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Cultivating Cumberland

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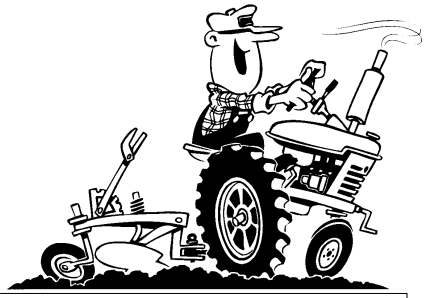


Inside this issue:

Attachments:

GDD

Mosquito Fact Sheet

COVID-19 Testing

The office remains closed to the public.

Cumberland County Public Health

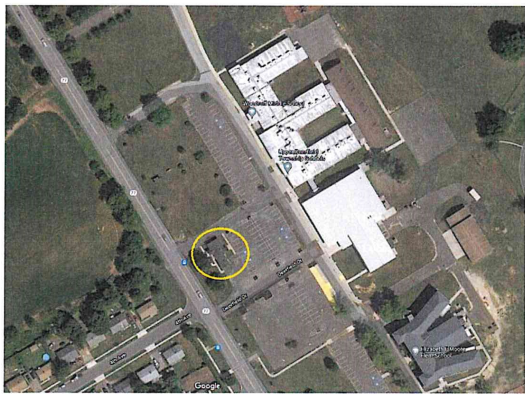
Cumberland County Department of Health
309 Buck Street • Millville, NJ 08332
(856) 327-7602 • www.ccdoh.org

Need the Covid-19 Vaccine?

The Moderna and Johnson & Johnson Covid -19 Vaccines are available every Tuesday in July from 2-4pm at the William L. Morris Building. This site is conveniently located at 1369 Highway 77, Seabrook, NJ.

The vaccines are available to everyone 18 and older, free of charge.

Register onsite or speed up your visit by registering ahead of time online.



Online registration is available at www.cumberlandcountynjvaccination.org or by scanning the QR Code.

No computer access or do not feel comfortable going online? We can help! Call us at 856-327-7602 for help registering for your Covid-19 vaccine!

Public Health
Prevent. Promote. Protect.

Food Safety Signage

We continue to get questions about what signage is required for an audit or the Produce Safety Rule and where to get them. There are several signs and posters available at the following locations - Extension office in Cumberland County (291 Morton Ave., Millville Tel. 856-451-2800 x 1) or Mercer County (1440 Parkside Ave., Ewing, NJ 08638 Tel. 609-989-6830).

Please Wash Your Hands Often! (8.5x11inches) – English, Spanish, Creole, Chinese, Greek, Polish, Portuguese, Russian and Vietnamese.

Please Put Used Toilet Paper in the Toilet (8.5x11 inches) - English and Spanish

Please Use Toilets Provided in the Field (8.5x11 inches) - English and Spanish

When Must Hands Be Washed (8.5x11 and 21.5x27.5 inches) – English and Spanish

Health and Safety Notice for Visitors (21.5x27.5 inches) – English and Spanish

Cleaning and Sanitizing Food Contact Surfaces (21.5x27.5 inches) – English and Spanish

Service Animals Covered by the ADA are Welcome Here (8.5x11 and 21.5x27.5 inches) – English and Spanish

Not all these signs are required, but handwashing and visitor signs need to be posted in English and in the language of the workers. If you have a mixture of Spanish and Creole speakers, you will need signs in three languages.

Many of these signs can be downloaded from our revised website onfarmfoodsafety.rutgers.edu starting July 1st.

Cucurbit Powdery and Downy Mildew: A Tale of Two Pathogens

Andy Wyenandt, June 5, 2021 and May 24, 2021 (Plant and Pest Advisory)

Cucurbit powdery and downy mildew are two important pathogens of cucurbit crops throughout the mid-Atlantic region. Each disease has the ability to cause significant losses and can often show up in cucurbit plantings at the same time during the production season making control difficult. Its important for growers to remember that each pathogen belongs to a different group of fungi (powdery mildew – the ascomycetes and downy mildew – oomycetes) which means that different classes of fungicides (i.e., different FRAC codes) are needed for the proper control of each disease. Thus, at any time of the growing season growers may have three choices: control one or the other, or control both at the same time. Before we get to control options, lets take a look at each one, and what has changed during the past few years.

Cucurbit powdery mildew

Up until 2004, cucurbit powdery was considered the most destructive disease in cucurbit production, that all changed with the re-emergence of cucurbit downy mildew. Cucurbit powdery mildew (CPM), in past years, was thought to be caused by two different pathogens, *Podosphaera xanthii* (formerly *Sphaerotheca fuliginea*) or *Golovinomyces chicoracearum var. chicoracearum* (formerly *Erysiphe cichoracearum*), with the former being reported more in the US and worldwide. In general, *E. cichoracearum* was more commonly found during cooler weather, with *P. xanthii* preferring hotter weather. What is the importance of knowing which species is present? Knowing which species are present, or more prevalent in the overall population of the pathogen will have important impacts in breeding programs, control strategies, and fungicide resistance management strategies. In 2019, researchers from IL and NY conducted a survey of CPM isolates collected from 6 different cucurbit hosts from around the US. The survey, with the use of morphological characterization and genotyping-by-sequence (GSB) methods and analysis, determined that 100% of the CPM isolates collected in the US were *Podosphaera xanthii*. Virulence testing with a subset of samples determined that there were some differences in the ability to cause disease, which was not unexpected. Cucurbit powdery mildew is an obligate parasite, and like cucurbit downy mildew, must have a living host in order to survive the winter, or importantly, as in the case of powdery mildew produce chasmothecia which allow the pathogen to overwinter. The production of chasmothecia shows the pathogen is reproducing sexually which gives rise to genetic diversity in the CPM population which can lead to differences in virulence as well as fungicide resistance development. Cucurbit powdery mildew is known to produce chasmothecia in different regions of the US, and has been observed in New Jersey in some years. The role of clasmothecia production and if it allows overwintering in NJ (and elsewhere) is not well understood. In general, CPM moves up the east coast each spring as cucurbit crops are planted up the coast, eventually reaching the mid-Atlantic region sometime in the early to mid summer making preventative fungicide applications necessary. The fungicides that have been used to control the pathogen in southern regions may greatly impact efficacy and control strategies in our region because of potential fungicide resistance development. Importantly, there are a number of cucurbit crops with very good genetic resistance to CPM. These varieties can help delay disease onset and may help reduce fungicide input and should be considered as a part of any disease management plan, especially in organic production systems.

