

# VEGETABLE CROPS HOTLINE

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



Issue: 703  
May 5, 2022

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## How Distance from Light Fixtures Influences Light Level for Seedlings

(Liz Maynard, [emaynard@purdue.edu](mailto:emaynard@purdue.edu), (219) 548-3674)

Beginning and small-scale vegetable growers often grow transplants indoors with supplemental light instead of in a greenhouse. Guidelines for supplemental light nearly always mention that the closer the light is to the plant, the more usable light it provides. Cool white fluorescent lights have been used for this purpose for many years. At this point in time, LED fixtures are also readily available.

I was curious how much light (in the form of PAR\*) an LED fixture from a hardware store would provide at various distances and so made some quick measurements for demonstration purposes. The diagram, graphs, and table below summarize the information collected. It is a good reminder of how much difference distance from the light source makes. At 12 inches above the light sensor, the light fixture provided only one-quarter as much light as at 2 inches, and the light level was not adequate for vegetable seedling production. Plants would need to be about 4 to 8 inches from the light for reasonable growth.

### The distance from light source to plants has a large effect on the amount of light plants receive.

This diagram is based on measurements of photosynthetically active radiation (PAR) from a fixture 2, 4, 6, 8, 12, or 16 inches above the plants. At 2 inches PAR was  $445 \mu\text{mol}/\text{m}^2/\text{s}$ . At 4 inches the value was 75% of that; at 8 inches, 39%, and at 16 inches only 13% of the amount at 2 inches. If the light is on 20 hours a day, this is equivalent to DLI (daily light integral, or total light received) of  $32 \text{ mol}/\text{m}^2/\text{d}$  at 2 inches, 24 at 4 inches, 12 at 8 inches, and 4 at 16 inches. Below a DLI of  $10 \text{ mol}/\text{m}^2/\text{d}$ , growth is likely to be very slow for vegetable seedlings. With this light source, placing the fixture 4 to 8 inches above plants would provide an adequate to good amount of light for transplant growth.

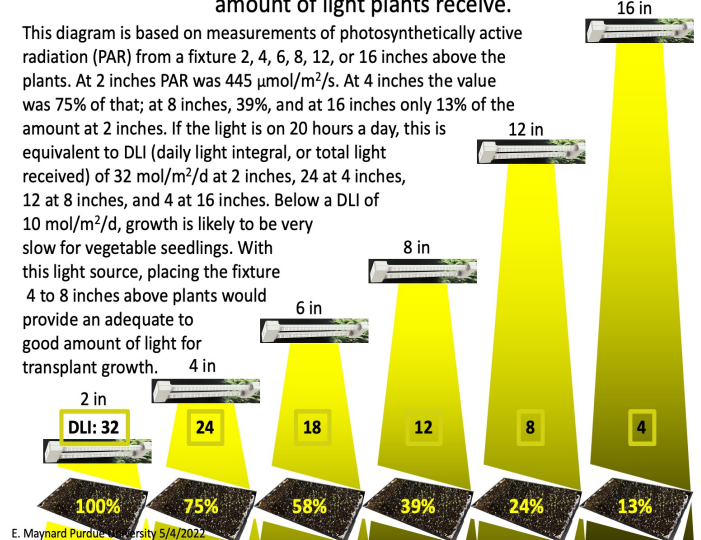
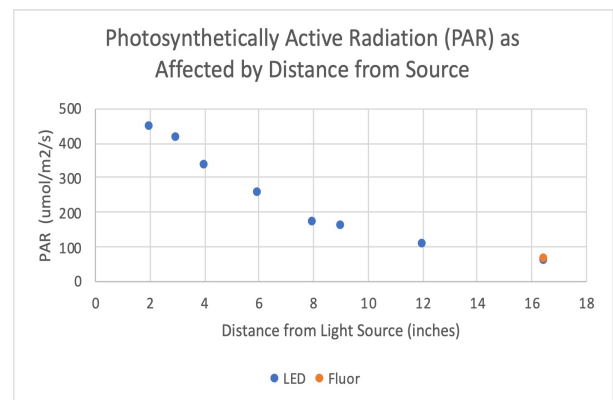


Fig. 1. Distance from light source to plants has a large effect on the amount of light plants receive.

Light provided by an office fluorescent fixture was measured only at one distance: 16 inches. At that distance, both the LED and the fluorescent fixture provided about 13% of the light compared to the LED lamp placed 2 inches above the sensor.

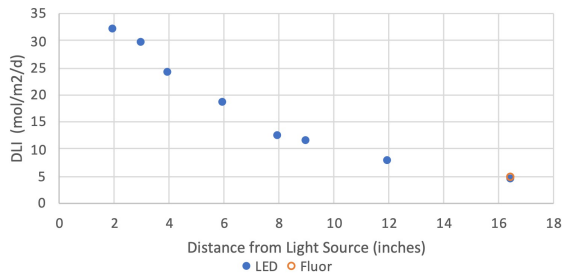


LED: 2 ft. LED Full Spectrum Grow Light, GLP24FS/19W/LED Feit Electric, Pico Rivera, CA  
Fluor: Standard ceiling-mounted office fixture with 4 bulbs and a light diffuser below bulbs.

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Fig. 2. Photosynthetically active radiation as affected by distance from light source.

