VEGETABLE CROPS HOTLINE

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

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In This Issue

Botrytis Gray Mold

(Dan Egel, egel@purdue.edu, (812) 886-0198) & *(Wenjing Guan, guan40@purdue.edu, (812) 886-0198)*

Botrytis gray mold can cause disease on many different host plants, enabling the fungus to easily survive and disperse between crops. Host crops include flowers such as geraniums, vegetables such as green beans and fruit such as strawberries. The disease is favored by relatively cool temperatures and high humidity. We recently observed botrytis gray mold on tomatoes grown in a greenhouse and strawberry grown on a plasticulture system in the open field.

Tomato: Gray mold of tomato is one of the more common diseases of greenhouse-produced tomatoes. Although it is often a minor problem, if left unchecked, gray mold can cause yield loss. Gray mold, or as it is sometimes called, Botrytis gray mold, may cause a light gray or brown necrotic lesion on leaves (Figure 1). The lesions on leaves are sometimes wedge shaped on the margin of the leaf. Stem lesions are a similar color and may encircle the stem, causing the death of the upper portion of the stem. Occasionally, gray mold may cause the rot of tomato fruit (Figure 2). Whether on leaves, stems or fruit, the gray fungal sporulation is often easily seen, thus the name. It is a rare symptom, but when fungal spores land on tomato fruit that is wet, the spores may germinate, causing a symptom known as a ghost spot.

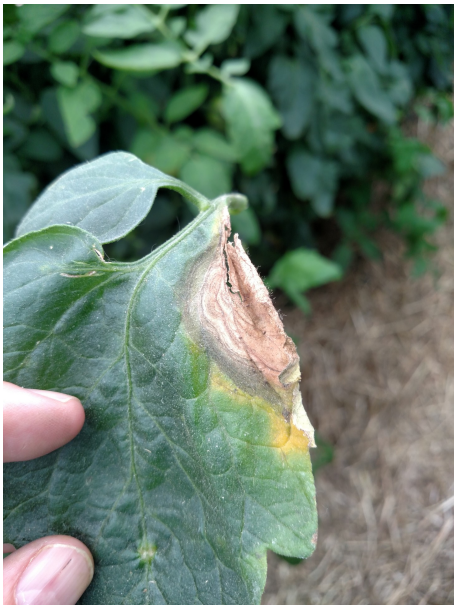

Figure 1. Botrytis gray mold on tomato leaf.

Figure 2. Botrytis gray mold on tomato fruit.

Any cultural practice that lessens humidity such as pruning, will lessen the severity of gray mold. Since gray mold favors older plant tissue, pruning old leaves should reduce susceptible plant tissue. As a general rule, indeterminate tomatoes should be left with no more than eighteen to twenty fully mature leaves after pruning. Determinant (staked) tomatoes are often pruned until the first flower cluster, improving airflow and encouraging larger fruit. Another practice that may reduce airflow is spacing plants too close together.

Practicing crop rotation may reduce the amount of the gray mold fungus that survives in a greenhouse. If crop rotation is not

possible, remove as much of the crop as possible far away from production when the season is complete. However, the relatively large host range of the gray mold fungus makes crop rotation alone an inadequate control. Clean and sanitize the greenhouse between tomato crops. I have noticed that greenhouses with gray mold on tomato often have large amounts of senescing tomato tissue that can be pruned. Use of a ground covering between rows of tomatoes may help to reduce the amount of crop residue that becomes incorporated in the soil.

Several fungicides that may help to manage gray mold are listed in the *Midwest Vegetable Production Guide*. Products that should be effective against gray mold and are allowed for greenhouse/high tunnel use in Indiana include: Botran®, Fontelis®, Scala® and Switch®. Products that contain the active ingredient mancozeb may be less effective than those listed above, but these products may be less expensive and are readily available. Organic producers should look for products that contain formulations of copper.

Strawberry: Although environmental conditions are usually less favorable for Botrytis gray mold with a plasticulture system compared to a matted row system, Botrytis may also be a problem on plasticulture strawberries, especially if there is water standing on the plastic. With the recent cool and wet weather, we observed Botrytis gray mold on plasticulture strawberries that are currently at peak harvest at the SWPAC (Figure 3). More information about gray mold on strawberries can be found in the article *Got mold?* on *Facts for Fancy Fruit*.

