UNIVERSITY OF ILLINOIS EXTENSION
College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

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Editors: Nathan Johanning & 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 Johanning, 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 Johanning at the phone number or email address above.

In this issue…

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
- **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

University of Illinois Plant Clinic

Given the current weather patterns affecting Illinois and the Midwest, it seemed timely to include a reminder about the services offered through the University of Illinois Plant Clinic. Excessive rain and unseasonably cool temperatures will undoubtedly create an increase in disease and nutrient issues for growers to mitigate. Half of the battle is knowing for sure what problem you need to overcome, and the University of Illinois Plant Clinic is available to assist growers with identification. Once an identification has been made, growers can begin to correct the problem. The information included below provides a brief background on the Plant Clinic, as well as information on where and how to submit a sample, sample analysis fees, and a link to submission forms. The University of Illinois Plant Clinic provides an invaluable service to growers and Extension Educators by taking the guess work out of identification, thereby saving time and money.

The University of Illinois Plant Clinic has served as a clearinghouse for plant problems since 1976. Services include plant and insect identification, diagnosis of disease, insect, weed and chemical injury (chemical injury on field crops only), nematode assays, and help with nutrient related problems, as well as recommendations involving these diagnoses. Microscopic examinations, laboratory culturing, virus assays, and nematode assays are some of the techniques used in the clinic.

This multidisciplinary venture is managed through the Crop Sciences Department but relies on input from many departments, including both research and extension components. Most of the diagnostic work is done at the Plant Clinic, but specialists are consulted as needed in the areas of botany, entomology, horticulture, mycology, plant pathology, soils, soil fertility, and weed science, among others.

The Plant Clinic was originally organized to help the county cooperative extension advisors (now referred to as educators) with the wide variety of plant samples that they were asked to diagnose, and to help campus based specialists deal with the constant requests for diagnostic services. The clearinghouse concept has helped in attaining these goals and at the same time has served as a source of information on plant problems in Illinois.

Our Services

•Plant and insect identification,
•Diagnosis of plant disease, insect, weed and chemical injury (chemical injury on field crops only)
•Nematode assays
•Help with nutrient related problems, as well as recommendations involving these diagnoses.

Fee Schedule

General Diagnosis (including cultures)	$15.00
ELISA, or serology tests *	$25.00
Specialty Nematodes (SCN, PWN)**	$20.00
Specialty SCN typing or Hg typing	Call ahead
All other Nematodes (usually corn)	$40.00
Waterhemp herbicide resistance testing ***	$50.00

*ELISA or serology are techniques used to test for various fungal, bacterial and viral pathogens.
**SCN indicates the egg analysis test for soybean cyst nematode. PWN indicates pinewood nematode analysis.
***Waterhemp resistance DNA testing for glyphosate and PPO inhibitor herbicides only.

Suggestions for Specimen Collection and Submission

• Collect fresh specimens. Send a generous amount of material, if available.
• Ship in a crush-proof container immediately after collecting. If holdover periods are encountered, keep specimen cool. Mail packages to arrive on weekdays.
•Avoid weekend layovers.
• Include completed Plant Clinic Specimen data form and fee with each sample submitted.
•Note: Diagnoses and recommended controls by the University of Illinois Plant Clinic are based solely on the material and information submitted. The less representative the sample, and the less complete the information provided, the greater the chance for misdiagnosis.

Submitting Plant Specimens for Disease / Injury Diagnosis
•*Leaf*
- Collect early and late stages of infection. Press leaves between heavy paper or cardboard.

•*Fleshy Plant Parts*
- Samples with a rot disease should not be sent in an advanced stage of decay. Collect fresh specimens with early symptom development. Wrap in newspaper.

•*Canker*
- Select recently produced cankers. Submit the whole cankered portion where possible; preferably with healthy wood above and below the canker.

•*Wilt or General Decline*
- Send the entire plant, with roots, if feasible: submit several plants, from healthy to severely infected. Dig, do not pull plants from the soil so diseased roots will remain intact. If the whole plant cannot be sent, select samples from areas of active symptom development. Include the intact root system if root rot is suspected. Include photos.

