VEGETABLE CROPS HOTLINE

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

Issue: 694
August 2, 2021

In This Issue

- Cucumber Downy Mildew Found in Indiana
- Getting Ready to Plant Strawberries in a Plasticulture System – Planting Date
- Early August Predicted to be Cooler and Drier than Normal
- August 10 Vegetable Twilight Meeting at Pinney Purdue
- Hydroponics Workshop
- Clean Sweep 2021

Cucumber Downy Mildew Found in Indiana

(Dan Egel, egel@purdue.edu, (812) 886-0198)

Downy mildew has been observed in Knox County on cucumber. In addition, downy mildew on cucumber has been reported in central Michigan on cucumber and central and northern Ohio on cucumber and cantaloupe. The downy mildew race type found in Knox county that goes to cucumber and cantaloupe may also go to other cucurbits such as watermelon and pumpkin. Growers in Indiana should manage for downy mildew on valuable cucurbit crops. Growers throughout the state should scout for the disease. Growers should assume that all cucurbit crops may be affected. Foggy mornings are conducive for downy mildew. Rain is not necessary.

The organism that causes downy mildew of cucurbits doesn't overwinter in Indiana. It has to blow in every year. It is common for downy mildew to start the season in the Gulf States and migrate north with the cucurbit crops. Downy mildew apparently overwinters in northern Michigan/southern Ontario in greenhouses where cucumbers are grown year-round. Therefore, downy mildew is often found in Michigan before it is found in Indiana.

For infection to occur, free moisture must be present on leaves for at least 2 hours. The temperature optimum is from 59 to 68 degrees F, however, disease can occur in much warmer temperatures.

Some cucumber varieties have some resistance to downy mildew. For susceptible cucumber varieties or other types of cucurbits, specialized systemic fungicides will help to reduce the severity of downy mildew. Unfortunately, many of the most effective systemic fungicides for downy mildew are not effective on our more common cucurbit diseases. This is because the organism that causes downy mildew, *Pseudoperonospora cubensis*, is not really a fungus at all. *P. cubensis* is more closely related to a brown alga. This fungus-like organism is related to the organism that causes Phytophthora blight (*Phytophthora capsici*). Therefore, many of the same fungicides that are effective against downy mildew are also effective against Phytophthora blight.

The Midwest Vegetable Production Guide for Commercial Growers lists several products that will help to slow the progress of downy mildew of cucurbits. Contact fungicides such as those with the active ingredient chlorothalonil or mancozeb products may slow down the disease. Systemic products that are listed include: Elumin®, Forum®, Gavel®, Omega®, Orondis Opti®, Orondis Gold®, Orondis Ultra®, Presidio®, Ranman®, Zampro® and Zing®. Products with the active ingredient phosphite may be helpful. Although it is not listed in the *Midwest Vegetable Production Guide*, Previcur Flex® is recommended this year by Michigan State University against downy mildew of cucumber; Previcur Flex® is not labeled for Phytophthora blight. Be sure to check the label for the re-entry interval, the pre-harvest interval, the FRAC group and other important information. Always alternate FRAC groups.

To see forecasts of downy mildew of cucurbits online go to **https://cdm.ipmpipe.org/**.

One other item of interest: Downy mildew of cucurbits is not caused by the same organism which causes downy mildew of soybeans. Therefore, downy mildew of soybeans will not spread to the cucurbit field immediately adjacent.

Getting Ready to Plant Strawberries in a Plasticulture System – Planting Date

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

Growers interested in growing strawberries on a plasticulture system can choose to use plug plants or bare-root plants. The pros and cons of using each of the planting materials was discussed in a previous article. This article will discuss the importance of planting dates for growers who chose to use plug plants.