Cucurbit downy mildew

As mentioned earlier, in 2004, cucurbit downy mildew (CDM) re-emerged in the US with a vengeance causing significant losses in cucurbit production. In most years prior to this, concern for CDM control was minimal, since the pathogen arrived late in the growing season (in more northern regions), or the pathogen caused little damage, or never appeared. After 2004, with significant losses at stake, and with very few fungicides

labeled for its proper control, CDM became a serious threat to cucurbit production. Importantly, at the time, cucumber varieties with very good levels of CDM resistance were no longer resistant, suggesting a major shift in the pathogen population. Research done over the past 15 years has led to a better understanding of the pathogen. Recent research has determined that the CDM falls into two separate clades: Clade I and Clade II. Some CDM (*Pseudoperonospora cubensis*) isolates fall into Clade I which predominately infect watermelon, pumpkin, and squash, where CDM isolates in Clade II predominately infect cucumber and cantaloupe. Research suggests that isolates in Clade II can quickly become resistant to specific fungicides (NCSU). Most cucumber varieties are resistant to Clade 1 isolates, but there is no resistance currently available for Clade 2 isolates. For pickling cucumber the varieties, Citadel and Peacemaker, are tolerant to clade 2 isolates. For slicing cucumbers, the varieties SV3462CS and SV4142CL are tolerant to Clade 2 isolates. All organic and greenhouse growers are encouraged to use tolerant varieties since chemical control options are very limited (NCSU). An extended list of cucumber varieties with CDM resistance from the University of Florida can be found at https://edis.ifas.ufl.edu/pp325. For the past decade, researchers from around the US have been closely monitoring and forecasting the progress of CDM through a website hosted by NCSU. The CDMpipe website is currently in the process of an upgrade and will now be hosted by Penn State University https://plantpath.psu.edu/news/2018/gugino-and-isard-receive-funding-to-monitor-and-forecast-cucurbit-downy-mildew. All cucurbit growers are encouraged to sign up to the CDMpipe website to help them know what cucurbit crops are being infected (and where) and to follow the forecasting to know where the pathogen may move to next. As a note, in recent years, CDM control with certain fungicides has varied significantly depending on the cucurbit host and geographic region. This is extremely important since two clades of the pathogen are potentially present (affecting host range) as well as having a potential impact on control strategies. How do you know which clade may be present on your farm? Follow the reports. If CDM is mostly present in cucumber crops as it works its way up the east coast, then you are most likely to see it infect cucumber and melon on your farm first. Scout your fields regularly, especially if CDM is in the immediate region. Pay very close attention to symptom development and on what cucurbit crop(s) you see it on, this is especially important if you grow more than one cucurbit crop. Like CPM, once CDM arrives in the region preventative fungicide applications will be necessary.

Fungicide resistance development in CPM and CDM

Fungicide resistance development in cucurbit powdery mildew is well documented. In the mid-Atlantic region, resistance has been reported in FRAC code 3 (DMI fungicides – Nova, Rally), 7 (SDHIs – boscalid), 11 (strobilurins – Quadris, Pristine), 13 (quinoxyfen – Quintec), and U6 (cyflufenamid -Torino). All of these fungicides have a high risk for resistance development because of their specific modes of action. Other currently labeled fungicides for CPM control, such as fluopyram (Luna, FRAC code 7) and metrafenone (Vivando, FRAC code 50) are also at risk for fungicide resistance development. All cucurbit growers are strongly encouraged to rotate as many different fungicides with different modes of action (i.e., from different FRAC codes) to help reduce the chances for fungicide resistance development. Growers are also strongly encouraged to scout fields on a regular basis to help determine any loss of fungicide efficacy. If loss of efficacy is present, the grower should avoid using that particular fungicide (FRAC code). The good news for CPM control, there are a number of fungicides with different modes of action in different FRAC codes and the grower has a number of options to chose from. All growers should follow use recommendations on labels and avoid overusing one mode of action, even if it works well.

Loss of efficacy in the control of CDM has also been documented in FRAC code 4 (mefenoxam), FRAC code 11 fungicides (azoxystrobin), and FRAC code 43 (fluopicolide). Importantly, most fungicides labeled for the control of CDM are at-risk for resistance development because of the specific modes of action. These include Ranman (cyazofamid, FRAC code 21), Gavel/Zing! (zoxamide, 22), Tanos/Curzate (cymoxanil, 27), Previcur

Flex (propamocarb HCL, 28), Forum/Revus (dimethomorph, 40), Zampro (ametoctradin, 45), and Orondis (oxathiapiprolin, 49). Importantly, just like with CPM control, there are a number of CDM fungicides with different modes of action in different FRAC codes that the grower has a number of options to chose from. Again, all growers should follow use recommendations on labels and avoid overusing one mode of action, even if it works well. As with CPM, If loss of efficacy is present, the grower should avoid using that particular fungicide (FRAC code) for CDM control.

Growers should remember that fungicides specifically labeled for CPM control won't control CDM, and fungicides labeled for CDM control won't control CPM. Therefore, following disease monitoring and forecasting website, scouting fields, paying close attention to host crops, choosing varieties with CDM or CPM resistance, and following proper fungicide resistant management guidelines remain critically important for successful CPM and CDM control.

Fungicide programs for CDM control

An example of a fungicide program for CDM control in the mid-Atlantic region might look like this, where a CDM specific fungicide from a different FRAC group is used on weekly basis:

A – B – C – D – E

where A= Gavel (zoxamide, 22 + mancozeb, M03); B= Orondis Opti (oxathiapiprolin, 49 + chlorothalonil, M05); C= Ranman (cyazofamid, FRAC code 21); D= Orondis Ultra (oxathiapiprolin, 49 + mandipropamid, 40); E= Curzate (cymoxanil, 27)

Not all of the fungicides listed above are labeled for all cucurbit crops. Some fungicides, such as the Orondis products have limited number of applications. Growers will need to refer to local recommendations and the label for crop specifics. Remember, the label is the law.

A protectant fungicide such as chlorothalonil or mancozeb should be added (if not already included) to the tank mix with each high-risk fungicide to reduce selection pressure and to help control other important diseases such as anthracnose and plectosporium blight. All growers should follow use recommendations on labels and avoid overusing one mode of action, even if it works well. If loss of efficacy is present, the grower should avoid using that particular fungicide (FRAC group) for CDM control the rest of the growing season.

Growers should remember that fungicides specifically labeled for CDM control won't control CPM, and fungicides labeled for CPM control won't control CDM. Therefore, carefully following the disease monitoring and forecasting website, choosing varieties with CDM resistance, paying close attention to host crops, scouting fields on a regular basis, noting fungicide efficacy, and following proper fungicide resistant management guidelines remain critically important for successful CDM control.

For more information please see the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendations.

https://njaes.rutgers.edu/pubs/publication.php?pid=E001
For more information on cucurbit downy mildew control please click here.
https://plant-pest-advisory.rutgers.edu/the-abcs-of-cucurbit-downy-mildew-control-2-2/
For more information on cucurbit powdery mildew control please click here.
https://plant-pest-advisory.rutgers.edu/the-abcs-of-cucurbit-powdery-mildew-control-2-2/

References:

North Carolina State University
https://content.ces.ncsu.edu/cucurbit-downy-mildew
University of Florida
https://edis.ifas.ufl.edu/pp325

Avoiding Plectosporium Blight in Cucurbit Fields

Andy Wyenandt, June 7, 2021 (Plant and Pest Advisory)

Plectosporium blight, also known as Microdochium blight or White speck, caused significant problems in some pumpkin fields last summer in New Jersey. The soil-borne fungal pathogen, although somewhat uncommon, can unexpectedly show up in some years and cause significant losses if left uncontrolled. The fungus survives in the soil on decaying plant debris where it can remain saphrophytic by surviving off organic matter. Infection is characterized by the production of numerous light tan to "bleached" spindle shaped lesions that develop on vines and the undersides of infected leaves. Heavily infected vines and leaves can die leading to premature defoliation and subsequent sunscald on fruit. In cases of heavy disease pressure, spores that are produced on the bottom sides of leaves fall and infect the topsides of fruit laying beneath the canopy. Infection of stems leads to premature browning and drying reduce their longevity. Fruit infection, in most cases, remain mostly cosmetic in nature reducing fruit quality and may predispose fruit to other opportunistic fruit rots. Plectosporium blight often shows up during periods of prolonged wet weather where the soil remains wet for extended periods. "Hot spots" typically appear in fields before the pathogen is further spread by driving rains and wind.