•*Turf*
- Submit several 4-inch plugs of grass cut as deeply as roots will hold soil. Plugs should show gradation from healthy to severely diseased. Do not wrap leaves or fleshy material in plastic - use newspaper.

Submitting Nematode Specimens
•Diseases caused by nematodes require special attention. See Report on Plant Disease No. 1100 for detailed instructions on the handling and shipping of nematode infested material.
•Complete and include the Nematode Soil Sample Form with the sample.

Submitting Insect Specimens
•Care should be taken to package insects so they arrive unbroken. Be sure to separate and label the insects if two or more are included in the same package and provide appropriate information on each.
•Adult specimens such as flies, grasshoppers, cockroaches, wasps, butterflies and beetles can be submitted in a dry, crush-proof container. Do not tape insects to paper or place them loose in envelopes.
•Larvae or soft-bodied specimens such as aphids, caterpillars and grubs should be submitted in a small leak-proof bottle or vial of 70 percent alcohol. Rubbing (isopropyl) alcohol is suitable and readily available.

Complete and include form with the sample: sample submission form

Payment and sample submission form should accompany the sample for diagnosis to be initiated.
Checks should be made payable to the University of Illinois or to the Plant Clinic. For additional information on how to collect or submit a sample, or if uncertain of which test is needed, contact the Plant Clinic at (217) 333-0519 or plantclinic@illinois.edu
Samples should be sent to the following address:
University of Illinois Plant Clinic.
S-417 Turner Hall, 1102 S.Goodwin Ave.
Urbana, IL 61801

Bronwyn Aly (618-382-2662; baly@illinois.edu)

Food Safety And Flooded Fields With Crops

With the flooding events throughout Illinois, growers of fruits and vegetables need to be cautious when making the decision to harvest the crop(s). According to the U.S. Food & Drug report *Guidance for Industry: Evaluating the Safety of Flood-affected Food Crops for Human Consumption*, "If the edible portion of a crop is exposed to flood waters, it is considered adulterated and should not enter human food channels" (section 402(a)(4)(21U.S.C. 342(a)(4))". This applies to **all food crops**, as there is no practical method of reconditioning the edible portion of the crop that come in contact with floodwaters. The FDA recommends that these crops be disposed of in a manner that ensures they do not contaminate unadulterated crops.

If the edible portion of the crop has been exposed to flood waters, including root crops and leafy greens, it must not be offered into the food chain for humans *or animals*. Treating the crop(s) with sanitizers post-harvest will not reduce the potential for contamination. If plants grown in a greenhouse environment are exposed to flood waters, do not replant if there is a potential for the crop to come in contact the contaminated soil. Reduce this risk by building raised beds at least 6 inches high, and fill with non-contaminated soil and/or compost. A soil test should be initiated prior to planting to determine the level of heavy metals after a flooding event.

Additional information on determining whether to harvest crops close to the flood area but *not exposed to floodwaters* can also be found in the above guidance report. Growers that are thinking of harvesting produce next to a flooded area should consider the level of risk associated with this decision. It is advisable to keep records of your decision process as well as any steps taken to reduce and/or avoid cross contamination within the field(s).

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

Regional Reports

From north central Illinois…The Sun returns! Today (Tuesday, May 2) is the first day I've seen the Sun in nearly a week. Opening the downstairs blinds this morning I felt a bit like Dracula, but I spent some time soaking up a few rays while the coffee brewed.
Reviewing online rainfall amounts from USGS and Illinois Soil Water Survey, it seems recent precipitation amounts ranged from a lot to too much! Monmouth reported 3.21 inches while just a few hours south received that amount in one day of a five-day rain event.

Good drainage is afforded by utilizing raised beds. Some new raised beds built at the McDonough County Extension office performed very well during the recent rains. The beds are ten-inches high with a 50/50 mix of compost and topsoil. We may even be out planting later today.