Figure 3. Botrytis gray mold on strawberry fruit.

Angular leaf spot of Cucurbits

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

In the last issue of the *Vegetable Crops Hotline*, I wrote an article about common diseases of cantaloupe and watermelon transplants. Based on the samples I have received over the last few days, I would like to write about a disease that is not usually a problem: angular leaf spot.

Angular leaf spot affects all cucurbits. In this article, I would like to concentrate on angular leaf spot on cantaloupe and watermelon. Symptoms of angular leaf spot on cantaloupe often consist of brown, necrotic lesions on the margin of true leaves and seed leaves (Figure 1). On watermelon leaves the lesions may appear darker (Figure 2). Under cool, wet conditions, the disease can be quite severe, resulting in hotspots where seedlings are rendered useless for field transplanting.

Figure 1. Angular leaf spot of cantaloupe may cause brown lesions on the margin of leaves.

Figure 2. Angular leaf spot of watermelon lesions may appear darker than the same disease on cantaloupe.

Angular leaf spot may be seed borne. I suspect that the pathogen may also survive on transplant trays and on greenhouse surfaces. Therefore, sanitation is also part of the answer to management.

In the last few days, I have received flats of transplants with severe angular leaf spot on cantaloupe. My experience is, however, that once in the field, angular leaf spot rapidly disappears with the onset of warmer and drier conditions. I have never known angular leaf spot to cause economically important damage in a field setting on cantaloupe or watermelon.

Years ago, when many growers grew transplants in cool frames, I used to see more angular leaf spot. With the use of heated greenhouses to produce transplants, I have seen less of this disease. I believe that the relatively cool, cloudy spring has caused an uptick in the occurrence of this disease.

Although I don’t expect that angular leaf spot is an important disease of cantaloupe and watermelon, it is important to have the

disease officially diagnosed so that it can be confirmed as angular leaf spot and not bacterial fruit blotch.

Growers who are concerned about the spread of angular leaf spot in the transplant greenhouse can apply copper products as labeled. Many copper products are labeled both for cucurbits and greenhouse use. There is a 48-hour reentry period for many copper products which may be reduced to 24 hours if the instructions on the label are followed.

Angular leaf spot may also occur on cucumbers. I have no direct experience with this disease on cucumbers, but the lesions are jagged which may be why the disease is known as angular leaf spot. I have also found angular leaf spot on pumpkin: the lesions on this host may also be angular. Since the disease is favored by cool weather, it is not much of a factor for pumpkin production.

Beware of Cutworms in Young Veggie Crops!

(Elizabeth Long, eylong@purdue.edu, (765) 796-1918) & *(Laura Ingwell, lingwell@purdue.edu, (765) 494-6167)*

Info about the culprit insect: Cutworms are the larval (caterpillar) stage of moths in the family Noctuidae, which typically fly at night. Although the adult moths are not damaging, the voracious larvae can be! The caterpillars typically hide during the day and emerge at night, curling around young, tender plants to feed.

Figure 1. A cutworm caterpillar caught in the act of feeding on a young seedling during the day. Photo: L. Maynard, Purdue University.

How many kinds of cutworms are there?

There are several species of cutworms, but you are most likely to encounter one of four species of cutworm in Indiana: either the dingy, variegated, or clay backed cutworms, which overwinter as partially grown larvae, or the black cutworm, which does not overwinter in the Midwest, but migrates back each year. The black and clay backed cutworms are leaf feeders and plant (stem) cutters, while the dingy and variegated cutworms are mainly leaf feeders that rarely cut plants at or below the ground level.

What crops do cutworms attack?

Cutworms are generalist feeders that readily eat a wide range of vegetable and fruit crops, as well as common weeds in the garden. For example, variegated cutworms will feed on beets, cabbage, lettuce, corn, potato, tomato, and weeds like jimsonweed, shepherd's purse, and docks and sorrels. *Let's just say if it's a veggie in your garden, cutworms will eat it if they are hungry*. Species like the black cutworm exhibit the characteristic snipping of young plants (seedlings and new transplants) right at the base of the stem where it emerges from the soil, leaving behind seedlings that appear to have been 'cut down' (Figure 2), thus the name 'cutworm.'

