

Cultivating Cumberland

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The office remains closed
to the public.



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FSMA Produce Safety Inspections Taking Place on all Covered Farms

Meredith Melendez, May 26, 2021

Are you a produce farm who has not yet had a FSMA Produce Safety Rule inspection? Have you received communication from the NJ Department of Agriculture about the Produce Safety Rule? Smaller size produce operations are currently being inspected by the NJDA for FSMA PSR compliance. If you have not yet had an inspection you may be subject to one this season. Here is what you need to know:

If you grow and sell over \$25,000 in produce annually you may be subject to the FSMA Produce Safety Rule. The NJDA will contact your farm to ask several questions to understand if the rule pertains to you. What crops do you grow? How much in produce sales do you make on an average year? What percentage of your sales are made direct to consumer (farm stand, farmers market, CSA, direct to an individual grocery store, direct to an individual restaurant)? What are your total food sales (including any food for human and/or animal consumption including hay, grain, baked goods, meat, milk, honey, chewing gum, etc.) for an average year? You may have previously answered these questions via a survey that was mailed to you, or over the phone with NJDA staff.

The NJDA is currently scheduling inspections with farms across the state of all sizes. If you receive a phone call or email from the NJDA about a Produce Safety Inspection date, do not ignore the communication. The inspection will take place and warning letters can be sent to farms who are not in compliance with the rule.

Have questions about if your farm is exempt or qualified exempt from the rule? Remember that qualified exempt farms need to prove their exemption status, this can be done by using the qualified exempt review template on page 5 of the recordkeeping guidance from the Produce Safety Alliance.

Farms that need to comply with the rule are required to attend FDA approved training. The next training in NJ will be held online on September 15th and 16th. Other online trainings are available from other states, visit the Produce Safety Alliance website for more details. The approved training covers the Produce Safety Rule requirements and ways of complying with them.

Attachments:

- Obtaining your local GDD
- Pest Scouting Guide and GDD
- Letter from Secretary of Ag
- Urgent Request
- Annual Vegetable Report
- Phytophthora in Conifers

Keep Up the Customer Communication!

Meredith Melendez, May 25, 2021

Now that the dates have been set for the lifting of the face covering requirements indoors and social distancing requirements indoors and out (May 28th) farms have decisions to make. What will you require of your customers while on your property? How will you handle customers who expect more or less when it comes to COVID protections? The CDC recommends that those not fully vaccinated should continue to socially distance themselves from others and wear a mask, but these are no longer requirements under state Executive Orders. Here are some suggestions on how to prepare your employees and customers for their experiences on your farm this season.

Communicate your farm policies regarding COVID protections clearly online and on the farm.

If you choose to no longer require masks indoors at the farm be understanding of customers who may choose to wear a mask. "Mask-free" environments are not enforceable, those who wish to wear masks must be allowed to do so.

When possible continue to provide order ahead and pick-up of items sold at your farm. This allows those who are unvaccinated or wary of those who are unmasked to still be able to shop at your farm.

Prepare your staff on how to handle disgruntled customers. Who is the right person at the farm to handle these situations? Have a plan on who and how you will respond to these situations.

Realize that you will not make everyone happy. The best you can do is decide what your masking and social distancing policies are, stick to them, and communicate the heck out of them.

Important dates:

May 28th – Indoor mask mandate lifted. Businesses may require customers to wear masks indoors, but it is no longer mandated. 6' social distancing required indoors lifted. Businesses may still enforce 6' of social distancing. This does not apply to summer camp settings with children.

June 4th – Indoor gathering limits lifted.

The following bulletins are now available on NJAES Publications:

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

E368 Choosing Plants for a Hazelnut Orchard in New Jersey.

Muehlbauer, M., Capik, J., and Molnar, T.

njaes.rutgers.edu/e368

Eastern Viticulture and Enology Forum – Town Hall

Hemant Gohil, May 24, 2021

Grower and Wine Maker Town Hall: Questions from the Field and Cellar

Rutgers/NJAES New Jersey Center for Wine Research and Education (NJCWRE) has collaborated with the Eastern Viticulture and Enology Forum. Regional viticulture and enology specialists will present a Grower and Winemaker Town Hall virtual meeting series to give seasonal updates and answer presubmitted and live questions from grape and wine industry stakeholders.

There will be a total of four town hall meetings throughout the growing season. Meetings will be held from 3PM to 5PM on the following Tuesdays: June 8th, July 13th, August 10th, and September 7th. The first two meetings will be hosted by Cornell University and the second two meetings will be hosted by Penn State Extension.

Use link <https://go.rutgers.edu/jgsdy24a> to register and choose your breakout room (viticulture or enology) for the June 8th meeting: The structure of these meetings depends on pre-submitted questions.

Use the link <https://go.rutgers.edu/nr4pg2df> to pre-submit questions for viticulture and enology specialists and agents to answer live during the meeting. You can also send questions directly to Hemant Gohil gohil@njaes.rutgers.edu

Please feel free to submit questions related to any topic by June 1st.

But please see below for the topic area suggestions for our first meeting on June 8th. Updated topic suggestions will follow in forthcoming meeting announcements.

Viticulture focus area: pre-bloom to post-fruit set management (canopy management, fruit zone leaf removal, nutrition, young vine establishment, fruit set, fungal disease management)

Enology focus area: filtration and bottling (types of filtration, filter pad maintenance & usage, pre-bottling sanitation, pre-bottling additions, bottling line cleanliness & quality controls)

Controlling Strawberry Fruit Rots with an Emphasis on Mitigating Fungicide Resistance Development

Andy Wyenandt, May 20, 2021

Fruit rots in strawberry can cause significant losses if not recognized early and properly controlled. The use of good cultural practices such as keeping fields weed-free, promoting good drainage and air movement, long crop rotations, and preventative fungicide applications are critically important for reducing the potential development of fruit rots in strawberry.

Pathogens such as anthracnose fruit rot (*Collectotrichum acutatum*, *C. gloeosporioides*), gray mold (*Botrytis cinera*), and leather rot (*Phytophthora cactorum*) can become systemic problems in strawberry fields and can be difficult to manage over the lifetime of the planting. Importantly, fungicide resistance development in the pathogens that cause fruit rot in strawberry are widely documented; mostly in *Botrytis*.

Anthracnose Fruit Rot

Anthracnose fruit rot can cause serious losses if not controlled. Symptoms of anthracnose include the development of circular, sunken lesions on infected fruit. Often pinkish/tan colored spore masses will develop in the center of lesions. Anthracnose in strawberry is caused by *Colletotrichum* spp. Spore production, germination and fruit infection are favored by warm, humid weather. The fungus can overwinter on infected plants, in plant debris or on weed hosts. Spores are dispersed by splashing water and can infect green and mature fruit. Control begins with protectant fungicides from flowering through harvest. Begin sprays no later than 10% bloom or prior to disease development and continue on a 7 to 10 day interval. Use the higher fungicide rate and shorter intervals when disease pressure is high. Do not make more than two consecutive applications of the same fungicide before switching to a fungicide in a different FRAC group. Fungicide resistance in *C. acutatum* and *C. gloeosporioides* to FRAC group 11 fungicides (azoxystrobin and pyraclostrobin) have been reported in FL in recent years.



Anthracnose Fruit Rot of Strawberry

Leather Rot

Leather rot caused by *Phytophthora cactorum* can cause losses during warm, wet weather with extended periods of rainfall. Infection can take place during all stages of fruit development as long as favorable conditions are present. Infected fruit turn brown and have blotchy tough appearance. Infections typically occur in fruit that are in direct contact with the soil, but the pathogen can also be splashed onto fruit via rainfall and wind. Research by Dr. Mike Ellis, Using Fungicides to Control Strawberry Fruit Rots in Ohio, has shown that FRAC code 11 fungicides such as Cabrio, Abound, and Pristine are effective against leather rot. Pristine



Strawberry Leather Rot

being the fungicide of choice because it also provides control of gray mold and anthracnose. Follow the link above for an excellent review of all three of these diseases and a useful efficacy table. Resistance to mefenoxam has been reported only in SC to date and resistance to QoI fungicides (FRAC group 11) in *P. cactorum*, from both crown and fruit infections, have been reported in FL in the past 5 years.