With the clouds and rain came cold weather. The high tunnel helped hold some warm season transplants, but it still got too cold for my comfort. A volunteer gave me a few Super San Marzano seedlings, still in cotyledon stage. I held these tomatoes along with some Celebrity and Better Boy, which were farther along, in the high tunnel. The baby Marzanos suffered from the cold. Two seedlings have succumbed to what is likely damping off disease, with the rest appearing to be not far behind. Another reason to be joyful of today's sunlight, it is going to get hot once again in the high tunnel. Cold soil can lead to many rot pathogens and damping off. Good airflow and drainage minimizes damage, but warmer weather will alleviate root rot and damping off of seedlings.

Harvest of cool season crops continue. Spinach, lettuce, chard, and turnips are making their way out of my high tunnel and onto dinner plates. Our first butterhead lettuce of the season was a delight. With thirty ready for harvest and seventy-five romaine growing, this should be enough to make us sick of salads.

Strawberries are in full bloom. I'm getting my onions and potatoes in late this year. They will likely be planted sometime this week when the garden dries out. Garlic looks good despite some foliage that got hit by freezing temperatures during our mild winter. Asparagus harvest has slowed down with the cooler weather. Peaches have finished blooming and I already see ¼ to ½ inch fruit developing.

Chris Enroth (309-837-3939; cenroth@illinois.edu)

From western Illinois… Our area has been somewhat dry until the past week, which provided some much needed moisture as well as some cool temperatures. We received a little over an inch of rain the past three days (April 26-28) with more forecast the next few days. Producers are finally getting a break from several weeks of daily tasks due to the rains, and most are appreciative.

The unusually warm temperatures the past few weeks really advanced crops in tunnels. The early high tunnel tomatoes are blooming and some have small fruit. Tunnel strawberries are close to mature. Other crops planted in tunnels, including eggplant, cucumber, pepper, etc. all are much advanced. Staking and stringing of tunnel tomato plants has been necessary due to their growth. Those who kept a winter crop in the tunnel and are transitioning to summer crop need to closely scout for aphids and treat as these warmer temperatures will cause aphid populations to escalate rapidly.

Our plasticulture strawberry plants have fruit at dime size and slightly larger. The extended fall last year provided more growth than what we have ever experienced as most all plants have 3-4 or more crowns. We also have been experimenting with bare root plants on white plastic planted in mid July. We have several varieties and all of those are looking just as impressive as the plasticulture plants. I've noted just a few thrips thus far, not enough to treat yet. Several fungicide applications as well as weekly fertilizer injections have been made. I'm still mowing the annual ryegrass sowed in the row middles until closer to harvest, then an application of a post emergent grass killer will be made.

From left to right: Chandler, Flavorfest – plug planted August 28, Flavorfest – Bare root planted July 14, 2016. Photos: M. Roegge

In the field, tillage, planting, plastic application, fertilization have been ongoing for several weeks, almost uninterrupted by any wet weather. Our first sweet corn planted on April 13 emerged in 8 days, just unheard of for an April planting. Cole crops, greens, onions, corn, green beans and many other crops have been planted

Asparagus harvest is running quite high, again temperatures have a direct effect on growth of asparagus and the record or near record temperatures have increased growth substantially. We did have to treat for asparagus beetle. The asparagus patch that was planted last year has been "retired" for the season. We picked it for a little over a week before putting it to rest for the year. After the last picking we mowed in as close to the soil line as possible (thus eliminating any and all emerged spears) then applied a burndown and residual herbicide.

Peach trees were at pink when we experienced a low of 14 degrees in mid March, but did not see any damage. The cold must have settled as we did lose a few strawberry blooms at that time. Blueberries are blooming.

Mike Roegge, Retired Extension Educator (roeggem@illinois.edu)

From the St. Louis Metro East… The St Louis Metro East weathered a slow moving front through the weekend that resulted in at least 7” of rain for most growers and a significant drop in temperature. Black-plastic plasticulture strawberries are just coming into harvest and u-picks will be opening soon. The cool weather has slowed their ripening and if the mild trend holds, the harvest season should be a long one. Blackberries are in bloom and grapes inflorescences are well into development. Peaches are roughly at 1” diameter and thinning will be necessary for many cultivars. Apples have been thinned at least once and many times twice.

