



UNIVERSITY OF ILLINOIS EXTENSION

College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

Vol. 22, No. 4, March 16, 2016

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>.

- **Small Farm Webinar Series, January 14 through March 31. Thursdays, noon to 1:00 p.m.** For more details or to register online, see <https://web.extension.illinois.edu/registration/?RegistrationID=13379>. For more information, contact Andy Larson at 815-732-2191 or andylars@illinois.edu.
 - **Mar. 17** - Using Cover Crops on Small Farms, Nathan Johannig, *University of Illinois Extension Local Food Systems and Small Farms Educator*
 - **Mar. 24** - Growing Great Blackberries, Bronwyn Aly, *University of Illinois Extension Local Food Systems and Small Farms Educator*
 - **Mar. 31** Setting Up a Grazing System on a Small Farm, Jay Solomon, *University of Illinois Extension Energy and Environmental Stewardship Educator*
- **Kentucky Strawberry Association Program, Saturday, March 19, 10:00 – 2:30 p.m.** Butch Case Farm, 1316 County Infirmary Lane, Cynthiana, KY 41831. For more information contact Danny Van Meter 859-235-1535 or visit <http://vanmeterfamilyfarm.com/conferences> Farm tour and program along with discussion of creating an Ohio Valley Strawberry Growers Association, welcoming growers from the Ohio Valley states, including Illinois.
- **Good Food Festival, March 24-26, 2016** UIC Forum, 725 W. Roosevelt Road, Chicago IL 60608. For more information visit <http://www.goodfoodfestivals.com/>
- **Spring Cover Crop Field Day, Thursday, April 7, 10:00 a.m.** Ewing Demonstration Center, 16132 N. Ewing Rd; Ewing, IL 62836. Anyone interested in learning more about cover crops is welcome to attend. Certified Crop Advisor CEUs will also be offered (SW – 1.5, CM – 0.5). Lunch will be provided so

please call the Franklin County Extension Office at 618-439-3178 for more information and to register by Tuesday, April 5th. <http://web.extension.illinois.edu/units/event.cfm?UnitID=629&EventID=71578>

- **GAPs online webinar training series, Tuesdays, April 12 through May 3, 6:00 – 8:00 p.m.** Registered participants will be sent webinar instructions, handouts, and a GAPs manual prior to the first webinar. There will be a \$25.00 fee per participant, and pre-registration along with pre-payment is required by April 7, 2016. Visit <http://web.extension.illinois.edu/units/event.cfm?UnitID=629&EventID=71303> to register, or contact Laurie George at 618-548-1446 or ljgeorge@illinois.edu
- **Southern Illinois Summer Twilight Series, 4 Monthly On-Farm Meetings on Mondays, May through August, 6:00 p.m.** For more information or details, contact Bronwyn Aly at 618-382-2662; baly@illinois.edu or Nathan Johannng at 618-687-1727; njohann@illinois.edu Save the dates, more details to follow in upcoming issues.
 - **May 16** – All Seasons Farm, Cobden, IL
 - **June 20** – G & C Meyer Farm, near Steeleville, IL
 - **July 18** – Spring Valley Farm, Pulaski, IL
 - **Aug 8** – Grant’s Orchard, near Johnston City, IL
- **ISHS Summer Horticulture Day, Thursday, June 9, 8:00 a.m.** Hosted by Raoul & Jodie Bergersen, Valley Orchard, 811 E State St, Cherry Valley, IL 61016. To register online visit <https://www.picatic.com/ilhortday> or contact Rachel Graham Coventry at 217-853-6048 or ilsthortsoc@gmail.com
- **Illinois Pumpkin Field Day, Wednesday, August 31.** Ewing Demonstration Center, 16132 N. Ewing Rd; Ewing, IL 62836. For more information, contact Nathan Johannng at 618-687-1727 or njohann@illinois.edu

Regional Reports

From western Illinois ... We’ve been missing the rains thus far in March, as I’ve received less than 0.5” as of March 14th. With a day or two of sunshine and wind, there will be opportunities to get back into the field, and as of the March 15th, one grower shared that they got their first planting of sweet corn in the ground. Many corn farmers have their NH3 and dry fertilizer applied. Overall, soil conditions and date have held them back, but I’m guessing that planting may begin fairly soon depending upon rain and temperatures the next week or so. There was a rumor of a corn field planted last week in southern Pike County. The last year we saw temperatures this warm in March was in 2012, which many will not care to remember nor experience that again.