In the 2020-2021 season, the strawberry plasticulture trial at Southwest Purdue Agricultural Center reached the highest yield of the past three seasons. The highest yielding variety was Rocco that yielded 2 lb/plant. Besides Rocco, Flavorfest, Chandler, and Liz also yielded over or close to 1.5 lb/plant. This yield was much higher than yields of previous seasons, in which, yields of even the best varieties were less than 1 lb/plant. Fall and winter in the 2020-2021 season are in general, good for strawberry production. Another important factor that I think makes a substantial difference in the yield is the planting date. Strawberry plugs were planted on Aug. 24 in 2020, while they were planted on Sep. 11 in 2019. There was about two weeks' difference. Although two weeks does not sound like an enormous difference, it could significantly impact the plant growth in the fall and the yield in the following spring. I will use growing degree days (GDD) to explain the impact.

Growing degree day is calculated by daily mean temperature minus a base temperature. Since strawberry crown growth and development are best at temperatures above 50°F, 50°F was used as the base temperature in the GDD calculation. Figure 1 is the accumulated GDD from planting to the end of February in the past two seasons (2019/2020 and 2020/2021). From Aug 24 (planting date in 2020) to Sep 11 (planting date in 2019), there was about 500 GDD accumulation in 2020, which was close to one-third of total GDD accumulation from Aug. 24 to the end of Feb. What this tells us is that delaying planting for two weeks from August to September could sacrifice one-third of GDD accumulation in the fall.

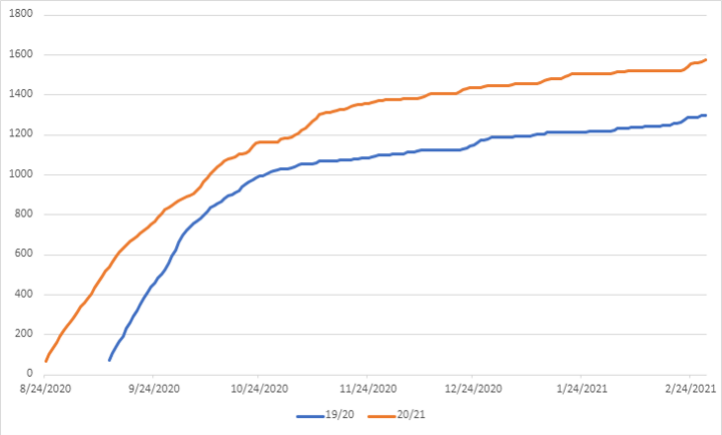


Figure 1. Accumulated growing degree days from planting to end of February in 2019-2020 and 2020-2021 strawberry season.

Strawberry crown growth in the fall is in a short window in our region. After the middle October, plant growth reduces tremendously. Therefore, it is extremely important for growers who are interested in using plug plants and grow strawberries in a plasticulture system to plant them as early as possible. When I first started to work on the plasticulture system a few years ago, strawberry plugs are only available in Sep. and Oct. This works well for growers in the southern states. But it is too late for our region. The good news is that with more nurseries are selling strawberry plugs in the temperate regions now, it is possible to get plugs as early as the middle of August. Our experiment in southern Indiana showed that with early planting of plug plants, appropriate variety selection, and plant care, it is possible to achieve a decent yield for growing strawberries in a plasticulture system.

Early August Predicted to be Cooler and Drier than Normal

(Beth Hall, hall556@purdue.edu)

After three consecutive weeks of Indiana being drought free according to the US Drought Monitor, it looks like next month is favored to be drier than normal and cooler than normal. That does not necessarily imply drought is expected to return since rain events may still occur. However, the predicted amounts of rain are low, so there could be some drying. However, with below-normal temperatures in those climate outlooks, several benefits may come. First, the rate of evaporation of any moisture across the state could be lower, and second, conditions should feel more pleasant when outside. However, a drier atmosphere will also encourage evaporation, so this may offset any reduced impact from the lower temperatures and Indiana may see some impacts from the drier atmosphere. The good news is the second week in August is favored to near-normal precipitation along with above-normal temperature.

Therefore, enjoy next week outside as much as you can since the warm and muggy conditions so common this time of year are expected to return.

