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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://illinoisare.org/> and <http://illinoisare.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>.

- **Grape Preharvest Workshops**
 - **South and South Central Regional Pre-harvest Workshop, Saturday, August 5, 2017** from 8:30 am to 11:30 am. Heimann Vineyards, 4933 East Grant Road, Walnut Hill Illinois, 62893
 - **Central and Northern Regional Pre-harvest Workshop, August 12, 2017** from 8:30 am to 11:30 am. August Hill Winery/Illinois Sparkling Co., 21N 2551 Road, Peru, IL, 61354 (GPS: 41.299550, -89.163228) Winery phone: 815-224-8199 if you need help with directions. This is the location of their winemaking facility and vineyard, not the tasting room locationBoth are FREE workshops open to IGGVA members and non-members. For more information contact Sarah Bowman 815-954-3930 or viticulture@illinoiswine.com
- **Southern Illinois Fruit & Vegetable Field Day, Monday, August 7, 2017, 4 p.m.** Jackson County Extension Office, 402 Ava Rd. Murphysboro, IL 62966. Field Day topics and field trials include cover crops, pepper variety trials, ornamental corn variety trial, small fruit production, spotted wing drosophila management, high tunnel production, wildlife management and more. The field day will conclude with a locally sourced "farm to table" dinner from product from our research trials and local growers. Preregistration is required and there is a cost of \$10 per person for the program which includes the meal. **We still have some limited space available. If you are interested, call** the Jackson County Extension Office at 618-687-1727. For more information contact Nathan Johannig at njohann@illinois.edu or 618-687-1727.

- **2017 Southern Illinois Summer Twilight Series.** Join University of Illinois Extension as they team up with area farmers to provide four monthly evening meetings to highlight and demonstrate diverse farming enterprises across southern Illinois. Growers and extension educators will provide information on the following topics: u-pick lavender production, growing fruits and vegetables within city limits, fresh cut flower production, mushroom production, and utilizing farmers markets, roadside stands, and CSA's to market products. We will also explore the impacts and importance of buying local to our local farms as they help to support a stronger, more sustainable, regional economy. Meetings will begin at 6 p.m. at the following locations:

August 14, 2017 Flyway Family Farm, Makanda, IL
 ▪ Mushroom Production

There is no cost for these programs but pre-registration is appreciated. Please register online at <http://web.extension.illinois.edu/ghhpsw/> or by phone 618-382-2662.

For more information please contact: Bronwyn Aly – 618-382-2662, baly@illinois.edu or Nathan Johannng – 618-687-1727, njohann@illinois.edu

- **Missouri Tomato Conference. Monday & Tuesday, August 14 and 15, 2017,** at the Continental Banquet Center, 2728 North Rangeline, Joplin, MO. The Missouri Tomato Conference brings together top experts in the field with regional experts and successful local tomato farmers to teach growers and serious hobbyists how to better grow Missouri's top selling vegetable. Conference fee is \$30 and includes lunch on day 1, all presentations and handouts, tours on day 2 and a copy of the Greenhouse Tomato Handbook by Dr. Snyder (limit 1 per family or farm). For details and registration form visit <http://freepdfhosting.com/7f05aa87ea.pdf> or by calling 417-483-8139.
- **Vegetable Field Day, Thursday, August 17, 2017, 1:30 – 3:00 p.m.** U of I Vegetable Crops Research Farm, 2921 S First St. Champaign, IL 61822. For more information contact Mohammad Babadoost at 217-333-1523 or babadoos@illinois.edu.
- **Pumpkin Field Day, Friday, September 1, 2017 1:00 – 4:30 p.m.** Dollinger Farm 7420 E. Hansel Rd. Channahon, IL. Learn about varieties of choice, garden preparation, irrigation, weeding, disease and insect pest management, and economics. University of Illinois educators will be on hand to offer technical advice. Company representatives from Rupp Seeds and Rispen Seeds will talk about their entries that will be growing in plots. To register for this free event, or for more information, contact James Theuri at 815-933-8337 or jtheu50@illinois.edu
- **Twilight Tours: Knowlan Family Farm. Wednesday, September 6, 2017, 6 – 8 p.m.** 3243 St. Hwy 34 Burfordville, MO. <http://extension.missouri.edu/stegenevieve/documents/KnowlanOrchard2017.pdf> The program is \$5 and pre-registration is required. To register or for more information, call 573-238-2420 or email aufdenbergd@missouri.edu
- **Midwest Mechanical Weed Control Field Day, Tuesday, September 26, 2017, 10 a.m.- 5 p.m.** Michigan State University Horticulture Farm, 3291 College Rd, Holt, MI. From finger weeders to flex-tines to Allis G's and beyond, come learn the principles and tools for precise mechanical weed control from farmers and researchers. New weeding machines are recently available from Europe and many types and models of mechanical weeders will be on display and demonstrated in the field. You will hear from farmers using these tools, learn about cultivation techniques in Europe, see tools demonstrated, and enjoy lunch and time to speak with all the growers in attendance. Register online at [Midwest Mechanical Weed Control Field Day](#), or contact Sam Hitchcock Tilton at 414-213-5337 or hitchc32@msu.edu
- **2018 Gateway Small Fruit & Vegetable Conference, Wednesday, February 7, 2018.** Regency Conference Center, O'Fallon, IL. Save the date; more details closer to the event. For more information contact Elizabeth Wahle at wahle@illinois.edu or 618-344-4230.

