

VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the Purdue University Cooperative Extension Service



Issue: 660
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The Inspection Process Has Started!

(Scott Monroe, jmonroe@purdue.edu, (812) 886-0198) & (Amanda J Deering, adeering@purdue.edu)

On June 5, the Indiana State Department of Health (ISDH) mailed letters to produce growers having annual food sales over \$500,000 informing them that inspections of produce farms would start in July. Due to their sales volume, these growers are expected to be in compliance with the Food Safety Modernization Act Produce Safety Rule (21CFR § 112) as of the 2019 growing season. The letters also outline the inspection process for 2019.

As part of the inspection process, produce growers identified as having over \$500,000 in food sales will be contacted sometime in June to schedule an inspection. The inspections will begin in July. Here are some things to keep in mind as ISDH rolls out their 2019 inspections:

1. There will be no surprise inspections. Growers will be contacted prior to any inspector visiting the farm.
2. The inspections will be conducted by ISDH. The Food and Drug Administration (FDA) will not be directly involved in inspections in Indiana.
3. Inspections will largely be educational in nature and growers will be given the opportunity for corrective actions to be taken. Immediate action will only be taken if egregious conditions are found to exist.
4. Inspections will consist of an initial interview, walk-through of the farm, and an exit interview. While Indiana has its own form, inspection questions will be based on FDA Form 4056. A copy of this form may be found at <https://www.fda.gov/downloads/AboutFDA/ReportsMa>

[nualsForms/Forms/UCM630765.pdf](#).

5. Unlike audits, inspections will not utilize a point system. Growers will either be in compliance with the rule or not.

Along with a letter to produce growers, ISDH also sent information detailing what growers can expect during an inspection and how to schedule an On Farm Readiness Review (OFRR). All documents sent to growers have been posted on the Farm Produce Safety Initiative website (<https://www.in.gov/isdh/25773.htm>). The On Farm Readiness Review is a FREE assessment of compliance with the Produce Safety Rule. Upon request, a team consisting of personnel from ISDH, Indiana State Department of Agriculture, and Purdue Extension will visit your farm and conduct the review. Upon completion of the review, you will be informed of where your farm is on the compliance spectrum and be advised concerning those aspects of compliance where you might improve. The whole process takes 2-3 hours. This is NOT an inspection and the service is completely confidential and free. Those interested in scheduling an On Farm Readiness Review should contact ISDH at (317) 476-0056 or email ProduceSafety@isdh.in.gov. For more information concerning the Produce Safety Rule and produce food safety, check out our website at www.SafeProduceIN.com.

Strawberry Insect Pest Update

(Wenjing Guan, guan40@purdue.edu, (812) 886-0198)

At the Southwest Purdue Ag Center, we are studying annual strawberry production on plastic mulch. Our hope is to gather information for best production practices in our area. As we learn about insect and disease problems, we will pass this information on to producers. This article is about the insect pests we have observed in our strawberries that were planted in March 2019.

Armyworm– Toward the end of the spring harvest, we observed significant damage on strawberry fruit caused by armyworms. Beet armyworm and yellowstriped armyworm

larvae were found in the field (Figure 1 and 2). They feed on both green and ripe strawberries. More than 30% fruit became unmarketable because of the insect feeding. Damage was also observed on flowers.



Figure 1. Beet armyworm on a strawberry plant.



Figure 2. Yellowstriped army worm feeding on strawberry fruit.

Armyworms also cause significant damage when they chew on strawberry crowns and leaves of summer-planted young strawberry plants. *Midwest Fruit Pest Management Guide* provides several options for controlling the pest. For organic growers, Bt products can be used to control armyworms if larvae are young and populations are not too large. Spinosad, another biologically derived pesticide is also effective against young larvae.

Thrips– Thrips feed on strawberry flowers, causing leathery fruit that fail to ripen evenly. Thrips damage was observed earlier in the harvest. Although it did not reach the threshold of 10 thrips per blossom. The damage became more severe as the season moved forward. More information about this pest and the control can be found in Rick’s article [Eastern Flower Thrips in Strawberries](#) in previous issue of *Facts for Fancy Fruit* newsletter.

