VEGETABLE CROPS HOTLINE

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

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In This Issue

Is This the Year to Try Fall Crops?

(Liz Maynard, emaynard@purdue.edu, (219) 548-3674), (Christopher Adair, ctadair@purdue.edu) & (Michael J O'Donnell, modonnel@purdue.edu, (765) 747-7732)

A lot of things are different this year. With the changes come opportunities to try something new. Liz Brownlee with Hoosier Young Farmers Coalition mentioned to me that some markets, especially in rural areas, do not have a steady supply of Fall crops, and that farmers might be looking to extend the season with crops not grown before. Many Indiana vegetable farms thrive on the warm season crops planted in spring: tomatoes, peppers, cantaloupe, watermelon, squash, pumpkins, sweet corn. But cool season crops planted in late summer are also grown and marketed successfully at farmers 'markets and to other outlets like food hubs and online marketplaces. For those new to these crops and thinking about trying them, this is a reminder that it's not too late to plant some crops for fall harvest. (Figures 1 and 2).

Figure 1. Newly transplanted leaf lettuce under a low tunnel with lightweight row cover to protect from deer, Sept. 20, 2018. Lettuce was seeded in greenhouse on Aug. 21. Pinney Purdue Ag Center, Wanatah, IN.

Figure 2. Lettuce transplanted Sept. 13 (right) and Sept. 20 (under row cover) ready for a second harvest on Oct. 18. Smaller heads were harvested a week earlier. Pinney Purdue Ag Center, Wanatah, IN.

Lettuce, spinach, kale and many other greens in the brassica family (mustards, mizuna, tatsoi, bok choy), as well as radishes and turnips can be direct-seeded or transplanted in the field, under low tunnels, and in unheated or minimally heated high tunnels. Spinach and kale are the most cold-hardy and likely to maintain production into winter in unheated tunnels or outside under row cover.

Planted in late summer, many of the leafy crops will be ready for a first harvest of baby leaves within 3 or 4 weeks of seeding, and multiple harvests are possible. For a full lettuce head or harvest of large kale leaves it can take about 4 weeks from transplanting, depending on the variety. Radishes can be ready to harvest in 3.5 to 4 weeks from seeding. With later plantings the days to harvest increase as temperatures drop and day length and sunshine decrease; what was a 30-day crop in early September can become a 40 to 50-day crop when planted in mid-October. Later plantings may not be ready to harvest until after the new year. Tables 1 and 2 illustrate this with examples from Indiana farms located north of I-70. Note that the latest plantings were often in minimally-heated high tunnels, meaning they were kept above about 28°-30°F.

Days to Harvest for Direct Seeded Crops
(by crop and environment)

- 9 crops
- 4 environments
- Field seedings usually the fastest; last field seeding was 15 Sep.
- Unheated/CAT tunnel usually next fastest; last seeding was 12 Nov (or 21 Nov for radish trial)
- Heated tunnel crops usually took the longest. Earliest seeding date 6 Oct.

4/9/2017

Crop	Environ.	N	Days to Harvest from Seed			Seed Date	
			Ave	Min	Max	Earliest	Latest
Arugula	Field	2	35	30	40	13-Sep	15-Sep
Arugula	UH	2	38	38	38	18-Sep	1-Oct
Bok Choy	Ht	2	106	105	106	15-Nov	15-Nov
Greens	Field	1	33	33	33	1-Sep	1-Sep
Greens	UH	5	52	31	99	18-Sep	8-Nov
Greens	Ht	1	38	38	38	10-Oct	10-Oct
Kale	Field	3	44	37	48	8-Sep	14-Sep
Kale	Ht	3	118	112	125	10-Oct	8-Nov
Lettuce	Ht	11	111	95	127	10-Oct	12-Nov
Mesclun	UH	3	26	22	28	28-Sep	12-Oct
Radish	UH	2	89	89	89	18-Sep	1-Oct
Radish	Field	4	34	27	41	4-Aug	4-Sep
Radish	CAT	8	48	25	106	6-Aug	21-Nov
Spinach	UH	1	87	87	87	10-Oct	10-Oct
Spinach	Field	3	43	29	56	12-Aug	1-Sep
Spinach	Ht	7	116	103	129	21-Oct	15-Nov
Tatsoi	Ht	2	128	127	128	10-Oct	17-Oct

Table 1. Days to harvest and seeding dates for direct-seeded crops in field, caterpillar tunnel (CAT), unheated high tunnel (UH) and minimally-heated high tunnel (Ht) for several Indiana farms in 2016. N indicates the number of plantings summarized for that crop and location.