The first planting of main season tomatoes and peppers are in the field, though the recent below 50^0 night temperatures have not been conducive to rapid development. Tunnel tomatoes will be in harvest soon. Cucumbers and squash are scheduled next for many growers in the area.

Current crop stage of apples.

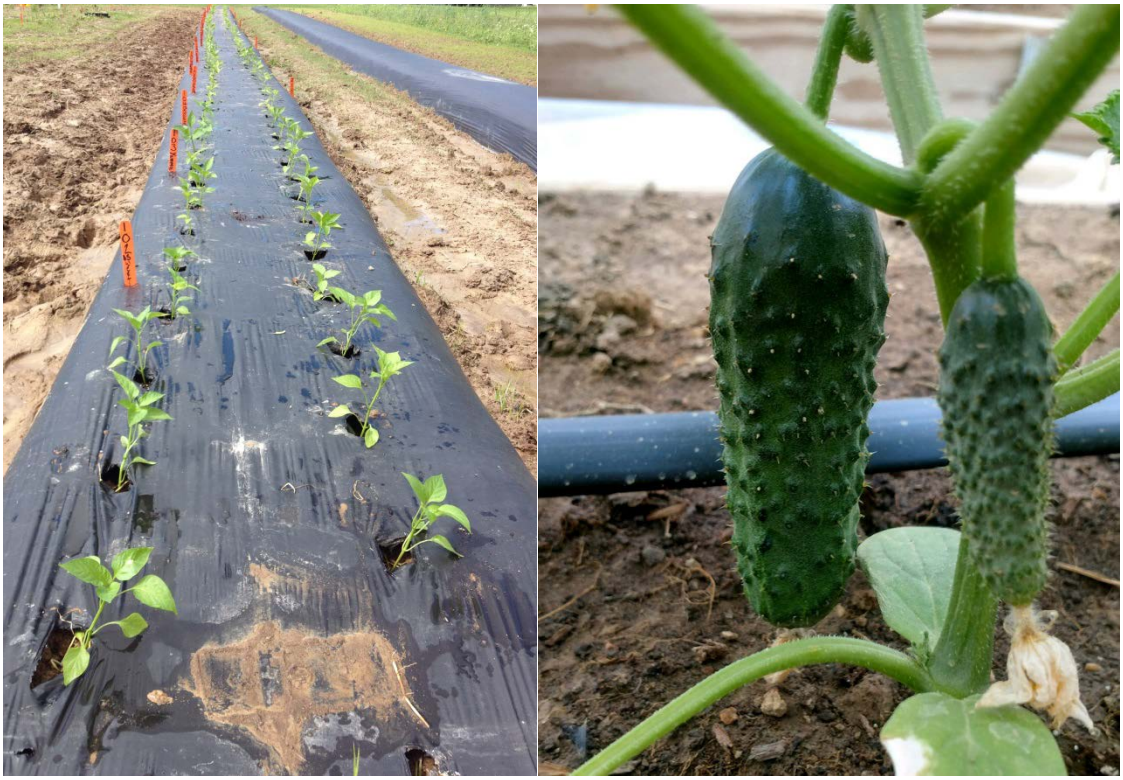
Elizabeth Wahle (618-344-4230; wahle@illinois.edu)

From southern Illinois… Rain is probably the theme for us these days. Last week in Murphysboro, we had 1.5" on Wednesday afternoon, then Friday night into Saturday we had 4" and another 3.2" Saturday night into Sunday. So that makes close to 9" of rain in about 4 days of time. In general, most from the region report from 9 to 12" total from these systems. And now this week we have more rain as well. Many low lying areas are flooded and things are just very wet. Temperatures have been fairly warm in the 70s for highs, but with the mid week rain this week highs are barely reaching 50˚.