Figure 2. A young seedling that has been 'cut down' by cutworm feeding. Photo by Liz Maynard.

In addition to early season stem cutting and defoliation, cutworms can also cause damage later in the season. For example, we have seen cutworm feeding on ripening tomato fruit in high tunnels – definitely an unpleasant discovery!

How do you identify cutworms?

This can be challenging, as there are several different species that look similar, so magnification is required, as well as some familiarity with caterpillar morphology. Perhaps the easiest way to confirm an ID is sending a clear, focused image of the top of the caterpillar (dorsal side) to us at the Purdue Plant and Pest Diagnostic Laboratory. However, if you're willing to get up close and personal, use a magnifying glass or hand lens with at least 10X magnification and carefully examine the texture of the caterpillar's body surface. If it appears bumpy, it is most likely a black cutworm. In contrast, the other cutworm species have a smooth body surface (Figure 3). Ultimately, cutworms are all managed similarly regardless of the species, so the most important factor to determine is whether or not the culprit is indeed a cutworm.

Figure 3. 'Bumpy' versus 'smooth' skin texture of the black (left) and dingy (right) cutworm at ~10X magnification. Photo by John Obermeyer.

Because cutworm adults and larvae are active at night, scouting during the daylight hours can be a bit of a challenge. Fortunately, pheromone traps are available to monitor the activity of the black cutworm as it migrates back to Indiana from the south. You can find trap catches reported weekly in the Purdue Pest & Crop newsletter found here. The number is impressive recently. The article *Some Cutworms Out and About, Still Too Early for Black Cutworm* published on Pest & Crop newsletter provides more information about cutworms and the black cutworm trapping efforts.

If you suspect cutworm damage in your crop, dig ~5 cm into the soil around the base of damaged plants to try to unearth the offender. Cutworms will curl up in a distinctive 'c' shape when disturbed or pulled from the soil (Figure 4). This is the easiest way to capture and identify them during the daytime because the caterpillars take refuge under the soil surface or plastic mulch until darkness falls.

Figure 4. Cutworm caterpillar displaying the distinctive 'c' shape after being disturbed and removed from the soil. Photo: Liz Maynard.

- Mow or implement bare-ground borders around your crop, as removal of plant debris makes the site less attractive.
- Do not plant cover crops or use green manure in areas where cutworms tend to be a problem; instead use compost amendments to boost organic matter. The green material may be a suitable food source that is attractive to the pest.
- Avoid organic mulches between the rows as this provides shelter for the caterpillars.
- Water early in the day so the soil surface can dry out prior to the evening when cutworms are active. They do not like to crawl through dry soil.

For commercial growers who experience cutworm damage, monitoring is crucial. Scout in the evenings if possible, when cutworms increase their activity. Search under the plastic mulch and in the top soil around the base of suspected injured plants. If using insecticides, apply them as close to the evening as possible to target the activity time of the caterpillars, and remember: insecticides are more efficacious against the younger, smaller cutworms. Active ingredients labeled to control cutworms in vegetables include β-cyfluthrin (ex. Baythroid®XL), *Bt* (ex. DiPel®DF or Javelin® WG), Carbaryl as a bait, Malathion, or Permethrin. Many of these insecticides have broad-spectrum action against insects and can therefore harm beneficial insects residing in and around your crops. Please use insecticides judiciously and with caution, always following the product label specifications. Here's to hoping your vegetable crops will be cutworm free!

Organic Aphid Control Options

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

Aphids have been a particularly challenging pest to get under control this spring. They quickly colonized the strawberries we had growing all winter in our high tunnels, and took off as the weather sporadically warmed up (Figure 1). In my first attempt to knock them back I introduced 2,000 lacewing larvae (22-Apr), too little too late. Four days after release I did not recover a single one. They were either hiding or did not survive. However, last week I found very large larvae (Figure 2), just one or two here and there.

Figure 1. An example of the level of aphid infestations currently experienced in the high tunnel strawberries.

Figure 2. A lacewing larvae observed on the high tunnel strawberries during a pest survey on 13-May.