Daily Light Integral (DLI) as Affected by Distance from Source (assuming lights are on 20 hours/day)



LED: 2 ft. LED Full Spectrum Grow Light, GLP24FS/19W/LED Felt Electric, Pico Rivera, CA  
Fluor: Standard ceiling-mounted office fixture with 4 bulbs and a light diffuser below bulbs.  
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Fig. 3. Daily light integral as affected by distance from light source.

Photosynthetically Active Radiation (PAR) and Daily Light Integral (DLI) as Affected by Distance from Source

Distance Above Sensor (inches)	Light Source*	PAR ( $\mu\text{mol}/\text{m}^2/\text{s}$ )	DLI* ( $\text{mol}/\text{m}^2/\text{d}$ )
2	LED	445	32
3	LED	412	30
4	LED	334	24
6	LED	257	18
8	LED	172	12
9	LED	159	11
12	LED	108	8
16.5	LED	60	4
16.5	Fluorescent	64	5

\*Light sources: LED=2 ft. LED Full Spectrum Grow Light, GLP24FS/19W/LED Felt Electric, Pico Rivera, CA  
Fluorescent=Ceiling-mounted office fixture with 4 bulbs and a light diffuser below bulbs.

\*\*DLI calculated assuming lights are on 20 hours per day.

E. Maynard Purdue University 5/4/2022

Table 1. Photosynthetically active radiation and daily light integral as affected by distance from light source.

Seedlings grown without enough light grow slowly and are spindly and weak. If you grow transplants using supplemental light, this is worth paying attention to!

For more information about light measurements and light in greenhouses and outdoors, see [Measuring Daily Light Integral in a Greenhouse](#), [Seasonal Daily Light Integrals Across Indiana](#), and [Determining the Economic Value of Providing Supplemental Light to Lettuce During Winter Production](#).

\*Definitions:

Photosynthetically active radiation (PAR): Radiation with wavelengths between 400 and 700 nanometers, which includes most light that can be used by plants for photosynthesis. The units are micro-mols of photons ( $\mu\text{mol}$ ) per square meter per second. For people, this measurement corresponds roughly to the brightness of light at any instant.

Daily light integral (DLI): The total amount of light available for photosynthesis in a day; the sum of all the PAR in a day. The units are mols of photons per square meter per day.

## Downy Mildew of Spinach

(Dan Egel, [egel@purdue.edu](mailto:egel@purdue.edu), (812) 886-0198)

Downy mildew of spinach can be an important disease of spinach. The lesions are often a bright yellow with irregular margins (Figure 1). With time, these lesions can become a light brown. The

underside of the lesion is dark black or purple under moist conditions. Under very conducive conditions, sporulation can occur on the top of the leaf.



Figure 1. Downy mildew of spinach can cause bright yellow lesions with irregular margins.

This disease may spread rapidly under cool, wet conditions: the optimal temperatures for lesion development is 59-77 °F. Wind can spread the spores and leaf wetness is required for infection. Any factor which increases leaf wetness, as, for example, closely spaced spinach plants, can increase disease severity.

The best method of managing downy mildew of spinach is to use varieties with host resistance. However, new races of the pathogen may develop in which case the most resistant varieties may change. Several fungicides are listed in the [Midwest Vegetable Production Guide](#) (ID-56) that may be used to protect emerged crops.

## Am I Properly Rotating my Herbicides?

(Jeanine Arana, [jcordone@purdue.edu](mailto:jcordone@purdue.edu), (765) 588-7787) & (Stephen Meyers, [slmeyers@purdue.edu](mailto:slmeyers@purdue.edu), (765) 496-6540)

Using herbicides with different modes of action is one way to more effectively control weeds and avoid or delay herbicide resistance. But how do you know if you are rotating herbicides properly?

### Group Numbers.

Most herbicide labels have a herbicide Group number on the front page, usually above or next to the product's trade name (Figure 1). The Group number is also known as an HRAC/WSSA code. HRAC stands for the "Herbicide Resistance Action Committee" and WSSA stands for the "Weed Science Society of America".

**IMPORTANT NOTICE**  
U.S. LABEL – It is a violation of United States law to use this product in the United States in a manner inconsistent with its United States labeling.

FOMESAFEN GROUP 14 HERBICIDE

**Reflex**  
Herbicide

syngenta

For Control of Certain Weeds in Cotton,  
Dry Beans, Potatoes, Snap Beans, Soybeans  
and Succulent Soybeans (Edamame)  
Active Ingredient:  
Sodium salt of fomesafen

**FIRST AID**  
If in eyes: Hold eye open and rinse slowly and  
gently with water for 15-20 minutes. Remove  
contact lenses, if present, after the first 5 minutes,  
then continue rinsing. Call a poison control center  
or doctor for treatment advice. If swallowed: Call a

Sale, use and distribution of this product in Nassau and  
Suffolk Counties in the State of New York is prohibited.