Days to Harvest for Transplanted Crops
(by crop and environment)

- 4 crops
- 3 environments
- 4 to 9 weeks for most crops
- Lastest transplant date was 9/15 for field, 10/19 for unheated, and 11/2 for heated

4/9/2017

Crop	Environ.	N	Days to Harv. from Trans.			Seed Date		Transplant Date	
			Ave	Min	Max	Earliest	Latest	Earliest	Latest
Greens	Field	2	13	13	13	28-Jul	28-Jul	9-Aug	9-Aug
Lettuce	Field	1	30	30	30	28-Jul	28-Jul	16-Aug	16-Aug
Lettuce	UH	7	44	27	62	17-Aug	22-Sep	14-Sep	19-Oct
Lettuce	Ht	9	45	26	55	22-Sep	6-Oct	12-Oct	2-Nov
Spinach	Field	2	48	44	51	22-Aug	1-Sep	1-Sep	15-Sep
Swiss Ch	UH	1	57	57	57	1-Aug	1-Aug	5-Sep	5-Sep

Table 2. Days to harvest, seed, and transplant dates for some transplanted crops in field, unheated high tunnel (UH) and minimally heated high tunnel (Ht) for several Indiana farms in 2016.

While examples from other farms are helpful, records from your own farm are essential for tailoring schedules to your operation. In the project where we collected the data above we found a practical way to record information for each planting was to place large wooden marker at each planting and use a marker pen to record variety, seed, plant, and harvest dates, as well as yield on each harvest date (Figure 3). After the final harvest information could be transferred to a computer spreadsheet or other permanent record. Of course, that is just one means of recordkeeping—the important thing is to keep the records in some manner, and then take time to review them.

Figure 3. Wooden stake used to record seed (S), transplant (TP), and harvest dates, and yield at each harvest, for bok choy in a minimally heated high tunnel.

Many fall crops are grown at the Purdue Student Farm in West Lafayette. Farm manager Chris Adair shared some of the varieties that work well for them:

Kale

These varieties are good for large leaves picked as they reach size, starting from the bottom of the plant.

- Winterbor
  - Fantastic growing kale with great disease resistance and high frost tolerance, pests do not like as much, so lower incidences of imported cabbage worm, but it can still be in large enough numbers to ruin the crop
- Scarlet
  - Similar to Winterbor in shape but a red to purplish color, highly productive but is a bit susceptible to bacterial diseases that can get into the leaf or stem; still seems to be less susceptible than other varieties
- Toscano
  - Also known as dinosaur kale, is very productive and fairly tasty for a large leaved version but is a preferred kale by imported cabbage worm, so have to be extra careful to manage the worms or they will eat it to nothing. At student farm we spray Bt or Spinosad.

This variety is good for baby kale that can be used in salads.

- Red Russian
  - Great tasting kale especially after a frost, not the best to pick for large leaves so we use it for baby kale which is planted in tightly packed rows to keep leaves small

Lettuce

Have really moved to only multi-leaf lettuce varieties (e.g. Salanova™) as they are very versatile and easy to work with, never had any disease issues, the red types seem to handle the frost better than the greens but, overall are quite frost hardy.

- Butter Type
  - Good tasty lettuce with smaller leaves with the green butter being really nice
- Oakleaf Type
  - Great looking shape that tends to stay small enough for salads, both red and green grow well in the field and can be very productive
- Incised Type
  - Much larger leaved and as a whole plant compared to the others, a bit crunchier stem as well which is nice

Broccoli

- Gypsy
  - Pretty solid broccoli that if treated correctly will produce even in warmer temperatures, ours at the farm put on heads in mid-July even with all the previous 90+ degree days

Beets

Not too many pest issues but burrowing rodents will eat on the roots and deer love the beet greens.

