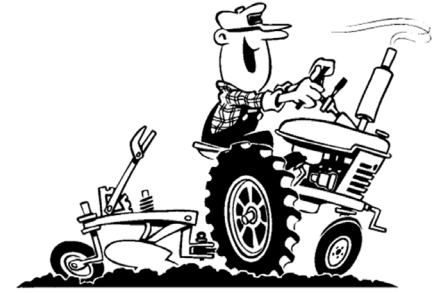


# Cultivating Cumberland

July - 2022

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## USDA Announces Assistance for On-Farm Food Safety Expenses for Specialty Crop Growers

The Food Safety Certification for Specialty Crops Program (FSCSC) will assist specialty crop operations that incurred eligible on-farm food safety certification and related expenses related to obtaining or renewing a food safety certification in calendar years 2022 and 2023. For each year, FSCSC covers a percentage of the specialty crop operation's cost of obtaining or renewing their certification, as well as a portion of their related expenses. USDA defines specialty crops as most of the fruits, herbs and vegetables grown in New Jersey.

To be eligible for FSCSC, the applicant must be a specialty crop operation; meet the definition of a small business or very small business; and have paid eligible expenses related to the 2022 (issued on or after June 21, 2022) or 2023 certification. Very small (up to \$250,000) and small farms (less than 500,000) average monetary value of specialty crops sold during the 3-year period preceding the program are eligible.

Specialty crop operations may receive assistance for the following costs:

- Developing a food safety plan for first-time food safety certification.
- Maintaining or updating an existing food safety plan.
- Food safety certification.
- Certification upload fees.
- Microbiological testing for products, soil amendments and water.
- Training.

FSCSC payments are calculated separately for each category of eligible costs. A higher payment rate has been set for socially disadvantaged, limited resource, beginning and veteran farmers and ranchers. Details about the payment rates and limitations can be found at [farmers.gov/food-safety](http://farmers.gov/food-safety). Also, a fact sheet with details is included in this newsletter.

### Applying for Assistance

The FSCSC application period for 2022 is June 27, 2022, through January 31, 2023, and the application period for 2023 will be announced at a later date. FSA will issue payments at the time of application approval for 2022 and after the application period ends for 2023. If calculated payments exceed the amount of available funding, payments will be prorated.

Interested specialty crop producers can apply by completing the FSA-888, Food Safety Certification for Specialty Crops Program (FSCSC) application. The application, along with other required documents, can be submitted to the FSA office at any USDA Service Center nationwide by mail, fax, hand delivery or via electronic means. Producers can visit [farmers.gov/service-locator](http://farmers.gov/service-locator) to find their local FSA office. The local FSA office for Cumberland, Atlantic and Cape May is located at 1318 South Main Rd., Bldg. 5A, Vineland, NJ 08360, telephone 856-205-1225. Specialty crop producers can also call 877-508-8364 to speak directly with a USDA employee ready to assist.

### Attachments:

- Food Safety Certification for Specialty Crops
- GDD

## **Cucurbit Powdery Mildew Control in 2022**

Andy Wyenandt, June 20, 2022

Cucurbit powdery mildew (CPM), caused by *Podosphaera xanthii*, is one of 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 Carolinas, 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 begins.

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 choose 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.

Over the past 15 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 is these new fungicide chemistries have less effects on humans, non-target organisms, and the environment.

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 an 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 each letter above equals a fungicide from a different FRAC group. 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 is to reduce the total number of applications of any one high-risk fungicide during the production season. Dr. Sally Miller, from The Ohio State University and Dr. Meg McGrath, from Cornell

University have written excellent articles for controlling CPM in 2022. It is 'Preparing for cucurbit powdery mildew' by Dr. Sally Miller, OSU 'Cucurbit powdery mildew' by Dr. Meg McGrath, Cornell University For more information on fungicide use, FRAC groups, and specific control recommendations please see the 2022/2023 Mid-Atlantic Commercial Vegetable Production Recommendation Guide.

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## **Diagnosing Verticillium Wilt in Eggplant**

June 26, 2022 Andy Wyenandt

Verticillium wilt is a common soil-borne fungal pathogen that once it has infested soil can remain for a very long time. Verticillium wilt is caused by either *Verticillium albo-atrum* or *Verticillium dahlia* and has a wide host range (over 200 plant species). Both pathogens can survive (overwinter) as microsclerotia in the soil. Verticillium wilt prefers cooler weather and drier soils and can be more severe in neutral to alkaline soils. Solanaceous weeds such as nightshade may harbor the pathogen.

Symptoms can vary between hosts, but on eggplant the leaves of infected plants will typically become lopsided where one side of the leaf will wilt and stop expanding while the other side continues to develop. Vascular tissue near the soil line will become discolored. Eventually the entire plant will collapse as the vascular tissue becomes more infected (clogged) and water movement up the plant stops.

There is no resistance to verticillium wilt in eggplant so long crop rotations with no susceptible crops are critically important. Some cultivars, such as 'Classic' and 'Epic' may maintain yield in infested fields.

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## **New Rutgers Fact Sheets**

The following new fact sheet is available on NJAES Publications:

- FS1342:** Site Selection Considerations for New and Expanding Farms (Rutgers NJAES)  
Errickson, W., Hlubik, W., Pearsall, B. and Errickson, L.  
Find it online by going to <https://njaes.rutgers.edu/fs1342/>
- FS1343:** Hemp Production for Fiber (Rutgers NJAES)  
Komar, S. and Bamka, W.  
Find it online by going to <https://njaes.rutgers.edu/fs1343/>

## **Organic Production: Suppressing Soil-borne Pathogens in 2022**

Andy Wyenandt, June 27, 2022

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) 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 and more please see Table E-11 on pages 137-141 of the 2022/2023 Mid-Atlantic Commercial Vegetable Production Recommendations. Table E-11 has been updated significantly in the 2022/2023 guide. Applications of the products mentioned above should be done according to the manufacturer's label.