PULL HERE TO OPEN ►

S-METOLACHLOR GROUP 15 HERBICIDE

**Dual Magnum**  
Herbicide

### Group Letters.

Some herbicide labels contain a Group letter instead of a Group number (Figure 2). Group letters are another classification system called 'Legacy HRAC code'. In the case of Aim EC, the Legacy HRAC code "E" is equivalent to the Group number 14. For herbicide labels containing a Group letter, consult the HRAC website to determine the Group number:

<https://hracglobal.com/tools/classification-lookup>

**Aim**  
HERBICIDE

INTENDED FOR AGRICULTURAL OR  
COMMERCIAL USE

EPA Reg. No. 279-3241 EPA Est. 279-IL-1

Active Ingredient: By Wt.  
Carfentrazone-ethyl 22.3%  
Other Ingredients 77.7%  
Total 100.0%

This product contains 2.0 pounds active ingredient per gallon.  
Contains Petroleum Distillates

KEEP OUT OF REACH OF CHILDREN  
CAUTION

GROUP E HERBICIDE

**PRECAUTIONARY STATEMENTS**  
Hazards to Humans (and Domestic Animals)  
Caution  
Harmful if swallowed, absorbed through the skin or inhaled. Causes moderate eye irritation. Avoid breathing vapors. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling.  
**Personal Protective Equipment (PPE)**  
Applicators and other handlers must wear: long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks.  
**User Safety Requirements**  
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

**User Safety Recommendations**  
• Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.  
• Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.  
• Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENVIRONMENTAL HAZARDS**  
Carfentrazone-ethyl is very toxic to aquatic and moderately toxic to fish. Do not apply directly to water, to areas where surface water is present, or to areas adjacent to water, except as specified on this label. Do not contaminate water when disposing of equipment washwaters.  
For ground water: Breakdown of this chemical into noncarcinogenic and nonherbicidal products.

### What does it mean when a herbicide label does not contain a Group number or letter?

Herbicides with no Group number or letter have a mode of action that has not been fully understood (Figure 3). They may also be classified as Group 0 using the HRAC/WSSA code system or Z/N using the Legacy HRAC code system.

**Prefar 4-E**  
Selective Herbicide

Emulsifiable liquid for control of annual grasses and broadleaf weeds

ACTIVE INGREDIENT: Bensulfide  
S-(O,O-diisopropyl phosphorodithioate) ester of N-(2-mercaptoethyl) benzenesulfonamide  
OTHER INGREDIENTS  
% By Wt.  
46.0%  
54.0%  
TOTAL 100.0%

Contains 4 pounds of active ingredient per gallon  
Contains petroleum distillates

KEEP OUT OF REACH OF CHILDREN  
CAUTION

**FIRST AID**  
Organophosphate Pesticide  
If swallowed  
• Immediately call a poison control center or doctor.  
• Do not induce vomiting unless told to do so by the poison control center or doctor.  
• Do not give ANY liquid to the person.  
• Do not give anything by mouth to an unconscious person.  
• Move person to fresh air.

### Putting it all together.

After identifying herbicide Groups, we need to plan a herbicide rotation in which we avoid using the same herbicide Group more than once each season. See the example of herbicide rotation in pumpkin (Table 1). Moreover, it is also possible to rotate the herbicides depending on the crop rotation plan. See the example of herbicide rotation in three crops (Table 2).

Table 1. An example of using different herbicide Group numbers in a single growing season.

Year	Preemergence		Postemergence		Herbicide Groups
	Grasses	Broadleaves	Grasses	Broadleaves	
2022	Strategy®	SelectMax®	Sandea®		13+3+1+2

Table 2. An example of a three-year vegetable crop rotation with proper herbicide Group rotation.

Crop	Year	Preemergence	Postemergence-spray directed to the weeds	Herbicide Group
Watermelon	2022	Dual Magnum® + Reflex®	Paraquat	15+14+22
Pumpkin	2021	Strategy® + Sandea®	Glyphosate	13+3+2+9
Pepper	2023	Prowl® H <sub>2</sub> O + Prefar® 4E	Aim EC	3+0+E(14)

\*To see more information about the new Indiana 24(c) Special Local Need label for select vegetables, click here:

<https://vegshotline.org/article/reflex-herbicide-now-registered-for-use-in-select-indiana-vegetables/>

### Additional resources.

The printed and online versions of the Midwest Vegetable Production Guide also contain Group numbers and serve as an excellent resource to help properly rotate herbicides.

Order the printed Midwest Vegetable Production Guide here:  
<https://app.thebookpatch.com/BookStore/midwest-vegetable-production-guide-for-commercial-growers-2022/5a453903-1f7f-4108-b17b-fe3ef6791ebe>

Use the searchable online Midwest Vegetable Production Guide here: <https://mwveguide.org/>

## MELCAST 2022

(Dan Egel, [egel@purdue.edu](mailto:egel@purdue.edu), (812) 886-0198)

**MELCAST** is a weather-based disease-forecasting program that helps growers schedule foliar fungicide applications for watermelon and cantaloupe. **MELCAST** stands for MELon disease



for CASTer. This program, designed by Dr. Rick Latin, Emeritus Professor of Plant Pathology at Purdue University, keeps track of weather conditions so that cantaloupe and watermelon growers can apply foliar fungicides to their crops when they are most needed. The foliar diseases that **MELCAST** was designed for are *Alternaria* leaf blight, anthracnose and gummy stem blight. In a typical year, **MELCAST** will save growers 2 to 3 foliar applications of fungicides without sacrificing yield. **MELCAST** works by having growers apply fungicides at specific Environmental Favorability Index (EFI) values instead of using a calendar-based schedule. The extension bulletin "Foliar Disease Control using **MELCAST**" [BP-67](#) describes this program in more detail.