From a production standpoint, stay away from fields with known history of the disease for as long as possible; provide adequate spacing between plants in- and between rows (i.e., avoid the overcrowding of plants); avoid over (preplant) fertilization that can lead to thick, dense canopies; avoid overhead irrigation (if possible); avoid planting in area of a field that remains heavily shaded where soils tend to dry too slow.

Controlling Plectosporium blight begins with regular scouting, recognizing symptoms, and identifying "hot spots" in the field. Protectant fungicides, such as chlorothalonil, as well as those used in weekly maintenance spray programs for cucurbit powdery mildew control will help control Plectosporium blight as long they applied on a weekly schedule with a high volume of water with thorough coverage. To help improve control on the undersides of leaves, a FRAC code 11 fungicide such as Quadris Top or Pristine, can be added to the tank mix. Remember, FRAC code 11 fungicides have translaminar activity and will move from the top surface of the leaf to the bottom. Growers who grow powdery mildew resistant varieties need to remember to scout their fields regularly even if cucurbit powdery mildew has not been detected on the farm or if regular maintenance sprays haven't begun.

White speck lesions covering the surface of immature and mature pumpkin fruit. White speck will only cause cosmetic injury to fruit.

White speck on vine and stem of infected pumpkin plant. Note the numerous small, white diamond shaped lesions.

Preparing for Cucurbit Powdery Mildew Control

Andy Wyenandt, May 21, 2021 (Plant and Pest Advisory)

Cucurbit powdery mildew (CPM), caused by Podosphaera xanthii, is one the most important diseases of cucurbit crops throughout the world. The pathogen is an obligate parasite, just like cucurbit downy mildew, meaning it needs a living host in order to survive. In northern regions that have a killing frost in the fall the pathogen will die out when the crop freezes. Not being able to overwinter, the pathogen must be re-introduced each spring or summer in the mid-Atlantic region. The pathogen accomplishes this by re- infecting cucurbit crops in the spring as they are planted up the east coast starting in Florida, then the Carolina's, Virginia, and so forth. By late May, as soon as cucurbit crops begin to germinate in the mid- Atlantic region, the potential threat for potential powdery mildew infections begin.

The first step in mitigating CPM begins with planting powdery mildew tolerant (PMT) or resistant (PMR) cultivars if they meet your needs. It is important to remember that these cultivars are not "immune" to CPM; they will become infected at some point in the growing season depending on disease pressure. Hopefully, this will occur later in the season when compared to CPM susceptible cultivars. Organic growers hoping to mitigate losses to powdery mildew should always chose CPM tolerant or resistant cucurbit cultivars first.

There are a number of OMRI-approved fungicides labeled to help suppress CPM development, these should always be used in concert with CPM tolerant or resistant cultivars and a preventative fungicide program. Cultural practices such as increasing in-row plant spacing to improve air flow and cultivation to keep weeds to a minimum will also be advantageous. Avoiding the use of overhead irrigation will help reduce disease pressure from another important pathogen, cucurbit downy mildew. Thus, growing cucurbits on a mulch with drip irrigation has its advantages, but also increases costs.

In the past, a typical conventional fungicide program consisted of rotating two different FRAC group fungicides every other week, such that the pattern looked like:

A – B – A – B – A – B

Often a protectant fungicide such as chlorothalonil or mancozeb is added to the tank mix on a weekly basis to 1) help control other important fungal diseases, such as anthracnose or gummy stem blight and 2) to help reduce selection pressure on the high-risk fungicide that was being applied. This type of preventative program was used for many years, because, in most cases there were just a few effective fungicides available for CPM control depending on the crop. An example of this would be:

A = (azoxystrobin [FRAC group 11] + chlorothalonil (MO5) rotated weekly with B = (myclobutanil [FRAC group 3] + chlorothalonil (MO5)

This type of control strategy worked extremely well as long as the pathogen didn't develop resistance to either the FRAC group 11 (azoxystrobin) or FRAC group 3 (myclobutanil) fungicide. To better understand modes of action and how fungicide resistance develops in FRAC group 11 and FRAC group 3 fungicides please visit https://plant-pest-advisory.rutgers.edu/understanding-the-strobilurin-fungicides-frac-group-11-2015-2/. Unfortunately, because of fungicide resistance development these older fungicide programs are no longer

effective and some are no longer recommended for CPM control.

Over the past 10 years, there have been a number of new fungicides released with new modes of action (i.e., new FRAC groups) for CPM control in cucurbit crops. Unfortunately, all have a moderate to high-risk for resistance development because of their specific modes of action. The good news are these new fungicide chemistries have less effects on humans, non-target organisms, and the environment.

These fungicides include:

FRAC group 13 (quinoxyfen) FRAC group 39 (fenazaquin) FRAC group 50 (metrafenone) FRAC group U06 (cyflufenamid) FRAC group U013 (flutianil)

Not all of the fungicides listed above are labeled for all cucurbit crops. Growers will need to refer to local recommendations and the label for crop specifics. Remember, the label is the law.

These fungicides offer new strategies when it comes to controlling and mitigating losses to CPM. Instead of rotating two fungicides with a moderate to high-risk for resistance development every other week (A – B – A – B), growers now have option to reduce the total number of times any single fungicide might be applied during the production season; further reducing the risk for resistance development to any one mode of action. For example, in pumpkin, a new CPM preventative fungicide program may look like this:

A – B – C – D – E – A – B – C – D – E

Where A=(FRAC group 3);B=(FRAC group 13); C=(FRAC group 50); D=(FRAC group U013); E=(FRAC group 11)

A protectant fungicide such as chlorothalonil or mancozeb should be added to the tank mix with each high-risk fungicide to reduce selection pressure and to help control other important diseases such as anthracnose and Plectosporium blight.

In this type of CPM preventative program any one high-risk fungicide would only be applied twice per growing season and 5 weeks apart greatly reducing the risk for fungicide resistance development.

Importantly, for cucurbit growers, the easiest method to mitigate the potential for fungicide resistance development are to reduce the total number of applications of any one high-risk fungicide during the production season.