Regional Reports

From western Illinois... On July 26th we received .6" of rain, others in the area received from .4-1.5". It had been 3 weeks to the day since our last rain, and with the high temperatures and water demand from the crops, we were very thankful. Pumpkins were wilting during the day.

Sweet corn sales have slowed, which is normal. We started picking on July 3rd. Corn earworm moth numbers have dropped to about zero the past two weeks. When we started trapping the middle of June, moth numbers were between 50-100 per night. But when field corn began to silk, numbers declined significantly. Thus we were able to increase our spray interval to 4 days, even in the high heat, and still provide insect free produce. Due to the high temperatures our sweet corn was maturing much faster than anticipated.

Green beans had quit blooming with the heat and dryness. They too were maturing much too fast for us to keep up with, and we had to let them go due to not being able to harvest timely and allowing soft, rubbery pods to occur. We pulled our onions this past week, bringing them into our garage and placing on pallets and cardboard and using fans to stir the air to allow them to cure. We had some rather large ones this year, some weighing in at 2#. We plant white and red candy, a sweet onion.

I began to see the first signs of cercospora in asparagus last week and began a fungicide treatment that I'll repeat every two weeks for control. On our older asparagus field, we must be vigilant to scout and treat as in recent years we've lost quite a sizeable portion of the fern before the plant goes dormant, and that reduces the amount of food reserves which can impact next years' yields.

The beginning of August is when we traditionally begin our fungicide spray program for control of powdery mildew of pumpkin. Most of the jack o lantern pumpkins we raise are PM "resistant" so that allows us some time before we need to begin treatment. Scout fields for the telltale sign of PM by looking first on the vines. As Dr. Babadoost has mentioned, once you can observe PM on the leaves, it has reached epidemic proportions. His spray schedule can be found at <http://web.extension.illinois.edu/smallfarm/downloads/71041.pdf> . We're already finding some good sized fruit on some vines.

Japanese beetle numbers are finally beginning to recede. They were extremely high this summer, and repeated treatments were required to keep the beetle in check. Let's hope for a cold winter.

We planted our bare root strawberry plants this week on white plastic. We've been experimenting with them for 3 years now, trying to find the varieties that best fit our picking schedule and have decent yields. Last year the bare root yielded equal to the plugs that we plant the end of August on black plastic.



Bare root strawberries planted on white plastic. Photo: M. Roegge

I've talked to a number of home gardeners and all are mentioning the fact that tomatoes are slow in maturing. Not sure of the reason, but it helps our sales out! We've had to deal with spider mites in one of the tunnels and have applied several treatments to get the problem under control. I've included a fungicide in the spray to help prevent leaf mold, and have yet to notice any. We traditionally have to battle this disease each year.