To use **MELCAST**, follow these steps:

1. Apply your first foliar fungicide application when vines first touch within a row or earlier.
2. Find a **MELCAST** site near your farm from the table below. Select a **MELCAST** site near enough that the weather is similar to your field.
3. Use the table at [melcast.info](http://melcast.info) to find the EFI MELCAST value for your site and write down the value on the date when the first fungicide was applied on your **MELCAST** Record Sheet (contact me for a hard copy). Note that the EFI values are cumulative. That is, the values keep increasing.
4. It is not necessary to read the **MELCAST** EFI values every day. Keep in mind, however that cantaloupe growers will apply a foliar fungicide again at 20 EFI values and watermelon growers will use a 35 EFI threshold. So, when the EFI values are close to the threshold, watch the **MELCAST** EFI values closely.
5. When the EFI threshold has been reached or is close for your site, apply a foliar fungicide and write down the new EFI value for the date when the spray was made. If at all possible, do not let the EFI values go over the threshold. It is better to apply a fungicide before the threshold is reached than to wait until the threshold has gone over.
6. If 14 days have expired and the threshold has not been reached, apply a foliar fungicide. This is because after 14 days, new growth will have occurred and some of the products applied 14 days ago will have weathered. Again, when the next fungicide application has been made note the EFI value.

Using **MELCAST** is much like keeping track of the mileage for oil changes in your truck. Note the accumulated EFI values when you make your first spray much as you would write down the mileage on your truck when you change the oil. Make your next spray when the EFI threshold nears the threshold by keeping track of the accumulating EFI values much as you would change the oil in your truck every 4,000 miles.

If you choose to view **MELCAST** information on the Internet, go to [melcast.info](http://melcast.info). You will see a table with several **MELCAST** sites around Indiana as well as in other states. The table also has more detailed information about each **MELCAST** location. Click on the location nearest your farm.

Information at each location includes EFI's for cantaloupe and watermelon for the past 7 days, total precipitation, high temperature and growing degree days. Below the table is a link for the past week's data and the state summary.

If the Indiana state summary is chosen, all the Indiana **MELCAST** sites can be viewed along with the EFI values for the past 7 days and, a 14-day EFI total for each site. All EFI values are updated on the Internet 7 days a week. Plus, on the state summary page, a weather summary may be found and a paragraph about pest information.

It is possible to sign up for a free hard copy of the weekly *MELCAST Update* newsletter (during the season) by contacting Dan Egel.

A list of all the **MELCAST** sites can be found below.

Location	State	Station	Latitude	Longitude	Notes
Washington	IN	<a href="#">001-IN</a>	38.644232	-87.221626	2.6 miles east of the route 150/57 intersection, Washington, IN
Decker	IN	<a href="#">002-IN</a>	38.528849	-87.522616	1 mile north of Decker IN on route 241
Princeton	IN	<a href="#">003-IN</a>	38.317830	-87.675383	3 miles south of the route 64/65 intersection west of Princeton, IN
Goshen	IN	<a href="#">004-IN</a>	41.530266	-85.950375	5 miles east of 3/40 intersection of Wakarusa on route 119.
Ft. Vallonia	IN	<a href="#">005-IN</a>	38.810381	-86.096330	2.6 miles south of Ft. Vallonia on route 135.
Oaktown	IN	<a href="#">006-IN</a>	38.894763	-87.446610	2 miles north of Oaktown on US 41
Wanatah	IN	<a href="#">007-IN</a>	41.444172	-86.934266	2 mi NW of Wanatah, IN on S. County Rd.
Williamsburg	IN	<a href="#">008-IN</a>	39.946380	-85.030889	2.3 miles west of Williamsburg on W.E. Oler Road
Marshall	IN	<a href="#">009-IN</a>	39.844131	-87.138890	2.9 miles west of Marshall, IN on route 236.
Merom Station	IN	<a href="#">010-IN</a>	38.026143	-87.514287	1 mile east of Merom Station on W. County Road 400 S.
Purdue Ag Center	IN	<a href="#">011-IN</a>	38.742003	-87.486325	Southwest Purdue Ag Center, 2 miles north of the route 41/67 interchange, north of Vincennes, IN.
West Lafayette	IN	<a href="#">012-IN</a>	40.298722	-86.899945	9 mi S of West Lafayette, IN on route 231.
Vincennes	IN	<a href="#">013-IN</a>	38.622622	-87.511351	2.2 miles south of US 41/Decker St. interchange on S. Decker Rd.
Starlight	IN	<a href="#">014-IN</a>	38.413131	-85.8949	Starlight, IN near intersection of St. John's road and Starlight Road.
LaGrange	IN	<a href="#">015-IN</a>	41.639067	-85.5042	4.8 miles east of LaGrange, IN on State Route 20.
Hazelhurst	GA	<a href="#">01-GA</a>	31.89185472	-82.62855676	3 miles NW of Hazelhurst, GA on Lovers Leap Rd.
Lenox	GA	<a href="#">02-GA</a>	31.29678219	-83.5209914	5 miles NW of Lenox, GA on Albert Brady Rd.
Wooster	OH	<a href="#">01-OH</a>	40.80536305	-82.05389984	Wooster farm, 6.5 mi west of Wooster on Old Lincoln Way
Freemont	OH	<a href="#">02-OH</a>	41.33759927	-83.18686379	Freemont farm, 4 mi west of Freemont on Grand Army of the Republic
Willard	OH	<a href="#">03-OH</a>	41.01042815	-82.7313846	Willard Farm, 3.3 miles south of Willard on Route 103
Niles	MI	<a href="#">02-MI</a>	41.8829	-86.26861	6 miles north of Niles on route 140.