When to start spraying for CPM

Initiating a preventative spray programs begins with paying attention to Extension reports, scouting, and when the crop was seeded. If the crop is seeded the early-spring (i.e., early to late May) there is a very good chance CPM is not present in the mid-Atlantic region. If CPM is not present, there is no need to initiate a spray program using high-risk fungicides. In this instance, general protectant fungicides such as chlorothalonil will help mitigate other foliar diseases. As cucurbit crops are seeded into early to mid-June (and afterward) the risk for CPM development will rise in the mid-Atlantic region. This is when scouting and paying close attention to Extension reports becomes important. The first application should be done when CPM has been detected in the immediate region or when it is detected by scouting (e.g., with one lesion found on the

underside of 45 mature leaves per acre). This will help reduce the use of unwarranted high- risk fungicide applications early in the production season. Importantly, the use of PMR or PMT cucurbit varieties will also help delay the onset of CPM development as well. Once CPM preventative fungicide programs are initiated, applications need to occur at every 7 to 10 days (at the latest) for as long as you expect to harvest (e.g., summer squash) or hold the crop (e.g., pumpkin and winter squash). During harvest, growers need to pay careful attention to pre-harvest intervals because they may vary significantly between different FRAC groups or fungicides within the same FRAC group (a good example are fungicides in FRAC group 3). Once harvest is complete, those blocks or fields need to be destroyed immediately to help reduce the spread of CPM to other blocks or fields that are scheduled to be harvested later in the production season. This is especially important for other diseases such as cucurbit downy mildew.

Monitoring fungicide efficacy

With the use of high-risk fungicides, all growers need to monitor fungicide efficacy accordingly. Once the lack of efficacy is detected there is a chance that fungicide resistance might be present. Importantly, the lack of efficacy should not be misconstrued with poor applications or waiting too long between fungicide applications. Reports of poor efficacy from Extension personnel from one region may not reflect fungicide efficacy in another region. Therefore, fungicide efficacy needs to be done at the farm level and the only way to accomplish this is to scout your fields and know what is and isn't working for you.

The principles mentioned above also extend to other important diseases in vegetable production where there are multiple FRAC groups with high-risk fungicides available to control specific diseases. As a general rule, growers need to rotate as many different modes-of-action (i.e., fungicides from different FRAC groups) as possible during the production season to help mitigate fungicide resistance development in conjunction with best management practices.

For more information on fungicide use, FRAC groups, and specific control recommendations please see the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendation Guide.

With Rainfall, so Comes Phytophthora and Pythium

Andy Wyenandt, May 30, 2021 (Plant and Pest Advisory)

Most of New Jersey has finally gotten rain and pop-up thunderstorms making conditions ideal for pathogens such as Phytophthora and Pythium on spring-seeded and transplanted crops. Unfortunately, Pythium and Phytophthora blight can be found on most farms in the southern part of the state. Poor crop rotations with susceptible hosts only make matters worse. The Phytophthora pathogen has an increasing host range that now includes snap and lima beans; and all crops, other than a few resistant bell pepper cultivars, lack any resistance to the pathogen.

Control of Phytophthora blight and Pythium are extremely difficult (even with the use of fungicides) in the wet weather conditions. In the past few years a number of new fungicides, with new active ingredients, have become commercially-available for use on multiple crops. Mefenoxam or metalaxyl, both once widely-used to effectively control Phytophthora blight has been hit by resistance issues around much of Southern New Jersey the past decade. Growers with a known history of mefenoxam-insensitivity on their farm should use Presidio, Previcur Flex, or Ranman plus a Phosphite fungicide in rotation in their drip application programs. Importantly, if mefenoxam has not been used in particular fields on any crop for a number of years (more than 5+) the fungus may revert back to being mefenoxam-sensitive and control with these products may return. Mefenoxam, metalaxyl, Previcur Flex, and the phoshites are the most systemic of the group and should readily be taken up the by plant via application through the drip. Presidio has locally systemic and has translaminar activity and should offer some protection of the root system via drip. Ranman has protectant activity and thus will offer some root protection where it comes into contact with. Orondis Gold (oxathiapiprolin + mefenoxam, 49 +4) is the newest fungicide available with a new active ingredient in a new FRAC group. Additionally, in past research trials, mefenoxam, Orondis Gold, Presidio, Previcur Flex, Ranman, Revus and the phosphites in rotation and/or tank mixes have offered very good control of the fruit rot phase of phytophthora blight.

Recommendations

mefenoxam–1.0 pt Ridomil Gold 4SL/A or 1.0 qt Ultra Flourish 2E/A or metalaxyl (MetaStar)–4.0-8.0 pt 2E/A at transplanting via drip and 30 days later.

Orondis Gold (oxathiapiprolin + mefenoxam, 49 +4) at 4.8 to 9.6 fl oz/A 1.67S at transplanting and 30 days after. If applied as drip application it can not be applied as a foliar.

Presidio (fluopicolide, 43) at 3.0-4.0 fl. oz 4SC/A at transplanting via drip and in rotation.

Ranman (cyazofamid, 21) at 2.75 fl oz 400SC at transplanting via drip and in rotation. (Ranman can be added to transplant water, see label for specific crop uses)

Previcur Flex (propamocarb HCL, 28) at 1.2 pt/A 6F at transplanting via drip or directed spray at base of plant. (Previcur Flex can be added to transplant water, see label for specific crop uses). Use in rotation.

Phosphite materials (FRAC code 33) such as Rampart, ProPhyt, or K-Khite may also be tank mixed with one of the above to help suppress Phytophthora blight.

If mefenoxam-insensitivity is present, only use Presidio, Previcur Flex, Ranman, Revus, and/or phosphite fungicides.

For more information on these fungicides and specific crop use please see the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendations Guide.

Recommendations for Organic Growers

Applications of Double Nickel (*Bacillus amyloliquefaciens*) or Regalia (Extract of *Reynoutria sachalinensis*) as drenches or via the drip system prior to the onset of disease may help suppress phytophthora and pythium development. Other biopesticides, such as those containing *Trichoderma* spp. or *Streptomyces* spp. can also be used to help suppress these pathogens.

If Losses Become High?

If phytophthora or pythium losses become high because of the heavy rains, pre-emptive cultural practices need be taken immediately. Rogueing out, discing under, or hitting areas with gramoxone to burn infected plants down will help slow down and reduce the spread of potential inoculum to healthier areas of the block or farm. If beds are chronically wet, plastic can be cut or completely removed to help soils dry out.

Survey Continuing for Bacterial Leaf Spot and Copper Resistance in 2021 Growing Season

Andy Wyenandt, May 29, 2021 (Plant and Pest Advisory)

Copper resistance has been detected in bacterial leaf spot of tomato and pepper and in Pseudomonas chicorii, the causal agent of bacterial leaf spot in basil, in New Jersey. While not surprising, copper resistance has been known to develop for decades now; however, this is the first time it has been confirmed in vegetable crops in New Jersey. Copper applications for the control of bacterial diseases in many crops has been a mainstay for decades now and is often applied in weekly protectant fungicide programs. In 2019 and 2020, with help from Dr. Nrupali Patel and Dr. Don Kobayashi, bacteriologists in the Department of Plant Biology located on the New Brunswick campus, a survey was begun to determine which species of bacterial leaf spot are most prevalent in New Jersey vegetable crops. Bacterial leaf spot can be caused by four species of Xanthomonas: *X. euvesicatoria, X. vesicatoria, X. perforans,* and *X. gardneri*. Currently, there are four races of BLS found in tomato (T1-T4; one for each of the 4 species stated above) and eleven races found in pepper (0-10). Differential tests in southern New Jersey using various bell pepper lines over the past 15 years has suggested that the number of races of BLS in pepper has increased over time; with all races present in the State to date. Lab testing results from samples collected from the small number of NJ vegetable farms the last two summers has shown the presence of *X. euvesicatoria* in pepper, as well as *X. euvesicatoria* and *X. perforans* in both tomato and pepper in the state, with ~50% of all samples testing positive for copper resistance.