Click beetle– Click beetle is the adult stage of wireworms. It is not a major pest of strawberries. But the adult can cause damage on ripe strawberry fruit (Figure 3). The damage was relatively minor in the field.



Figure 3. Click beetle feeding on ripe strawberry fruit.

Purdue Extension FoodLink IS Produce Knowledge!

(Roy W Ballard, rballard@purdue.edu, (317) 462-1113)

3Looking for a way to increase sales of fresh fruits and vegetables? Knowledge is power! Purdue Extension FoodLink IS Produce Knowledge!

My thought has always been that a knowledgeable consumer will be in a better place to make informed purchasing decisions and will likely purchase more of a given product.

If they can see an easy way to use fresh produce in the weekly meal or snack preparation for their family... perhaps they will be more likely to buy that fresh product from you rather than a prepared product from the grocery.

<https://extension.purdue.edu/foodlink/food.php?food=tomato>

It is all about choices...Their stomach capacity and available spending power are only so big.

What can you do to influence the choice the consumer makes? How can you encourage them to buy from YOU?

Think about all of the professional marketing that your shopper is inundated with each day...How can your beautiful healthful produce compete for that shopper’s attention?

If they see fresh tomatoes in your attractive market display they might impulse buy a pound.

If your shoppers have easy access to a recipe <https://extension.purdue.edu/foodlink/recipes.php> that inspires them to prepare something once or twice in the week ahead for their family...perhaps they will buy a couple of pounds.

If you can tantalize them a couple of weeks in advance with the promise of the harvest and market availability you might be able to “prime the pump” and get folks thinking in advance of how they will use Indiana tomatoes throughout the year. Consider using QR codes and URLs in your print

and social media promotions.

<https://extension.purdue.edu/foodlink/getSign.php?food=tomato>.

Perhaps you need a way to share where shoppers can find your products and what you have available
<https://extension.purdue.edu/foodlink/about.php>.

If you can encourage them that since this is a once a year availability and they should “stock up” and enjoy the harvest through the year...they will need instructions on how to freeze and can them
https://edustore.purdue.edu/item.asp?Item_Number=HHS-803-W freeze and can tomatoes.

But who has the time to do all of this???... You barely have time to produce and harvest the crop with all the rain!

FoodLink <https://extension.purdue.edu/foodlink/index.php> does the work for you for over 65 different Hoosier crops... **not just tomatoes**...Literally HUNDREDS of recipes that require your fresh farm products...Videos of 12 seasonal recipes

<https://www.youtube.com/watch?v=D29ezSadd3g&list=PLtXSf1tu3Jd82ZjINoQTjNpEBjmNVW7NG> and even an online and hard copy recipe book

<https://extension.purdue.edu/foodlink/includes/pubs/recipebooklet.pdf>.

Crop selection and basic use and preparation info, recipes galore, access to freezing and canning instructions etc... enough to motivate even the least imaginative shopper....**All FREE to you**... easy online access to all resources...and all materials TRIPLE reviewed (EXPERT REVIEWED) for accuracy! We even have individual crop/recipe cards that you can print and share with your customers each week as needed.
<https://extension.purdue.edu/foodlink/includes/pubs/Print1paper/Vegetables/TOMATO.pdf>

How do you stand out among your competitors?

Have great quality product at a fair price of course... but also be that marketer who really CARES about the shopper...and is willing to go the extra mile to educate them...This takes time and patience...FoodLink can save you the time and make you stand out... way out...especially when you consider the level of product education the consumer may receive in some of today's major chain stores.

FoodLink also has a monthly newsletter
<https://app.delivra.net/vo/?FileID=52F7DD92-C50C-4D22-ABE5-CB1277D97DB8&ListID=122731> to those who enroll AND we have weekly professionally produced Facebook posts
<https://www.facebook.com/purduefoodlink/> to increase consumer awareness of current market availability... **please like and share!!!**

If I can do it... you can too!

Consider enrolling in FoodLink!