## 2022 OISC Clean Sweep Information

**WHAT:** An OISC Pesticide Clean Sweep Project designed to collect and dispose of suspended, canceled, banned, unusable, opened, unopened or just unwanted pesticides (herbicides, insecticides, rodenticides, fungicides, miticides, etc.) is being sponsored by the Office of Indiana State Chemist (OISC). This disposal service is free of charge up to 250 pounds per participant. Over 250 pounds there will be a \$2.00 per pound charge. This is a great opportunity for you to legally dispose of unwanted products at little or no cost.

**WHO:** All public and private schools, golf courses, nurseries, farmers, ag dealers, general public, cities, towns, municipalities and county units of government or others receiving this notice are eligible to participate.

**WHEN:** 9:00 am to 3:00 pm Local Time

**WHERE:** August 16, 2022: Ceres Solutions (Wabash County) 573 East 700 South, Wabash, Indiana 46992  
 August 17, 2022: Bartholomew County Solid Waste District 720 S. Mapleton Street, Columbus, Indiana 47201  
 August 18, 2022: Daviess County Highway Department. 5247 East 100 North, Montgomery, Indiana 47558  
 August 23, 2022: Davis Purdue Agricultural Center (DPAC) (Randolph County) 6230 IN-1, Farmland, Indiana 47340

August 24, 2022: Co-Alliance (Porter County) 210 East 400 South, Valparaiso, Indiana 46383

August 25, 2022: Hendricks County Fairgrounds 1900 E. Main St., Danville, Indiana 46122

**HOW:** Complete the [Clean Sweep Participant Form](#) to the best of your ability. Mail, fax or e-mail the completed form to Nathan Davis at (765) 494-4331 or [cleansweep@groups.purdue.edu](mailto:cleansweep@groups.purdue.edu) (located at [https://oisc.purdue.edu/pesticide/clean\\_sweep.html](https://oisc.purdue.edu/pesticide/clean_sweep.html)) no later than Fri., August 5, 2021. Then bring your leak-free and safe-to-transport containers to the collection site. DO NOT mix materials. In case of an emergency, you should bring with you a list of products you are carrying and a contact phone number.

\*\*\*Empty pesticide containers will not be accepted, please follow label directions for proper disposal of empty pesticide containers\*\*\*

\*NOTE: OISC reserves the right to cancel this Pesticide Clean Sweep Project if there is not adequate demand. Participants submitting the enclosed planning form by August 5, 2022 will be contacted immediately if cancellation is necessary.

### OISC CLEAN SWEEP PESTICIDE DISPOSAL

#### WHAT

Indiana Pesticide Clean Sweep Project designed to collect and dispose of suspended, canceled, banned, unusable, opened, unopened or just unwanted pesticides herbicides, insecticides, rodenticides, fungicides, miticides, etc.) is being sponsored by the Office of Indiana State Chemist (OISC). This disposal service is free of charge up to 250 pounds per participant. Over 250 pounds there will be a \$2.00 per pound charge. This is a great opportunity for you to legally dispose of unwanted products at little or no cost.

#### WHO

All public and private schools, golf courses, nurseries, farmers, ag dealers, general public, cities, towns, municipalities and county units of government or others receiving this notice are eligible to participate.

#### PARTICIPANT FORM

Please go to [oisc.purdue.edu](https://oisc.purdue.edu) to complete the Clean Sweep Participant Form or email [cleansweep@groups.purdue.edu](mailto:cleansweep@groups.purdue.edu) to have a participant form emailed.

#### DATES / LOCATIONS

9am to 3pm Local Time

August 16, 2022:  
Ceres Solutions  
Wabash County  
575 East 700 South  
Wabash, Indiana 46792

August 17, 2022:  
Bartholomew County  
Solid Waste District  
720 S. Mapleton Street  
Columbus, Indiana 47201

August 18, 2022:  
Davies County Highway  
Department  
5247 East 100 North  
Montgomery, Indiana 47558

August 23, 2022: Davis  
Purdue Agricultural  
Center (DAC)  
Randolph County  
6230 IN-1  
Farmland, Indiana 47340

August 24, 2022:  
Co-Alliance  
Porter County  
210 East 400 South  
Valparaiso, Indiana 46383

August 25, 2022:  
Hendricks County  
Fairgrounds  
1900 E. Main St.  
Danville, Indiana 46122

## Cool Temperatures and Variable Precipitation Observed Over the Last 30 Days

(Austin Pearson, [pearsona@purdue.edu](mailto:pearsona@purdue.edu), (765) 675-1177)

