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Cultivating Cumberland

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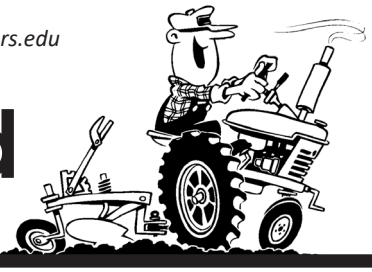

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Technical Assistance Program for Agrivoltaics (TAPAS) Pilot Farmer Training Registration

American Farmland Trust and Rutgers Agrivoltaics Program are excited to host our inaugural agrivoltaics farmer trainings in New Jersey! The Technical Assistance Program for Agrivoltaics (TAPAS) will introduce the dual-use of land for both agricultural and solar energy production, and explore the opportunities it may present for greater farm viability in New Jersey.

There are three training events, but due to limited capacity, we are encouraging participants to only register for one training session so we may train as many producers as possible. The in-person events have a capacity of 20 participants. Register today to secure your spot as soon as possible! While these trainings are exclusively held for farmers and ranchers, we will have other opportunities in the future for non-farmer participants to learn from our team of experts.

Training Opportunities

Session 1: Full-day training intended for specialty crop farmers on Tuesday, August 13, 2024 at the Rutgers Agricultural Research and Extension Center, 121 Northville Rd, Bridgeton, NJ 08302

Session 2: Half-day training intended for livestock producers or those who focus on grazing and forage on Tuesday, August 27 at the Round House next to 65 Sheepfold Lane, New Brunswick, NJ 08901

Session 3: A virtual training for all types of producers on Tuesday, September 10 from 5-7:30 pm ET

Additional Notes

- Morning refreshments and lunch will be provided at both in-person events
- A farmer stipend of $300 for Session 1 and $200 for Session 2 will be provided as a gift card to participants at the end of each in-person training

Questions?

Contact Christina Couch, AFT's NJ Technical Specialist, at ccouch@farmland.org

Use this link to register for the Technical Assistance Program for Agrivoltaics (TAPAS) Pilot Farmer Training Registration https://tinyurl.com/4ef6f6f5

Attachments

- The Food Safety Certification for Specialty Crops
- Employer Checklist for Outdoor and Indoor Heat-Related Injury and Illness Prevention
- Weather Information for Agriculture
- Developing your On-Farm Food Safety Worker Training Program
- Feeding Nitrate-Containing Forages
- South Jersey Nursery IPM Updates: Degree-days & Box Tree Moth

Pre-Harvest Water Requirements Under the Produce Safety Rule

Wes Kline, Jennifer Matthews and Meredith Melendez - Rutgers On-Farm Food Safety Team

Note: The following is a brief description of the pre-harvest water requirements (Section 112.3-112.161) under the Food Safety Modernization Act/Produce Safety Rule (FSMA/PSR). The pre-harvest water requirements are complicated, and this summary is intended to be a starting point while we wait for guidance from the Food and Drug Administration (FDA). For those who have already taken the FSMA/PSR grower training we will host an update webinar in the fall. For those who have not taken the FSMA/PSR grower training our course will be updated this year to reflect the latest information.

The pre-harvest water (irrigation, spray water, frost protection, fertigation, dust abatement, etc.) requirements for the FSMA/PSR became effective on July 5, 2024, however this does not mean a grower needed to start complying on that date. Compliance dates are staggered over the next three years depending on the size of the operation. Farms having an inspection in 2024 should expect Subpart E to be discussed by inspectors to prepare them for compliance in 2025 and beyond.:

Size of Operation	Compliance Dates
Operations over $500,000	April 7, 2025
Small operations (> $250,000-500,000)	April 6, 2026
Very Small operations (> $25,000-250,000)	April 5, 2027

It is important to understand what is considered Agricultural Water. Water that is intended to or will likely touch produce is considered agricultural water. In the context of pre-harvest water that means any water you are using for irrigation, frost protection etc. that touches the crop. If you are using drip irrigation for staked tomatoes this is NOT agricultural water as the water is not touching the fruit. If you are using drip irrigation on carrots, this IS agricultural water, as the water is touching the crop. A grower needs to think about how each water source is used before they decide whether it is agricultural water or not. If you have specific questions with regards to whether or not your water is agricultural water, please reach out to us.