<https://extension.purdue.edu/foodlink/enrollment.php>

Hope you have a bountiful harvest and safe and profitable market season...Let us know how we can help!

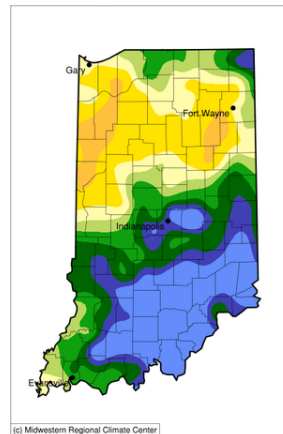


Indiana Climate and Weather Report

(Beth Hall, hall556@purdue.edu)

Some weeks I wonder if I could just re-use the previous week's weather and climate article! The story seems to be the same: It's been wet and more rain is expected. It is impressive, however, astounded when to see the contrast in June precipitation (so far) for precipitation across the state (Figure 1). It seems plenty wet in northern Indiana, I can't even imagine how wet it must be to the south!

Accumulated Precipitation (in): Percent of 1981-2010 Normals
June 01, 2019 to June 19, 2019

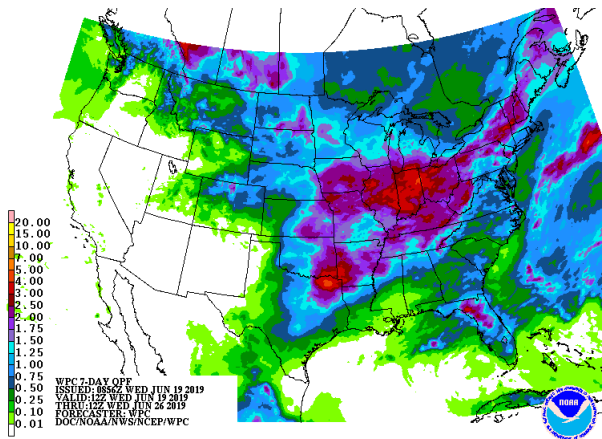


10 25 50 75 100 125 150 175 200
Stations from the following networks used: WBAN, COOP, FAA, GHEN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 6/19/2019 7:38:57 AM CDT

Precipitation percent of mean for Jun 1 - Jun 19 where a value of 100 would indicate the normal amount for 1981-2010.

Unfortunately, the forecast predicts Indiana will continue to

be wet. The 7-day Quantitative Precipitation Forecast (QPF) is predicting 3"-5" across most all of the state (Figure 2). Beyond that, the 6-14-day outlook (Jun 24 to Jul 2) is indicating a medium-to-high probability of above normal precipitation. Even the 3-4-week outlook (Jun 29 - Jul 12) shows a significant probability of above normal precipitation (at least for the northern two-thirds of the state). The hope will be that all of this above-normal precipitation will be intermittent enough to let some of that moisture evaporate and transpire with plant growth and warmer temperatures.



7-day precipitation forecast representing June 19 - 26, 2019. Source: NOAA Weather Prediction Center.

Temperatures have not helped the evapotranspiration hopes. For June (so far), temperatures across the state have been 1°F-3°F below normal. Fortunately, the 8-14-day outlook (June 26 to July 2) is showing significant confidence that temperatures will be above normal. Unfortunately, the 3-4-week outlook flips back to predicting below-normal temperatures. Translating to modified growing degree-days (accumulating since April 1), the northern half of Indiana is 50-150 units below normal, where the southern half is near normal.

It's looking like another hot and muggy summer for Indiana!

Upcoming Events

Indiana Horticultural Society Summer Meeting

Date: June 25, 2019. 9:30 am

Location: Huber Orchard and Winery, 19816 Huber Road, Starlight, IN 47106

The summer meeting is co-sponsored by Indiana Horticultural Society and Indiana Vegetable Growers' Association. The meeting will focus on commercial production of fruits and vegetables and farm marketing. All those interested are welcome to attend.