Gray Mold (Botrytis Fruit Rot)

Gray mold is often a serious problem during extended cool, wet periods when fruit are sizing and reaching maturity. Symptoms of gray mold are the diagnostic grey, fuzzy growth that will cover entire fruit. Control of gray mold, like the other diseases, begins with recognizing the conditions for its development, its symptoms, and preventative fungicide applications. Start sprays when plants begin to bloom, because 90% of fruit infections occur through the flower, and repeat every 7-10 days. Increase spray intervals during persistent dry periods, but decrease intervals to 5-7 days during very wet periods. Four weekly sprays starting at 5-10% bloom are usually sufficient for season-long control. Tank-mix and rotate fungicides from different FRAC codes to reduce the chances for fungicide resistance development.



Gray Mold (Botrytis Fruit Rot) of Strawberry

Fungicide resistance in Botrytis is widely known and documented. Resistance development has been documented in MBC fungicides (FRAC code 1) to benomyl (no longer on the market) and thiophanate-methyl; the DC fungicides (FRAC group 2) with iprodione; the SDHI fungicides (FRAC group 7) with boscalid, fluxapyroxad, and penthiopyrad; the AP fungicides (FRAC group 9) with pyrimethanil and cyprodinil; the strobilurin fungicides (FRAC group 11) with azoxystrobin, trifloxystrobin, and pyraclostrobin; and the Hyd fungicides (FRAC group 17) with fenhexamid. Cross resistance to fungicides within specific FRAC groups has also been widely documented. Most importantly, resistance to multiple FRAC groups has also been widely reported in Botrytis in the US. Recent studies across the southeast have shown that some Botrytis isolates can carry resistance to 2, 3, 4, or 5 different FRAC groups. A study from 2015 examining 2,000 Botrytis isolates collected across the southeast discovered that some isolates carried resistance to 6 or 7 different FRAC groups. As described the authors, this was likely the result of “selection by association” in which resistance was selected by the fungicide applied but also indirectly because the selected isolates were also inherently resistant to fungicides in other FRAC groups.

How to manage fruit rots and fungicide resistance development

The use of mulch to prevent/reduce soil splashing and keeping fruit from coming into direct contact with the soil surface can be beneficial in conventional production as well as organic production systems where conventional fungicides cannot be used. Long crop rotations and staying away from

fields with known history of any of these pathogens is also extremely important, although this may be difficult on farms with U-pick operations where fields need to be close to the market and accessible. Adjusting plant populations to improve air movement and the drying of leaves and fruit within the canopy, and avoiding overhead irrigation are some of the cultural practices growers can do to help reduce losses to fruit rot.

Strawberry growers need to pay careful attention to the efficacy of all high-risk fungicides used during the season. Fields should be scouting regularly, particularly before and after a fungicide application. Remember, due to the specificity of high-risk fungicides, once resistance develops to any one particular fungicide chemistry the likelihood of cross-resistance development increases significantly to other fungicides within the same FRAC group. If loss of efficacy is noticed, growers should discontinue the use of that FRAC group during that growing season. Growers developing season-long fungicide programs for fruit rot control need to use as many different modes-of-action (i.e., different FRAC groups) as possible and limit the use of any single mode of action as much as possible to help mitigate resistance development. This is especially important when growers are applying fungicides with more than one mode of action. Careful attention needs to be made to both fungicide chemistries so that the same mode of action isn't used during the next application. As a general rule, growers need to use as many different modes of action as possible and to space them out as far apart as possible during the production season.

For more information on the control of anthracnose fruit rot, gray mold, and leather rot in strawberry please see the 2020/2021 Commercial Vegetable Production Recommendations Guide for the mid-Atlantic Region.

The following new publication is now available on [NJAES Publications](#):

FS1329 Native Plant Seed Propagation (Rutgers NJAES)

Szkodny, V. and Bakacs, M.

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

Ingerson-Mahar, J.

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.

It's Time to put Bagworms on your Rader in NJ

Tim Waller, May 26, 2021

Email: twaller@njaes.rutgers.edu

Bagworms should begin hatching any day now, starting in the southern regions of NJ. Now is an optimal time to get this pest on your radar and prepare materials or approaches to attack first/second instar caterpillars. The control window for this pest is typically between 600-900 GDD50 (growing degree-days) and treatments should be in use prior to their mobile, airborne, “ballooning” phase. Check that the eggs have hatched prior to application of pesticides – as most compounds will not be effective at all if the first instar caterpillars are not present. Lethal pesticide doses are important, as sub-lethal doses can trigger early pupation, making the pest all but invincible to chemical or biological treatments.



Bagworm management – mechanical: If eggs have not hatched: hand-remove sacs/bags. Typically female/egg filled sacs are higher in the canopy so keep that in mind while scouting.

Treatment options for Lepidoptera (caterpillars) to have at the ready – containing: B.t. (*Bacillus thuringiensis*)(Dipel), spinosad (Entrust SC), bifenthrin (Talstar, UP-Star), cyfluthrin (Decathlon 20WP), carbaryl (Sevin SL), chlorantraniliprole (Acelepryn), cyclaniliprole (Sarisa), cyclaniliprole + flonicamid (Pradia), Lambda-cyhalothrin (Scimitar GC), cyantraniliprole (Mainspring), Indoxacarb(Provaunt)

IT IS CRITICAL TO ROTATE BETWEEN IRAC-CODES AS MUCH AS POSSIBLE DUE TO THE NUMBER OF POTENTIAL INSECTIDE APPLICATIONS PER SEASON

Please Visit and subscribe to the Rutgers Plant and Pest Advisory at <https://plant-pest-advisory.rutgers.edu> (click on the Landscape, Ornamental, Nursery, and Turf section tab) for more information on bagworms and other current season threats.

If you need help obtaining your local growing degree-days please contact Tim Waller or visit: <https://plant-pest-advisory.rutgers.edu/obtaining-your-local-growing-degree-day-information/>

DISCLAIMER: The label is the law, always refer to it for allowable host crops, use-restrictions, application rates, reapplication intervals, re-entry intervals (REI), and mix compatibility information. Production and pesticide information on this site are for private/commercial pesticide applicators and landscape professionals only and are NOT for home gardener use. Provided materials represent examples and do not cover all possible control scenarios. Tradenames listed do not imply endorsement and are used as examples only. Please contact your local agent or chemical sales representative for more information or to discuss additional pest management options.

Spotted Lanternfly Traps

The New Jersey Department of Agriculture is looking for locations that may have black walnut trees or hedges where there maybe single trees. They would like to place traps to check for Spotted Lanternflies. This is part of their surveillance program. If you have black walnut trees or know where some may exist contact Emily Prospect at 609-577-8046.

Fertilizer Sampling

Each year someone asks where they can get fertilizer tested for nutrient content. The New Jersey Department of Agriculture does the testing, but they must take samples as it is being delivered to maintain a chain of custody. If you are getting it in dry bulk or liquid, they will pull the sample as it is being unloaded. If it is bagged, they will sample out of an unopened bag. To arrange for testing call Chris Kleinguenther at 609-439-2203.

Seed Testing

The New Jersey Department of Agriculture, Division of Plant Industry provides laboratory testing services for a variety of plant and seed issues. Fees are charged for some testing that is not of a regulatory nature.

Charges For Testing	
Test	Fee
Germination test	\$10.00 per sample
Purity test	\$30.00 per hour
Noxious weed test	\$15.00 per sample
Vigor test	\$15.00 per sample
Viability - Tetrazolium test	\$30.00 per hour
Varietal identification	\$100.00 per sample
Mycotoxin test	\$20.00 per ELISA test \$40.00 for HPLC test
Other tests	\$30.00 per hour

Procedures For Submitting Samples

It is the responsibility of the individuals submitting the samples to see that the samples are representative of the lots from which they were taken. Samples should be submitted using our submission form, which you can download [here](#).

At least 1000 seeds should be submitted for a germination evaluation. A standard germination test requires 400 seeds; another 400 seeds are needed in the event that a retest is necessary. A New Jersey State noxious weed seed examination is conducted as part of the purity analysis.

Any New Jersey resident actively engaged in the commercial production of agricultural or horticultural products and not engaged in the business of a wholesale seedsman or seed conditioner will be allowed two free germination tests by the State Seed Laboratory during the period July 1 through June 30.

A seed test report, applying only to the sample submitted, will be provided to the sender along with an itemized bill. When requesting a test on seed that has been previously analyzed, a copy of this analysis should accompany the sample as well as the reason for requesting a new analysis.

Send samples to New Jersey Department of Agriculture, Division of Plant Industry, P.O. Box 330, Trenton, NJ 08625-0330 or call 609-406-6939 for more details.