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## **Fertilizer, Lime, and Animal Feed Testing Fertilizer, Lime, and Animal Feed Testing**

Wesley Kline, June 28, 2022

The New Jersey Department of Agriculture provides field inspection, sampling and laboratory analysis of animal feed, fertilizers and liming material sold in New Jersey. These analyses, coupled with enforcement actions against producers of mislabeled or substandard products, enable the division to protect crop yields and promote animal growth. Label or registration violations found during field inspections and analyses result in those items being removed from sale and, in some cases, fines levied against manufacturers and refunds to buyers.

If a grower wants their material tested, they must contact New Jersey Department of Agriculture, Division of Marketing and Development, [AgChem@ag.nj.gov](mailto:AgChem@ag.nj.gov), (609) 913-6506 or FAX (609) 984-2508. An inspector will come to your location and sample the material. They cannot take a sample after the product has been open or after part of it was used.

## Phytophthora Blight Control in Pepper in 2022

Andy Wyenandt, June 23, 2022

Phytophthora blight typically develops in low-lying areas after a heavy rain and can spread quickly throughout the entire field. 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 the extended period of dry weather works against Phytophthora development, it can lead to Rhizoctonia root rot issues in newly transplanted plugs.

### Cultural Recommendations

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.

### Chemical Recommendations

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

### Recommendations for Organic Practices

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.



## **Preparing for Pepper Anthracnose in 2022**

Andy Wyenandt, June 24, 2022

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 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 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 chorothalonil 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

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+ 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 2022/2023 Mid-Atlantic Commercial Vegetable Production Recommendations Guide.

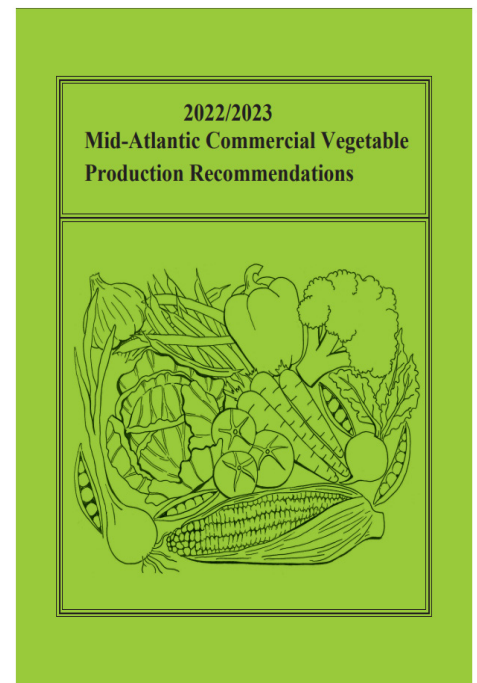
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## **2022/2023 Mid-Atlantic Commercial Vegetable Production Recommendations**

They are \$25 each. You can pick them up in our office; 291 Morton Ave., Millville

These recommendations are intended for the commercial vegetable grower who has to make numerous managerial decisions. Although the proper choices of variety, pesticides, equipment, irrigation, fertilizer, and cultural practices are the individual vegetable grower's responsibility, it is intended that these recommendations will facilitate decision-making.

This copy of the 2022/2023 Mid-Atlantic Commercial Vegetable Production Recommendations replaces all previous editions of the Commercial Vegetable Production Recommendations published individually for Delaware, Maryland, New Jersey, Pennsylvania, Virginia, and West Virginia.





## **Native White Birches & Their Resistance to the Bronze Birch Borer**

Steven Rettke – 2022 – Nursery IPM

Visit for more photos and content: [plant-pest-advisory.rutgers.edu/native-white-birches-their-resistance-to-the-bronze-birch-borer](http://plant-pest-advisory.rutgers.edu/native-white-birches-their-resistance-to-the-bronze-birch-borer)

### **The Dilemma Regarding Birch Trees**

Bronze Birch Borer (*Agrilus anxius*) adults (440-800 GDD) are now actively searching landscapes for various species of *Betula* (Birch) to lay eggs upon. The adult beetles will be attracted to susceptible trees that are genetically defenseless or are compromised from stress (e.g., especially drought stress). It is well known that the native River Birch (*Betula nigra*) has a strong resistance against the BBB. As a result, this species has been extensively planted in NJ landscapes during the past few decades to the extent of arguably being over-planted. And it is also widely understood that the non-native Asian & European birch species have virtually no or little resistance to the BBB. Therefore, the planting of these non-natives has rightfully been reduced over the decades. However, what about some of our other native species such as the paper, gray, & yellow birches. Is it best to avoid planting these species as well?

### **Wood Borers Are the True Landscape Assassins**

Wood-boring insects can have devastating effects on landscape plants. Although many plants are tolerant to leaf-feeding herbivores, they cannot tolerate extensive feeding within their vascular systems. For example, bronze birch borer (BBB) larvae feed within the phloem of birch and typically girdle branches or trunks. Removal of bark will show crooked, criss-crossing tunnels within the inner bark. The resultant interference of the translocation of photosynthates (e.g., carbohydrates/starches) from the phloem to the roots results in tree starvation. Declining roots subsequently cause a reduction in the absorption of water and nutrients that results in the death of the tree with symptoms often starting at the top. The tree declines from the top-down because of hydraulic resistance. It is a myth that the bronze birch borer attacks the top of a birch tree first. This wood-boring species attacks anywhere on the tree where branches exceed 1-inch in diameter but will especially be attracted to bark wounds. Therefore, avoid making pruning cuts to birch during late spring (May/June), when adult BBB are actively laying eggs. There is only one generation per year, but individual larvae may require two years to complete their life cycle.

### **Should White Bark Birches Be Planted?**

It is commonly assumed that white bark birches should not be planted in New Jersey landscapes because of the lethal bronze birch borer. Native birch trees have evolved with the BBB and have developed powerful defenses against this woodborer. In 1979, a 20-year study was initiated @ the OARDC (Ohio Agricultural Research & Development Center) in Wooster, Ohio that attempted to determine the susceptibility of several species of white-barked birches to the BBB. In a highly replicated study, seven different birch species involved in the research were each represented by 200 trees (for a total of 1400 trees). The seven birch species included three native species (gray birch (*B. populifolia*), paper birch (*B. papyrifera*), and river birch (*B. nigra*)); two Asian species, (monarch birch (*B. maximowicziana*) and Asian white birch (*B. pendula* var. 'szechwanica')); two European species (European white birch (*B. platyphylla*) and mountain birch (*B.*

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pubescens)). All trees received fertilization & irrigation during the early years, but thereafter, they received no additional supplemental care.