In the meantime, I decided to try out a few of the OMRI approved options. I will admit that at the time of the first application, the populations were high, and it explicitly states on the label for some of these products (BotaniGard® and Grandevo®), to begin applications at the onset of pest detection. That was not the case here. I applied all products at the highest recommended rate and have made three applications within a 10-day span. Table 1 shows the products, active ingredient (A.I.), application rate and dates of applications. In entomological tradition, I surveyed the aphid population prior to treatment (1-May) and after the first two applications (13-May). The changes in aphid populations are shown in Figure 3. Data below 0 on the y-axis indicate a reduction in the population, above 0 shows an increase post- application.

Two of the tested products are biological pathogens, which we can expect to take some time to negatively impact the population. BotaniGard® typically takes 7-10 days to see control, according to the label. The Grandevo® product label recommends a knockdown is applied prior to or in a tank mix application at high populations, which was the case here. The label also suggests application of the high rate with increased volume to ensure coverage and short intervals between applications. In this study we applied the high rate for all products and used an electro-static sprayer to optimize coverage of the product. The results shown here indicate good control being achieved with the Azera® and Pyganic® products, when applied at levels of high population infestations. At the last survey, 13 days post-application from the first spray, I have yet to see any evidence of infection and/or pest suppression in the BotaniGard® and Grandevo® treated plants. Admittedly, these products should have been applied earlier in the growing season, when aphid populations were low.

Stayed tuned for updates as I continue to monitor these populations.

Product	Active Ingredient (A.I.)	Application Rate	Application Dates
Azera®	Azadirachtin 1.20 % Pyrethrins 1.40%	2 fl. Oz. / gal.	5-May, 8-May, 15-May
BotaniGard ®	*Beauveria bassiana* Strain GHA	3 lbs. / 100 gal.	5-May, 8-May, 15-May
Grandevo®	*Chromobacterium subtsugae* strain PRAA4-1	3 lbs. / 100 gal.	5-May, 8-May, 15-May
Pyganic®	Pyrethrins	1.4 fl. Oz. / gal.	5-May, 8-May, 15-May

Table 1: Pesticide products and application details.

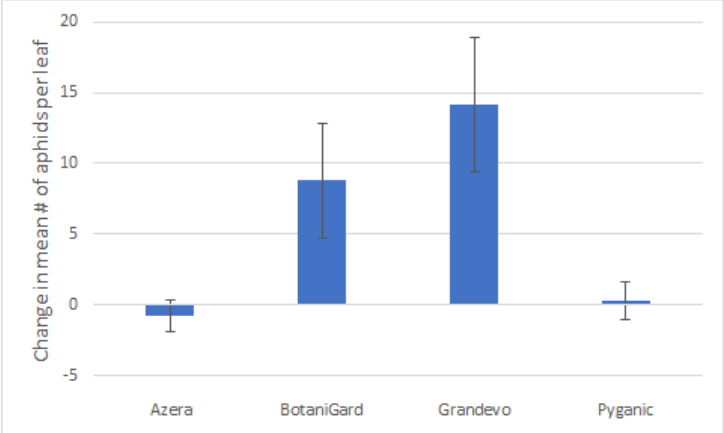

Figure 3. The change in aphid populations between the four insecticide treatments. Means are calculated based on number of plants sampled within each treatment (N=15-17) + standard errors.

More General Aphid Management Recommendations

In general, it is important to consider resistance management when treating pests such as aphids. They reproduce quickly which is one factor that can contribute to the development of resistance to pesticides. Resistance can develop to conventional and organic active ingredients, as well as cultural tactics. It is crucial to incorporate rotation of mode of actions when applying chemicals to control these pests. When using organic pesticides, this is equally important. We have seen documentation of resistance develop to neem products, insecticidal soaps and oils. If you are losing efficacy of a preferred product, you need to be sure to switch to another mode of action incorporating one or two new products and taking a break from the preferred favorite. Note that in the trial described above, Azera® and Pyganic® both contain pyrethrin and therefore have overlapping modes of action (and A.I.). They should be used in a rotation with a biological agent, horticultural oil or soap.