We’re observing new growth on the plasticulture strawberries that have been uncovered. I did see one early bud emerge on some carryover plasticulture berries last week, but the ones planted last fall are nowhere near that mature. Forecasted temperatures are for low’s in the mid 30’s later in the week, but that shouldn’t cause any harm. The bare root strawberries, planted on white plastic last July and covered with straw at Thanksgiving, have lost a lot of leaves. You can see on the accompanying photo that many leaves succumbed to desiccation over the winter. According to Nate Nourse, we covered too soon, as they were not yet acclimated to the cold.



Bare roots strawberries planted on white plastic (2 left photos). Plasticulture strawberries on black plastic from plugs (right). Photos: M. Roegge

Peaches have really taken off, with bud swell occurring, especially on the early to mature varieties, and it may be a little late for peach leaf curl sprays. I don't recall what stage of growth peaches were at mid-March of 2007, but we had a very warm March that year, which advanced bloom quite a bit. Many fruit crops that year were adversely affected by the Easter freeze, when we had temperatures down to the high teens from Maundy Thursday through Easter Sunday (the first week of April). Many fruit growers experienced very damaging freeze injury. The one remaining apple grower in this area (Edgewood Orchards) lost their apple crop that year, which was only the second time in over 75 years. Our plasticulture strawberries were in full bloom and we lost nearly every open flower, even with single and double row covers. Let's hope that either temperatures moderate some or that we avoid any cold temperatures within the next month or so. Our last average frost for this region is April 15-20.

Blueberries are showing bud swell and blackberries are showing 1/2" or so of green tissue.

High tunnel crops are very much enjoying this weather, although the lack of many days with sunshine is causing some delay in growth. I talked to Roger Martin, R and R Hydroponics, and he mentioned how the tomato plants (planted late Dec- early Jan) are beginning to stretch some due to low sunlight levels.

Plant starts have been seeded for transplanting, and a number of crops with succession seedings being done as necessary to allow for several plantings.

The FSA office has an effort out to contact growers about NAP insurance for specialty crop growers. If you have an interest, contact your local office for more information.

Mike Roegge (217-223-8380; roeggem@illinois.edu)

From central Illinois ... A few local farmers were preparing their vegetable beds and seeding early season crops ahead of the weekend rains. Soils were dry and workable up until the rains of Sunday, March 12. Vegetables in high tunnels are growing well with the mild temperatures of March and farmers are having to use ventilation and sometimes increased ventilation on the warmer, sunny days.

Tree fruit growers are a little concerned with our recent warm early March temperatures and buds are breaking dormancy. In this area, orchardists are still remembering last year's 24° F temperatures on April 4, which hurt yields in some areas. Picture of pear bud was taken on March 13, 2016.

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



From southern Illinois ... Temperatures have been in the 60s for highs with a few warmer and colder days here and there, but temperatures have not gone below freezing recently. The end of last week we had some rain with 1.4 inches of rain in Murphysboro. Although the rain delayed some thoughts of field work, the rain is much needed as we don't want to head into summer with dry soils from a warm dry spring like we had in 2012. For now the forecast is for temperatures to remain in the 50s and 60s for highs for the next week or so and no major chances for rain.

With these warm temperatures things are really coming to life out in the field. During our pruning clinic on March 10th at DSAC, we had blueberries at bud break and peaches had a few buds that were starting to show pink. Blueberry buds are starting to open at home on my 'Duke' and 'Earliblue'. The 'Kiowa' blackberries at my office have about one inch of green shoots and local growers have reported that some early peaches are starting to bloom. Also, some of varieties of asparagus are already starting to emerge as early as last Friday (3/11) and now I have some spears just about ready to harvest. Make sure to scout your



*Blueberry bush at DSAC showing bud break on March 10, 2016.
Photo by B. Aly.*

fields and get the necessary burndown herbicide application made prior to spear emergence. Let's just hope that mother nature doesn't come back and decide that winter is not quite over yet with all of this activity out in the field.