## Results of the OARDC Twenty-Year Research

The three native North American birch species showed strong resistance to the BBB. The river birch is virtually immune and is rarely a host of the BBB. The native river species only exhibited 2% mortality during the 20 years. After 20 years, more than 75% of the initial 200 native paper birch species were alive and growing well in the research plots. After the 20-year study, the only birch trees left standing were the native North American species. At the other end of the spectrum, the European white, mountain, and Asian white birch species were all dead in the experimental plots in less than 10 years (all 600 trees). Virtually 100% of the tree mortality was attributed to infestations by the BBB. The monarch species fared better, but after 11-years (1990) only 10% of these trees were alive, and after 20-years (1999) they also had succumbed to the BBB. Therefore, as the study continued over the years, eventually all the nonnative birch tree species indicated a tremendous number of BBB emergence holes per square meter of bark surface. Although reduced through the years, why have Asian & European white birch species continued to at least occasionally be sold & planted in our region? The perceived problem with the native birch species is that their bark does not turn white fast enough as they age. The bark of the Asian & European birches becomes white at an early age & is considered more desirable. Also, from a more cynical business perspective, the reason some nurseries continue to sell non-native Asian & European birch species is that there is a need for a lot of replacements!

## Native White Birches & Plant Defense Theory

Our native birches can defend themselves by several different mechanisms. The birch trees can protect themselves through the rapid accumulation of secondary metabolites (i.e., organic defensive chemicals) at the point of BBB attack. Also, protection can occur through rapid callus tissue formation (wound periderm) in areas of BBB larvae feeding. The callus formation & the phenolic compounds are therefore stimulated by the feeding wounds made by the larvae. This callus tissue is hard & dense & can crush BBB larvae as they attempt to feed within the inner bark. Furthermore, the ability to have more rapid compartmentalization of wounded trunk areas is theorized as another important defense in resistant birch trees (i.e., CODIT or Compartmentalization of Decay in Trees).

## Avoid Drought Stress to Maintain Resistance

The susceptibility of drought-stressed vs. well-irrigated birch trees to the bronze birch borer was also studied in the OARDC field experiments. The results of these studies indicated that the native gray and paper birch species would maintain their resistance to BBB when one inch of water per week is provided throughout the growing season. When available water was reduced to less than ½ inch per week the resistance of both birch species to the BBB was reduced significantly. During drought conditions, the native birch trees (gray & paper species) will have reduced wound periderm growth rates. When callus tissue growth becomes less than 0.02 mm/day, then BBB resistance is greatly reduced & the % of infested trees increases exponentially. The field experiments with the paper & gray birch species @ OARDC indicated that when these native trees received 4 or 12 inches of irrigation per year, then the percent mortality by

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the BBB was 100% and 75%, respectively. On the other hand, when irrigation levels approximated normal annual rainfall (i.e., 36 inches per year), then after 20 years only 25% mortality of paper birch from the BBB occurred (the gray birch mortality was even less).

## Summary & Conclusions

During June, the adult bronze birch borer beetle will lay eggs on birches (i.e., primarily European white, Asian white, paper & gray birch) that are under stress (i.e., drought stress, heat stress, compacted soil, excess shade stress, etc.). The bullet-shaped, metallic black adult beetles (1/2-inch) will lay eggs on branches (>1-inch) as well as the main trunk. **Monitor for adult activity & last year's exit holes, which are shaped like the letter "D" (1/4-inch).** Symptoms include initial dieback from the upper branch tips, that eventually continue down the tree. Sometimes "ripples" are noticed beneath the bark. These are raised areas caused by borer galleries as larvae pack frass & sawdust as they tunnel within the inner bark. Remember, wood borers are present because the tree is already under stress. Relieve stress as much as possible by watering during drought conditions, mulching, fertilizing, controlling birch leaf miner, & pruning out dead wood (but not just before BBB adult emergence, since adults are attracted to wounds to lay eggs). **Pesticide bark sprays are effective when timed to target newly hatched larvae as they chew through the bark into the tree.** Pyrethroid insecticide treatments offer good preventative controls (i.e., provide a 3-week residual) if the bark is sprayed thoroughly before eggs are laid in many small cracks & crevices. Systemic insecticides (e.g., neonicotinoids) applied to the soil or as bark sprays/trunk injections offer excellent protection. BBB will often be more severe the year following a drought that occurred during the previous summer. Overall, European & Asian birch species are highly susceptible to invasion by the BBB. Our native birch trees (e.g., paper, gray, yellow) have some resistance (i.e., if not under stress) against this native wood borer. The native river birch var. 'Heritage' is highly resistant to the BBB.

Reference: Nielsen DG, Mulenburg VL, Herms DA (2011) Comparative resistance of Asian, European, and North American birches (*Betula* spp.) to bronze birch borer (Coleoptera: Buprestidae). *Environmental Entomology* 40:648-653

Reference: Adapted from an oral presentation by Dr. Dan Herms (Department of Entomology, Ohio State University), at the OARDC PHC Workshop, Wooster, OH – 8/99)

## **Controlling Cercospora leaf spot in beet in 2022**

June 21, 2022 Andy Wyenandt

Cercospora leaf spot (CLS), caused by *Cercospora beticola*, is an important and emerging disease in beet and Swiss chard production in New Jersey. Efforts to control this disease has become more difficult in the past few years in some areas of southern New Jersey. The soil-borne fungal pathogen, once established in fields, can survive in the soil for up to 2 years on infected debris and on weed hosts such as Chenopodium, goosefoot, and pigweed. The pathogen may also be seed-borne. Symptoms of infection include numerous, small tan leaf spots with distinct dark purple margins that are easily diagnosed. Overhead irrigation and rainfall help spread the pathogen throughout the field. *Cercospora beticola* is most damaging in warm weather (day temperature of 77 to 90° F and night temperature above 60° F).