Early-Season Phytophthora Blight and Rhizoctonia Root Rot Control

Andy Wyenandt, May 20, 2021

Phytophthora blight typically develops in low-lying areas after a heavy rain. Fortunately, this spring in New Jersey has been really dry – too dry thus far, but that does not mean you don't need to prepare for potential phytophthora issues down the road. This is particularly important if you are in fields with a known history of Phytophthora blight. Although extended periods of dry weather works against Phytophthora development, it can lead to Rhizoctonia root rot issues in newly transplanted plugs, especially if those plugs remain on the dry side too long before watering. Symptoms of Rhizoctonia root rot appear as brown lesions at the base of the stem with those lesions eventually girdling the stem and extending about an inch above the soil surface. If transplants haven't been treated the cell flat prior to transplanting, apply a fungicide through the drip system soon after transplanting.

Recommendations for Rhizoctonia control

Apply azoxystrobin (FRAC group 11) at labelled rates.

Recommendations for Phytophthora blight control

In general, planting on a ridge or raised, dome-shaped bed will help provide better soil drainage. In fields with known low-lying or wet areas, avoid transplanting in those areas all together. In fields with a known history of Phytophthora blight, plant ONLY resistant cultivars to help reduce plant losses. If mefenoxam-insensitivity is known to exist in a field/farm, plant only tolerant cultivars. Do not apply mefenoxam or metalaxyl in fields where insensitivity is known to exist.

Code	Product Name	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
For control of the CROWN ROT phase of Phytophthora blight, apply one of the following at transplanting and 30 days later.						
4	MetaStar 2E AG	4.0 to 8.0 pt/A ¹	metalaxyl	7	12	N
4	Ridomil Gold 4SL	1.0 pt/A ¹	mefenoxam	—	—	N
4	Ultra Flourish 2E	1.0 qt/A ¹	mefenoxam	—	—	N
21	Ranman 400SC	2.75 fl oz/A ^{2,3}	cyazofamid	0	12	L
43	Presidio 4SC	3.0 to 4.0 fl oz/A ³	fluopicolide	2	12	L
49 + 4	Orondis Gold 1.67SC	See labels ^{1,2,4}	oxathiapiprolin + mefenoxam	0	4	—

Recommendations for Organic Growers

Organic bell pepper growers with a history of the Phytophthora blight should only plant cultivars that have resistance or tolerance to the disease. Long non-host crop rotations are critically important for organic production. Regular 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 blight development.

Identifying and Controlling Botrytis in High Tunnel and Greenhouse Tomato Production

Andy Wyenandt, May 25, 2021

Botrytis, or gray mold, caused by the fungus, *Botrytis cinerea*, can cause significant losses in high tunnel and greenhouse tomato production if not controlled properly. The pathogen can rapidly spread during periods when structures are closed and when relative humidity remains high for long periods of time. This often occurs when outside weather remains cool and damp while heating is needed. Gray mold is favored by temperatures from 64° to 75°F and requires only high humidity (not leaf wetness) to become established. The pathogen has a large host range and once established in an enclosed structure it can be very difficult to control (UMASS). The fungus can survive/overwinter as mycelia or sclerotia in plant debris and in organic soil matter (NCSU).

Botrytis is ubiquitous (e.g., found everywhere) and prefers to attack senescing or injured plant tissue. *Botrytis cinerea* is an excellent saprophyte as well as a pathogen. This means that any dying or dead tissue on tomato plants (or any other plant in the structure) can easily become infected. The pathogen will attack flowers, fruit (at the stem end of infected fruit or by causing ghost spot), leaves, and stems; importantly, plants that have recently been suckered or pruned. Stem infections occur during periods of high humidity through leaf scars, cracks, and pruning wounds. Spores can remain dormant for up to 12 weeks within pruning leaf scars and are triggered to germinate during plant stress. Stem lesions may expand in concentric rings to girdle the entire stem causing wilting above the infection site (NCSU). Botrytis can be controlled by management of environmental conditions, sound cultural practices, and fungicide applications.

As stated above, gray mold is favored by temperatures from 64° to 75°F and requires only high humidity (not leaf wetness) to become established. Keep relative humidity as low as possible by a combination of heating and venting in the evening, particularly when warm days are followed by cool nights. Maintain adequate air flow with horizontal fans. Avoid the overcrowding of plants. Maintain proper fertility programs.

Run regular tissue tests. Gray mold is known to be favored by low calcium levels. In particular, calcium to phosphorus levels of less than 2:1 may make the tomato plant more susceptible to gray mold (UMASS). Keep floors and structure clean of any plant debris or organic matter. All pruned plant material needs to be removed immediately. Do not work on wet plants, prune plants in the early afternoon allowing wounds to dry quickly (NCSU).

Controlling Botrytis begins with proactive cultural practices, recognizing conditions which are conducive for its development, and symptoms on infected plant materials. There are a number of conventional and organic fungicides labeled for its control in the greenhouse and high tunnel. Please see Table E-11 in the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendations Guide.

For images and more information.

NCSU – <https://content.ces.ncsu.edu/botrytis-gray-mold-of-tomato>

UMASS – <https://ag.umass.edu/greenhouse-floriculture/photos/greenhouse-tomato-ghost-spot-botrytis>

DEPI – AU – <http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/plantdiseases/vegetable/tomato-diseases/grey-mould-botrytis-in-greenhouse-tomato-crops>

Ingram and Meister, 2006 – Plant Health Progress – <https://www.plantmanagementnetwork.org/pub/php/research/2006/botrytis/>

Preparing for important fungal diseases in Asparagus during the summer.

Andy Wyenandt, May 26, 2021

Asparagus growers should consider scouting their fields during the summer months for foliar disease development. Important pathogens that growers need to scout for on a regular basis include Purple spot, *Cercospora*, and Rust. These pathogens are easily diagnosed by the characteristic symptoms they produce on infected plants. Purple spot lesions can appear on the spears during the harvest season and reduce quality, as well as, on fern growth later in the summer months. Characteristic symptoms of Purple spot include small (1 to 2 mm) slightly, sunken elliptical reddish-purple lesions on spears and ferns. *Cercospora* produces small tan lesions with darker margins on ferns and stems. Damage to ferns can cause premature defoliation which will reduce carbohydrate flow and reduce yield for the next growing season. Chopping the fern and incorporating the debris in the fall after the fern senesces can help destroy over wintering sources of the inoculum, however these practices may also lead *Fusarium* infection. Once fernstalks are full-size and/or disease is detected, fungicide applications of chlorothalonil (FRAC code M5) in rotation with azoxystrobin (FRAC code 11) should be repeated every two to four weeks until frost.

Rust is another important pathogen of asparagus. Rust can easily be diagnosed in the field early in the season by the cream-colored oval lesions (6 to 19 mm) it produces. A few weeks later these lesions will appear reddish-brown. These reddish-brown lesions can produce spores which can cause more infections leading to further disease development. Control of asparagus rust is extremely important and necessary in one and two year old beds, even with rust resistant varieties. Growers need to scout for symptom development in cutting and non-cutting beds and, if not already started, apply fungicides if necessary. Fungicide applications of chlorothalonil (M5), Folicur (tebuconazole, 3), mancozeb (M3), or Rally (myclobutanil, 3) rotated on a 7 to 10 day schedule will help control rust.

For more information on controlling these important diseases please see the 2020/2021 Mid-Atlantic Commercial Vegetable Production Guide. The guide is available for FREE online by following the links on the Plant and Pest Advisory website.

Preparing for Pepper Anthracnose

Andy Wyenandt, May 21, 2021

Pepper anthracnose caused by *Colletotrichum* spp. has become a significant problem on some farms in Southern New Jersey.

Unlike in tomato, where symptoms are only present in mature (red) fruit, pepper anthracnose can infect pepper fruit at any growth stage. Currently, there are no commercially- available bell or non-bell peppers with known resistance to anthracnose. The pathogen overwinters, albeit, not very well on infected pepper fruit left in the field or on infected plant material at the end of the production season. Because Pepper Anthracnose pepper anthracnose does not overwinter very well, it always starts out as a 'hot spot' in the field and then fans out directionally with the prevailing direction of the wind and driving rain. Hot weather along isolated afternoon and evening showers are ideal conditions for anthracnose development.

On farms with a history of pepper anthracnose, precautions should to be taken each year. The first, if possible, is to rotate away from those areas of the farm with anthracnose for as long as possible.