Mike Roegge, Retired Extension Educator & Mill Creek Farms (roeggem@illinois.edu)

From southern Illinois... We have finally broke from the most excessive heat last weekend with a front that brought a quite pleasant reduction in humidity and highs in the mid 80s. The heat and humidity have come back some, with highs in the 90s but nothing like it was. Rainfall has been highly variable. I had a report of 2.5" earlier this week from Randolph Co. and at home at the farm south of Waterloo, 1.1", and here at Murphysboro about 3 drops. This has been the pattern. We have some rain chances through Thursday night so hopefully those that still have missed the rain will get some. For those that have missed the rains, things are very dry and rain is very much needed. With the rain chances comes a front which is supposed to leave us with beautiful weather with highs at or below 80° for the weekend.

Peach harvest continues, and also, some table grapes are starting to get ripe. I picked a few 'Mars' seedless table grapes over the weekend at home. Most vegetable crops have been doing fairly well as long as they have had water available when they need it. Over the weekend, I sidedressed an additional 50 lbs N/A on my pumpkins and applied a grass herbicide. With the drier conditions and preemergence herbicides, I have had limited emergence of new broadleaf weeds except a few morningglories, prickly sida, and hophornbeam copperleaf, but not enough that I couldn't do a quick walkthrough with a hoe to clean up. I did see some cucumber beetles, but so far no squash bugs or powder mildew. It is time to be starting those protective sprays for powdery mildew. As always for pest management options consult the [2017 Midwest Vegetable Production Guide](#)



'Mars' table grape. Photo: N. Johannig

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

Fruit & Vegetable Production & Pest Management

Phytophthora on Cucurbits

I would like to share these couple pictures that I received from northern Illinois. All cucurbit plants in northern Illinois (other parts of the state too) should be sprayed for Phytophthora. Spray with Revus alternated with Orondis Opti or Ranman. For pumpkins, add ProPhyt to all sprays, as the canopies are dense.



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

Notes on Grape Sampling to Determine Harvest Readiness

Time of wine grape harvest is always a complex process and can vary from year to year due to not only environmental conditions throughout the growing season and cultivar characteristics, but also considerations like vintner preference (wine style), upcoming predicted rain (rain at harvest causes cracking of fruit), and availability of labor.

In order to predict when wine grape harvest will occur for each cultivar, grapes are sampled periodically before harvest to see how the levels of sugar, pH, acids and flavor compounds are progressing through the season. In general, as berries ripen, sugar levels and pH increase, and titratable acidity decreases.

Sugar level is critical for determination of final alcohol content and whether chaptalization or amelioration will be needed in the winery. Sugar content is measured with a hydrometer in degree Brix (grams of sugar per 100 grams of juice) and desirable levels are usually between 18 and 24 °Brix. There are exceptions. “Foxiness” is a characteristic of many, but not all, American grape cultivars and usually refers to a musty or wet fur smell. Anyone growing up in North America who has consumed anything made out of ‘Concord’ grape is familiar with foxiness. This is a case where a small amount is desirable but a large amount becomes undesirable and overwhelms the balance of the wine. ‘Edelweiss’ is a good example of a cultivar that is sometimes harvested early and chaptalized to decrease foxiness.

The tartness associated with organic acids (predominantly tartaric, malic and citric acids) balances the sugars in a wine and also influences wine stability, color and pH. Total acidity (TA) levels decrease during processing so wineries typically have a desired starting point for each wine they produce, general between 0.6 and 0.8 grams of titratable acids per 100 mL of juice at harvest. TA is measured by titrating sodium hydroxide into a sample of grape juice, then plugging the amount of sodium hydroxide needed to neutralize the acid in the juice into a formula to determine how much acid was in the juice.

The third parameter is pH, which is the measure of active acidity in the juice and wine. The pH level influences a number of factors in the wine, including but not limited to microbial stability (spoilage), efficacy of SO₂ additions against microbial growth, oxidation, color and flavor. Since pH levels greater than 3.6 are very challenging to correct in the winery, typical desired levels for harvested white grapes are at a pH of 3.1 to 3.3 and red grapes at a pH of 3.3 to 3.5. A bench or handheld pH meter are suitable for measuring pH.