Controlling Cercospora leaf spot with preventative fungicide applications has become challenging for some growers in New Jersey. The pathogen is known to have developed resistance to important fungicide classes in recent years, such as the Qols (FRAC code 11) and the DMIs (FRAC code 3) in different regions of the country, based on fungicide use. This is not surprising since resistance development can occur when fungicides in these groups are used extensively over many years. In New Jersey, azoxystrobin has been used extensively for years to manage this disease.

### **Cultural practices to help mitigate losses to Cercospora leaf spot**

There are a number of cultural practices growers can do to help reduce losses to CLS.

- Start with certified, disease-free seed, or treat seed using hot water seed treatment method.
- Avoid fields with a known history of CLS.
- Rotate to non-host crops (outside of the Chenopodium family) for 2-3 years.
- Bury infected crop residues and destroy volunteer plants and weed hosts.
- Burn down fields after harvesting.
- Avoid planting succession crops close together (at least 100 meters apart).
- Avoid overhead irrigation if it will result in prolonged leaf wetness periods (e.g., late evening or at night); irrigate early to mid-day when leaves will dry fully or use drip irrigation for small plantings.
- Using the proper fungicides, rates, and fungicide rotations.

### **Fungicides for controlling Cercospora leaf spot**

In recent years a number of new fungicides have been labeled for CLS control. Many of these fungicides contain two different active ingredients with more than one mode of action. Growers who have relied on managing CLS with azoxystrobin (FRAC code 11) for years and suspect a loss in efficacy should consider removing it from their fungicide program. There is a good chance fungicide resistance has developed. In 2019, a field study was done at RAREC to examine the efficacy of different fungicides for CLS control (Table 1). The fungicide efficacy trial was established in field with a history of CLS; where the field was inoculated with infected debris collected from a farm in southern New Jersey. Fungicides were applied weekly for 5 weeks with overhead irrigation to help promote disease development.

Fungicide program (application timing)	FRAC code	active ingredient(s)	Rate per acre	Labeled for beet	AUDPC value
Untreated control	n/a	n/a	n/a	n/a	617 a
Kocide 3000 (1-5)	M01	copper hydroxide	1.0 lb	Yes	564 ab
Quadris 2.08F (1-5)	11	azoxystrobin	15.5 fl oz	Yes	538 bc
Fontelis 1.67SC (1-5)	7	penthiopyrad	30.0 fl oz	Yes	510 bcd
Miravis Prime 3.34SC (1-5)	7 + 12	pydiflumetofen + fludioxonil	13.4 fl oz	Yes	497 bcd
Merivon 2.09SC (1-5)	7 + 11	fluxapyroxad + pyraclostrobin	5.5 fl oz	Yes	471 cd
Tilt 3.6EC (1-5)	3	propiconazole	4.0 fl oz	Yes	445 d

Cercospora leaf spot development was extremely high during the course of the study. Area Under Disease Progress Curves (AUDPC) were calculated to determine the amount of disease development under each fungicide program (Table 1). CLS development was highest in the untreated control (UTC), with no significant differences between the UTC and weekly copper applications suggesting that weekly copper applications did not help reduce CLS in this study (Table 1). Weekly applications of Quadris, Fontelis, Miravis Prime were not significantly different, but significantly lower than the UTC (Table 1). Control of CLS was best with weekly applications of Tilt and Merivon, but these were not significantly different from weekly applications of Miravis Prime or Fontelis (Table 1). Results of this study suggest that growers with resistance concerns who have relied heavily on copper and azoxystrobin for CLS control should consider using other fungicides in their weekly preventative fungicide programs. Control programs should focus on applying fungicides with more than one mode of action and focus on rotating fungicides with different modes of action. For example: (please see 2020/2021 Commercial Vegetable Production Guide), Apply Tilt (FRAC code 3) followed by Miravis Prime (7 + 12), then tebuconazole (3), then Merivon (7+ 11), then Tilt (FRAC code 3), then Luna Tranquility (7 + 9). Remember, resistance development to FRAC code 11 fungicides (Qols) is qualitative and controlled by single point mutations, once resistance develops the fungus is completely resistance (to all fungicides in the group). Resistance development in FRAC code 3 fungicides (DMIs) is quantitative which often characterized as a gradual loss of resistance over time. As a note, FRAC code 3 fungicides should always be applied at the highest rate, using lower rates may increase selection pressure.

### Organic Control Options

Controlling CLS in organic production systems starts by following and executing good cultural practices listed above. Always purchase certified seed. Avoiding fields with a history of the disease. Producing beet on mulch and drip irrigation in small operations should be considered. This will help reduce weed pressure (as well as potential hosts) and reduce the need for overhead irrigation. Organic copper applications may not be effective in some operations where disease pressure is extremely high. Unfortunately, control of CLS with organic and biopesticides has been difficult, therefore good cultural practices must be followed accordingly.



## **Bacterial leaf spot control and copper resistance survey in 2022**

Andy Wyenandt, June 25 2022

Copper resistance in bacterial leaf spot of tomato and pepper crops has been detected and more widespread than expected. While not surprising, copper resistance has been known to develop for decades now; however, this is the first time it has been confirmed in tomato and pepper crops across 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 2020 and 2021, with help from Dr. Nrupali Patel and Dr. Don Kobayashi, bacteriologists in the Department of Plant Biology located on the New Brunswick campus, a small (NJ-VGA funded) survey was initiated to determine which species of bacterial leaf spot are most prevalent in New Jersey tomato and pepper 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 possibly 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 choose 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 the 2022/2023 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 as 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 2022.

More limited sampling and surveying are planned for the 2022 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.

---

## OSHA Heat Safety Tool App

The National institute for Occupational Safety and health Administration and OSHA has developed a free phone app that helps plan outdoor work activities based on the heat. The heat season is upon us and the app could prove useful and easy to implement.