Remember, it can survive (although not very well) in the soil for many years. Importantly, the same pathogens that cause tomato anthracnose and strawberry anthracnose are the same species that infect pepper, so rotating away from fields heavily used in tomato and/or strawberry production is extremely important. Fields need to be scouted as soon as fruit start to develop to locate 'hot spots'. If 'hot spots' are found, all fruit from the immediate and surrounding area need to be strip-picked (or entire plants can also be removed). Growers who have adopted this practice have had success in reducing their losses by reducing the inoculum pressure before the pathogen begins to fan out across the field. Overhead irrigation should not be used in fields with anthracnose problems.

Reducing the amount of inoculum in the field is critical for managing pepper anthracnose. Infected fruit left in the field during and after the production season have the potential to act as a source of inoculum.

Therefore, it is critically important to take the appropriate steps to help reduce that chance. During the season, all infected fruit need to be removed from the field. After harvesting, all fields should immediately mowed or hit with gramoxone. All plant debris should be thoroughly worked back into the soil so it can start to break down as quickly as possible. Abandoned fields with plants still standing going into the fall/winter only act as an increased source for inoculum. It's a misnomer to think that the cold winter weather will help breakdown and reduce inoculum found on infected plant material left on the soil surface. It's much better if infected plant material is worked back into the soil where other soil microorganisms can help with the process.

Fungicide programs do work for controlling pepper anthracnose. Fungicide programs should begin as soon as plants start to flower. The key to controlling anthracnose is to get the fungicide to where it is needed the most, on the developing fruit. Planting peppers in a single or double-row fashion may greatly affect your ability to control the disease. Your fertility program may also affect your ability to control the disease.

Fertility programs high in N that promote tall, lush, dense canopies will greatly impact how much fungicide gets to where it needs to be. Growers should apply high rates of chlorothalonil or manzate in a weekly rotation; or tank mix either with azoxystrobin (11); Cabrio (pyraclostrobin, 11); Priaxor (fluxapyroxad + pyraclostrobin, 7 +11); Quadris Top (3 + 11); Aprovia Top (3 + 7); or Topguard (flutriafol + azoxystrobin, 3 + 11) with a high volume of water (50 gal/A +) to ensure adequate coverage. Organic growers need to be extremely diligent with proper crop rotations, regular scouting to detect 'hot spots' early and make sure to remove all potential sources of inoculum. Weekly OMRI-approved copper applications may help suppress anthracnose. Other organic products have shown little or no efficacy against pepper anthracnose.

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

Identifying White Mold in Tomato Production

Andy Wyenandt, May 26, 2021

White mold, or timber rot, is caused by the soil-borne fungal pathogen, *Sclerotinia sclerotiorum*.

The photo on right shows a high tunnel tomato plant with main stem infected by white mold. Over time the entire plant will slowly collapse looking similar to a wilt or root rot pathogen as the water supply is cut off to the plant.

White mold is common and once introduced into a field or high tunnel it can be very difficult to control. The pathogen produces black sclerotia on the surface and inside infected stems. Sclerotia, if they make their way back into the soil, can survive for years causing significant problems.

Infected stems will turn a light brown color and dry up becoming brittle. If the main stem is infected the entire plant will collapse looking like a wilt or root rot issue.

Under hot, humid conditions white fungal growth will develop on the surface of the stems and in some cases sclerotia will develop on the outside of the stem. Breaking open the stem will reveal numerous black sclerotia.

All infected plants and or plant material need to be removed immediately and disposed of properly. Preventative protectant fungicide programs beginning at flowering will help control white mold. Cool, wet weather and poor air circulation favors disease development.

There are a number of control options for conventional and organic growers listed in Table E-11 in the 2020/2021 mid-Atlantic Commercial Vegetable Production Recommendations Guide.



High tunnel tomato plant with main stem infected by white mold.



Tomato stem infected by white hold. Note the fungal growth on the surface of the stem.



White mold of tomato. Note the black sclerotia developing inside the brittle stems.

Identifying and Controlling Leaf Mold in High Tunnel and Greenhouse Tomato Production

Andy Wyenandt, May 24, 2021

Leaf mold occasionally appears in high tunnel or greenhouse tomato production in New Jersey. However, under ideal conditions the disease will develop in field-grown crops. The fungus will cause infection under prolonged periods leaf wetness and when relative humidity remains above 85%. If relative humidity is below 85% the disease will not occur. Therefore, the proper venting of high tunnels and greenhouses on a regular basis is important. The pathogen can survive (overwinter) as a saprophyte on crop debris or as sclerotia in the soil. Conidia (spores) of the fungus can also survive up to one year in the soil.

Leaves of infected plants will develop pale-green or yellow spots that are distinct. A dense, olive-green to brown spore mass will develop on the undersides of infected leaves.

Management of leaf mold begins with recognizing early symptoms, applying preventative fungicides, and removing all infected plant material from the field, greenhouse, or high tunnel, and crop rotation. Protectant fungicides such as chlorothalonil used in weekly protectant spray programs will help control leaf mold. For organic growers, regular copper applications may help to suppress the disease.

For more information on options for controlling leaf mold in high tunnels and greenhouses please see Table E-11 in the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendations Guide.

Cultivars with resistance to leaf mold have been developed. A nice write up with more information on leaf mold and cultivars with resistance by Dr. Beth Gugino, vegetable pathologist at Penn State, can be found at [Leaf Mold on Tomato: Host Resistance is a Management Option](#).



Preparing for Anthracnose and Alternaria Leaf Blights in Cucurbit Crops

Andy Wyenandt, May 26, 2021

Anthracnose and Alternaria leaf blight can become problematic in cucurbit crops during long periods of wet, humid weather. Both can cause significant losses if not controlled properly. With the production season in full swing, now is a good time to review a few of these important diseases.

Anthracnose, caused by *Collectotrichum orbiculare*, and Alternaria leaf blight (*Alternaria cucumerina*) produce distinct spots on infected leaves, and in most cases, symptoms begin on the older leaves. With Alternaria, diagnostic concentric black rings will develop within the spots on infected leaves, often there is a chlorotic (yellow) halo around margins. With Anthracnose, spots always develop on veins on the underside of infected leaves. Often, black setae (hair-like projections) will develop on the veins of infected tissue. These symptoms make for easily diagnosing which disease might be present.

Both pathogens can overwinter on infected plant tissue in the soil for 1 to 2 years, thus extended crop rotations are important. Conidia (spores) develop from dormant mycelium in the soil and are splashed into the canopy causing primary infections during prolonged periods of humid, wet weather causing extended leaf wetness. Secondary infections and spread of both diseases can occur during the production season under favorable conditions for disease development.

Deep plowing debris or the removing of plant debris after harvesting, avoiding overhead irrigation during the production season, and most importantly, choosing cucurbit varieties with resistance are important cultural practices all conventional and organic growers should consider.

Anthracnose and Alternaria are easily controlled with weekly protectant fungicides such as chlorothalonil and mancozeb as long as they are applied prior to the arrival of the pathogen and on a regular basis during favorable disease development. Organic growers can apply copper and other labeled products to help suppress development of these diseases. Complete foliar coverage is critically important for the control of these diseases.

For more information on the control of anthracnose and Alternaria leaf blight in cucurbit crops please see the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendations Guide.

Additional Resources:

University of MN Extension: <https://extension.umn.edu/diseases/alternaria-leaf-blight>

University of Florida: <https://plantpath.ifas.ufl.edu/u-scout/cucurbit/alternaria-leaf-spot.html> – Images of Alternaria

University of Florida: <https://www.growingproduce.com/vegetables/aim-to-keep-anthracnose-out-of-your-cucurbit-crops/> – Additional information on anthracnose

University of MN: <https://extension.umn.edu/diseases/anthracnose-cucurbits> – Additional information on anthracnose of cucurbits

Obtaining your local Growing Degree-day information

 plant-pest-advisory.rutgers.edu/obtaining-your-local-growing-degree-day-information

March 17, 2021

Why use local growing degree-day models?