From an article by Imed Dami, Ohio State University Extension Viticulturist, titled “Determining Grape Maturity and Fruit Sampling,” he list the following tips on fruit sampling.

Sampling guidelines: A proper sampling procedure is listed as follows:

- Begin berry sampling at 15 °Brix or weekly after véraison. Sample daily when close to harvest.
- Sample at least 200 berries per block and per variety. At least 10% of the vines should be sampled. You could use a grid sampling approach; for example, berry samples are collected from every 10th vine in every 10th row.
- If the vineyard has a high degree of variation among the vines, for example, after severe winter injury, disease infestation, or other type of stress, increase the number of berries collected per sample.
- Sample from both sides of the trellis. If the rows run north and south, for example, take half the berries from the east side and half from the west side.
- Pick “random” berries as you walk down the row. There should be an equal chance of a berry being picked anywhere on the bunch or anywhere in the fruiting zone of the vine from both the sun and shade side of clusters. Don’t favor colored berries over green. Collect berries from top, middle, and bottom of selected clusters.
- Avoid row end plants, outside rows and off-type or otherwise unusual plants.
- Early morning sampling is preferred. If you are tracking the sugars, pH and TA through the season, the samples should be collected at the same time of day if possible.
- Store berries in a sealed plastic bag or container in the refrigerator until processing. If you will be out in the field sampling for a while, store samples in a cooler. Try to process berries within the next 24 hours.

Things to remember and consider when sampling:

- With berry sampling, in order to be within 1.0 °Brix of actual sugars at harvest, you need to collect 2 samples of 100 berries. To further increase the accuracy within 0.5 °Brix, you need to collect 5 samples of 100 berries. With cluster sampling, you need to collect 10 clusters to be within 1.0 °Brix.
- Realize that 90% of the variation in berry sampling is believed to come from variation in the position of the cluster on the vine and the degree of sun exposure.
- Juice sample collected in the morning can be 1 °Brix lower than juice sample collected in the afternoon.
- Rate of °Brix increase is usually 1 °Brix per week.
- Sugars of crushed must at harvest are usually lower than those of the sample juice. Therefore, you need to check harvest sample with crushed must to see how far off and take that into account in future sampling.
- Standardize a sampling method and apply it all season and use same sampler(s) if possible.

To read Imed Dami’s complete article, go to

<http://articles.extension.org/sites/default/files/Fruit%20Maturity%20and%20Sampling.pdf>

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

Diamondback moth causing damage in collards and cabbage

Diamondback moth (DBM) is a destructive pest of cabbage and other cruciferous crops, although collards are the most preferred. I first noticed the infestation on collards in mid-July. You should scout your field for the pest. The larval form (pictured on right) is a good indicator. Feeding damage can be confused with that of imported cabbage worm but DBM larva leave a ‘window-pane’ type damage on the leaf after feeding. Recommended management (from *Growing Produce*, July 25, 2017)



Traditional (Conventional) Pesticides

Photo: N. Johanning

Photo: J. Theuri

Product	Active Ingredient	Mode of Action	Who's making the recommendation
Radiant (Dow)	spinetoram	Spinosyn-nicotinic acetylcholine receptor allosteric agonist	John Pumbo, University of Arizona
Proclaim (Syngenta)	emamectin benzoate	Avermectin-chloride channel activator	Pumbo
Avaunt (DuPont)	indoxacarb	Voltage-dependent sodium channel blockers	Alton “Stormy” Sparks, University of Georgia
Rimon (Arysta LifeScience)	novaluron	Inhibitors of chitin biosynthesis, Type O	Sparks
Coragen, Exirel and Verimark (DuPont)	chlorantraniliprole	Ryanodine receptor modulators	Sparks
Lannate (DuPont)	methomyl	Acetylcholinesterase inhibitors	Sparks

Organic (Biopesticides)

Product	Active Ingredient	Mode of Action	Who's making the recommendation
Entrust (Valent)	spinosad	Spinosyn-nicotinic acetyl-choline receptor allosteric agonist	Pumbo
Xentari (Valent)	Bt subsp. aizawai	Microbial disruptors of insect midgut membranes	Pumbo

DBM is highly capable of insecticide resistance; integrated pest management is highly encouraged.