Tough® 5EC Herbicide Receives 2020 Section 18 Label for Mint in Indiana

(Stephen Meyers, slmeyers@purdue.edu, (765) 496-6540)

Pyridate herbicide was once a cornerstone of broadleaf weed control in mint before its market withdrawal. Recently the use of pyridate (Tough® 5EC) has been limited to emergency exemption use, also known as a Section 18 label, which must be approved each year. Pyridate is a photosystem II inhibitor used for postemergence weed control of select broadleaf weeds including pigweeds.

If you choose to use pyridate in your overall mint weed management program, please review both the Section 3 label on the herbicide container and the Section 18 use directions.

Some of the key points are below:

-The applicator must have both the container label and the Indiana Section 18 directions on hand at the time of application.

-Applications are limited to Jasper, Kosciusko, LaGrange, LaPorte, Newton, Porter, Pulaski, Starke, and St. Joseph counties.

-A maximum of 11,200 acres may be treated state-wide.

-Only one application of 24 fluid oz/acre may be made per season.

-Target weeds smaller than 3” tall and/or the 4-leaf stage, and ensure good coverage.

-The effective dates for the Section 18 label are from May 21, 2020 through August 31, 2020.

-Do not apply within 49 days of harvest.

BELCHIM CROP PROTECTION INTENDS THAT THIS SECTION 18 LABEL BE DISTRIBUTED ONLY BY THE MINT INDUSTRY RESEARCH COUNCIL (MIRC) ONLY TO END USERS AND/OR GROWERS WHO AGREE IN WRITING TO THE TERMS AND CONDITIONS REQUIRED BY THE MIRC INCLUDING A WAIVER AND RELEASE FROM ALL LIABILITY AND INDEMNIFICATION BY THE USER AND/OR GROWER OF BELCHIM CROP PROTECTION, MIRC, AND OTHERS FOR FAILURE TO PERFORM AND FOR CROP DAMAGE, INJURY, YIELD REDUCTION AND/OR CROP LOSS FROM USE OF TOUGH™ 5EC ON MINT. IF SUCH TERMS AND CONDITIONS ARE UNACCEPTABLE, RETURN TOUGH™ 5EC AT ONCE UNOPENED.

THIS PRODUCT WHEN USED ON MINT MAY LEAD TO CROP INJURY, LOSS, YIELD REDUCTION OR DAMAGE. BELCHIM CROP PROTECTION RECOMMENDS THAT THE USER AND/OR GROWER TEST THIS PRODUCT IN ORDER TO DETERMINE ITS SUITABILITY FOR SUCH INTENDED USE. BELCHIM CROP PROTECTION MAKES THIS PRODUCT AVAILABLE TO THE USER AND/OR GROWER SOLELY TO THE EXTENT THE BENEFIT AND UTILITY, IN THE SOLE OPINION OF THE USER AND/OR GROWER, OUTWEIGH THE EXTENT OF POTENTIAL INJURY, LOSS, DAMAGE OR YIELD REDUCTION ASSOCIATED WITH THE USE OF THIS PRODUCT. THE DECISION TO USE OR NOT USE THIS PRODUCT MUST BE MADE BY EACH INDIVIDUAL USER AND/OR GROWER ON THE BASIS OF POSSIBLE CROP INJURY, LOSS, DAMAGE OR YIELD REDUCTION FROM TOUGH™ 5EC, THE SEVERITY OF WEED INFESTATION, THE COST OF ALTERNATIVE WEED CONTROLS, AND ANY OTHER RELEVANT FACTORS. BECAUSE OF THE RISK, ALL USE IS AT USER'S AND/OR GROWER'S RISK.

FIFRA

Section 18: Emergency Exemption Use Directions

TOUGH® 5EC

EMERGENCY EXEMPTION FOR POST-EMERGENCE WEED CONTROL IN MINT

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF INDIANA.
EMERGENCY EXEMPTION PURSUANT TO SECTION 18 OF FIFRA, AS AMENDED

Follow all applicable directions, restrictions, and precautions, including statements pertaining to Worker Protection Standards, on the container label for Tough 5EC.
The product container label for Tough 5EC and the INDIANA Section 18 Emergency Use Directions for mint must be in the possession of the user at the time of pesticide application. It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read entire Directions for Use and Disclaimer of Warranties before using this product.