Modified growing degree-day accumulations range from 1600 units in northern Indiana to nearly 2200 units in southern Indiana (Figure 1). The southern part of the state is still slightly behind the climatological average with the northern counties slightly ahead (Figure 2). The bullseyes of above-normal MGDD departures in northern Tippecanoe county and between Madison and Delaware counties may be due to erroneous data. Further investigations are needed.

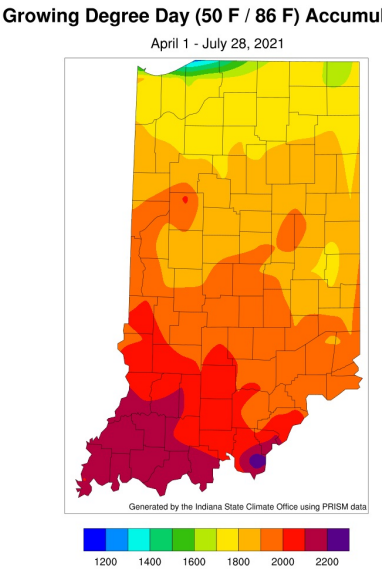


Figure 1. Modified growing degree day accumulations from April 1 to July 28, 2021.

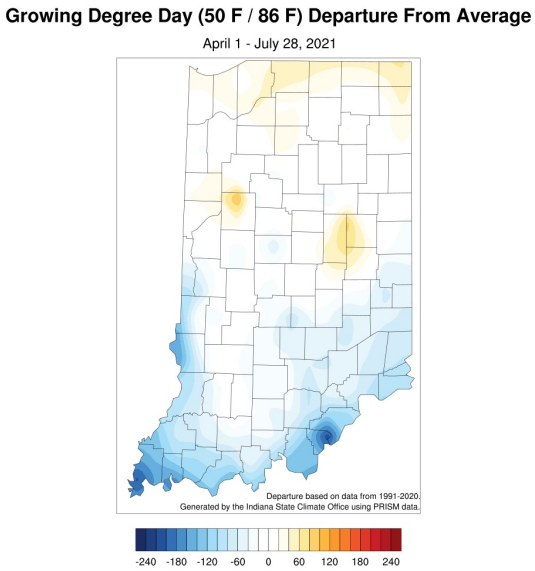


Figure 2. Modified growing degree day accumulation departures from the 1991-2020 climatology from April 1 to July 21, 2021.

August 10 Vegetable Twilight Meeting at Pinney Purdue

Join Purdue Extension at the Pinney Purdue Ag Center near Wanatah on Tuesday, August 10, 2021, 5:00 to 8:00 pm Central Time, to tour vegetable research trials and learn about vegetable production on farms and in gardens.

Topics to be covered include weed management in pumpkins; compost and soil health management for pepper production; no-till sweet corn and pumpkin after winter rye; two-spotted spider mite management in high tunnels; organic sweet potato production; cover crops, soil fertility, and compost for the home garden; and winter squash varieties, culture, and use. Equipment used in the research plots will be on display, including a walk-behind tractor and implements.

Get your questions answered at the Q&A session with presenters after the plot tours. Stay on after 7:00 pm for dinner and networking. Pinney Purdue Ag Center is located at 11402 S. County Line Rd., Wanatah, Indiana.

There is no charge for attendance, but please register by Friday, August 6. Register online at https://purdue.ca1.qualtrics.com/jfe/form/SV_eJweE5jdsWnTLhQ To register by phone, or if you have other questions, please contact Nikky Witkowski, (219) 365-3555 or nikky@purdue.edu.

Hydroponics Workshop

Please join us for the 2021 Hydroponics Workshop, hosted by Krishna Nemali!

September 22, 2021 (8.30 am to 3.00 pm)

(A daylong interactive learning session and hands-on activities related to greenhouse and indoor hydroponics)

Register online at

https://purdue.ca1.qualtrics.com/jfe/form/SV_cCJPpWrODzqmO7Y

Deadline to register: September 19, 2021

(Registration is required to attend the workshop. Registration fee ($25) includes lunch and snacks. We may limit the number of participants due to safety requirements. Register early!)