For more on identifying and managing DBM, see July 25, 2017 issue of *Growing Produce*: <http://www.growingproduce.com/vegetables/field-scouting-guide-diamondback-moth/>

James Theuri (815-933-8337; jtheu50@illinois.edu)

Less seriously... I was looking for jokes related to county fairs, it being fair season and all, and most had to do with \$10 airplane rides, animal husbandry, and women's hair color. And while I find humor in almost all topics, I am always fearful of insulting someone or hurting someone's feelings, but I think the joke below will keep me out of trouble.

A DEA officer stops at a ranch in South Dakota, and talks with an old rancher. He tells the rancher, "I need to inspect your ranch for illegally grown drugs." The rancher says, "Okay, but do not go in that field over there," as he points out the location.

The DEA officer verbally explodes saying, "Mister, I have the authority of the Federal Government with me." Reaching into his rear pants pocket, he removes his badge and proudly displays it to the rancher. "See this badge? This badge means I am allowed to go wherever I wish, on any land. No questions asked or answers given. Have I made myself clear? Do you understand? "

The rancher nods politely, apologizes, and goes about his chores.

A short time later, the old rancher hears loud screams and sees the DEA officer running for his life chased by the rancher's big Santa Gertrudis bull.....

With every step the bull is gaining ground on the officer, and it seems likely that he'll get gored before he reaches safety. The officer is clearly terrified. The rancher throws down his tools, runs to the fence and yells at the top of his lungs.....

"Your badge! Your badge! Show him your BADGE! "

<http://activerain.com/blogsviw/1780461/-crow-wing-county-fair-joke>

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

Extension Educators – Local Food Systems and Small Farms		
BRONWYN ALY , Gallatin, Hamilton, Hardin, Pope, Saline, Wayne, & White counties	618-382-2662	baly@illinois.edu
BILL DAVISON , Livingston, McLean, and Woodford counties	309-663-8306	wdavison@illinois.edu
LAURIE GEORGE , Bond, Clinton, Jefferson, Marion, & Washington counties	618-548-1446	ljgeorge@illinois.edu
ZACHARY GRANT , Cook County	708-679-6889	zgrant2@illinois.edu
DOUG GUCKER , DeWitt, Macon, and Piatt counties	217-877-6042	dgucker@illinois.edu
NATHAN JOHANNING , Franklin, Jackson, Perry, Randolph, & Williamson counties	618-687-1727	njohann@illinois.edu
ANDY LARSON , Boone, Dekalb, and Ogle counties	815-732-2191	andylars@illinois.edu
GRANT MCCARTY , Jo Daviess, Stephenson, and Winnebago counties	815-235-4125	gmccarty@illinois.edu
DAVID SHILEY , Coles, Cumberland, Douglas, Moultrie & Shelby counties	217-543-3755	dshiley@illinois.edu
JAMES THEURI , Grundy, Kankakee & Will counties	815-933-8337	jtheu50@illinois.edu
Extension Educators – Horticulture		
CHRIS ENROTH , Henderson, Knox, McDonough, & Warren counties	309-837-3939	cenroth@illinois.edu
RICHARD HENTSCHEL , DuPage, Kane, & Kendall counties	630-584-6166	hentschel@illinois.edu
ANDREW HOLSINGER , Christian, Jersey, Macoupin, & Montgomery counties	217-532-3941	aholsing@illinois.edu
Extension Educators – Commercial Agriculture		
ELIZABETH WAHLE , Fruit & Vegetable Production	618-344-4230	wahle@illinois.edu
Campus-based Extension Specialists		
MOHAMMAD BABADOOST , Plant Pathology	217-333-1523	babadoos@illinois.edu
MOSBAH KUSHAD , Fruit & Vegetable Production	217-244-5691	kushad@illinois.edu

Return Address:

Nathan Johanning
University of Illinois Extension
402 Ava Rd.
Murphysboro, IL 62966



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