Out in the field, well, a lot of the field work has been put on hold with all of the rain. Orchard and vineyard growers are trying their best to keep up with cover sprays and the weather has been ideal for some of our diseases like fire blight in apples and pears and also gray mold on strawberries. In the high tunnel, tomatoes are getting some sizeable fruit. Some growers have had some mite issues on strawberries so be vigilant in scouting

Spider mites on strawberries. Left: tiny spider mite can just barely be seen as small orange specs on the underside of leaves. Right: the top of leaves have a distinct interveinal chlorosis that sometimes can be mistaken for a nutrient deficiency, but is rather from the mites feeding on the leaf. Photos: N. Johanning

Back at my office we did get a sweet pepper trial planted on black plastic between the rains. We harvested our last asparagus from the variety trial last Thursday. Spear diameter had dropped off quite a bit and we had harvested for just over 4 weeks. We mowed down spears and applied a residual herbicide to give us weed control to help keep the area weed free for the rest of the season or at least to give the spears some time to grow and get ahead of any weed growth. For specific details on herbicides for asparagus refer to the 2017 Midwest Vegetable Production Guide. Also, we are going to apply some nitrogen fertilizer to give the crowns a boost after a month of harvest and spears growing to promote a good harvest in 2018. In the high tunnel, the cucumbers have taken off and we are getting really close to harvest on our mini cucumber variety.



Sweet pepper variety trial (left) (Photo: N. Johanning) and high tunnel mini cucumbers 'Picolino' (right) (Photo: M. Rose) at the Jackson County Extension Office

Hopefully the pattern of precipitation will break and we can get some dryer weather to get us back out in the field and keep are crops above water!

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

Fruit & Vegetable Production & Pest Management

Modified Growing Degree Days (Base 50^0 F, January 1 through April 30) for Insect Development

Station Location	Actual Total	Historical Average (11 year)	One- Week Projection	Two-Week Projection
Freeport	230	154	288	356
St. Charles	251	153	306	370
DeKalb	253	174	316	390
Monmouth	369	215	436	517
Peoria	477	242	549	635
Champaign	413	244	485	572
Springfield	551	279	630	726
Perry	547	284	618	706
Brownstown	627	338	712	811
Belleville	641	369	727	830
Rend Lake	696	403	790	900
Carbondale	687	395	774	876
Dixon Springs	784	440	878	986

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)

Less seriously… http://www.quickfunnyjokes.com/starwars.html

To commemorate Star Wars day, a few one liners. May the 4th be with you!

Q: What do you call 5 siths piled on top of a lightsaber?
A: A Sith-Kabob!
Q: Why does Princess Leia keep her hair tied up in buns?
A: So it doesn't Hang Solow!
Q: Why shouldn't you ask Yoda for money?
A: Because he's always a little short
Q: What program do Jedi use to view PDF files?
A: Adobe Wan Kenobi
Q: What do you call a Mexican jedi?
A: Obi-Juan Kenobi
Q: What do you call the website Chewbacca started that gives out Empire secrets?
A: Wookieeleaks
Q: What do you call a Jedi in denial?
A: Obi-Wan Cannot Be
Q: Why did the angry Jedi cross the road?
A: To get to the Dark Side.
Q: What do you call stormtroopers playing Monopoly?
A: Game of Clones
Q: What do you call a Sith who won't fight?
A: A Sithy
Q: What do you call Harrison Ford when he smokes weed?
A: Han So-high
Q: When did Anakin's Jedi masters know he was leaning towards the dark side?
A: In the Sith Grade.
Q: Why do Doctors make the best Jedi?
A: Because a Jedi must have patience.
Q: How is Ducktape like the Force?
A: It has a Dark Side, a Light side and it binds the galaxy together
Q: What do you call potatoes that have turned to the Dark side?
A: Vader Tots
Q: Which Star Wars character uses meat for a weapon instead of a Lightsaber?
A: Obi Wan Baloney
Q: What did the rancor say after he ate a Wookiee?
A: Chewie!
Q: Why was yoda such a good gardener?
A: He had a green thumb!
Q: What do you get if you mix a fruit with a bounty hunter?
A: Mango Fett!
Q: What did Obi Wan say to Luke when he tried to eat bantha pie with a spoon?
A: "Use the FORK, Luke."
Q: What is Jabba the Hutt's middle name?
A: "The"

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
Elizabeth Wahle, Madison, Monroe, & St Clair counties	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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