Effective period: This label is effective May 21, 2020 and expires on August 31 2020. Use outside of these dates is a violation of Federal law.

INGREDIENTS:
Active Ingredient:

Pyridate: O-(6-chloro-3-phenyl-4-pyridazinyl)-S-octyl-carbonothioate	55.8%
Other Ingredients:	44.2%
Total:	100.0%

Contains 5 lbs. of pyridate per gallon of product
Non-refillable container

EPA Section 18 File Symbol: 20IN01

KEEP OUT OF REACH OF CHILDREN
WARNING / AVISO
Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, LOSS, DAMAGE OR YIELD REDUCTION, OR ILLEGAL RESIDUES.

GENERAL INFORMATION
Apply Tough™ 5 EC as a broadcast treatment in sufficient water (20-40 gallons per acre) using ground equipment only to ensure good coverage of the weeds. One application of Tough™ 5 EC at 24 fl oz. per acre may be made per season. For the best control of broadleaf weeds, applications should be targeted to actively growing weeds by the 4 leaf stage (approximately 3 inches in height or less). A delay in spraying which permits weeds to grow beyond the 4 leaf stage may result in decreased control.

A Maximum of 11,200 acres of mint may be treated in the following INDIANA counties: Jasper, Kosciusko, LaGrange. La Porte, Newton, Porter, Pulaski, Stark and St Joseph.

Apply a maximum of 0.9375 lb active ingredient (a.i.) per acre or 24 fluid ounces formulated product per acre in 20-40 gallons of water per acre.

Restrictions:
(1) To avoid excess residues, do not apply within 49 days of harvest.
(2) **DO NOT** apply by air.
(3) **DO NOT** apply this product through any type of irrigation equipment.
(4) **DO NOT** apply this product when wind conditions will allow drift to adjacent susceptible vegetation.
(5) **DO NOT** allow livestock to graze on treated fields.
(6) **DO NOT** feed forage, hay or silage from treated fields to livestock.

To Protect endangered plant species, one of the following options must be used:
(1) Apply only when there is sustained wind away from wetland/transitional zone native plant communities,
(2) Leave a 25-foot buffer between treatment area and wetland/transitional zone native plant communities, or
(3) Use low pressure nozzles according to manufacturer's specifications that produce only coarse or very coarse droplets.

To protect freshwater invertebrate species, do not apply Tough™ 5EC within 100 yards of any freshwater spring.

Any adverse effects resulting from the use of Tough 5EC under this emergency exemption must be immediately reported to the Office of INDIANA State Chemist.

Unused product: Any unused, unregistered product must either be returned to the manufacturer or distributor in unopened containers, or disposed of in accordance with the Resource Conservatism and Recovery Act (RCRA) regulations following the expiration of the emergency exemption.

Registrant & Manufactured For:
Belchim Crop Protection NV/SA
Technologielaan 7
1840 Londerzeel
Belgium

Distributed by:
Belchim Crop Protection USA, LLC.
2751 Centerville Road
Wilmington, DE 19808
Phone: 855-445-7990

Coronavirus Food Assistance Program

USDA will soon begin taking applications for the Coronavirus Food Assistance Program. As part of applying for the program, you’ll need to contact the Farm Service Agency county office at your local USDA Service Center to schedule an appointment. Find your office at farmers.gov/cfap.

Your local FSA staff will work with you to apply for the program, and through forms asking for this type of information:

- Contact
- Personal, including your Tax Identification Number
- Farming operating structure
- Adjusted Gross Income to ensure eligibility
- Direct deposit to enable payment processing

Please do not send any personal information to USDA without first initiating contact through a phone call.

FSA has streamlined the signup process to not require an acreage report at the time of application and a USDA farm number may not be immediately needed.

If you are an existing customer, this information is likely on file at your local Service Center.

What Can You Do Now?

While the application process has not started, you can start gathering and understanding your farm’s recent sales and inventory.

How Will USDA Accept Applications?

USDA Service Centers are open for business by phone appointment only. Once the application period opens, please call your FSA county office to schedule an appointment.