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

Vegetable Production & Pest Management

Updates to the 2016 Midwest Vegetable Production Guide

If you have a paper copy of the 2016 Midwest Vegetable Production Guide note that there have been some corrections and additions to the guide and they can be found at the following link from the Purdue Vegetable Crops Hotline: <https://vegcropshotline.org/article/updates-to-the-2016-mw-vegetable-production-guide-for-commercial-growers/>

Also note that the updates have been made to the PDF available at: <https://ag.purdue.edu/btny/midwest-vegetable-guide/PublishingImages/2016PDFs/ID-56.pdf>

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

New Fungicide Labeled in for Vegetable Crops

I would like to announce the release of a new fungicide, Orondis from Syngenta. It is a good product and should help commercial vegetable growers in combating downy mildew of cucurbits; Phytophthora blight of cucurbits, peppers and tomato; Buckeye rot of tomato; and late blight of potato and tomato. However, I also want to discuss Orondis because of the complicated way in which it is being released. Be advised that the listing for Orondis in the MW Vegetable Production Guide for 2016 (ID-56) is incorrect. Please see the on-line version of the [ID-56](#) for the most current information.

Orondis has a new active ingredient which does not appear in any other fungicide and a novel mode of action, FRAC code U15. But you will not be able to purchase Orondis on its own. It will be available as 3 different multi packs or co-packs. Each multi-pack will contain two jugs, each with a different active ingredient and mode of action. The products in the multi-pack are intended to be used as a tank mix. The correct use of the products will help to prevent the emergence of strains of the pathogens that are resistant to FRAC group U15. See Table 1 below for details. This blog discusses the use of Orondis products with cucurbits and solanaceous crops because I believe that Orondis should have the greatest impact on these crops. However, many other crops are listed on the Orondis label. For more details, check with [Syngenta](#), your local chemical representative, or [myself](#).

Table 1: Orondis products will be available in 2016 as multi-packs. That is, growers will purchase a box with 2 different jugs. Each jug contains a different fungicide. Mix both products together as a tank mix in water for application. Follow the rate information on each product. Use the most restrictive REI and PHI* for each product in the multi-pack. After using one of the Orondis products, alternate to a product with a different mode of action. Do not apply a foliar application of an Orondis product after a soil application of an Orondis product. That is, use soil or foliar applications of Orondis, but not both.

Name of multi pack	Products in multi pack (REI hrs)	Common name of a.i. (FRAC code)	Crops (PHI days)	Rates
Orondis opti	Orondis Opti A (4)	Oxathiapropilin (U15)	Cucurbits (0)	2-4.8 fl. oz/A
			Pepper (0)	
			Tomato (0)	
			Potato (5)	1.6-4.8 fl. oz/A
	Orondis Opti B (12)	Chlorothalonil (M)	Cucurbits (0)	2 pts/A cucurbits
			Pepper (3)	1.5 pts/A
			Tomato (0)	2 pts./A
			Potato (7)	¾ pts/A
Orondis Ridomil Gold SL**	Orondis Gold 200 (4)***	Oxathiapropilin (U15)	Cucurbits (0)	2.4-19.2 fl. oz.
			Pepper (0)	
			Tomato (0)	
	Ridomil Gold SL (48)	Mefenoxam (4)	Cucurbits (5)	1-2 pts/A
			Pepper (7)	1 pt/A
			Tomato (7)	1-2 pt/A
			Potato (14)	3.2 fl oz./A
	Orondis Ultra	Orondis Ultra A (4)	Oxathiapropilin (U15)	Cucurbits (0)
Pepper (0)				
Tomato (0)				
Potato (5)				1.6-4.8 fl. oz/A
Orondis Ultra B (4)		Mandipropamid (40)	Cucurbits (0)	8 fl oz/A
			Pepper (1)	
			Tomato (1)	
			Potato (14)	

* PHI=Pre-harvest Interval in days; REI=Restricted Entry Interval in hours.