Water testing is not a requirement for pre-harvest water but can be part of the agricultural water assessment of the whole water system. This means an inspector will ask the grower to explain their system and how they minimize risks to the covered crops.

Requirements for Inspecting and Maintaining Agricultural Water Systems

As part of the rule, growers must inspect the whole water system (pre-harvest, harvest and post-harvest) at the beginning of the season that is under the farms control. This includes:

- The water source (well and surface); the extent of the grower's control and how each source is protected.
- Use of adjacent and nearby land (e.g., horse or cattle farm next door; runoff from roads)
  If surface water (e.g., stream, lake, or pond)- what is the chance a food safety hazard could enter the water before it got to your farm? (e.g., dairy farm upstream where cows get in the stream).

An inspection report must be written as to the findings of the inspection!

Requirements for Agricultural Water Assessment

The rule requires that a pre-harvest water assessment must be completed at the beginning of the season, the assessment is different than an inspection!

- The assessment only applies to the pre-harvest water.
- Must be a written assessment dated and signed at the beginning of the season, annually or anytime major changes are made to the system or water source. The inspection report can be incorporated into the assessment.
- Parts of the assessment
  - Location and nature of water source (e.g., ground water/wells, surface water/pond, stream, etc.)
  - How water is distributed (e.g., underground main, lay flat, canals, etc.)
  - How system is protected from contamination (animals, manure applications, etc.)
  - Agricultural water practices
    - How water is applied and time between last irrigation and harvest
  - Crop characteristics (e.g., waxy surface-cabbage, netted surface-muskmelons, etc.)
  - Environmental conditions (Damage from frost, hail, blowing sand, etc.)
  - Other factors
    - Water testing, but the assessment can not be based just on water testing. It is only part of the assessment.

Continued on page 3

Pre-Harvest Water...Continued from page 2

- If the operation meets any of the following, they can be exempt from performing a water assessment.
  - No untreated surface water applied.
  - Untreated groundwater is tested following the protocol for harvest and post-harvest water (four samples the first year for generic E. coli and one sample every year after if no generic E. coli is found).
  - Public water system water use.
  - Water is treated, monitored and to be of a safe and adequate sanitary quality.

Outcome from the assessment

- If the water source is not safe or is not of adequate sanitary quality, you must stop use immediately and take corrective measures before use.
- If the problem is related to biological soil amendments of animal or human origin on adjacent or nearby land, mitigation measures to stop and prevent the contamination must be implemented the same growing season (e.g., building a berm around the field to avoid runoff from a horse pasture).
- Any other conditions not related to animal activity impacting the quality of the water must be remediated as soon as practical and no later than the following year. The other option is to test the water source as part of the assessment and implement changes if needed.

Corrective measures are activities that must be done before using the water source. Such as re-inspecting the water system and making any changes or treating the water following FSMA/PSR standards.

Mitigation measures can take many forms including making a repair, increasing the time from the last irrigation to harvest, changing the water application method or source, etc.

Once we receive guidance from the FDA giving us greater details on how Subpart E impacts specific farm scenarios, we will share that information via the Plant and Pest Advisory.

New Jersey Now Accepting Applications for 2025 Program Offerings

HAMILTON SQUARE, N.J., July 18, 2024 – The United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) in New Jersey is now accepting FY2025 applications for the Environmental Quality Incentives Program (EQIP), climate-smart practices through EQIP funded by the Inflation Reduction Act (IRA), the Agricultural Management Assistance (AMA) program and the Regional Conservation Partnership Program (RCPP).

While NRCS accepts applications year-round, New Jersey producers and landowners should **apply by**

October 18, 2024 to be considered for funding in the current cycle.

The Environmental Quality Incentives Program (EQIP)

Through EQIP, NRCS provides agricultural producers with one-on-one help and financial assistance to plan and implement conservation practices to address a variety of issues such as water quality degradation, soil erosion, soil quality degradation and inadequate habitat for fish and wildlife.