The OSHA-NIOSH Heat Safety Tool App provides a real-time heat index and hourly forecasts specific to individual locations. The app also provides safety and health recommendations on preventing heat illness from the agencies.

Features include:

- A visual indicator of the current heat index and risk levels for employees;
- Precautionary recommendations specific to those risks;
- An interactive, hourly forecast of heat index values, risk levels and recommendations for planning outdoor work activities;
- The ability to edit locations, temperatures and humidity controls to calculate variable conditions; and
- Signs, symptoms and first-aid information for heat illness.

The 'OSHA Heat Safety Tool' App is available from Apple's App Store and Google Play for free

Source: Western Growers Association



## 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 3,8-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](http://mosquito.org)

@AMCAupdates

[facebook.com/AmericanMosquitoControl](https://facebook.com/AmericanMosquitoControl)

## **Calendar of Events**

- Indicates a newly added event

### • **July 14**

**In-Person CORE Meetings in Burlington County; Burlington County Amphitheater, 5 Pioneer Boulevard, Westampton, NJ 08060; 5:30 PM - 7:00pm; Pesticide credits issued – CORE (3) plus categories 1A (1), 10 (1), and PP2 (1); Pre-registration is appreciated. Meetings are outdoors. There is no shade so come prepared with water, sunglasses, and a wide-brimmed hat. There is seating on the wide grass terraces surrounding the stage, but you may be more comfortable if you bring a chair. The meetings will be cancelled if there is inclement weather. Email Sandra Trossbach [strossbach@co.burlington.nj.us](mailto:strossbach@co.burlington.nj.us) or call 609-265-5051.**

### **July 16-19**

**Cultivate '22; Greater Columbus Convention Center, Ohio; Learn best practices and foster business connections so you and your business perform better, grow faster, than ever and are prepared for the future at this event. Visit [www.cultivateevent.org](http://www.cultivateevent.org) for more information**

### **July 26-27**

**2022 Rutgers Turfgrass Research Field Days, Hort Farm 2, 102 Ryders Lane, North Brunswick, NJ 08902; Meet the Rutgers experts, creeping bentgrass and Kentucky Bluegrass NTEP trials, advances in disease, insect, weed control, new strategies for Kyllinga control and naturalized area weed mgmt., best management strategies for control of Dollar Spot, and other important Leaf and root diseases of turf, and more! Pesticide re-certification credits available for both days! See full list of credits, learn more and sign up at [njturfgrass.org](http://njturfgrass.org)**

### **August 1-5**

**2022 Perennial Plant Association National Symposium, Lancaster Marriott at Penn Square, 25 S Queen St., Lancaster PA; Contact the Perennial Plant Association at 888.440.3122 or visit [perennialplant.org](http://perennialplant.org) for more information.**

### • **August 9-11**

**Ag Progress Days; Russell E. Larson Agricultural Research Center, 2710 W. Pine Grove Road, Pennsylvania Furnace, PA 16865; Free admission and free parking; The show is hosted by Penn State's College of Agricultural Sciences and showcases educational programs, current research, and the latest innovations in agricultural equipment and technology. Find more information at <https://agsci.psu.edu/apd>**

### **July 30- August 3**

**ASHS 2022 Annual Conference; Hyatt; Chicago, IL; This conference is where the latest science and technology is showcased related to horticulture. Our mission is to bring together researchers, scientists, industry, academia, extension, government, and students to cultivate ideas and share new techniques relating to horticulture and plant sciences; More info at <https://ashs.org/page/GeneralConference>**

### **July 31- August 3**

**International Association for Food Protection; David L. Lawrence Convention Center, Pittsburgh, PA; Information on current and emerging food safety issues, the latest science, innovative solutions to new and recurring problems, and the opportunity to network with thousands of food safety professionals from around the globe; Find more information and register at [www.foodprotection.org/annualmeeting/](http://www.foodprotection.org/annualmeeting/)**

**August 24-26**

**Farwest;** Oregon Convention Center; Portland, OR; The biggest green industry trade show in the West. With nearly 400 exhibitors, nursery and retail garden center industry. Whether you're a grower, retailer, wholesale buyer, supplier, or landscape professional, you'll find that Farwest offers you the complete trade show experience; For more information visit <https://farwestshow.com>

**August 29-30**

**International Carrot Conference;** Mount Vernon, WA; its purpose is to bring together everyone and anyone interested in carrots: growers, packers, shippers, seed producers, breeders, pathologists, sellers, marketers, University and government researchers, extension specialists, students and anyone interested in the carrot industry; For more information email [dutoit@wsu.edu](mailto:dutoit@wsu.edu) or [snolan@agmgt.com](mailto:snolan@agmgt.com) or visit [InternationalCarrots.org](http://InternationalCarrots.org)

**September 26-28**

**2022 International Pepper Conference;** Arizona; The academic program taking place in Tucson, Arizona and the chie pepper variety trial, mechanical harvest, field and equipment demonstrations occurring at the Curry Chile and Seed Co. in Pearce, Arizona. The deadline for early bird registration is August 26, 2022. Registration and additional information can be found at this link: <https://extension.arizona.edu/ipc/>

- **September 14**

**Pesticide Exams at Cumberland County Extension Office;** Rutgers Cooperative Extension of Cumberland County, 291 Morton Ave., NJ 08332; 9AM-4PM; Save the date! Rutgers will adminster exams in our office for pesticide licensing. More information will be available at a later date.