How do you know what species of bacteria are present on your farm?

The only way to determine which species of bacteria are present in tomato or pepper crops on your farm are to have them identified through laboratory methods.

How do you know what races of the pathogen are present on your farm?

That's a difficult question to answer. Up to now, the only way to know is through differential testing. That means planting a number of different bell peppers with varying BLS resistance packages and monitoring which cultivars develop symptoms. For example, if you detect BLS development in Aristotle X3R (which has resistance to races 1,2, & 3); then you possible have races 4-10 present on your farm. If you were to plant Turnpike in that same field and you have BLS development in it, then you possibly have race 6 or 10 present, because Turnpike has resistance to BLS races 0-5 and 7,8,9. It's extremely important to know what races of BLS are present so you can chose the proper cultivars to grow. Choosing the proper cultivar will do two things: significantly reduce the chances of BLS development and significantly reduce the number of copper applications on your bell pepper crop. As a note, there are a few non-bell peppers available with BLS resistance packages (see 2020/2021 Commercial Vegetable Production Recommendations Guide).

How do you know if copper resistance is present on your farm?

Growers who have used copper applications for controlling bacterial leaf spot in crops such tomato or pepper for many years should always monitor for efficacy. If you notice or have noticed a loss in copper efficacy over time, then there is a good chance copper resistance is present. Once copper resistance is detected, further applications will be unwarranted and ineffective. The only method to truly determine if copper resistance is present is through laboratory testing, however growers who pay close attention to efficacy should have a good idea if copper is still effective.

What can you do to mitigate bacterial leaf spot development on your farm?

In crops such as bell pepper, it comes down to growing cultivars with resistance to BLS and knowing what races are present on your farm. Many of the recommend commercial cultivars have varying resistance packages to the different races of the pathogen. Some cultivars, such as Paladin which has Phytophthora resistance has no resistance to BLS. Other "older" cultivars such as Aristotle X3R has resistance to races 1-3; newer cultivars such as Turnpike has resistance to races 0-5,7-9; while cultivars such as Playmaker and 9325 have resistance to 0-10 (also known as X10R cultivars). Unfortunately, BLS resistance in commercial tomato varieties are lacking, but efforts from around the world are making progress.

Moving forward in 2021.

More sampling and surveying are planned for the 2021 production season in New Jersey. **Growers who are interested having tomato or pepper samples collected from their farm for species determination and copper resistance testing are encouraged to contact their county agent so arrangements can be made.**

Lighting Strike Awareness for Pasture Producers

Melissa Bravo, June 6, 2021

The intense lightening storm of May 26th that impacted most of New Jersey is a reminder that pastured livestock are also at risk from more than heat exhaustion as summer progresses.

Measures to protect livestock from predators, sun exposure and dehydration should take lightening strikes into consideration. Lightening can kill animals by direct and indirect pathways and start fires in tinder dry grasses. A true act of nature, lightening deaths are random but producers can take steps to minimize losses from man-made structures, trees and water sources.

Tree Shade: Lightening electricity seeks the path of least resistance. Different trees contain different amounts of sap and water making some a better conductor of lightening than others. "Among the most common tree species that get hit by lightning are oak, gum, maple, poplar, and pine trees." –https://www.americanarborists.net/tree-tips/2017/june/what-to-do-if-your-tree-is-struck-by-lightning-/

Cotton woods are a type of poplar. A single cottonwood can intake between 50 and 200 gallons of water every day, making them a potential risk to livestock during severe storms. In general, the more surface roots a tree has the more danger to livestock crowded around the tree. Rows of trees theoretically spread out the possibility of lightening strikes and less livestock are crowded under a single tree. Avoid having livestock in pastures on high ground with trees during these storms.

Poorly Drained Areas: Naturally occurring wet areas and wet areas associated with irrigation pumps and rigging increase the potential risk to livestock from lightening strikes. Grazing of livestock in and around these structures and others like solar panels should be restricted when severe storms are forecasted.

Fence and Metal Gate Grounding: When lightening strikes the voltage will follow electric fence wires back to the charger and then into the ground rod. Grounding rods are recommended to be in the ground five feet to dissipate lightening safely. If livestock are crowded up against fence or have their heads through metal gates, they become the grounding rod. Woven electrified fence increases the surface area that animals may come in contact with.The charger itself may not survive a lightening strike. Fence chargers are expensive investments, turn off the charger and disconnect it prior to severe storms when feasible.

Metal Water Troughs: In crowded pens, metal and even rubber water troughs are a lightening injury risk to livestock. Again, this is due to the animal becoming the conduit to the water soaked ground. General guidelines suggest animals should be separated (not forced to congregate due to enclosure size) at least 50 feet from water troughs during lightning storms.

Temporary Shelters: Temporary shelters to limit sun exposure and prevent heat exhaustion should be properly grounded and made of materials that limit electrical conductivity. Emergency shelters made of hay bale rings and metal panel gates with plywood or tarp roofs during high heat warnings should be temporary; and removed when lightning storms are forecasted.

Roosts: Chickens will roost where they are when dusk arrives. Evaluate pasture poultry locations for areas

that chickens are using to roost and take measures to limit their roosting on objects that conduct electricity.

Buried commercial utility lines: I lost a first calf heifer to a lightening strike a few years back. A tree in a cemetery nearly a mile away along the same path as the phone line took a direct hit as did another tree on the opposite end of the pasture. The cow was standing directly over the buried unmaintained line and died instantly. Note the copper line was installed more than fifty years ago and through heave and thaw presumably had a crack in the insulation at that location. As farm usage and ownership changes over the decades, be familiar with what is buried on your farm in utility right of ways that may no longer be maintained.

Lightening insurance: Farmers can cover their losses by adding lightening protection to their policy. USDA also covers eligible lightening losses under their Livestock Indemnity Program. For general information see this 2009 article https://www.fsa.usda.gov/Internet/FSA_File/29229200909.pdf and contact your local FSA office for current program requirements.

