we ended up with about 0.5" in total although some to the north did not receive as much and some field work has started to resume. We have rain chances increasing late this week through the weekend with significant rainfall predicted this weekend and a brief cool down.

With the break in the weather, here at the office we were able to get plastic laid for some pepper trials. Asparagus harvest is in full swing. 'Millennium' and 'Pacific Purple' just are now really starting to produce compared to many of the Jersey varieties which have been in production for a good week or more before. In the last week or so spear diameter has really increased with a greater number of 1/2"+ diameter spears. Last Friday, I did spray for asparagus beetles right after we harvested. They were numerous to say the least. This Monday's harvest I only saw one the entire time harvesting. Again (in case you missed it last issue), for more information on asparagus beetle management refer to an article I wrote in [Volume 22:6](#) from last year for some pictures and management practices.

Apples and tart cherries are at or after petal fall. At home our tart cherries have a very good crop so far; hopefully the hail will stay away this year. Late blueberries like Chandler and Elliott are still in bloom while others are at petal fall. We planted our first sweet corn about 10 days ago and it is just starting to come up. About that same time I got potatoes planted as well. About a month ago, I frost-seeded some oats and red clover. The oats are really taking off and the red clover is slowly getting going underneath.

Out in the high tunnel local growers have tomatoes that are in bloom and even with some small fruit set. Here at our high tunnel, we just got our tomatoes and greenhouse cucumbers transplanted. We have 3 different parthenocarpic (seedless) cucumber varieties we are looking at: a slicer ('Lisboa'), pickler ('Excelsior') and mini ('Picolino'). We started these in 4" pots to get a larger transplant (2-3 fully expanded leaves). We have them planted in a single row 1 ft apart and we will be training them to a single stem on trellised on twine. We will trellis them to "V" pattern alternating which side of the row we train them to at the top. As you can see, if you look closely at the picture, we already have some female flowers forming.



Parthenocarpic cucumbers in the High Tunnel at the Jackson Co. Extension Office. Photo. N. Johannig

Nathan Johannig (618-687-1727; njohann@illinois.edu)

Fruit & Vegetable Production & Pest Management

Modified Growing Degree Days (Base 50⁰ F, January 1 through April 16) for Insect Development

Station Location	Actual Total	Historical Average (11 year)	One- Week Projection	Two-Week Projection
Freeport	156	83	188	227
St. Charles	164	88	194	229
DeKalb	167	98	202	243
Monmouth	257	128	297	343
Peoria	328	146	374	424
Champaign	278	149	323	373
Springfield	404	172	455	511
Perry	405	182	454	506
Brownstown	456	220	513	575
Belleville	477	246	537	601
Rend Lake	507	268	573	642
Carbondale	509	267	571	636
Dixon Springs	587	301	655	726

Insect development is temperature dependent. We can use degree days to help predict insect emergence and activity. Degree day accumulations calculated using the [Illinois IPM Degree-Day](#) Calculator (a project by the Department of Crop Sciences at the University of Illinois and the Illinois Water Survey).

Kelly Estes (217-333-1005; kcook8@illinois.edu)

Black Cutworm Moths Have Arrived

Black cutworm moths have arrived in Illinois on southerly winds this spring. The potential for egg-laying exists in fields with high densities of winter annual weeds. After the eggs hatch, the small larvae feed on these host plants. Although primarily a pest of corn, black cutworm can also be a problem in vegetable crops including tomatoes, cucurbits, and sweet corn.

Black cutworm larvae pass through 6 or 7 instars (stages of larval development). Their rate of development depends upon temperature; the larvae develop more quickly when the weather is warm. The first three instars are very small, and the feeding injury they cause as young larvae appears as small holes or bites in leaves. In corn, the fourth through seventh instars cut the plants off at or just below the soil surface. If the soil is dry and crusted, the larvae remain below the surface and drill into the base of the plant. If the growing point is destroyed or the plant is cut below the growing point, the plant will not survive.

Black cutworm larvae vary in color from light gray to black, and are about 1 1/2 inches long when fully grown. Numerous convex skin granules of different sizes give the cutworm a somewhat "greasy" and rough appearance. The moths are dark gray, with a black, dagger-shaped marking toward the outer edge of the forewing and a wingspan of about 1 1/2 inch.