Over the last 30 days (April 3 – May 2), average temperatures ran below normal for most of the state (Figure 1). Southern Indiana temperature departures were near normal to 1°F below normal. Larger temperature departures (1 – 4°F below normal) were observed in central and northern Indiana. Many areas experienced their first 80°F or greater temperature during the last week of April, but that was also accompanied by windy conditions. April was a persistently windy month. At the Purdue University Airport, there were 25 days where wind gusts were in excess of 20 mph, 15 days with gusts in excess of 30 mph, and 2 days with gusts in excess of 40 mph. As for precipitation, most of the state

was near to slightly below normal (Figure 2). The heaviest precipitation occurred in southern Indiana, ranging from 4 to nearly 6 inches. Shakamak State Park, located in Sullivan County, recorded 5.93 inches of precipitation (0.84 inches above normal). Interestingly, over the last 30 days, many Indiana weather stations experienced 15 – 20 days with measurable precipitation (greater than or equal to 0.01 inches). This persistent wetness, paired with cool temperatures, led to many delays in agricultural production across the state as soils struggled to dry out. Turning attention to Modified Growing Degree Days (MGDD), from April 1 to May 3, the most significant accumulations (220 – 300) occurred in southern Indiana (Figure 3). These were still 30 – 60 units behind the 1991 – 2020 average (Figure 4). Throughout the rest of the state, MGDD departures were larger due to the below-normal temperatures.

Average Temperature (°F): Departure from Mean  
April 3, 2022 to May 2, 2022

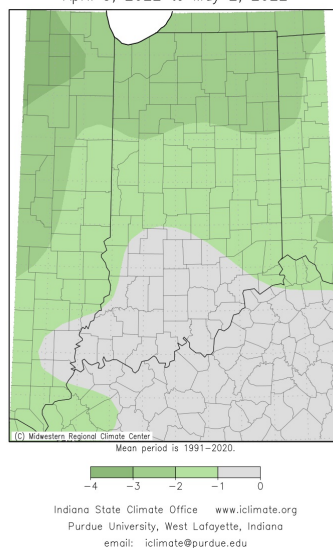


Figure 1. Average temperature departures for April 3, 2022 through May 2, 2022 from the 1991-2020 climate normals for the same period.

Accumulated Precipitation: Percent of Mean  
April 3, 2022 to May 2, 2022

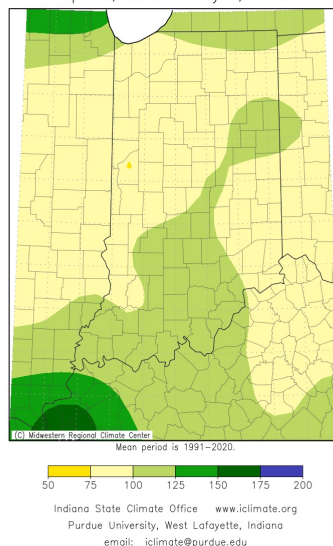


Figure 2. Total precipitation from April 3, 2022 through May 2, 2022 represented as a percentage of the 1991-2020 climate normal amount for the same period.

### Growing Degree Day (50 F / 86 F) Accumulation

April 1 - May 3, 2022

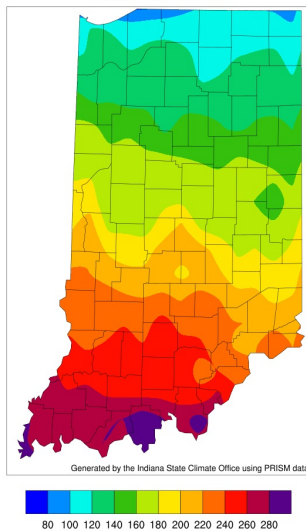


Figure 3. Modified growing degree day (50°F / 86°F) accumulation from April 1 – May 3, 2022.

### Growing Degree Day (50 F / 86 F) Departure From Average

April 1 - May 3, 2022

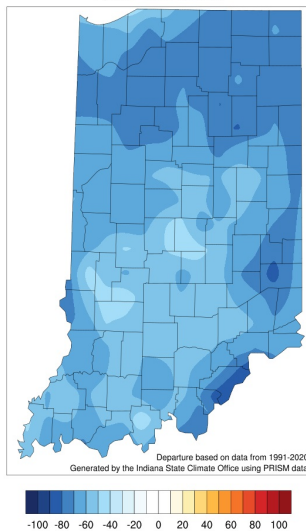


Figure 4. Modified growing degree day (50°F / 86°F) accumulation from April 1 – May 3, 2022, represented as the departure from the 1991-2020 climatological average.

The Climate Prediction Center (CPC) outlook for the next 6-10 days shows high confidence in above-normal temperatures throughout the entire state and leaning toward below-normal precipitation (Figure 5). This pattern shift will be welcomed as it will enable soils to dry, improving field access and helping speed up planting process. agricultural production across the state. The 8-14 day CPC outlook continues with higher confidence in above-normal temperatures with a return to near-normal precipitation (Figure 6). While the outlooks are trending warmer, it does not mean that Indiana is completely safe from freezing temperatures. Freeze maps are available on the Midwestern Regional Climate Center's Vegetation Impact Program [Freeze Maps](#) page.