1. **You need to know local growing degree-day accumulation values to use pest scouting/management target lists like this.**
2. **Timing is everything in pest management!** Degree-day models allow us to predict **when to scout** for pests and **when to target vulnerable life stages** of pest development.
3. Growing degree-days (GDD50) refer to the of accumulation heating units, which are the average air temperature over a 24h period minus the minimum temperature threshold. To be considered a 'growing' degree-day, the minimum (or base) temperature threshold is 50°F.
4. GDD50 can be used to determine when pest life stage events such as egg hatch, adult emergence, crawler activity, adult flight, and others are likely to occur.
5. Many times plant and insect developmental stages coincide, thus **Plant Phenological Indicators** can be utilized to accurately scout for pests.
6. **Luckily, we do not need to manually enter or track this data due to the availability of FREE online tools.**

Important notes about growing degree-day models:

1. ***These models do not replace scouting.*** They should guide scouting efforts and pest management programs, once the vulnerable life stage or economic threshold of a pest is recorded. Observations at a local level for specific pests is critical to IPM efforts and further refinement of degree-day-based predictions.
2. **GDD50 values for pest development are not exact, rather they should be viewed as a range.**
3. The growing degree-day model (GDD50) is general by design. Some insect pests have specific formulas for their growth and development (**some examples here**). However, the GDD50 model is useful for many pests and plant species.
4. Many GDD50 target values were developed in other parts of the country and should be '**ground truthed**' at a local level. Blind applications of pesticides, without truthing pest development, may not deliver desired outcomes.

Two examples of degree-day calculators with instructions:

USPEST.org (home page) delivers a wide variety of degree-day, climatic, and risk-based modeling tools for various applications in agriculture. This resource also has a number of important disease predictive tools such as the **Boxwood Blight Risk Model**. The **USPEST growing degree-day application** allows for day-to-day monitoring as well as historical and predictive data. The following directions seem complicated but after a few attempts, it is easy to become proficient with this incredibly powerful modeling system. *Remember **BASE TEMP MUST = 50°F** (for all models to be considered a 'growing' degree-day model)*

Table 1. Uspest.org – Degree-day / Phenology Model – quick reference guide

Step #	Tab	Sub-category	Instructions	Notes
–	Intro	–	Educational	Detailed instructions
1	Station	Search bar	Enter – area code, town, or weather station code	example zip code: 08302
		Drop-down menu	Select – location of interest	example: NJ50 = Upper Deerfield
2	Model	Model Category	Select – all models	–
		Model	Select – degree-day calculator (general purpose)	Many interesting degree-day calculators are available
		Calculation Method	Select – Simple average/growing dds	Average air temperature over 24 hours minus lower (base) temperature threshold
		Lower	Input – 50 °F	50°F : lower threshold must be used for 'growing' degree-day predictions/charts
		Upper	Input – 95 °F	95°F : often used as upper temperature threshold value
		Dates	Select – date range	Can be current, past, or future date ranges
		Options	Optional* – modify forecast type	Default forecasting model: NMME (North American Multi-Model Ensemble)
3	Output	Model Output	Select – show full table (daily GDD accumulation)	'DDs cumu' = accumulated degree-days from selected start date

4	Graph	Graph	No action required	Graphical display of current year, forecasts, and previous years based on 'Dates' selected
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Link: https://uspest.org/dd/model_app

NEWA (homepage). Cornell University in cooperation with twenty-eight other groups and universities (including Rutgers) coordinate NEWA. NEWA contains a wide variety of robust degree-day models, climatic information and maps, and risk-based modeling tools for various applications in multitude crop systems. This resource also has a number of very useful, disease specific, predictive / monitoring / management tools for fruit, row, and vegetable crop diseases in addition to their **growing degree-day model** (*limited forecasting*).

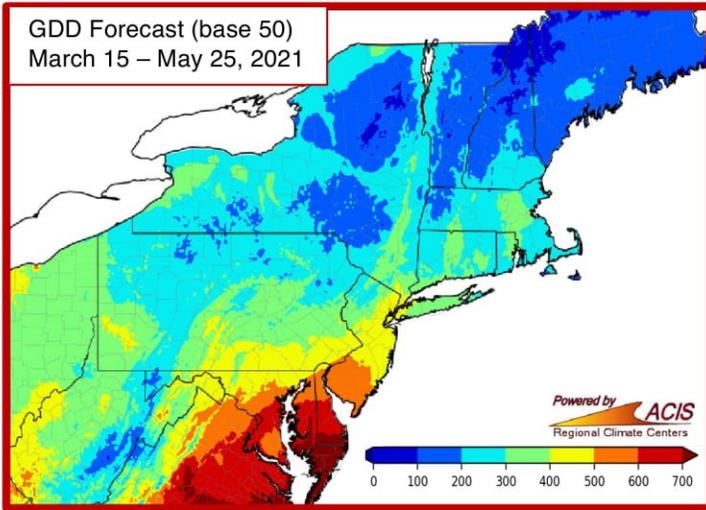
NEWA growing degree-day model instructions: **State:** select a state in the USA; **Weather Station** = find a local station from the list or click on the map; **Degree-day type** = Degree Days – **Base 50**. Then select the time range you wish to view. Once completed press **Get Report**. The results will display current and a 5-day forecast.

Informative resources:

- **University of California – degree-day basics with videos**
- **Accurately timing scouting by using Plant Phenological Indicators**

Please contact Tim Waller – Cumberland Co. Extension (Nursery Agent) if you need assistance setting up and using these powerful tools. (twaller@njaes.rutgers.edu)

March 17, 2021 Tim Waller



Pest Scouting Guide: (500-1300 GDD₅₀)

The information provided here gives **scouting ranges** for insect pests as well as forecasting of **GDD₅₀ accumulation predictions** to help time scouting and treatment efforts. This document supports scouting, *it does not replace it*. Keeping good notes on pest development will help dial in scouting and treatment efforts at your local level.

Location specific GDD₅₀ models can be obtained at: USPEST.org/dd/model_app and <http://newa.cornell.edu/>

Contact twaller@njaes.rutgers.edu for information

Projected GDD50 accumulation as of 5/26/2021						
Region	Location	26-May	1-Jun	1-Jul	1-Aug	1-Sep
Southern	Upper Deerfield (NJ50)	534	613	1291	2133	2919
Central	Howell / Freehold (NJ10)	391	463	1084	1878	2612
Northern	High Point (NJ59)	325	372	824	1430	1985

Forecast: NOAA NCEP Coupled Forecast System model version 2 (CFSv2) forecast system (3.5 months) (USPEST.ORG)

Redheaded flea beetle - life stage predictions for South, Central, and Northern New Jersey with material considerations										WE R HERE WHEN YOU NEED US	
Growth Stage	Gen.	GDD50 TARGET RANGE	GDD50 TARGET RANGE	Calendar date predictions for target range as of 4/26/2021						NOTES	Material / Compound Considerations (Examples = no endorsements implied) [IRAC GROUP #]
				SOUTH		CENTRAL		NORTH			
				LOW (DATE)	HIGH (DATE)	LOW (DATE)	HIGH (DATE)	LOW (DATE)	HIGH (DATE)		
Egg hatch - larvae	1st	242	600	2-May	29-May	10-May	6-Jun	24-May	21-Jun	(S) Initiate systemic treatments 1-month prior to adult activity (C) Contact materials may be used to knock-down larvae (B) Some bio-rational / logicals are effective on larvae - Look for larval activity on the outside of root balls - Larvae may be active prior to this GDD50 timeframe	SYSTEMIC Cyantraniliprole [28] (Mainspring) Chlorantraniliprole [28] (Acelepryn) Neonicotinoids [4A] Dinotefuran (Safari 20SC); Thiomethoxam (Flagship 25 WG); Imidacloprid (Imidacloprid 2F, Marathon 1G, Marathon II); cyfuthrin [3A] + imidacloprid (Discus)
Adults (feeding / laying eggs)	1st	517	1028	24-May	20-Jun	1-Jun	27-Jun	16-Jun	14-Jul	(S/C/B) Start adult contact sprays - continue systemic treatments (H) Control weeds - adults will hide-in and feed-on them - Adult feeding damage will be apparent - Scout to determine best time for applications - Use of agitator compounds may drive adults from hiding	Organophosphates [1B] Acephate (Orthene, Acephate 97UP)
POTENTIAL OVERLAP OF GENERATIONS / STAGES											
Egg hatch - larvae	2nd	1570	1860	10-Jul	21-Jul	17-Jul	29-Jul	11-Aug	27-Aug	(S) Continue systemic treatments (C/B) Contact materials to target larvae AND adults - Potential for considerable overlap of larvae - adult stages (H) Control weeds - adults will hide in and feed on them	CONTACT Bifenthrin [3A] (UP Star SC, Talstar Select) Carbamates [1A] - Carbaryl (Sevin SL) Tolfenpyrad [21A] (Hachi-Hachi SC) Cyclaniliprole [28] + Flonicamid [29] (Pradia)
Adults (feeding / laying eggs)	2nd	1878	2318	22-Jul	7-Aug	30-Jul	16-Aug	28-Aug	1-Oct	(C/B) Adult contact sprays (S) * If pest pressure is high * - continue systemic materials (H) Control weeds - adults will hide-in and feed-on them - Adult feeding damage will be apparent - Use of agitator compounds may drive adults from hiding	BIOLOGICAL / BIORATIONAL Azadirachtin (Aza-Direct, Azatin-O) Beneficial nematodes (Millennium) Entomopathogenic fungi (Ancora, BotaniGuard) Agitator (Captiva Prime)