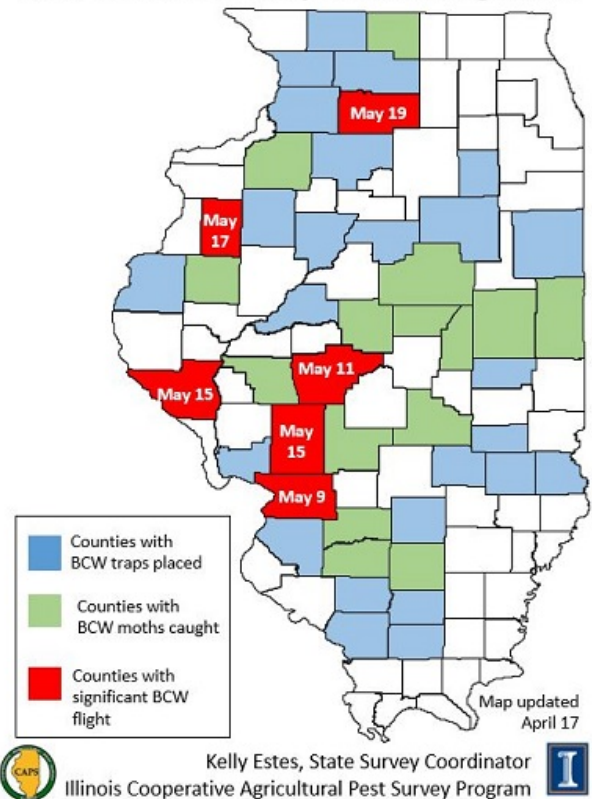


(Left to Right: Black cutworm adults, larva and early instar feeding)

After the larvae finish feeding, they pupate. The moths then emerge from the soil and begin mating and laying eggs for another generation; there may be 3 or 4 generations each year.

Flights of black cutworm moths can be monitored with the use of pheromone traps or light traps. Evidence of a "significant" moth flight (9 or more moths per pheromone trap in two consecutive nights) is used as a biofix to start a degree-day model, and scouting for cutting is recommended beginning about 300 base-50 degree-days later. Monitoring of moth flights and regular field scouting are good management strategies for the black cutworm. Black cutworm is monitored as part of the Illinois Pest Monitoring Network. Based on pheromone trap captures around the state, the projected cutting dates (accumulation of 300 degree-days and the time to begin scouting) are below. Readers can follow up to date pest information via Twitter ([@ILPestSurvey](https://twitter.com/ILPestSurvey)). Information will also be shared through the [Illinois Fruit & Vegetable News](#) and [Illinois Pest Management and Crop Development Bulletin](#)

2017 Illinois BCW Projected Cutting Dates



Kelly Estes (217-333-1005; kcook8@illinois.edu)

Nitrogen Notes: Choosing the Best N Source

As the season gets off to a start, it is time to think about how we are going to supply Nitrogen (N) for our crops. Remember that all plants take up nitrogen in the form of NH_4^+ (ammonium) or NO_3^- (nitrate). Generally, our crop plants like a balance of nitrate and ammonium, however, some have preferences for one versus another. There are many fertilizer options and below I have outlined a few considerations for some of the common N sources.

- **Urea (46-0-0):** Urea is probably one of the most commonly available dry N sources. It is the highest in analysis of the dry products and thus also generally the most cost effective per lb of N. However, it does need to be incorporated with tillage or rainfall fairly soon after application (within a week or ideally less). After incorporation, soil microbes quickly break it down into ammonium N and then nitrate N forms. It is very subject to volatilization (N loss directly to the atmosphere) on the surface without tillage or rainfall. After a week of without incorporation research has shown you can lose over half of your N or more. If you want to surface apply urea, look in to getting a product such as Agrotain (a urease inhibitor) applied to the urea. This will stabilize the urea and significantly reduce volatilization. The down side is typically you would have purchase fertilizer in bulk rather than bagged to get this inhibitor applied, but it is an option to consider depending on what is available in your area.
- **Ammonium Nitrate (34-0-0):** Ammonium nitrate is an excellent N source which is well balanced with about half ammonium N and half nitrate N form both of which are readily plant available. This makes it great for use at planting, but even better for sidedress applications as the plants can very readily access these forms of N. Ammonium nitrate is not subject to volatilization like urea, however, especially the nitrate portion is subject to leaching and runoff with rainfall. Unfortunately, ammonium nitrate is fairly hard to find despite being one of the most ideal N sources for plants, but if you do have access to it is a great option.
- **Calcium Nitrate (15.5-0-0-19Ca):** Calcium nitrate is another very common option. It has the added benefit of being supplying some additional calcium which is often very beneficial for fruit development on our fruit and vegetable crops. The N is all in the nitrate form and subject to leaching from rain, but not subject to volatilization. This makes it ideal for surface applications including sidedress applications. The nitrate form of N is preferred by solanaceous crops (tomatoes, peppers, potatoes, etc). The down side is it is only 15.5% N which is on the lower side and generally makes it more expensive per lb of N compared to some other sources. Also, over multiple seasons and repeated use it does tend to increase soil pH. So you might consider this where you are looking for added calcium or for surface applications.
- **Ammonium Sulfate (21-0-0-24S):** Ammonium sulfate is another good N source that is supplies the ammonium form of nitrogen and very commonly available, although we typically think of it as an adjuvant to use with glyphosate rather than just a fertilizer. The N is stable and will not volatilize like urea. It is a lower analysis so it does take a little more to get the same amount of N as in urea, but not as low as calcium nitrate. It also is 24% sulfur so it will supply sulfur if your soils are deficient and will tend to decrease your soil pH. This is an ideal form of N for blueberries as they have a strong preference for the ammonium form of nitrogen and the sulfur can help maintain that low pH they need. Also, if in general your pH is high this is a good way to supply some N and subtly reduce your pH to more ideal levels.
- **Urea-Ammonium Nitrate (32-0-0 or 28-0-0):** Urea-Ammonium Nitrate (UAN) is a liquid form of nitrogen that is roughly half urea N and half ammonium nitrate N. The urea portion is still subject to the same volatility issues and needs to be incorporated or used with a urease inhibitor to protect that portion of the N. It is typically readily available in bulk from many agronomic fertilizer dealers. It can be found as either 32% or 28% N (by weight) and which form you can find tends to be dependent on the region and what is traditionally used. The only difference is strictly the percent N; all of the other properties are the same. 32% contains 3.52 lbs N/gallon and 28% is 3 lbs N/gallon. It can be applied with a sprayer and broadcast (surface or incorporated). There are some streamer type nozzles that are made specifically for UAN delivery. Also, it can be knifed in with an injector or band applied on the surface. Note that it is corrosive to any metal parts (as most N fertilizers) make sure to flush and clean out sprayers (outside and inside). Using those streamer nozzles is ideal to prevent drift of small fine particles on to your sprayer or other steel surfaces you would get from traditional flat fan nozzles. Additionally, UAN can be used in fertigation through drip irrigation as well.