Our staff are working with our agricultural producers by phone and using email, fax, mail, and online tools to accept applications.

New to Working with the Farm Service Agency?

FSA has county offices located at USDA Service Centers across

the country. To find your office and more information on CFAP, visit farmers.gov/CFAP.

Phytophthora Blight of Pepper in Midwest Vegetable Production Guide

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

In creating the new format of the *Midwest Vegetable Production Guide for Commercial Growers 2020* (ID-56), I inadvertently left out the portion of the fruiting vegetable section that deals with Phytophthora blight of pepper. The new format allows me to update items easily; I have now added information on this important disease. Go to mwveguide.org to find the update. However, the hard copy of the Guide still lacks this information. Anyone who wants a hardcopy of the Phytophthora blight on pepper information should contact me.

I apologize for any inconvenience or confusion. Please let me know of any comments or questions that you might have.

Will the Flooding Continue?

(Beth Hall, hall556@purdue.edu)

Two weekends ago, Indiana was facing freezing temperatures that broke numerous records across the state. This past weekend into early this week, the story has been lot of rain. As of the morning of Wednesday, May 20th, the northwest counties have received over 4 inches with a northwest to southeast gradient of decreasing amounts down to around an inch along the Ohio boarder (Figure 1). Will these rains continue? The current forecasts and outlooks are predicting much less rain across the state over the next seven days (Figure 1) and only weak probabilities of above-normal precipitation into early June (Figure 2).

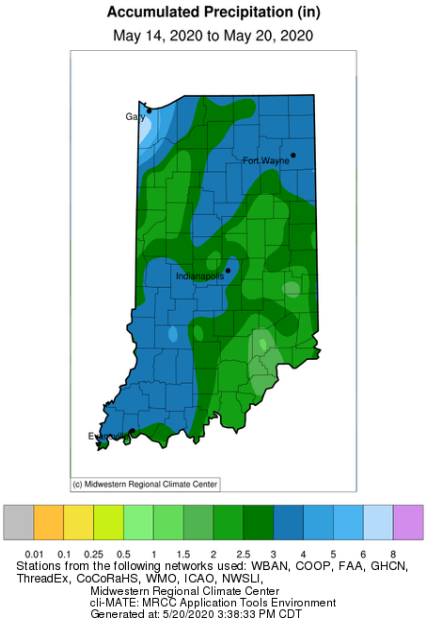

Figure 1. Total precipitation amounts for the 7-day period representing May 14-20, 2020.

May 20-27, 2020

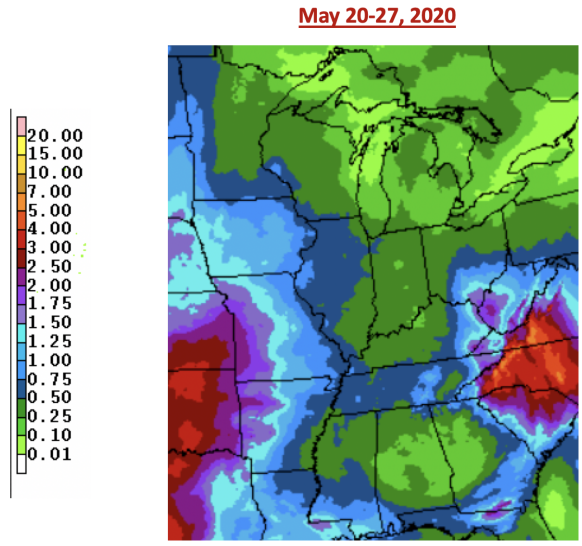

Figure 2. Seven day precipitation forecast from that National Weather Service representing May 20-27, 2020.

Regarding temperatures, the forecasts suggest normal to above-normal temperatures over the next week with only moderate confidence of above normal temperatures continuing into early June (Figure 3). This should hopefully help growing degree-day (GDD) accumulations catch up to normal. To track how GDDs have been accumulating since April 1, April 15, and May 1, check out the Indiana State Climate Office website for these daily updated maps (https://ag.purdue.edu/indiana-state-climate/growing-degree-day-climate-maps/).