- Red Ace
  - Good productive standard beet, can get very large without being too corky or tough in the middle
- Chioggia
  - A good non-red beet that is generally pretty productive but not nearly as good as the red ace

Radish

- Rover
  - Good standard radish that does exactly what you want it to, minimal pest issues other than some flea beetles loving the leaves but they will grow through it
- D'Avignon
  - Nice long skinny radish that has good flavor and quite productive as well, same issues as Rover with the flea beetles

Cabbage

- Tiara
  - A good smaller-headed cabbage that tends to produce well but will get bacterial rots

Turnip

- Purple Top
  - Good productive turnip that can be harvested small or large without too many issues of corkiness when they are large

Watch for a New Culprit Wilting Your Cucurbits!

(Laura Ingwell, lingwell@purdue.edu, (765) 494-6167)

In the past two weeks we have heard reports of the Squash vine borer (Figure 1) being spotted in some local gardens. This pest of cucurbit crops tends to be sporadic in our region; you are either battling it every year or it hardly makes an appearance. The squash vine borer is a member of the clear-winged moths, a unique group of moths that are active during the daytime. They are very beautiful with their bright colored orange tufts of hair. At this point in the season, we are encountering with the second generation in Indiana. The larvae feed in the ripening fruits (Figure 2). You can find holes in the fruit and sawdust-looking frass (excrement) indicating larval infestation. If you are planning to treat your crop, you need to target applications before those eggs hatch so that the larvae will ingest the spray upon hatching as they attempt to chew their way into their preferred (and protected) feeding zones inside the fruits. There are many things to consider when electing to treat with an insecticide and this time of year the window around harvest can be the most important. Those with a zero-day pre-harvest interval (PHI) include Assail and Perm-Up and others that have 1-day PHI include Warrior II and Mustang-Maxx, for pumpkin in particular. Remember, your crops are still flowering and this leaves pollinators vulnerable to the exposure of any chemical that you may choose. Consult the Midwest Vegetable Production Guide (mwveguide.org) when selecting a pesticide and be sure to check the label.

Figure 1. Squash vine borer adult. Photo by Cliff Sadof

Figure 2. A larvae of squash vine borer feeds on a mature pumpkin fruit. Photo by John Obemeyer

To avoid damage next year, be sure to destroy crop residues and rotate away from infested areas. A diligent scouting program in combination with pheromone traps can help detect adults during their mating flights and target application before the larvae hatch and bore into vines and fruits. Please reach out to me directly if you are interested in establishing a trapping network (lingwell@purdue.edu or (765) 494-6167). Best of luck!

Additional Commodities Eligible for Coronavirus Food Assistance Program

U.S. Secretary of Agriculture Sonny Perdue announced an initial list of additional commodities that have been added to the Coronavirus Food Assistance Program (CFAP), and that the U.S. Department of Agriculture (USDA) made other adjustments to the program based on comments received from agricultural producers and organizations and review of market data. Producers will be able to submit applications that include these commodities on Monday, July 13, 2020. USDA's Farm Service Agency (FSA) is accepting through Aug. 28, 2020, applications for CFAP, which helps offset price declines and additional marketing costs because of the coronavirus pandemic. USDA expects additional eligible commodities to be announced in the coming weeks. USDA collected comments and supporting data for consideration of additional commodities through June 22, 2020.

Changes to CFAP include:

- Adding the following commodities: alfalfa sprouts, anise, arugula, basil, bean sprouts, beets, blackberries, Brussels sprouts, celeriac (celery root), chives, cilantro, coconuts, collard greens, dandelion greens, greens (others not listed separately), guava, kale greens, lettuce – including Boston, green leaf, Lolla Rossa, oak leaf green, oak leaf red and red leaf – marjoram, mint, mustard, okra, oregano, parsnips, passion fruit, peas (green), pineapple, pistachios, radicchio, rosemary, sage, savory, sorrel, fresh sugarcane, Swiss chard, thyme and turnip top greens.
- Expanding for seven currently eligible commodities – apples, blueberries, garlic, potatoes, raspberries, tangerines and taro – CARES Act funding for sales losses because USDA found these commodities had a 5 percent or greater price decline between mid-January and mid-April as a result of the COVID-19 pandemic. Originally, these commodities were only eligible for marketing adjustments.
- Determining that peaches and rhubarb no longer qualify for payment under the CARES Act sales loss category.
- Correcting payment rates for apples, artichokes, asparagus, blueberries, cantaloupes, cucumbers, garlic, kiwifruit, mushrooms, papaya, peaches, potatoes, raspberries, rhubarb, tangerines and taro.