* A third generation of larvae and feeding adults is possible in the southern and central regions *

Estimated using USPEST.org, 3.5-month CFSv2 based seasonal climate forecast, simple average growing degree-days, min temp: 50F, max temp: 95F.
Insect development growing degree-day ranges based on trials by Dr. Kunkel - Extension Specialist - University of Delaware

**Please sign up for the
Rutgers Plant and Pest Advisory
– LONT Edition for regular updates –**

Nursery and Landscape Pest Scouting - Growing Degree-day Ranges						(500 - 1300 GDD50)
Crop type	Common name	Latin name	GDD50 Range		GDD50 Reference	Developmental / Target Stage
			MIN <small>min: 50°F</small>	MAX <small>max: 95°F</small>		
Many	Spotted Lantern Fly	<i>Lycorma delicatula</i>	250	1000	PA Dept. Ag	1st-4th Instar (nymphs) - control target
Conifer	European pine shoot moth	<i>Rhyacionia buoliana</i>	480	710	5	Larvae Treatment
Malus, Prunus, many	Peach Tree Borer	<i>Synanthedon sp.</i>	500	600	RU	Adults - emerge (1st treatment both types)
Rhododendron	Rhododendron Borer	<i>Synanthedon rhododendri</i>	509	696	RU	Adults emerge
Many	Redheaded flea beetle	<i>Systema frontalis</i>	517	1028	Unv. Del	Adults - feeding / laying eggs
Many	Cottony camellia / taxus scale	<i>Pulvinaria floccifera</i>	520	-	6	Crawlers (1st generation)
Birch	Birch Leafminer	<i>Fenusia pusilla</i>	530	700	RU	Larvae (2nd generation)
Oak	Oak blotch leafminers	<i>Cameraria spp. ; Tisheria spp.</i>	533	912	5	Typical treatment window
Maple	Greenstriped mapleworm	<i>Dryocampa rubicunda</i>	533	1645	5	Control target
Conifer	Arborvitae Leafminer	<i>Argyresthia thuella</i>	533	700	RU	Adults (egg laying) - larvae treatments
Euonymus	Euonymus Scale	<i>Unaspis euonymil</i>	533	820	RU	Crawlers (1st generation)
Conifer	Balsam gall midge	<i>Paradiplosis tumifex</i>	550	700	4	Galls apparent
Conifer	Juniper scale	<i>Carulaspis juniperi</i>	550	700	7	Egg hatch
Malus, Prunus, many	Greater peach tree borer	<i>Synanthedon exitiosa</i>	575	710	4	Adult emergence
Conifer	Cryptomeria scale	<i>Aspidiotus cryptomeriae</i>	600	800	3	First crawler emergence
Conifer	Cooley spruce gall adelgid	<i>Adelges cooleyi</i>	600	1000	7	Nymphs active - Douglas fir (control target)
Conifer	Bagworm	<i>Thyridopteryx ephemeraeformis</i>	600	900	RU	Larvae (early instars) - ONLY CONTROL WINDOW
Conifer	Cryptomeria scale	<i>Aspidiotus cryptomeriae</i>	600	800	RU	Crawlers (1st generation)
Elm	Elm leaf beetle	<i>Xanthogaleruca luteola</i>	600	1300	7	Larvae (2nd generation)
Conifer	Spruce budscale	<i>Physokermes hemicryphus</i>	700	1150	4	Crawlers (1st generation)
Many	White prunicola scale	<i>Pseudaucaspis prunicola</i>	707	1151	RU	Crawlers (1st generation)
Conifer	Juniper scale	<i>Carulaspis juniperi</i>	707	1260	RU	Crawlers (1st generation)
Many	Calico scale	<i>Eulecanium cerasorum</i>	714	-	6	Crawlers (1st generation)
Conifer	Striped pine scale	<i>Toumeyella pini</i>	750	800	4	Egg hatch
Turf	Hairy cinch bug	<i>Blissus leucopterus</i>	765	870	RU	1st generation (50% - 2nd instar)
Oak, hickory, birch, many	Oak lecanium scale	<i>Parthenolecanium quercifex</i>	789	-	6	Crawlers (1st generation)
Rhododendron	Azalea Lacebug	<i>Stephanitis pyrioides</i>	802	1029	RU	Eggs / Nymphs 3rd Generation
Many, shadetrees	Cottony maple scale	<i>Pulvinaria innumerabilis</i>	802	1265	RU	Crawlers (1st generation) - control target
Oaks	Oak spider mites	<i>Oligonychus bicolor</i>	802	1265	RU	All Stages
Many	Roundheaded appletree borer	<i>Saperda candida</i>	802	1129	RU	Adults
Oaks	Golden oak scale	<i>Asterolecanium variolosum</i>	802	1266	5	Egg hatch
Acer	Cottony maple leaf scale	<i>Pulvinaria acericola</i>	802	1265	5	Crawlers (1st generation)
Maples	Japanese maple scale	<i>Lopholeucaspis japonica</i>	829	-	6	Crawlers (1st generation)
Elm	European elm scale	<i>Gossyparia spuria</i>	831	1388	6,2	Crawlers (1st generation)
Mimosa,	Mimosa webworm	<i>Homadaula anisocentra</i>	880	-	RU	Larvae (1st generation)
Turf	Bluegrass billbug	<i>Sphenophorus parvulus</i>	884	1003	RU	Larvae 20%
Turf	N. Masked chafer	<i>Cyclocephala borealis</i>	898	905	RU	1st adults
Honeylocust	Honeylocust mite	<i>Eotetranychus multigituli</i>	912	1514	2	All Stages
Honeylocust	Honeylocust spider mite	<i>Platytetranychus multigituli</i>	912	1514	5	Typical treatment window
Shade trees	European fruit lecanium	<i>Parthenolecanium corni</i>	932	1645	6,RU	Crawlers - control target
Many	Japanese beetle	<i>Popillia japonica</i>	950	2150	7	Adult emergence and feeding
Conifer	Pine tortoise scale	<i>Toumeyella parvicornis</i>	1000	1200	4	Egg hatch ends, last of crawlers
Ash	Emerald ash borer	<i>Agrilus planipennis</i>	1000	1200	4	Peak adult activity
Many	Redheaded flea beetle	<i>Systema frontalis</i>	1028	1570	Unv. Del	2nd generation of un-hatched eggs
Yew, many conifers	Fletcher Scale (Yew)	<i>Parthenolecanium fletcheri</i>	1029	1388	RU	Crawlers (1st generation) - control target
Locust	Locust leafminer	<i>Odontota dorsalis</i>	1029	1388	RU	Adults
Juglandaceae	Walnut Caterpillar	<i>Datana integerrima</i>	1029	1514	2	Larvae Treatment
Many	Indian wax scale	<i>Ceroplastes ceriferus</i>	1145	-	6	Crawlers (1st generation)
Many	Oriental Beetle	<i>Anomala orientalis</i>	1147	-	6	Adult emergence
Euonymus	Euonymus Scale	<i>Unaspis euonymil</i>	1150	1388	5	2nd generation targeted treatments
Dogwood	Dogwood sawfly	<i>Macremphytus tarsatus</i>	1151	1500	RU	Larvae Treatment
Tulip	Tuliptree aphid	<i>Illinoia liriodendri</i>	1151	1514	RU	Nymphs / adults
Conifer	Northern pine weevil	<i>Pissodes nemorensis</i>	1200	1400	4	2nd generation adults active
Conifer	Pine root collar weevil	<i>Hyllobius radialis</i>	1200	1400	4	2nd generation adults active
Conifer	White pine weevil	<i>Pissodes strobi</i>	1200	1400	4	2nd generation adults active
Boxwood	Boxwood leafminer	<i>Monoarthralpalpus flavus</i>	1200	1400	5	Larvae Treatment
Conifer	Pine Needle Scale	<i>Chionaspis pinifoliae</i>	1250	1350	7	Crawlers (2nd generation)
Rhododendron	Azalea whitefly	<i>Pealius azaleae</i>	1250	1500	5	Adults/nymphs
Many	Lacebugs (on hawthorn)	<i>Corythucha cydoniae</i>	1266	1544	RU	Nymphs / adults
Many	Leafhoppers	Species within <i>Cicadellidae</i>	1266	1544	RU	Nymphs / adults
Many	Fall webworm	<i>Hyphantria cunea</i>	1266	1795	2	Caterpillars present - larvae treatment
Privet	Privet rust mite	<i>Aculus ligustri</i>	1266	1515	5	Second typical treatment window
Many	Two spotted spider mite	<i>Tetranychus urticae</i>	1300	2000	RU	Nymphs / adults
<p>Note: Growing degree-day values utilize daily average air temperatures with a minimum temperature threshold (a.k.a. 'base') of 50°F = GDD50 (max. temp. threshold set at 95°F). 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.</p> <p>Daily GDD50 = $(\text{Max} + \text{Min temp.}) / 2 - 50$ (min temp. threshold)</p>			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_landscap_insects		
			Unv. Del.	Corespondance with Dr. Kunkel (University of Delaware)- <i>evolving GDD ranges</i>		