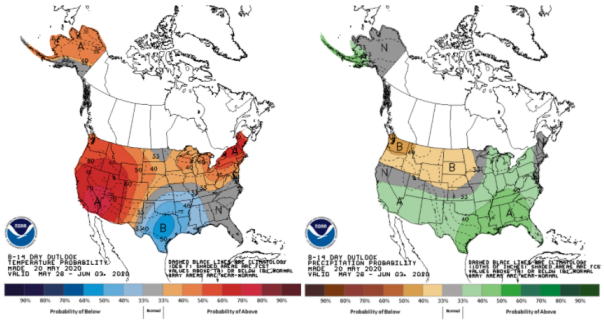

Figure 3. The National Climate Prediction Center's 8-14-day outlook for temperature (left) and precipitation (right) representing May 28 – June 3, 2020. Intensity of the shading indicates the probabilistic confidence of above/below normal conditions occurring.

Specialty Crops Soil Health Podcast

'No-Till Pumpkins' is the first specialty crops topic in the HAT-Soil Health Podcast from Conservation Cropping Systems Initiative (CCSI) in partnership with Purdue University and Hoosier Ag Today (HAT). In this episode, Amanda and Jacob Baird, beginning pumpkin farmers in Tipton County, join University of Illinois Extension Educator Nathan Johanning and no-till pumpkin farmer Rod Johnson of Hobart, Indiana to learn the tips and tricks of successful u-pick no-till pumpkins – from cover crops to dealing with rodents.

Find the podcast at https://www.ccsin.org/podcast or https://www.hoosieragtoday.com/category/hat-soil-health-podcast

/, or subscribe to it on Stitcher, Spotify, iTunes, or Google Play.

Future monthly episodes on specialty crops will cover protecting pollinators and beneficials in cucurbits, managing cover crops on diverse vegetable farms, and other practices to improve soil health on fruit and vegetable farms. Listen in and learn from farmers, educators, and researchers.

Are You Interested in Value-Added Production?

Have you thought about produce your own value-added products that increase the value of your fresh produce? What are the challenges for you to start or expand your value-added business? How does COVID-19 affect your business?

We would like to invite you to participate in the online survey to share your perspective and experiences on value-added production and we also want to learn about how COVID-19 pandemic affect your business. Your feedback will be very valuable for us to develop better learning materials for you and other growers.

You can participate in this study if you are a **Produce Grower**. You do not need to have a value-added business!

Please help us by completing this survey: https://purdue.ca1.qualtrics.com/jfe/form/SV_6RmMdQjLEFAr445

You will have the chance to receive a $35 Amazon e-gift card (odds: 1 in 10) if you enter your email address in the last survey question. The winner will be notified via e-mail.

If you have any questions, please feel free to contact Han Chen at chen2401@purdue.edu or (317) 970-6827.

Purdue University

Value-Added Production Among Indiana Produce Growers

PURDUE UNIVERSITY

What is the purpose of this study?

We want to gain a deeper understanding of your attitude towards value-added production and your barriers to enter and expand your value-added business. Due to the COVID-19 pandemic, we also want to learn about how it affects your business. Your response is valuable for us to develop better educational materials and activities for you and other growers.

Who is eligible?

Produce growers (with or without value-added business)

What will participants do?

Participate in the **Online Survey**

How to participate?

You can scan the QR code using your cellphone camera or use the survey link: https://purdue.ca1.qualtrics.com/jfe/form/SV_6RmMdQjLEFAr445

Online Survey ⬇

Potential benefit?

If you enter your email address in the last survey question, you will have a chance to receive a $35 amazon e-gift card. ***Odds of winning: 1 in 4***

All your information will be kept confidential.

Interested? Questions?

Please contact Han Chen at **chen2401@purdue.edu** or **(317)970-6827**

Question for the Issue (5-21-2020)

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

What is wrong with these strawberries?

Answer to Question from Last Issue (5-7-2020)

(Elizabeth Long, eylong@purdue.edu, (765) 796-1918)

What is this insect on my tomato plant? Is it a friend or foe?

Answer: It is a friend! This is a super cool insect, known as a

mantispid or ‘mantis fly.’ These insects are predatory and can be found around your garden, farm, or orchard feasting upon soft-bodied insect pests. Also, they are wasp mimics, as you can see from the photo!

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