Additional details can be found in the Federal Register in the Notice of Funding Availability (NOFA) and Final Rule Correction and at www.farmers.gov/cfap.

Producers have several options for applying to the CFAP program:

- Using an online portal, accessible at farmers.gov/cfap, allows producers with secure USDA login credentials—known as eAuthentication—to certify eligible commodities online, digitally sign applications and submit directly to the local USDA Service Center. New commodities will be available in the system on July 13, 2020.
- Completing the application form using our CFAP Application Generator and Payment Calculator found at farmers.gov/cfap. This Excel workbook allows customers to input information specific to their operation to determine estimated payments and populate the application form, which can be printed, then signed and submitted to their local USDA Service Center. An updated version with the new commodities will be available on the website on July 13, 2020.

- Downloading the AD-3114 application form from farmers.gov/cfap and manually completing the form to submit to the local USDA Service Center by mail, electronically or by hand delivery to an office drop box. In some limited cases, the office may be open for in-person business by appointment. Visit farmers.gov/coronavirus/service-center-status to check the status of your local office.

USDA Service Centers can also work with producers to complete and securely transmit digitally signed applications through two commercially available tools: Box and OneSpan. Producers who are interested in digitally signing their applications should notify their local service centers when calling to discuss the CFAP application process. You can learn more about these solutions at farmers.gov/mydocs.

Getting Help from FSA

New customers seeking one-on-one support with the CFAP application process can call (877) 508-8364 to speak directly with a USDA employee ready to offer general assistance. This is a recommended first step before a producer engages the team at the FSA county office at their local USDA Service Center. All other eligibility forms, such as those related to adjusted gross income and payment information, can be downloaded from farmers.gov/cfap. For existing FSA customers, these documents are likely already on file.

Indiana Climate and Weather Outlook

(Beth Hall, hall556@purdue.edu)

On July 16th, the national Climate Prediction Center released the climate outlooks for August (Figure 1) and the August-September-October (Figure 2) period. Both outlooks are indicating a significant probability for above-normal temperatures. Precipitation is likely to be above normal for the southern two-thirds of Indiana in August, but there is little-to-no guidance for the 3-month, August-September-October period.

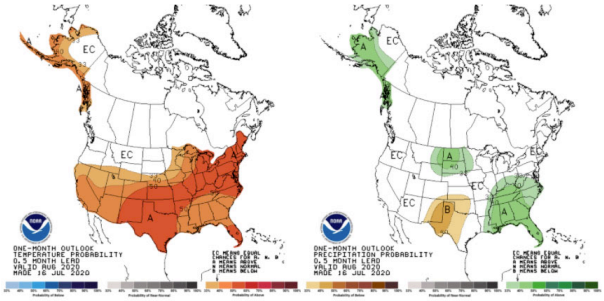


Figure 1. Temperature (left) and precipitation (right) probabilities for above- or below-normal conditions for August. Source: NOAA Climate Prediction Center

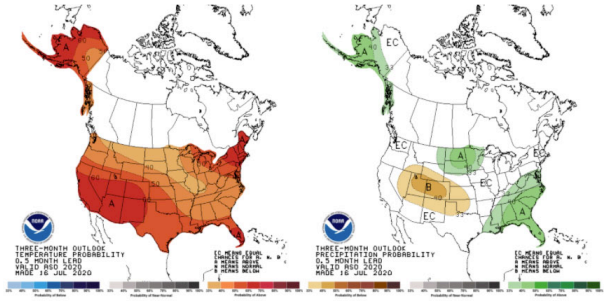


Figure 2. Temperature (left) and precipitation (right) probabilities for above- or below-normal conditions for the August-September-October period. Source: NOAA Climate Prediction Center.