- **September 21**

**CORE Basic Pesticide Training Course;** Bioresource Engineering Laboratory (formerly ECC), 18 Ag Extension Way, New Brunswick, NJ 08901; 12:30PM- 4:30PM; \$145; This is the first step in training for individuals interested in becoming a licensed NJ pest control operator and/or applicator. This course satisfies New Jersey's requirement of attending a basic pesticide training course for new applicants seeking to gain a state license; Register online and find more information at <https://cpe.rutgers.edu/pesticide-application/core-basic-pesticide-training>

- **September 28-29**

**Northeast Green Industry Showcase;** Roger K. Everitt Fairgrounds, 1207 County Route 179, (Just off US Route 202), Lambertville, NJ 08530; Join the New Jersey Landscape Contractors Association as we present the New Jersey metropolitan area's largest outdoor industry Trade Show, Demo Days and Showcase; Register online at <https://ngis-nj.com/registration-information/>

- **October 26**

**CORE Basic Pesticide Training Course;** Bioresource Engineering Laboratory (formerly ECC), 18 Ag Extension Way, New Brunswick, NJ 08901;12:30-4:30 PM \$145; This is the first step in training for individuals interested in becoming a licensed NJ pest control operator and/or applicator. This course satisfies New Jersey's requirement of attending a basic pesticide training course for new applicants seeking to gain a state license; Register online and find more information at <https://cpe.rutgers.edu/pesticide-application/core-basic-pesticide-training>

- **November 18**

**CORE Basic Pesticide Training Course in Spanish;** Bioresource Engineering Laboratory (formerly ECC),

# Regularly Scheduled Meetings

## Pesticide Credit Exams

September 14th, 9AM - 4PM  
RCE - Millville, NJ

Virtual testing available.

Rutgers has taken over the  
pesticide exam program.

Sign-up and find more  
information at  
<https://pacer.rutgers.edu/>

## Cumberland County Agriculture Development Board

Virtual Meetings Information  
can be found on the  
Public Meeting Calendar on  
[co.cumberland.nj.us](http://co.cumberland.nj.us)

Meetings are held on the 2nd  
Tuesday of each month.  
Meetings start at 7 p.m.

For more information call the  
Dept. of Planning, Tourism,  
and Community Affairs  
at 856-453-2175


## Cumberland County Board of Agriculture

Virtual Meeting Information  
<https://rutgers.zoom.us/my/smangia>  
Meeting ID: 529 557 9817  
Passcode: Sal2020  
or call in at 1 (646) 558 - 8656

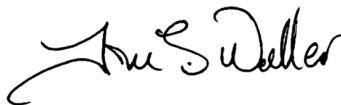
Meetings are held on the  
3rd Thursday of September- May  
at 7 p.m.

For more information call  
Keith MacIndoe,  
President at 856-207-7773

Sincerely,



Wesley L. Kline, Ph.D.  
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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.

**RUTGERS**

New Jersey Agricultural  
Experiment Station



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...

<https://Cumberland.njaes.rutgers.edu/>

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# FOOD SAFETY CERTIFICATION FOR SPECIALTY CROPS



## Overview

The Food Safety Certification for Specialty Crops (FSCSC) Program provides assistance to specialty crop operations that incurred eligible on-farm food safety program expenses in 2022 and 2023.

These operations incur significant costs to comply with regulatory requirements and market-driven food safety certification requirements each year with little opportunity to recover increased costs.

## Who is Eligible?

To be eligible for FSCSC applicants must meet the following:

- Be a specialty crop operation;
- Have obtained or renewed a:
  - 2022 food safety certification that was issued between June 21, 2022 and December 31, 2022; or
  - 2023 food safety certification issued during calendar year 2023; and
  - Have paid eligible expenses;
- Meet the definition of a small business or very small business; and
- Be located in the United States, District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, or the Commonwealth of the Northern Mariana Islands.

PROGRAM YEAR	ELIGIBLE CERTIFICATION DATE	APPLICATION DEADLINE
2022	June 21, 2022 - December 31, 2022	January 31, 2023
2023	January 1, 2023 - December 31, 2023	TBD

## What Expenses are Eligible?

Specialty crop operations may receive reimbursement for developing an initial food safety plan, maintaining or updating an existing food safety plan, food safety certification, certification upload fees, microbiological testing, and training.

Specialty crop operations who obtain their food safety certification through a group model under a food safety management system are eligible for their share of eligible expenses paid by the group, in addition to any eligible expense incurred individually.

## What Expenses are not Eligible?

Ineligible expenses include infrastructure improvements, equipment, supplies, salaries and benefits of employees, and fees or penalties for late payment.

### What are the Maximum Payment Rates?

CATEGORY OF ELIGIBLE EXPENSES	PAYMENT AMOUNT OF ELIGIBLE COSTS	
	HISTORICALLY UNDERSERVED FARMER OR RANCHER	ALL OTHER APPLICANTS
Development of a food safety plan for first-time certification	75 percent (no maximum)	50 percent (no maximum)
Maintaining or updating a food safety plan	75 percent, up to a maximum of \$375	50 percent, up to a maximum of \$250
Food safety certification	75 percent, up to a maximum of \$2,000	50 percent, up to a maximum of \$2,000
Certification upload fees	75 percent, up to a maximum of \$375	50 percent, up to a maximum of \$250
Microbiological testing – products	75 percent, up to 5 tests	50 percent, up to 5 tests
Microbiological testing – soil amendments	75 percent, up to 5 tests	50 percent, up to 5 tests
Microbiological testing – water	75 percent, up to 5 tests	50 percent, up to 5 tests
Training	100 percent, up to a maximum of \$300	100 percent, up to a maximum of \$200

### How to Apply

Eligible specialty crop operations may apply for FSCSC by completing the FSA-888, Food Safety Certification for Specialty Crops application, and submitting it to any FSA county office. A complete application includes all the following, which may be downloaded at [farmers.gov/food-safety](https://farmers.gov/food-safety):

- FSA-888, Food Safety Certification for Specialty Crops (FSCSC) Application
- AD-2047, Customer Data Worksheet, for new customers or existing customers who need to update their customer profile
- CCC-860, Socially Disadvantaged, Limited Resource, Beginning and Veteran Farmer or Rancher Certification (if applicable)
- If requested by FSA, the applicant must provide supporting documentation to substantiate the expenses. Examples of supporting documentation include paid invoices, purchase receipts, test results, food safety plans, training documentation, and other records determined acceptable by COC.

### Where to Apply

You may apply at one of over 2,100 FSA offices nationwide. Applications may also be submitted by mail, fax, email, hand delivery or by electronic means. Please contact the FSA county office prior to sending applications electronically for instructions and assistance. The FSCSC application and associated forms are available online at [farmers.gov/food-safety](https://farmers.gov/food-safety).