State of New Jersey

DEPARTMENT OF AGRICULTURE
PO Box 330
TRENTON NJ 08625-0330

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DOUGLAS H. FISHER
Secretary

May 25, 2021

Governor Phil Murphy has signed Executive Order No. 242, lifting major COVID-19 restrictions and moving forward with the state's most significant reopening steps to date. Effective on Friday, May 28, the indoor mask mandate in public spaces will be lifted, as well as the six-foot social distancing requirement in both indoor and outdoor spaces, the prohibition on dance floors at bars and restaurants, and the prohibition on ordering and eating/drinking while standing at bars and restaurants. Additionally, effective Friday, June 4, indoor gathering and capacity limits will be lifted.

Over the last two weeks, key COVID-19 benchmarks have been achieved across New Jersey, including a dramatic increase in vaccinations, and significant decreases in new COVID-19 cases, hospitalizations, spot positivity rates, and rates of transmission, solidifying the foundation for the state's sweeping reopening steps. Per Centers for Disease Control and Prevention (CDC) guidance, individuals who are not fully vaccinated -- defined as two weeks after receiving the second shot of a two-dose vaccination (Pfizer-BioNTech or Moderna) or two weeks after receiving a single-dose vaccination (Johnson & Johnson) -- are strongly encouraged to continue masking and social distancing.

The following changes will go into effect on Friday, May 28:

- **Lifting the mask mandate in indoor public spaces**
 - Businesses and entities overseeing indoor spaces will continue to have the ability to require masking for employees, customers, and/or guests.
- **Lifting the six-foot social distancing requirement.**
 - The requirement will be lifted in businesses, including retail stores, personal care services, gyms, recreational and entertainment businesses, and casinos, and indoor gatherings, including religious services, political activities, weddings, funerals, memorial services, commercial gatherings, catered events, sports competitions, and performances.
 - Businesses and entities overseeing indoor spaces can continue to require social distancing should they choose.
- **Lifting prohibition on dance floors at bars and restaurants.** The prohibition on ordering and eating/drinking while standing at bars and restaurants will also be lifted.

The following changes will go into effect Friday, June 4:

- Removing the general indoor gathering limit, which is currently at 50 people.
- Removing the indoor gathering limit for political gatherings, weddings, funerals, memorial services, performances, and other catered and commercial events, which is currently at 250 people.
- Removing 30 percent capacity limitation for indoor large venues with a fixed-seating capacity over 1,000.

The full text of Executive Order No. 242 can be found here:

<https://nj.gov/infobank/eo/056murphy/pdf/EO-242.pdf>

Sincerely,

A handwritten signature in black ink, appearing to read 'Douglas Fisher', written in a cursive style.

Douglas Fisher



State of New Jersey

DEPARTMENT OF AGRICULTURE
HEALTH / AGRICULTURE BUILDING
PO Box 330
TRENTON NJ 08625-0330

PHILIP D. MURPHY
Governor

DOUGLAS H. FISHER
Secretary

SHEILA Y. OLIVER
Lt. Governor

URGENT REQUEST

May 6, 2021

Dear Farm Owner/Operator,

As you are all aware, New Jersey remains under a Public Health Emergency as we try to contain and prevent the spread of COVID-19, a contagious and, at times, fatal disease transmitted mainly through close contact with infected people, such as an infected person's coughs and sneezes.

The Department of Health has identified farm workers as one of the most vulnerable populations in the state for potentially contracting COVID-19 because such employees typically work and live near each other.

Over the past several months, the Department of Agriculture has been closely coordinating with the Departments of Health and Labor to assist farm operators and farm workers in minimizing and controlling the spread of COVID-19 during this pandemic. New Jersey has worked hard to make sure Federally Qualified Health Centers (FQHCs) and other health entities across the state can offer COVID-19 vaccinations, testing, and educational and related support services FREE OF CHARGE for all farm workers. The Department of Health has also created [guidelines for seasonal farm labor camps](#), ["Quick Facts" infographic](#), ["COVID-19 Vaccine Quick Facts"](#) and prevention signs on [face coverings](#), [hand cleaning](#), [social distancing](#), and [helpful hotlines](#).

The Commissioners of the Department of Health and Labor strongly urge farm workers and staff to be vaccinated by an FQHC or other health entity. This will help reduce the risk of spreading the virus.

Our goal in New Jersey is to ensure equitable access to vaccinations throughout the state. To accomplish this goal, we are engaging in a multi-faceted approach to assist the agriculture community in getting tested and vaccinated.

- First, the website, covid19.nj.gov/finder enables individual farm owners and farm workers to search for available vaccine appointments across New Jersey and register directly with a health center.
- Second, in an effort to vaccinate groups of farm workers on or at nearby farms, local health centers or community organizers may contact your farm directly to set up a vaccination event.

- Finally, if you have not been contacted by a neighboring health center, we encourage you to complete this survey <http://healthsurveys.nj.gov/NoviSurvey/n/zz2jr.aspx> or email njmsfw@doh.nj.gov and the staff at the Department of Health will connect you to a neighboring health center.

We also want to take this opportunity to address concerns around the Janssen (Johnson & Johnson) COVID-19 vaccine. Following a thorough safety review, including two meetings of the CDC's Advisory Committee on Immunization Practices, the U.S. Food and Drug Administration and the U.S. Centers for Disease Control and Prevention have determined that the recommended pause regarding the use of the Janssen (Johnson & Johnson) COVID-19 vaccine in the U.S. should be lifted and use of the vaccine should resume. The two agencies have restated their confidence that the vaccine is safe and effective in preventing COVID-19.

As the NJ Department of Health and NJ Department of Labor await possible changes at the federal level, we urge you to continue following current guidance and requirements to prevent the spread of COVID-19.

- The [2020 Guidance](#) for Migrant and Seasonal Farm workers, Their Employers and Housing Providers continues to be in effect. The Commissioner of the Department of Health has broad powers under the Emergency Health Powers Act to take all reasonable and necessary measures to prevent the transmission of infectious disease, which can include mandated testing for COVID-19 as part of this guidance (N.J.S.A. 26: 13-12; 13-13).
- Additionally, to protect workers, customers, and others who come into physical contact with any business, [Executive Order 192](#) health and safety requirements remain in effect.

A stakeholder call to the agricultural community, hosted by the Departments of Health, Labor, and Agriculture will be held in May and details will be forthcoming. We look forward to speaking with you then.

New Jersey Is An Equal Opportunity Employer •
www.nj.gov/agriculture

Let's stand together and demonstrate the agricultural community's responsible reaction in confronting this unprecedented situation with emphasis on the safety of workers and farm families across the state.