Abnormally dry conditions are starting to ease across the state, due to recent rainfall. However, evapotranspiration has still been relatively high due to the warm temperatures, so dry conditions remain spotty across the state. Fortunately, temperatures are likely to be below normal through August 7th, which may help lower evapotranspiration rates. Modified growing degree-day accumulations are very comparable to recent years in the northern part of the state, but are still lagging in the southern half (Figures 3 and 4).

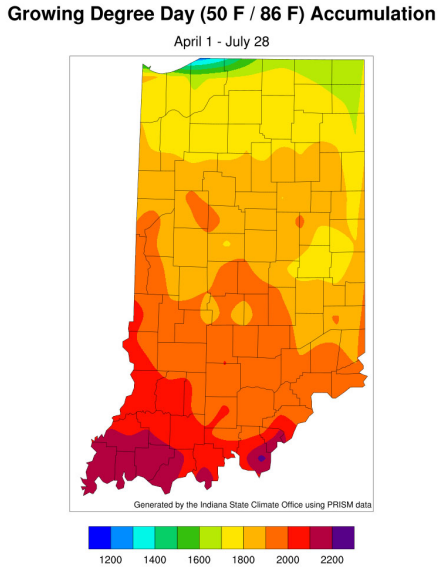


Figure 3. Modified accumulated growing degree-day units for April 1 – July 28, 2020.

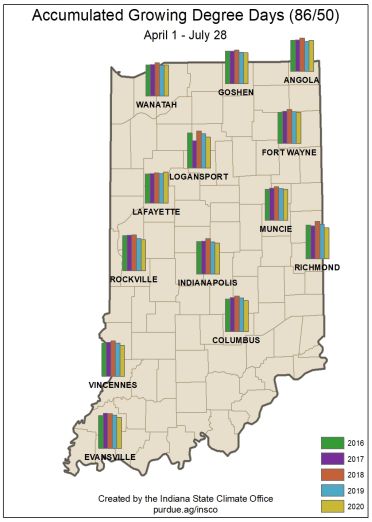


Figure 4. Comparison of accumulated modified growing degree days for April 1 through July 28 for 2016 through 2020.

Small Farm Education Field Day and Webinar Series

The Small Farm Education Field Day and Webinar Series will take place 12:00 -1:10 pm EST, July 30 to Aug. 14, 2020. Register at https://tinyurl.com/y5ahtrow. After you register, a Zoom link will be emailed to you. If you have any questions, please contact Petrus Langenhoven at (765) 496-7955 or plangenh@purdue.edu

Question of the Issue (7-30-2020)

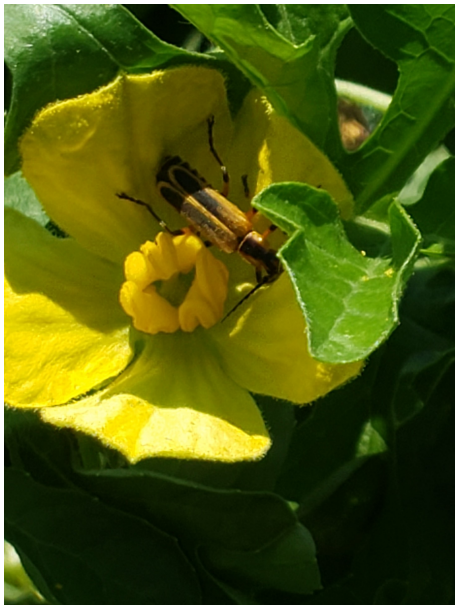
(Jeanine Arana, jcordone@purdue.edu, (765) 588-7787)

Watermelon is growing in this bed, but something went wrong. What happened?

Answer to Question from Last Issue (7-16-2020)

(Laura Ingwell, lingwell@purdue.edu, (765) 494-6167)

This insect provides two important ecosystem services in your crops. Can you identify the bug and tell us what they do?



Answer- It is a yellow striped soldier beetle. They are predators, eating pests like caterpillars and aphids. They also contribute to pollination of your crops and other flowers.

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Editor: Wenjing Guan | Department of Horticulture and Landscape Architecture, 625 Agriculture Mall Dr., West Lafayette, IN 47907 | (812) 886-0198