### Who to Call for Help

Producers interested in one-on-one support with the FSCSC program application can contact our call center at 877-508-8364 to speak directly with a USDA employee ready to offer assistance.

### More Information

This fact sheet is for informational purposes only; other restrictions may apply. For more information about FSCSC, visit [farmers.gov/food-safety](https://farmers.gov/food-safety) or contact your local FSA office. To find your local FSA office, visit [farmers.gov/service-locator](https://farmers.gov/service-locator).

PLEASE SUBSCRIBE TO THE RUTGERS  
PLANT AND PEST ADVISORY

visit: <https://plant-pest-advisory.rutgers.edu/category/landscape-nursery-turf/>

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The information provided here gives **scouting ranges** for insect pests as well as forecasting of **GDD<sub>50</sub> 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 GDD<sub>50</sub> models** [USPEST.org/dd/model\\_app](https://USPEST.org/dd/model_app) and <https://newa.cornell.edu/degree-day-calculator>

Projected GDD50 accumulation as of 7/1/2022					
Region	Location	Station	1-Jul	1-Aug	1-Sep
South	Upper Deerfield	NJ50	1295	2154	2961
Central	Howell / Freehold	NJ10	1113	1910	2656
North	High Point	NJ59	877	1533	2139
Forecast: NOAA NCEP Coupled Forecast System model version 2 (CFSv2) forecast system (3.5 months) (USPEST.ORG)					

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.

**BORER** Insect Activity for 1000-2500 GDD (~ July)

Crop type	Common Name	Scientific Name	GDD Min (50F)	GDD Max (95F)	Reference	Developmental / Target Stage
Many	Roundheaded appletree borer	<i>Saperda candida</i>	802	1129	RU	Adults
Ash	Emerald ash borer	<i>Agrilus planipennis</i>	1000	1200	4	Peak adult activity
Many	Roundheaded apple tree borer	<i>Saperda candida</i>	1514	1798	5	Typical treatment window
Conifer	Nantucket tip moth	<i>Rhyacionia frustrana</i>	1514	1917	RU	Adults 2nd generation
Maple	Sugar maple borer	<i>Glycobius speciosus</i>	2032	2375	5	Typical treatment window
Locust	Locust borer	<i>Magacyllene robiniae</i>	2271	2805	5	Typical treatment window
Poplar and Willow	Poplar and willow borer	<i>Crytorhynchus lapathi</i>	2271	2806	5	Typical treatment window

**SCALE** Insect Activity for 1000 - 2500 GDD (~July 1 in Southern NJ (NJ50))

Crop type	Common Name	Scientific Name	GDD Min (50F)	GDD Max (95F)	Reference	Developmental / Target Stage
Conifer	Cryptomeria scale	<i>Aspidiotus cryptomeriae</i>	600	800	3	First crawler emergence
Many	White prunicola scale	<i>Pseudaulacaspis 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
Oak, hickory, birch, many	Oak lecanium scale	<i>Parthenolecanium quercifex</i>	789	-	6	Crawlers (1st generation)
Acer	Cottony maple leaf scale	<i>Pulvinaria acericola</i>	802	1265	5	Crawlers (1st generation)
Many, shadetrees	Cottony maple scale	<i>Pulvinaria innumerabilis</i>	802	1265	RU	Crawlers (1st generation) - control target
Oaks	Golden oak scale	<i>Asterolecanium variolosum</i>	802	1266	5	Egg hatch
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)
Shade trees	European fruit lecanium scale	<i>Parthenolecanium corni</i>	932	1645	6,RU	Crawlers - control target
Conifer	Pine tortoise scale	<i>Toumeyella parvicornis</i>	1000	1200	4	Egg hatch ends, last of crawlers
Yew, many conifers	Fletcher Scale (Yew)	<i>Parthenolecanium fletcheri</i>	1029	1388	RU	Crawlers (1st generation) - control target
Many	Indian wax scale	<i>Ceroplastes ceriferus</i>	1145	-	6	Crawlers (1st generation)
Euonymus	Euonymus Scale	<i>Unaspis euonymil</i>	1150	1388	5	2nd generation targeted treatments
Shade trees	European fruit lecanium scale	<i>Parthenolecanium corni</i>	1266	1645	5	Crawlers
Conifer	Pine Needle Scale	<i>Chionaspis pinifoliae</i>	1290	1917	3	Crawlers emerge (2nd generation) - control target
Conifer	Hemlock scale	<i>Abgrallaspis ithacae</i>	1388	2154	5	Typical treatment window
Malus, Prunus, many	Peachtree borer	<i>Synanthedon sp.</i>	1500	1800	RU	Larvae Treatment
Many	White prunicola scale	<i>Pseudaulacaspis prunicola</i>	1637	-	6	Egg hatch / crawler (2nd generation)
Euonymus	Euonymus Scale	<i>Unaspis euonymil</i>	1700	-	RU	Continued 2nd generation treatments
Conifer	Cryptomeria scale	<i>Aspidiotus cryptomeriae</i>	1750	2130	RU, 4	Crawlers emerge (2nd generation)
Many	Obscure scale	<i>Melanaspis obscura</i>	1774	-	6	Egg hatch / crawler
Conifer	Maskell scale	<i>lepidosaphes pallia</i>	2035	-	6	Egg hatch / crawler (2nd generation)
Mainly Tulip	Tulip tree scale	<i>Toumeyella liriiodendri</i>	2037	2629	RU	Crawlers (1st generation)
Mainly Magnolia	Magnolia scale	<i>Neolecanium cornuparvum</i>	2155	2800	RU	Crawlers (1st generation)
Maple	Japanese maple scale	<i>Lopholeucaspis japonica</i>	2508	-	6	Egg hatch / crawler (2nd generation)
Conifer	Elongate hemlock scale	<i>Fiorinia externa</i>	2515	2625	RU	Typical treatment window - fall activity
Yew, many conifers	Fletcher Scale (Yew)	<i>Parthenolecanium fletcheri</i>	2515	2800	RU	Fall control of overwintering stage