For more information on insulating your farm against lightening, see 'Lightning Protection for Farms' by National Ag Safety Database. https://nasdonline.org/1882/d001825/lightning-protection-for-farms.html

COVID Delta Variant and NJ Agriculture

Meredith Melendez, June 23, 2021 (Plant and Pest Advisory)

As the farming season progresses so does concern for the increased prevalence of the COVID Delta variant in the region. We asked Don Schaffner, Extension Specialist, about the Delta variant and if we should be concerned about it. If you or your farm workers are in need of a vaccine please email njfarmvax@njaes.rutgers.edu and an Extension team member will assist you with finding local vaccination locations and/or determine if an on-farm vaccine clinic is possible for your workers. If you have questions about the vaccine visit the Rutgers On-Farm Food Safety Vaccine Education for Growers website for information in multiple languages at https://onfarmfoodsafety.rutgers.edu/vaxinfo/.

Meredith Melendez: Are we seeing an increase in cases of the COVID Delta variant in New Jersey or the region?

Don Schaffner: Yes. According to CDC, Region 2 (New Jersey, New York, Puerto Rico, and the Virgin Islands) had only 3.1% of all infections due to the Delta variant for the week ending 5/22/21. This percentage had jumped to 17.7% week for the week ending 6/5/21. There are not further updates at this time.

Also according to the CDC in NJ 3.4% all infections were due to the Delta variant for the week ending 5/22/21. No further New Jersey specific updates are available at this time.

MM: How is the Delta variant different than the COVID cases we saw over the past year?

DS: There are a number of reasons why there is increased concern over the Delta variant. Epidemiological data shows that the variant has increased transmissibility (i.e. it is more easily spread from person to person) than the original strain. Estimates indicate that it is about 60% more transmissible. This means that for every one person infected by the original virus, on average for the same conditions the Delta variant would spread to about 1.6 people.

One of the ways of combating the virus once someone is infected is with monoclonal antibody treatments. There is evidence that the Delta variant is more resistant to this important treatment.

There is also evidence that the Delta virus is not as readily neutralized by post-vaccination sera. Sera contain the antibodies in people that are vaccinated.

MM: Are the Pfizer, Moderna, and J&J vaccines as effective against the Delta variant?

DS: Yes. The Johnson & Johnson vaccine appears to be about 60% effective against the delta variant. The Pfizer and Moderna vaccines are about 88% effective after the second dose (vs. over 90% for other variants). So while the vaccines are less effective against the Delta variant, it is still much better to be vaccinated than not.

MM: Why should someone get vaccinated now if they haven't already?

DS: Unvaccinated individuals are vulnerable to all variants of the virus. These variants arise through the natural evolution when the virus replicates inside a sick person. Since the vaccines can stop some people from getting infected, the more people that are vaccinated the better control we will have over these variants and stop new variants from evolving.

Organic Production: Suppressing Soil-borne Pathogens

Andy Wyenandt, June 10, 2021 (Plant and Pest Advisory)

Pathogens such as *Fusarium, Pythium, Phytophthora, Thielaviopsis* and *Rhizoctonia* that cause pre- and post-emergent damping-off can cause serious problems in organic (and conventional) transplant production. The key to controlling and/or suppressing damping-off pathogens with biological controls is keeping the biological populations high and continually present on root surfaces of the host, and by following good cultural practices.

A Quick Review

Remember, *Phytophthora and Pythium* are more likely to cause damping-off in wet soils. While, *Rhizoctonia* and *Fusarium* are more likely to cause damping-off under drier conditions. In general, *Pythium* tends to kill seedlings before they emerge whereas *Rhizoctonia* and *Fusarium* tend to kill seedlings after emergence. There are exceptions to the rules in some cases, but none the less, all damping-off pathogens can cause serious losses if not identified and controlled properly.

Adjust Watering Schedules

Remember seeds or transplants that sit in cold, wet soils for prolonged periods of time are more prone to damping-off. Outside weather conditions also play an important role in potential disease development in spring transplant production. Most importantly, daily watering schedules need to be monitored and/or adjusted so as not to overwater during cool, cloudy periods or underwater during bright, warm, sunny days. Always do your overhead watering early enough in the day so leaves are dry going into the overnight. Taking preventative measures to mitigate potential problems caused by damping-off pathogens is the best approach.

Specific OMRI-Approved Products

There are a number of OMRI-approved biological controls that can be incorporated into the soil media prior to seeding, as a seed treatment, as a drench or through drip irrigation. Biological control agents can be fungi or bacteria that work by various mechanisms which include antibiosis, parasitism, induction of host-plant resistance, and competition.

- SoilGard 12G (*Trichoderma virens*, Certis USA) colonize host roots and is antagonistic to *Pythium* and *Rhizoctonia*.
- Plantshield HC and Rootshield WP (*Trichoderma harzianum*, Bioworks, Inc.) also colonize roots and provide protection against root pathogens such as *Pythium, Rhizoctonia, Fusarium, Cylindrocladium* and *Thielaviopsis*.
- Actinovate (*Streptomyces lydicus*, Natural Industries, Inc.) is a bacterium labeled for *Pythium, Phytophthora, Fusarium, Rhizoctonia,* and *Verticillium*.
- Mycostop (*Streptomyces griseoviridis*, Agbio, Inc.) also colonizes roots and is labeled for control or suppression of many root rot and wilt pathogenic fungi such as *Pythium, Fusarium, Rhizoctonia,* and *Phytophthora*.

All of these products work best if they are incorporated or applied before any damping-off occurs. This means incorporating them into the media mix prior to seeding, or applying them as a seed treatment, or as a drench shortly after seeding and continuing with follow-up treatments during the remaining transplant production season. The key to controlling and/or suppressing damping-off pathogens with biological controls is keeping the biological populations high and continually present on root surfaces of the host and by following good cultural practices. For more information on the products mentioned above please see Table E-14 on pages 125-127 of the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendations. Applications of the products mentioned above should be done according to the manufacturer's label.

Edema Development in Brassica Crops

Edema is often expressed as off-color swellings or galls that appear on leaves and stems. Edema develops when epidermal cells hold excessive water due to a slowing of evapotransporation when hot, muggy days are followed by cooler, wetter weather. Edema develops because the plant takes in more water (due to a high soil moisture content) faster than it can get rid of it through evapotranspiration causing cells to rupture which results in the blistering of the leaves. Edema is strictly caused by environmental factors and can appear whenever these conditions are met. Properly monitor soil conditions, irrigation cycles, and the weather to avoid over irrigating on warm, hot early spring days, especially when quick cold fronts/temperature drops and cloudy weather are expected.

The following new fact sheet and updated bulletin are now available on NJAES Publications:

2021/2022 New Jersey Commercial Tree Fruit Production Guide (Rutgers NJAES)

Polk, D.; van Vuuren, M.; Besancon, T.; Hamilton, G.; Hastings, P.; Lalancette, N.; Muehlbauer, M.; Gohil, H.; Nielsen, A.; Schmitt, D.

FS1330 **Monitoring and Management of Pepper Weevil in New Jersey (Rutgers NJAES)**

Ingerson-Mahar, J.

E308 **Commercial Cranberry Pest Control Recommendations for New Jersey, 2021.**

Besançon, T.; Oudemans, P.; and Rodriguez-Saona, C.

njaes.rutgers.edu/pubs/publication.php?pid=E308

E360 **Indoor Cultivation Instruction at Rutgers School of Environmental and Biological Sciences.**

Ayeni, A.; Dmitruck, J.; Sciarappa, W.; Both, A.; McNamara, D.; and Lotfi, A.

njaes.rutgers.edu/pubs/publication.php?pid=E360

E369 **Climate Change Impacts on New Jersey's Marine Fisheries.**

Kitchel, Z. and Zemeckis, D.