For questions contact

Dr. Krishna Nemali (knemali@purdue.edu) or

Lori Jolly-Brown (ljollybr@purdue.edu)

Clean Sweep 2021

WHAT: An Indiana Pesticide Clean Sweep Project designed to collect and dispose of suspended, canceled, banned, unusable, opened, unopened or just unwanted pesticides (weed killers, 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, cities, towns, municipalities and county units of government or others receiving this notice are eligible to participate.

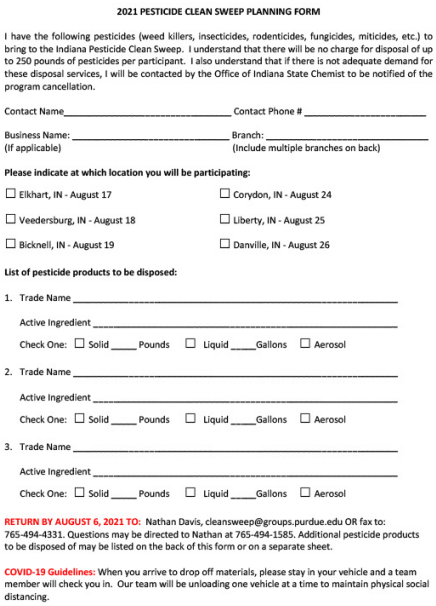
WHEN: 9:00 am to 3:00 pm Local Time

WHERE: August 17, 2021: Elkhart County Solid Waste, 59530 County Rd 7, Elkhart, IN
August 18, 2021: Fountain County Fairgrounds, 476 US Hwy 136, Veedersburg, IN
August 19, 2021: Knox County Fairgrounds, 11728 IN-67, Bicknell, IN
August 24, 2021: Harrison County Fairgrounds, 341 S Capitol Ave, Corydon, IN
August 25, 2021: Union County Co-Op, 101 W. Campbell St, Liberty, IN
August 26, 2021: Hendricks County Fairgrounds, 1900 E Main St, Danville, IN

HOW: Complete the enclosed Pesticide Clean Sweep Planning 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 no later than Fri., August 6, 2021. Then bring your labeled, 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.

COVID-19 Guidelines: When you arrive to drop off materials please stay in your vehicle and a team member will check you in. We will be unloading one vehicle at a time to maintain physical distancing.

*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 6, 2021 will be contacted immediately if cancellation is necessary.



2021 PESTICIDE CLEAN SWEEP PLANNING FORM

I have the following pesticides (weed killers, 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) (Include multiple branches on back)

Please indicate at which location you will be participating:

☐ Elkhart, IN - August 17 ☐ Corydon, IN - August 24

☐ Veedersburg, IN - August 18 ☐ Liberty, IN - August 25

☐ Bicknell, IN - August 19 ☐ Danville, IN - August 26

List of pesticide products to be disposed:

1. Trade Name _____
   Active Ingredient _____
   Check One: ☐ Solid ____ Pounds ☐ Liquid ____Gallons ☐ Aerosol
2. Trade Name _____
   Active Ingredient _____
   Check One: ☐ Solid ____ Pounds ☐ Liquid ____Gallons ☐ Aerosol
3. Trade Name _____
   Active Ingredient _____
   Check One: ☐ Solid ____ Pounds ☐ Liquid ____Gallons ☐ Aerosol

RETURN BY AUGUST 6, 2021 TO: Nathan Davis, cleansweep@groups.purdue.edu OR fax to: 765-494-4331. 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 on a separate sheet.

COVID-19 Guidelines: When you arrive to drop off materials, please stay in your vehicle and a team member will check you in. Our team will be unloading one vehicle at a time to maintain physical social distancing.

Clean sweep form.

Vegetable Crops Hotline © Purdue University - vegcropshotline.org
Editor: Wenjing Guan | Department of Horticulture and Landscape Architecture, 625 Agriculture Mall Dr., West Lafayette, IN 47907 | (812) 886-0198