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References

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5	<a href="https://www.agriculture.nh.gov/publications-forms/documents/landscape-pests.pdf">https://www.agriculture.nh.gov/publications-forms/documents/landscape-pests.pdf</a>
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7	<a href="https://www.canr.msu.edu/ipm/agriculture/christmas_trees/gdd_of_landscape_insects">https://www.canr.msu.edu/ipm/agriculture/christmas_trees/gdd_of_landscape_insects</a>
Unv. Del.	Coorespondance with Dr. Kunkel (University of Delaware)-evolving GDD ranges

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

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The information provided here gives **scouting ranges** for insect pests as well as forecasting of **GDD<sub>50</sub> 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 GDD<sub>50</sub> models** [USPEST.org/dd/model\\_app](https://USPEST.org/dd/model_app) and <https://newa.cornell.edu/degree-day-calculator>

Other Insect Activity for 1000 - 2500 GDD (~July)

Crop type	Common Name	Scientific Name	GDD Min (50F)	GDD Max (95F)	Reference	Developmental / Target Stage
Many	Redheaded flea beetle	<i>Systema frontalis</i>	1028	1570	Unv. Del	2nd generation of un-hatched eggs
Locust	Locust leafminer	<i>Odontota dorsalis</i>	1029	1388	RU	Adults
Juglandaceae	Walnut Caterpillar	<i>Datana integerrima</i>	1029	1514	2	Larvae Treatment
Turf	Bluegrass billbug	<i>Sphenophorus parvulus</i>	1094	1217	RU	Larvae (40%)
Many	Oriental Beetle	<i>Anomala orientalis</i>	1147	-	6	Adult emergence
Dogwood	Dogwood sawfly	<i>Macremphytus tarsatus</i>	1151	1500	RU	Larvae Treatment
Tulip	Tuliptree aphid	<i>Illinoia liriodendri</i>	1151	1514	RU	Nymphs / adults
Boxwood	Boxwood leafminer	<i>Monoarthralpus flavus</i>	1200	1400	5	Larvae Treatment
Conifer	Northern pine weevil	<i>Pissodes nemorensis</i>	1200	1400	4	2nd generation adults active
Conifer	Pales weevil	<i>Hylobius pales</i>	1200	1400	4	Adults 2nd generation
Conifer	Pine root collar weevil	<i>Hylobius radialis</i>	1200	1400	4	2nd generation adults active
Conifer	White pine weevil	<i>Pissodes strobi</i>	1200	1400	4	2nd generation adults active
Rhododendron	Azalea whitefly	<i>Pealium azaleae</i>	1250	1500	5	Adults/nymphs (2nd generation)
Turf	Bluegrass sod webworm	<i>Parapediasia teterrella</i>	1250	1920	RU	Larvae
Privet	Privet rust mite	<i>Aculus ligustri</i>	1266	1515	5	Second typical treatment window
Many	Lacebugs ( on hawthorn)	<i>Corythucha cydoniae</i>	1266	1544	RU	Nymphs / adults
Many	Leafhoppers	Species within Cicadellidae	1266	1544	RU	Nymphs / adults
Birch	Birch Skeletonizer	<i>Bucculatrix canadensisella</i>	1266	1580	5	Typical treatment window
Many	Fall webworm	<i>Hyphantria cunea</i>	1266	1795	2	Caterpillars present - larvae treatment
Many	Two spotted spider mite	<i>Tetranychus urticae</i>	1300	2000	RU	Nymphs / adults
Turf	N. Masked chafer	<i>Cyclocephala borealis</i>	1377	1579	RU	Adults (90%)
Lilac	Lilac leafminer	<i>Caloptilia syringella</i>	1388	1644	5	Typical treatment window
Conifer	Cooley spruce gall adelgid	<i>Adelges cooleyi</i>	1500	1775	RU	Adults/nymphs (Douglas Fir)
Many	Redheaded flea beetle	<i>Systema frontalis</i>	1570	1860	Unv. Del	2nd generation egg hatch
Many	Japanese beetle	<i>Popillia japonica</i>	1590	1925	RU	Adults (90%)
Conifer	Rust-mites	<i>Nalepella and Setoptus spp.</i>	1644	2030	RU	Nymphs / adults
Many	Two-banded Japanese weevil	<i>Pseudocneorhinus bifasciatus</i>	1644	2271	RU	Adults
Willow	Willow twig aphids	<i>Lachnus spp.</i>	1644	2271	5	Typical treatment window
Conifer	Juniper webworm	<i>Dichomeris marginella</i>	1645	1917	RU	Larvae Treatment
Oaks	Oak skeletonizer	<i>Bucculatrix ainsliella</i>	1798	2155	RU	Larvae
Mimosa, Honeylocust	Mimosa webworm	<i>Homadula anisocentra</i>	1800	2100	RU	Larvae (2nd generation)
Conifer	Arborvitae leafminer	<i>Argyresthia thuiella</i>	1800	2200	RU	Larvae Treatment (3rd generation)
Conifer	Cooley spruce gall adelgid	<i>Adelges cooleyi</i>	1850	1950	RU	Galls open (Spruce)
Turf	Hairy chinch bug	<i>Blissus leucopterus</i>	1903	2160	RU	Second generation- 50%- 2nd instars
Tulip	Tuliptree aphid	<i>Illinoia liriodendri</i>	1917	2033	RU	Nymphs
Conifer	Zimmerman pine moth	<i>Dioryctria zimmermani</i>	1917	2154	5	Treatment window (adult flight-1700 GDD)
Mainly Oaks	Orangestriped oakworm	<i>Anisota senatoria</i>	1917	-	6	Egg hatch - early instars
Conifer	White pine aphid	<i>Cinara strobi</i>	1991	2271	RU	Adults
Rhododendron	Azalea whitefly	<i>Pealium azaleae</i>	2032	2150	5	Adults/nymphs (3rd generation)
Conifer	Spruce spider mite	<i>Oligonychus ununguis</i>	2375	2806	5	Typical treatment window
Many	Southern red mite	<i>Oligonychus ilicis</i>	2500	2700	5	Typical treatment window

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