Calendar of Important Events

✓ Indicates a newly added event or more information since the last calendar
● Online

✓ **July 7**

● **Basic Pesticide Training Online Webinar;** Online webinar to fulfill the NJDEP Pesticide Operator Requirement/ Required Exam Prep course for NJDEP CORE exam. Find other classes or register online at https://njpma.com/classes/basic-pesticide-training-course-for-core-certification/

✓ **July 23**

● **Basic Pesticide Training Online Webinar;** Online webinar to fulfill the NJDEP Pesticide Operator Requirement/ Required Exam Prep course for NJDEP CORE exam. Find other classes or register online at https://njpma.com/classes/basic-pesticide-training-course-for-core-certification/

✓ **August 10-12**

Penn State's Ag Progress Days Expo; Russell E. Larson Agricultural Research Center, Rock Springs, Centre County. Sponsored by Penn State's College of Agricultural Sciences. 9AM - 5PM Aug 10; 9AM - 7PM Aug 11; 9AM - 4PM Aug 12. Admission and parking are free. More information at https://agsci.psu.edu/apd

✓ **September 15-16**

● **FSMA Produce Safety Rule Training – ONLINE ONLY;** This FSMA training is online only and attendance at both days is required to receive a certificate as required by the FDA. Class is limited to 20 attendees, so register in advance, refunds will not be provided as the manual will be mailed out in advance. The deadline to register is 9/1/2021, exceptions cannot be made due to the nature of the online program. Register and find more information at https://www.eventbrite.com/manage/events/141869362081/details

✓ **November 3 - December 3**

● **National Council of Agricultural Employers 2021 Ag Labor Forum, Las Vegas;** More information at www.Ncaeonline.org

✓ **December 6-8**

● **Washington State Tree Fruit Association Annual Meeting; Yakima Convention Center, Yakima, Washington;** More information available at Wstfa.org

✓ **December 6-10**

● **2021 Irrigation Show and Education Week; Long Beach, Ca;** More information available at www.irrigation.org

Projected GDD50 accumulation as of 6/28/2021						
Region	Location	**1-Jul**	**1-Aug**	1-Sep	1-Oct	1-Nov
Southern	Upper Deerfield (NJ50)	**1303**	**2145**	2931	3477	3682
Forecast: NOAA NCEP Coupled Forecast System model version 2 (CFSv2) forecast system (3.5 months) (USPEST.ORG)						

Nursery and Landscape Pest Scouting - Growing Degree-day Ranges (1300-2200 GDD50)

Crop type	Common name	Latin name	GDD50 Range MIN (min: 50°F)	GDD50 Range MAX (max: 95°F)	GDD50 Reference	Developmental / Target Stage
Many	**Japanese beetle**	*Popillia japonica*	1050	1180	RU	1st Adults
Turf	**Bluegrass billbug**	*Sphenophorus parvulus*	1094	1217	RU	Larvae (40%)
Many	**Indian wax scale**	*Ceroplastes ceriferus*	1145	-	6	Crawlers (1st generation)
Many	**Oriental Beetle**	*Anomala orientalis*	1147	-	6	Adult emergence
Euonymus	**Euonymus Scale**	*Unaspis euonymil*	1150	1388	5	2nd generation targeted treatments
Dogwood	**Dogwood sawfly**	*Macremphytus tarsatus*	1151	1500	RU	Larvae Treatment
Tulip	**Tuliptree aphid**	*Illinoia liriodendri*	1151	1514	RU	Nymphs / adults
Conifer	**Northern pine weevil**	*Pissodes nemorensis*	1200	1400	4	2nd generation adults active
Conifer	**Pine root collar weevil**	*Hylobius radicis*	1200	1400	4	2nd generation adults active
Conifer	**White pine weevil**	*Pissodes strobi*	1200	1400	4	2nd generation adults active
Boxwood	**Boxwood leafminer**	*Monoarthropalpus flavus*	1200	1400	5	Larvae Treatment
Conifer	**Pine Needle Scale**	*Chionaspis pinifoliae*	1250	1350	7	Crawlers (2nd generation)
Rhododendron	**Azalea whitefly**	*Pealius azaleae*	1250	1500	5	Adults/nymphs
Turf	**Bluegrass sod webworm**	*Parapediasia teterrella*	1250	1920	RU	Larvae
Many	**Lacebugs (on hawthorn)**	*Corythucha cydoniae*	1266	1544	RU	Nymphs / adults
Many	**Leafhoppers**	Species within *Cicadellidae*	1266	1544	RU	Nymphs / adults
Many	**Fall webworm**	*Hyphantria cunea*	1266	1795	2	Caterpillars present - larvae treatment
Privet	**Privet rust mite**	*Aculus ligustri*	1266	1515	5	Second typical treatment window
Many	**Two spotted spider mite**	*Tetranychus urticae*	1300	2000	RU	Nymphs / adults
Turf	**N. Masked chafer**	*Cyclocephala borealis*	1377	1579	RU	Adults (90%)
Conifer	**Cooley spruce gall adelgid**	*Adelges cooleyi*	1500	1775	RU	Adults/nymphs (Douglas Fir)
Malus, Prunus, many	**Peachtree borer**	*Synanthedon sp.*	1500	1800	RU	Larvae Treatment
Conifer	**Nantucket tip moth**	*Rhyacionia frustrana*	1514	1917	RU	Adults 2nd generation
Many	**Redheaded flea beetle**	***Systena frontalis***	**1570**	**1860**	**Udel.**	**2nd generation egg hatch**
Many	**Japanese beetle**	*Popillia japonica*	1590	1925	RU	Adults (90%)
Conifer	**Rust-mites**	*Nalepella and Setoptus spp.*	1644	2030	RU	Nymphs / adults
Many	**Two-banded Japanese weevil**	*Pseudocneorhinus bifasciatus*	1644	2271	RU	Adults
Conifer	**Juniper webworm**	*Dichomeris marginella*	1645	1917	RU	Larvae Treatment
Euonymus	**Euonymus Scale**	*Unaspis euonymil*	1700	-	RU	Continued 2nd generation treatments
Oaks	**Oak skeletonizer**	*Bucculatrix ainsliella*	1798	2155	RU	Larvae
Mimosa, Honeylocust	**Mimosa webworm**	*Homadaula anisocentra*	1800	2100	RU	Larvae (2nd generation)
Conifer	**Arborvitae leafminer**	*Argyresthia thuiella*	1800	2200	RU	Larvae Treatment
Conifer	**Cooley spruce gall adelgid**	*Adelges cooleyi*	1850	1950	RU	Galls open (Spruce)
Turf	**Hairy chinch bug**	*Blissus leucopterus*	1903	2160	RU	Second generation- 50%- 2nd instars
Tulip	**Tuliptree aphid**	*Illinoia liriodendri*	1917	2033	RU	Nymphs
Conifer	**White pine aphid**	*Cinara strobi*	1991	2271	RU	Adults
Mainly Tulip	**Tulip tree scale**	***Toumeyella liriodendri***	**2037**	**2629**	**RU**	**Crawlers (1st generation)**
Mainly Magnolia	**Magnolia scale**	***Neolecanium cornuparvum***	**2155**	**2800**	**RU**	**Crawlers (1st generation)**

Note: Growing degree-day values utilize daily average air temperatures with a minimum temperature threshold (a.k.a. 'base') of 50F = GDD50 (max. temp. threshold set at 95F). These values are accumulated from a biofix date, such as January or March 1st in the NE USA. Provided GDD50 are scouting ranges and should be truthed.