**Orondis Ridomil Gold SL may only be applied to soil.

***Orondis Gold 200 is not labeled for potato.

Dan Egel, Extension Plant Pathologist, Purdue University (812-886-0198; egel@purdue.edu)

- Purdue Vegetable Crops Hotline

Fruit Production & Pest Management

As warm temperatures have prompted perennial crops to break dormancy a bit early this season, we wanted to include this article from last year as a reminder to stay on top of the developmental stages of your crops and be ready to make timely pest management applications when needed. – *Bronwyn Aly & Nathan Johanning*

Updates on Fire Blight of Apple in Illinois

Fire blight is a bacterial disease caused by *Erwinia amylovora*. Fire blight occurs in Illinois every year and causes shoot blight, canker blight, and rootstock blight on apples and pears. I consider fire blight the most destructive disease of apples and pears in Illinois. Blossom blight symptoms of the fire blight are not common in Illinois, but shoot blight is widely observed during June and July.

In 2008 and 2009, we had widespread and severe fire blight in apple orchards in Illinois. This resulted in speculation that streptomycin-resistant strains of *E. amylovora* might be present. Resistance to streptomycin in *E. amylovora* has been reported from other states, such as California and Michigan.



We conducted statewide surveys in 2010, 2011, and 2012, and collected 117, 129, and 170 *E. amylovora* isolates, respectively, from 20 counties. None of the 416 *E. amylovora* isolates tested were resistant to streptomycin (Agri-Mycin 17WP) at 50 mg/liter (50 ppm). However, seven non-*E. amylovora* bacterial isolates were collected from *E. amylovora*-infected shoots that were streptomycin-resistant, which could be a potential source of streptomycin-resistance for *E. amylovora* in Illinois in the future. In 2011 and 2012, we conducted field trials to evaluate efficacy of oxytetracycline (Mycoshield 17WP), kasugamycin (Kasumin 2L and ARY-0416-06), copper hydroxide (Kocide-3000 41.6DF), *Bacillus subtilis* (Serenade Max, QST713), and *Pseudomonas fluorescens* (Blight Ban A506) for management of fire blight. Only kasugamycin (Kasumin 2L and ARY-4016-06) reduced blossom infection significantly.

Kasumin 2L is registered for control of fire blight of pome fruit (e.g., apple, crabapple, pear, Asian pear, quince) and should be used wherever resistance to *E. amylovora* has been confirmed. Otherwise, streptomycin is still the most effective chemical for control of *E. amylovora*. Based on the label for Kasumin 2L, spray volume must be sufficient to provide good coverage of treated foliage; begin applications at 20–30% bloom or when conditions favor disease development and repeat applications at 7-day intervals or when conditions favor disease development; do not make more than two consecutive applications of Kasumin 2L, if additional applications are needed, rotate with another product with a different mode of action that is registered for this use; and do not make more than 4 applications of Kasumin 2L per season. Follow all label directions (<http://www.cdms.net/LDat/ldb4M000.pdf>).

Spraying all of pome fruit trees in the orchard is essential. Spray the trees with a fixed copper compound at silver tip; use the MARYBLIT program for predicting infection and timing spray applications, and apply streptomycin during bloom, as predicted by MARYBLIT; apply streptomycin after a major hail or storm damage; do not make more than four applications of streptomycin per season. Refer to the [2016 Midwest Fruit Pest Management Spray Guide](#) for the updates on fire blight management.

Mohammad Babadoost (217-333-1523; babadoos@illinois.edu)

Food Safety Updates

Produce Safety Rule: AGRICULTURAL WATER TESTING – article 4 of 7

The Produce Safety Rule, which came into effect on January 26, 2016, bases testing frequency on the type of water source; surface water, which is considered the most vulnerable to external influences, and ground water.