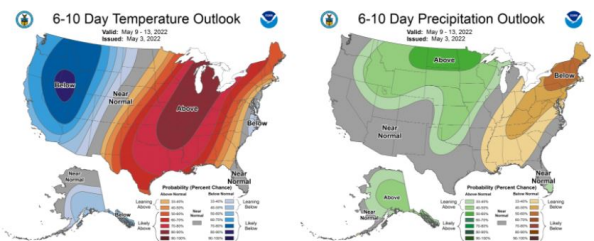


Figure 5. 6-10 day temperature (left) and precipitation (right) outlooks from the Climate Prediction Center.

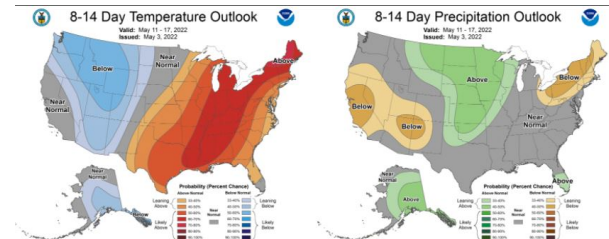


Figure 6. 8-14 day temperature (left) and precipitation (right) outlooks from the Climate Prediction Center.

## Looking for Squash Vine Borer (SVB) Trapping Collaborators

(Laura Ingwell, [lingwell@purdue.edu](mailto:lingwell@purdue.edu), (765) 494-6167)

While it is not so much of a problem on large farms, with many acres of cucurbits, small farms and organic growers tend to be the most impacted by this pest. The squash vine borer (Figure 1) 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 on their legs, but can be devastating.



Figure 1. Squash Vine Borer

The insect overwinters as a late instar larva or pupa in the soil. In our region, as the soil warms they complete their development and adults emerge around mid-June. There are multiple ways to monitor for this pest, but currently I have bucket traps available for anyone who would like to host one and report moth catches. The traps are equipped with a pheromone lure that smells like the females and pulls the male moths into the bucket. We place a strip in the base of the bucket trap that has been impregnated with insecticide, and will therefore kill the adult males that make their way in.





Figure 2. Bucket trap for Squash Vine Borer.

Trap catches are available in real-time to help farmers throughout the state time their management strategies appropriately. Trap catches can be found here:

<https://extension.entm.purdue.edu/veg/squash-vine-borer/>

If you want to host a trap on your farm, call me at (765) 494-6167 or email [lingwell@purdue.edu](mailto:lingwell@purdue.edu).

## Corn Earworm Trapping Collaborators Needed

(Laura Ingwell, [lingwell@purdue.edu](mailto:lingwell@purdue.edu), (765) 494-6167)

Once again this year I will be monitoring corn earworm flights throughout the state. Be sure to check the [CEW trapping website](#) for updates daily. If you produce sweetcorn or popcorn and are interested in hosting a trap, please contact me at (765) 494-6167 or [lingwell@purdue.edu](mailto:lingwell@purdue.edu). I will provide the trap and the lure, but I need you to report the trap counts.



Figure 1. Adult CEW recovered in a trap.



Figure 2. Hartstack trap baited with a female pheromone lure at the Meigs Horticulture Farm.

## Melonworm Monitoring in Illinois Cucurbit Crops

Announcement from University of Illinois specialty crop entomology lab:

We are monitoring for melonworms throughout the state this year! Last year, several of our pumpkin growers in the area had a late season infestation of caterpillars eating their pumpkins. The specialty crops entomology lab and U of I Extension are going to be investigating this pest this season. If you are growing pumpkins or really any squash or melon and would like to help us out, contact Kacie Athey, [kathey@illinois.edu](mailto:kathey@illinois.edu) and request a trap and lure. These traps use a pheromone lure so only melonworms should end up in them. You will just need to check them once a week and let us know if there are any moths present. Click on [melonworms](#) for more information.

If you have questions about this project, you may contact Laura Ingwell ([lingwell@purdue.edu](mailto:lingwell@purdue.edu)) or Kacie Athey ([kathey@illinois.edu](mailto:kathey@illinois.edu))

## Organic Grower Survey

(Ashley Adair, [holmes9@purdue.edu](mailto:holmes9@purdue.edu))

Are you a certified organic farmer producing fruits, vegetables, or nuts? Purdue is participating in a multi-state project to help you navigate National Organic Program standards and third-party food safety certification. We have put together a voluntary survey to collect information on your experiences in this space.

Our goal with this survey is to identify the best opportunities for developing cost-effective and organic-compliant tools that will help organic farmers with food safety risks and third-party certification.

To complete the online survey, please go to our secure website: <https://opinion.wsu.edu/organicfoodsafety>

Your response is important! We will keep your information confidential. In collaboration with The Organic Center, this work is supported by a grant from the USDA's Organic Agriculture Research and Extension Initiative in the National Institute of Food and Agriculture (Award Number: 2021-51300-34893). This research has been approved by The University of Rhode Island Institutional Review Board. For further information, contact Dr. Patrick Baur at [pbaur@uri.edu](mailto:pbaur@uri.edu).