These are just some of the most common synthetic N fertilizers. Also, we have many different organic sources of N such as blood meal, compost and many others. Hopefully, this gives you some added insight in to the pros and cons of these different nutrient sources to help keep your crops healthy!

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Eastern Flower Thrips in Strawberries

Eastern flower thrips, *Frankliniella tritici*, make their presence known in strawberry patches annually in Illinois. Damaged fruit is typically tan, brown or yellow-brown in color, hence the term “bronzing.” The disorder occurs annually to some extent, but timing of its occurrence and severity varies from year to year. Bronzing of strawberry fruit often occurs in late spring and summer in Illinois. In some years, bronzing can result in a total loss due to unmarketable or undesirable fruit.

The eastern flower thrip is a tiny, slender, cigar shaped insect. Nymphs and adults have the same general shape. Nymphs are wingless, whitish yellow when small, and yellow when fully grown. Adults are yellowish brown, 1/16 inch long, and have narrow wings that are fringed with hairs. While resting, the wings are folded lengthwise over the back.

Adults are attracted to flowers of many different plants, including many plants in the Rosaceae family. Adults and nymphs feed using rasping-sucking mouthparts to obtain sap. On strawberry fruit, they begin feeding on seeds soon after the buds open. They feed on the tissue between the seeds as the fruit expands. Bronzing results from surface cells being killed. Eastern flower thrips are not thought to overwinter in Illinois, but populations are thought to develop every year throughout the state as a result of long-distant migrations from southern states on high-level winds associated with weather fronts.

There are two active nymph stages and two inactive pupal-like nymph stages. The life cycle can be completed in several weeks, resulting in several generations per year. Because eastern flower thrips are very small, they are difficult to view with the naked eye. To aid in their detection, tap flowers onto a white or very dark plate, and look for the slender yellow thrips. Thrips are also visible within the strawberry flower structure with the aid of a 10x magnifying lens.

Thrips immigration is not a one-time event, so control has to be maintained throughout the critical bloom period of strawberries. Although thresholds have not been determined for the Midwest, data from outside growing areas suggests that control is warranted if counts of thrips exceed 2 per blossom. Of the insecticides labeled for use in commercial strawberry production, Brigade (bifenthrin) should work very well, and it has a 0-day PHI (no waiting period required between application and harvest). Among other effective insecticides, Danitol (fenpropathrin) has a 2-day harvest restriction. For a complete listing of control options, see the [2017 Midwest Fruit Pest Management Guide](#). Once harvest is already under way, control is recommended for unaffected fruit less than dime in diameter when thrips are detected at or above the threshold level.

Elizabeth Wahle (618-344-4230; wahle@illinois.edu)



Less seriously...

I happened to be looking through some old files, and stumbled upon this slide that Jeff Kindhart had included a few times in presentations. If I remember correctly, he would have used it in the mid 90s or so, but I'm sure it resurfaced on and off through the years. Good ole Jeff, always able to make us laugh! - *Bronwyn*

Top 10 Reasons for Starting a Specialty Crop Business:

10. Cheaper than joining a gym.
9. Christmas cheer all summer long with all the hoe hoe hoeing.
8. Get to employ kids not sharp enough to get a summer job indoors.
7. Nothing quite as special as the smell of 2 acres of rotting strawberries in your own backyard.
6. Get to work with the public.
5. Beats the hell out of selling Amway.
4. Being a farmer, personnel manager, market developer, researcher and the hundred other required staff positions will surely be easier than your current job.
3. You just can't lose \$3000 an acre on row crops.
2. Keeps you from having to worry about where you were going on your summer vacation.
1. IRS CAN'T TRACE CASH TRANSACTIONS!!!

University of Illinois Extension Educators and Specialists in Fruit and Vegetable Production and Pest Management

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