UNTREATED SURFACE WATER DIRECTLY APPLIED TO GROWING PRODUCE (*other than sprouts*):

- The Food and Drug Administration (FDA) requires farms to do an initial survey, using a minimum of twenty (20) samples, collected as close as is practicable to harvest over the course of two (2) to four (4) years.
- The initial survey findings are used to calculate the geometric mean (GM) and the statistical threshold (STV). These calculations will be used to determine the “microbial water quality profile” for the irrigation system(s), and define whether the water meets the required microbial quality criteria. (***GM = 126 CFU E coli/100mL of water***) (***STV = 410 CFU E coli/100mL of water***)
- After the initial survey has been conducted, an annual survey of five (5) samples per year, minimum, is required to update the calculations of GM and STV.
- Five (5) of the oldest samples from the previous year’s data will be removed, and the most recent five (5) samples will be added to it, to create a rolling dataset of 20 samples. This new dataset will determine whether the water is still used appropriately by recalculating the GM and STV.

UNTREATED GROUND WATER DIRECTLY APPLIED TO GROWING PRODUCE (*other than sprouts*):

- The FDA requires farms do an initial survey, using a minimum of four (4) samples, collected as close as is practicable to harvest, during the growing season or over a period of one (1) year.
- The initial survey findings are used to calculate the GM and STV. These calculations will be used to determine the “microbial water quality profile” for the irrigation system(s), and define whether the water meets the required microbial quality criteria. (***GM = 126 CFU E coli/100mL of water***) (***STV = 410 CFU E coli/100mL of water***)
- After the initial survey has been conducted, an annual survey of a minimum of one (1) sample per year is required to update the calculations of GM and STV
- The new sample, plus the previous most recent three (3) samples will create a rolling dataset of four (4) samples. This new dataset will determine whether the water is still used appropriately by recalculating the GM and STV.

UNTREATED GROUND WATER - NO DETECTABLE GENERIC *E coli* IS ALLOWED

- The FDA requires farms to initially test the untreated ground water at least four (4) times during the growing season or over a period of one (1) year.
- Farms must determine whether the water can be used for that purpose based on results
- If the four (4) initial sample results meet the no detectable generic *E coli* criterion, testing can be done once annually thereafter, using a minimum of one sample.
- Farms must resume testing at least four (4) times per growing season or year if any annual test fails to meet the microbial quality criterion.

There is no requirement to test agricultural water that is received from public water systems or supplies that meet requirements established in the Produce Safety Rule. Farms should have access to the public water system results or certificates of compliance should it be required. The Produce Safety Rule prohibits use of untreated surface water for any purpose relating to usage during or after harvest. Certain uses of agricultural water, where there is a possibility of potentially dangerous microbes being transferred to produce through direct or indirect contact, require that no detectable generic *E coli* be present.

QUESTIONS/COMMENTS:

The Food and Drug Administration has established a Food Safety Technical Assistance Network to provide a central source of information to support industry understanding and implementation:

<http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm459719.htm>

Laurie George (618-548-1446; ljgeorge@illinois.edu)

Less seriously...

Slightly different definitions of some commonly used words:

ADULT -A person who has stopped growing at both ends and is now growing in the middle

BEAUTY PARLOR - A place where women curl up and dye

CANNIBAL - Someone who is fed up with people

CHICKENS - The only creatures you eat before they are born and after they are dead

COMMITTEE - A body that keeps minutes and wastes hours

DUST - Mud with the juice squeezed out

EGOTIST - Someone who is usually me-deep in conversation

GOSSIP - A person who will never tell a lie if the truth will do more damage

HANDKERCHIEF - Cold Storage

INFLATION - Cutting money in half without damaging the paper

MOSQUITO - An insect that makes you like flies better

RAISIN - Grape with a sunburn

SECRET - Something you tell to one person at a time

TOOTHACHE - The pain that drives you to extraction

TOMORROW - One of the greatest labor saving devices of today

YAWN - An honest opinion openly expressed

WRINKLES - Something other people have. You have character lines

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