## Strawberry Field Day

(Wenjing Guan, [guan40@purdue.edu](mailto:guan40@purdue.edu), (812) 886-0198)

**Time:** Thursday, May 12, 2022, 1:30-4:00 pm EST

**Location:** Southwest Purdue Ag Center, 4369 N. Purdue Rd, Vincennes, IN, 47591

**Register:**

[https://purdue.ca1.qualtrics.com/jfe/form/SV\\_dgK5N8Ws9m2cJWC](https://purdue.ca1.qualtrics.com/jfe/form/SV_dgK5N8Ws9m2cJWC), or call (812) 886-0198

- Visit strawberry research at Southwest Purdue Agriculture Center; see strawberry production on a plastic culture system, in high tunnels, and in bench systems.
- Discuss season extension in strawberry production, and understand challenges faced by each production system.



## STRAWBERRY FIELD DAY

### Strawberry Field Day & Open House

Thursday, May 12, 2022, 1:30-4:00 pm EST

Southwest Purdue Ag Center,

4369 N. Purdue Road Vincennes, IN 47591

The tour is free, register  
[https://purdue.ca1.qualtrics.com/jfe/form/SV\\_dgK5N8Ws9m2cJWC](https://purdue.ca1.qualtrics.com/jfe/form/SV_dgK5N8Ws9m2cJWC)  
or call 812-886-0198  
If you have any questions, please contact  
Wenjing Guan ([guan40@purdue.edu](mailto:guan40@purdue.edu))



- Visit strawberry research at Southwest Purdue Agriculture Center; see strawberry production on a plastic culture system, in high tunnels, and in bench systems.
- Discuss season extension in strawberry production, and understand challenges faced by each production system.



This Strawberry field day is sponsored by Purdue University and North-Central Sustainable Agriculture Research and Education (NC-SARE). Project number: LNC21-454.



Purdue University is an equal opportunity / equal access / affirmative action institution.

## Pinney Purdue Vegetable Field Day August 9, 2022 – Save the Date!

The Pinney Purdue Vegetable Field Day/Twilight Meeting will be held August 9, 2022 at 11402 S. County Line Road, Wanatah, IN. The evening program will feature plot tours for farmers and for homeowners featuring topics of irrigation, sweet corn, pumpkins, soil health and cover crops. An afternoon session for farm advisors and educators will include demonstration and discussion of drip irrigation, cover crops, high tunnels, and equipment for vegetable farms, with an emphasis on small-scale farms.

Watch this newsletter and Purdue Extension social media for more information, or contact Liz Maynard at (219) 548-3674, [emaynard@purdue.edu](mailto:emaynard@purdue.edu).

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



# 2022 OISC Clean Sweep Participant Form

I have the following pesticides (herbicides, insecticides, rodenticides, fungicides, miticides, etc.) to bring to the Indiana Pesticide Clean Sweep. I understand that there will be no charge for disposal of up to 250 pounds of pesticides per participant. I also understand that if there is not adequate demand for these disposal services, I will be contacted by the Office of Indiana State Chemist to be notified of the program cancellation.

Contact Name: \_\_\_\_\_ Contact Phone #: \_\_\_\_\_

Business Name: \_\_\_\_\_ Branch: \_\_\_\_\_  
(If Applicable) (Add Multiple Branches on Back)

## Please indicate at which location you will be participating:

- ☐ Wabash County, IN – August 16      ☐ Randolph County, IN – August 23  
☐ Bartholomew County, IN – August 17      ☐ Porter County, IN – August 24  
☐ Daviess County, IN – August 18      ☐ Hendricks County, IN - August 25

\*\*\* Empty pesticide containers will not be accepted, please follow label directions for proper disposal of empty pesticide containers \*\*\*

\*\*\* Please advise below if bringing container sizes 55 gallons or above (Drum, Mini Bulk), bulk containers not documented on form will not be accepted \*\*\*

## List of pesticide products to be disposed:

1. Trade Name \_\_\_\_\_

Check One: ☐ Solid \_\_\_\_\_ Pounds      ☐ Liquid \_\_\_\_\_ Gallons      ☐ Aerosol

Drum or Mini Bulk? ☐ Drum (# of Drums) \_\_\_\_\_ ☐ Mini Bulk (# of Mini Bulks) \_\_\_\_\_

2. Trade Name \_\_\_\_\_

Check One: ☐ Solid \_\_\_\_\_ Pounds      ☐ Liquid \_\_\_\_\_ Gallons      ☐ Aerosol

Drum or Mini Bulk? ☐ Drum (# of Drums) \_\_\_\_\_ ☐ Mini Bulk (# of Mini Bulks) \_\_\_\_\_

3. Trade Name \_\_\_\_\_

Check One: ☐ Solid \_\_\_\_\_ Pounds      ☐ Liquid \_\_\_\_\_ Gallons      ☐ Aerosol

Drum or Mini Bulk? ☐ Drum (# of Drums) \_\_\_\_\_ ☐ Mini Bulk (# of Mini Bulks) \_\_\_\_\_

**RETURN BY August 5, 2022 to Nathan Davis, [cleansweep@groups.purdue.edu](mailto:cleansweep@groups.purdue.edu) OR 765-494-4331 (fax). Questions may be directed to Nathan at 765-494-1585. Additional pesticide products to be disposed of may be listed on the back of this form or a separate sheet**