A registration fee of \$5.00 per family or farm is payable at registration. A catered lunch will be served onsite. This will

most likely be fried chicken with vegetables and drinks. There is a \$10/person charge for lunch, collected onsite. Please go to the following website to RSVP https://purdue.ca1.qualtrics.com/jfe/form/SV_6oqUlioiJOUNb0x

9:30 am - Convene and registration at Huber Orchard and Winery.

10:00 am - Introductions, a brief walking tour of facilities - winery, market, icecream store, banquet hall

10:30 am - Field tour - apples

11:45 pm - Lunch - \$10 - RSVP requested (see below)

1:00 pm - Field tours - peaches, vegetables, small fruit

4:00 pm - Wrap up and conclude (Optional winery and distillery tour for those interested)

Southwest Purdue Agricultural Center Field Day

Date: June 27, 2019. Registration begins at 8:30 am

Location: Southwest Purdue Agricultural Center, 4669 N. Purdue Road in Vincennes, IN 47591

Topics related to vegetable production include:

- **Organic Tomato Production:** Dan Egel will discuss the Tomato Organic Management and Improvement Project — including foliar disease management of tomatoes.
- **High Tunnel Grafted Cucumber & Specialty Melon Production:** Wenjing Guan and Petrus Langenhoven will discuss cucumber and melon production in high tunnels.
- **Applying IPM Principles across Cropping Systems to Increase Insect Pollination and Profitability:** Laura Ingwell will discuss best management practices for watermelon production by quantifying pest pressures, pollinator health, and crop yields.
- **Annual Strawberry Production:** Wenjing Guan will discuss annual plastic culture for strawberry production in southern Indiana.

Other topics include:

- **Termites to the Rescue:** In this presentation, Rick Meilan will discuss the use of enzymes derived from termites to control invasive woody species.
- **Removing Invasive and Cultivating Natives:** Join Will Drews to see SWPAC's work to remove invasive plants around the property and create a native pollinator habitat.
- **Growing Hemp in Indiana:** Chuck Mansfield and Valerie Clingerman will offer an update on the use of

this versatile plant — grown for its fiber, seed, or oil — across the state.

- o **Eyes in the Sky...Decisions on the Ground:** Bob Nielsen discusses the benefit of aerial “reconnaissance” via unmanned aerial drones to scout crop problems or augment data.

A meal will be included, and PARP classes also will be available after lunch. To register, email joynerb@purdue.edu, call (812) 886-0198, or go online at https://purdue.ca1.qualtrics.com/jfe/form/SV_8pnF8z1CwyglrGI by Monday, June 17.



Don't Miss the SWPAC Field Day!

Thursday, June 27

Southwest Purdue Agricultural Center, 4669 N. Purdue Road, Vincennes, Ind.

Observe production techniques, hear from Purdue experts, and enjoy lunch!

The Southwest Purdue Agricultural Center (SWPAC) field day is free, but advance registration is required by Monday, June 17. Registration begins at 8:30 a.m. EDT.

Highlights include a lunch presentation with Fred Whitford, clinical engagement professor and director of Purdue Pesticide Programs, to discuss “A 150-Year Friendship With Farmers”; a presentation from Jamie Campbell Petty, founder and strategy advisor for the Indiana Hemp Industries Association Team; and a health fair provided by Vincennes’ Good Samaritan Hospital. Private Applicator Recertification Program (PARP) classes also will be offered.

Presentation Topics Include:

- Organic tomato production
- High tunnel grafting cucumbers & specialty melons
- Pest management to boost pollination
- Termiticide use to control invasive species
- Cultivating native plants
- Growing hemp in Indiana
- Unmanned aerial vehicles to gather data
- Annual strawberry production

Register today by email (joynerb@purdue.edu), phone (812-886-0198) or purdue.ag/swpac2019





purdue.ag/swpac2019

Meigs High Tunnel Field Day

Date: July 18, 2019

Location: Purdue Meigs Farm, 9101 S 100E, Lafayette, IN 47909

Topics of the field day include Production of specialty melons in high tunnels; Early detection of bacterial wilt; Impact of crop rotation and rootstock on the resilience of high tunnel tomatoes. Lunch and refreshments are provided.