Daily GDD50 =
(Max + Min temp.) / 2 - 50 *(min temp. threshold)*

References

RU	Rutgers Cooperative Extension - Landscape IPM Notes
2	http://ccetompkins.org/resources/using-growing-degree-days-for-insect-management
3	https://extension.psu.edu/ipm-basics-for-christmas-trees#section-2
4	https://www.canr.msu.edu/ipm/agriculture/christmas_trees/gdd_of_conifer_insects
5	https://www.agriculture.nh.gov/publications-forms/documents/landscape-pests.pdf
6	https://extension.umd.edu/ipm/pest-predictive-calendar-landscapenursery
7	https://www.canr.msu.edu/ipm/agriculture/christmas_trees/gdd_of_landscape_insects
Unv. Del.	Coorespondance with Dr. Kunkel (University of Delaware)-*evolving GDD ranges*

Compiled 6-28-2021 - Timothy J. Waller, Ph.D. - Rutgers Cooperative Extension, Cumberland County Nursery Crops - twaller@njaes.rutgers.edu

Mosquito Prevention and Protection

Always remember the 3 D's of protection from mosquitoes

Drain

Many mosquito problems in your neighborhood are likely to come from water-filled containers that you, the resident, can help to eliminate. All mosquitoes require water in which to breed. Be sure to drain any standing water around your house.

- Dispose of any tires. Tires can breed thousands of mosquitoes.
- Drill holes in the bottom of recycling containers.
- Clear roof gutters of debris.
- Clean pet water dishes regularly.
- Check and empty children's toys.
- Repair leaky outdoor faucets.
- Change the water in bird baths at least once a week.
- Canoes and other boats should be turned over.
- Avoid water collecting on pool covers.
- Empty water collected in tarps around the yard or on woodpiles.
- Plug tree holes.
- Even the smallest of containers that can collect water can breed hundreds to thousands of mosquitoes. They don't need much water to lay their eggs. (bottles, barrels, buckets, overturned garbage can lids, etc.)

Dress

Wear light colored, loose fitting clothing. Studies have shown that some of the 174 mosquito species in the United States are more attracted to dark clothing and most can readily bite through tight-fitting clothing of loose weave. When practical, wear long sleeves and pants.

Defend

Choose a mosquito repellent that has been registered by the Environmental Protection Agency. Registered products have been reviewed, approved, and pose minimal risk for human safety when used according to label directions. Four repellents that are approved and recommended are:

- DEET (N,N-diethyl-m-toluamide)
- Picaridin (KBR 3023)
- Oil of lemon eucalyptus (p-methane 3 β-diol, or PMD)
- IR3535

Here are some rules to follow when using repellents:

- Read the directions on the label carefully before applying.
- Apply repellent sparingly, only to exposed skin (not on clothing).
- Keep repellents away from eyes, nostrils and lips: do not inhale or ingest repellents or get them into the eyes.
- The American Academy of Pediatrics (AAP) suggests that DEET-based repellents can be used on children as young as two months of age. Generally, the AAP recommends concentrations of 10% or less, unless disease risk is imminent, then concentration can be increased to 30% or less.
- Avoid applying repellents to portions of children's hands that are likely to have contact with eyes or mouth.
- Repellents can be used by pregnant or nursing women. The EPA does not recommend any additional precautions for repellent use by pregnant or nursing women.
- Never use repellents on wounds or irritated skin.
- Use repellent sparingly and reapply as needed. Saturation does not increase efficacy.
- Wash repellent-treated skin after coming indoors.
- If a suspected reaction to insect repellents occurs, wash treated skin, and call a physician. Take the repellent container to the physician.

AMCA
THE AMERICAN MOSQUITO CONTROL ASSOCIATION

mosquito.org
@AMCAupdates
facebook.com/AmericanMosquitoControl

FREE* At-Home COVID-19 Testing

*There is no copay for this test.
if you have insurance you will be asked to enter your information.

The Cumberland County Department of Health is offering county residents and essential workers employed in the county an at-home option for COVID-19 testing.

Scan the QR code to be directed to the website for registration.

www.cumberlandathometesting.org

Visit www.cumberlandathometesting.org to register for your free test.

- There is no copay or out-of-pocket costs for the at-home test.
- Insurance is not required, but individuals will be asked to provide their information if they do have insurance.
- Photo ID is required.

Who should use these tests?

- individuals who need testing after being exposed to a person who has tested positive
- individuals who have traveled out of state
- individuals who need testing for medical reasons (surgery, etc.)

THE BOARD OF COUNTY COMMISSIONERS OF THE COUNTY OF CUMBERLAND NEW JERSEY

Cumberland County Public Health
Everybody - Everywhere - Everyday

For more information, visit www.ccdoh.org.
Follow us on Facebook, www.facebook.com/CCDOH

REGULARLY SCHEDULED MEETINGS		
Pesticide Certification Exams	**Cumberland County Agriculture Development Board**	**Cumberland County Board Of Agriculture**
Testing is currently being held virtually because of the COVID pandemic.	Virtual Meeting Information can be found on the Public Meeting Calendar on co.cumberland.nj.us	Virtual Meeting Information https://rutgers.zoom.us/my/smangia Meeting ID: 529 557 9817 Passcode: Sal2020 Or call 1 (646) 558-8656
Rutgers will be taking over the pesticide exam program.	July 13 Aug. 10 Sept. 14 Oct. 12 Nov. 9 Dec. 14	Sept. 16 Oct. 21 Nov. 18 Dec. 16
Sign-up and find more information at https://pacer.rutgers.edu/	**Meetings start at 7 p.m.** **For more information call the Dept. of Planning, Tourism and Community Affairs at 856-453-2175**	**Meetings start at 7 p.m.** **For information call Lew DePietro, President at 856-981-9843**

The program in Cumberland County is suspended until further notice.

Cumberland County Improvement Authority (CCIA)
Pesticide Container Recycling
9:00 a.m. to 12 Noon
Cumberland County Solid Waste Complex
169 Jesse's Bridge Rd. (located off Route 55 Exit 29)
Deerfield Township, New Jersey
Questions? Call Division of Ag & Natural Resources, NJ Dept. of Ag 609-292-2242

Sincerely,

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RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

Have you visited the Cumberland County website for the

Present and/or past issues of “Cultivating Cumberland”?

It’s a great resource for information and dates...

http://Cumberland.njaes.rutgers.edu/

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