Sincerely,



Douglas Fisher
Secretary, NJ Department of Agriculture

Sincerely,



Judith M. Persichilli, RN, BSN, MA
Commissioner
New Jersey Department of Health



NEWS RELEASE

United States Department of Agriculture
NATIONAL AGRICULTURAL STATISTICS SERVICE
NEW JERSEY FIELD OFFICE
PO Box 330 Trenton, NJ 08625



FOR IMMEDIATE RELEASE
May 21, 2021

Contact: Bruce Eklund
(503) 308-0404

New Jersey 2020 Annual Vegetable Report

TRENTON, NJ - New Jersey 2020 sales for principal vegetables totaled \$224 million, from over 32 thousand acres according to Bruce Eklund, state statistician of the USDA's National Agricultural Statistics Service, New Jersey Field Office.

Sales increases over 2019 came from cabbage, eggplant, herbs, kale, bell peppers, pumpkins, winter squash, and sweet corn. Increases in acreage came from cabbage, eggplant, escarole & endive, herbs, kale, bell peppers, winter squash, and sweet corn.

Bell peppers and tomatoes led in value of production, accounting for 46% of the total. Overall, prices received were a little higher than 2019. These vegetable estimates represent crops grown in the open, not those grown under glass or other protection. For information on vegetables grown under protection, please see the *Census of Horticulture*.

New Jersey Principal Vegetables, Annual Summary - 2020 ^{1/}							
Crop	Acres Planted	Acres Harvested	Yield per Acre	Production		Season Average Price	Value of Utilized Production
				Total	Utilized		
Principal Vegetables	-- acres --	-- acres --	-- cwt --	-- 1,000 cwt --		-- \$ per cwt --	-- \$ 1,000 --
Asparagus	2,000	1,900	30	57.0	56.9	262.00	14,896
Cabbage 2/	1,700	1,600	273	437.0	416.0	24.00	9,984
Collards 2/	650	600	195	117.0	117.0	17.40	2,036
Cucumbers 2/.....	1,800	1,800	150	270.0	270.0	29.30	7,911
Eggplant 2/	700	680	205	140.0	132.0	61.10	8,066
Escarole & Endive 2/	230	210	165	35.0	30.0	29.60	888
Other Herbs 2/ 3/.....	1,700	1,600	125	200.0	200.0	74.00	14,800
Kale 2/	920	880	90	79.0	79.0	40.70	3,216
Lettuce, All 2/ 4/.....	1,100	1,100	182	200.0	188.0	49.00	9,222
Parsley 2/	600	550	125	69.0	69.0	43.40	2,995
Peppers, Bell	3,900	3,800	275	1,045.0	1,045.0	53.60	55,966
Pumpkins 2/.....	1,500	1,300	110	143.0	143.0	55.10	7,879
Snap Beans 2/.....	1,600	1,500	30	45.0	45.0	62.80	2,827
Spinach.....	1,800	1,700	115	195.5	194.5	31.80	6,182
Squash, All	3,800	3,700	77	284.9	239.3	46.20	11,056
Squash, Summer 2/	2,300	2,250	86	193.5	153.5	50.35	7,728
Squash, Winter 2/	1,500	1,450	63	91.4	85.8	38.80	3,328
Sweet Corn 2/.....	6,300	6,200	82	508.0	463.0	39.50	18,280
Tomatoes 2/.....	3,100	3,000	265	795.0	756.0	63.40	47,923
Total.....	33,400	32,120	143.8	4,620.4	4,443.7	48.50	224,127
Or Production in tons	-- acres --	-- acres --	-- tons --	-- tons --		-- \$ per ton --	-- \$ 1,000 --
Total	33,400	32,120	7.19	231,020	222,185	970.00	224,127

1/ Principal vegetables include fresh and processing use.
2/ Not in the Federal Estimating Program, state estimate only.
3/ Includes arugula, basil, chives, coriander, cress, fennel, sage, thyme, etc.
4/ Includes head lettuce, Romaine, and all other lettuce.

The New Jersey Annual Vegetable Report can be found here:

[https://www.nass.usda.gov/Statistics by State/New Jersey/Publications/Principal Vegetables Annual Summary/index.php](https://www.nass.usda.gov/Statistics%20by%20State/New%20Jersey/Publications/Principal%20Vegetables%20Annual%20Summary/index.php)

The Census of Horticulture can be found here:

[https://www.nass.usda.gov/Publications/AgCensus/2017/Online Resources/Census of Horticulture Specialties/index.php](https://www.nass.usda.gov/Publications/AgCensus/2017/Online%20Resources/Census%20of%20Horticulture%20Specialties/index.php)

Phytophthora in Conifers

Rutgers Cooperative Extension

Specialty Crop Block Grant Project

Timothy Waller – Cumberland County & Bill Errickson – Monmouth County

We are looking to select 30 NJ conifer producers to participate in a statewide Phytophthora project in order to characterize what pathogen species are present and how to ultimately manage them more effectively in our nurseries. The agents will schedule one to three visits this growing season to collect samples from roots, bark, soil, irrigation systems, and will perform soil testing.

LOOKING FOR
SAMPLE
LOCATION
PARTICIPANTS



Phytophthora in Conifers - Sample Location Participants Survey

1. Please provide the following information:

- Farm name: _____
- County: _____
- Town: _____
- Contact number: _____
- Contact email: _____

2. Do you have conifers with suspected Phytophthora issues?

- (YES) (NO) (circle one)

3. Do you have broadleaf evergreens with suspected Phytophthora issues?

- (YES) (NO) (circle one)

4. Please rate perceived damages due to Phytophthora at your operation.

- Low - (1) (2) (3) (4) (5) - High (circle one)

5. Percentage of profits lost to Phytophthora?

- _____%

6. Would you participate in the Phytophthora project?

- (YES) (NO) (circle one)

7. If selected for the initial sample collection, would you be interested in follow-up studies?

- (YES) (NO) (circle one)

Please visit <https://go.rutgers.edu/parhgf1u> or use the QR CODE to fill out this form online or complete this form and mail, fax, drop-off, or call the number below to be considered.

Timothy James Waller, Ph.D. Agricultural Agent of Cumberland County

291 Morton Ave, Millville, NJ 08332 Phone: (856) 451-2800 ext. 1 Fax: (856) 451-4206 Email: twaller@njaes.rutgers.edu

WE **R** HERE WHEN YOU NEED US

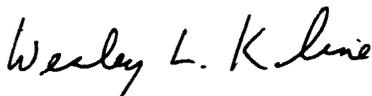
REGULARLY SCHEDULED MEETINGS

<p align="center">Pesticide Certification Exams</p>	<p align="center">Cumberland County Agriculture Development Board</p>	<p align="center">Cumberland County Board Of Agriculture</p>
<p>Testing is currently being held virtually because of the COVID pandemic.</p>	<p align="center">Virtual Meeting Information can be found on the Public Meeting Calendar on co.cumberland.nj.us</p>	<p align="center">Virtual Meeting Information https://rutgers.zoom.us/my/smangia Meeting ID: 529 557 9817 Passcode: Sal2020 Or call 1 (646) 558-8656</p>
<p>Rutgers will be taking over the pesticide exam program.</p>	<p align="center">June 15 July 13 Aug. 10 Sept. 14 Oct. 12 Nov. 9 Dec. 14</p>	<p align="center">Sept. 16 Oct. 21 Nov. 18 Dec. 16</p>
<p>Sign-up and find more information at https://pacer.rutgers.edu/</p>	<p align="center">Meetings start at 7 p.m. For more information call the Dept. of Planning, Tourism and Community Affairs at 856-453-2175</p>	<p align="center">Meetings start at 7 p.m. For information call Lew DePietro, President at 856-981-9843</p>

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)

Sincerely,



Wesley L. Kline, Ph.D.
Cooperative Extension Agent
Vegetable Production and Food Safety
WKline@njaes.rutgers.edu



Timothy J. Waller, Ph.D.
Cooperative Extension Agent
Nursery Production
TWaller@njaes.rutgers.edu



Salvatore Mangiafico, Ph.D.
Extension Department Head &
Environmental and Resource Mgt. Agent
Mangiafico@njaes.rutgers.edu

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The user is responsible for the proper use of pesticides, residues on crops, storage and disposal, as well as damages caused by drift.

Use of Trade Names: Trade names are used in this publication with the understanding that no discrimination is intended and no endorsement is implied. In some instances the compound may be sold under different trade names, which may vary as to label.

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/>

Public Notification and Non-discrimination Statement

Rutgers Cooperative Extension is an equal opportunity program provider and employer. Contact your local Extension Office for information regarding special needs or accommodations. Contact the State Extension Director's Office if you have concerns related to discrimination, 848-932-3584.

Cooperative Extension of Cumberland County



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