Registration is free, but required.

Register here

https://purdue.ca1.qualtrics.com/jfe/form/SV_0HXQwDlUoRiOnwAB For questions please contact Lori Jolly-Brown at ljollybr@purdue.edu or (765) 494-1296



Meigs High Tunnel Field Day

Thursday July 18, 2019 from 10:00 am to 1:00 pm
Meigs Horticulture Research Farm
9101 S. 100 E., Lafayette IN, 47909



The field day at Meigs Horticulture Farm, presented by the Horticulture and Landscape Architecture Department and the Department of Entomology, will focus on aspects of high tunnel cantaloupe, cucumber, and tomato crop production. It will feature tours of conventional and hydroponic high tunnel production research. Eighteen high quality specialty melon varieties will be on display, grown vertically or the conventional way. Research have shown that the yield of personal sized melons grown in high tunnels are about three times higher than conventionally grown melons. Past research with insect exclusion netting have shown to exclude cucumber beetles effectively from the high tunnel environment. This year, we are working on implementing new technology to detect bacterial infection in the plants, prior to visual wilting symptoms, in order to improve management. The sensors we are using for early detection will be available and on display. New research are looking at the known risks involved when growing tomatoes without crop rotation in high tunnels. We are comparing the impact of mono cropped tomato vs. a more diverse rotation on soil microbial communities, crop resistance to insect pests and pathogens and yield. In addition, we are grafting heirloom tomato scions onto wild tomato rootstock to determine whether grafting provides greater resiliency in buffering high tunnel tomatoes against yield decline in monoculture over time. Attendees will also have an opportunity to discuss current challenges and future directions of research areas for high tunnel production systems.

Presentations and Tours

1. Production of Specialty Melons in High Tunnels
2. Early Detection of Bacterial Wilt
3. Impact of Crop Rotation and Rootstock on the Resilience of High Tunnel Tomatoes

Lunch and Refreshments are provided.

Registration is free, but required.

Register here https://purdue.ca1.qualtrics.com/jfe/form/SV_0HXQwDlUoRiOnwAB
For questions please contact Lori Jolly-Brown at ljollybr@purdue.edu or 765-494-1296



Small Farm Education Field Day at Purdue Student Farm

Date: August 1, 2019

Location: Purdue Student Farm, West Lafayette, IN 47907

The Purdue Student Farm is proud to announce its second annual Small Farm Education Field Day. The event is packed with educational sessions during the morning, followed by a tour and hands-on experiences on the farm. Topics of discussion throughout the day include basic planning tools for a sustainable small farm operation, testing and restoring soils in urban and peri-urban systems, scheduling crops in high tunnels, using different cover crops to build your soil, calculating profits and return on investment using enterprise budgets and food safety plants for small growers and gardeners. During the afternoon there will be a rototiller versus power harrow, high tunnel tomato and sweet pepper production, leaf mold composting, vegetable wash station design, and solar dryer demonstrations.

Registration fee is \$20.

Register here

https://purdue.ca1.qualtrics.com/jfe/form/SV_3qQfI05iryF3COp

Registration closes July 29, 2019.



Join us for

Purdue Small Farm Education Field Day

August 1, 2019

EDUCATIONAL SESSIONS

- Basic planning tools for increasing the sustainability of your farm
- Testing and restoring soils in urban and peri-urban systems
- Scheduling crops in high tunnels
- Dynamic tools to calculate your profits and return on investment
- Food safety plans and certification process for gardeners
- Rototiller versus power harrow and seeder demonstration
- High tunnel tomato and bell pepper production
- Practical applications of leaf mold composting
- Vegetable wash station design
- Solar dryers for postharvest processing of fruits and vegetables

Lunch catered by Juniper Spoon

More information:

Lori Jolly-Brown
ljollybr@purdue.edu
https://purdue.ca1.qualtrics.com/jfe/form/SV_3qQf05iryF3COp
Registration fee: \$20
Additional attendees: \$10
Purdue Daniel Turf Center
1340 Cherry Lane
West Lafayette, IN 47907



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