Special initiatives include:

- Working Lands for Wildlife (WLFW) - Golden Winged-Warbler
- The National Water Quality Initiative (NWQI) and
- The New Jersey Pine Barrens Joint Chiefs' Landscape Restoration Partnership
  - Forest landowners can verify their land is located within the target area by entering their address into the Pinelands Commission Interactive Map. *https://njpines.maps.arcgis.com/apps/webappviewer/index.html?id=28ef313eb49f4e8f96ca249d871d06fe&utm_medium=email&utm_source=govdelivery*

The Environmental Quality Incentives Program (EQIP) - Inflation Reduction Act (IRA)

EQIP-IRA funds will provide direct climate mitigation benefits for producers to advance conservation through practices like cover cropping, conservation tillage, wetland restoration, prescribed grazing, nutrient management, tree planting and more.

- See a list of eligible practices here. *https://www.nrcs.usda.gov/sites/default/files/2023-02/IRA%20Practice%20and%20Activity%20List%20FY23.pdf?utm_medium=email&utm_source=govdelivery*

Continued on page 4

New Jersey Now Accepting Applications...Continued from page 3

Agricultural Management Assistance (AMA) Program
AMA is a voluntary conservation program available to beginning and limited resource farmers, small farms, and producers who have had limited participation in other USDA financial assistance programs. Producers eligible for AMA can apply for financial and technical assistance to voluntarily address resource issues such as water management, water quality, and erosion control by incorporating conservation into their farming operations.

The Regional Conservation Partnership Program (RCPP)
Through RCPP, NRCS seeks to co-invest with partners to implement projects that demonstrate innovative solutions to conservation challenges and provide measurable improvements and outcomes tied to the resource concerns they seek to address. New Jersey's RCPP land management projects are:

- **Salem River Bog Turtle Protection and Restoration** – Lead partner, New Jersey Audubon, will help private landowners increase wildlife habitat and habitat suitability for the endangered Bog Turtle population in the Upper Salem River Watershed by offering financial incentives to install and maintain conservation practices.
- **Northern NJ Small Food Link Conservation Project** – NRCS Partner, Urban Agriculture Cooperative, will deliver technical and financial assistance to new and historically underserved urban farmers in Northern N.J.
- **Mine Brook Gorge Twin Dam Removals and Floodplain Restoratio**n - Lead partner, Musconetcong Watershed Association will work to restore habitat for native cold-water fishes, reduce stream temperatures, and enhance biodiversity in the Mine Brook Tributary and Gorge.
- **New Jersey Coastal Aquaculture** - NRCS partner Ocean County SCD will lead this aquaculture project to promote aquatic habitat on shellfish leases and enhance water quality throughout the coastal bays of New Jersey.

Applications are available through your local USDA Service Center (*https://offices.sc.egov.usda.gov/locator/app?utm_medium=email&utm_source=govdelivery*) and online at *https://www.nrcs.usda.gov/getting-assistance/get-started-with-nrcs*

While NRCS accepts applications year-round, if you apply after the program ranking date, your application will automatically be considered during future funding cycles.

USDA Announces August 14 Application Deadline for Emergency Relief Program Assistance for Commodity and Specialty Crop Producers Impacted by 2022 Natural Disasters

Contact: Gabi Grunstein gabor.grunstein@usda.gov

Hamilton Square, NJ., July 16, 2024 — The U.S. Department of Agriculture (USDA) today announced the deadline for commodity and specialty crop producers to apply for the Emergency Relief Program (ERP) for 2022 natural disaster losses is Aug. 14, 2024. USDA's Farm Service Agency (FSA) began accepting ERP 2022 applications in October 2023.

"If natural disasters impacted your farm or ranch in 2022, there's still time to submit your application for Emergency Relief Program assistance," said Bob Andrzejczak, FSA State Executive Director for New Jersey. "Don't delay. Gather up your documents and contact your local FSA office to complete the application process."

Background
Through the Disaster Relief Supplemental Appropriations Act, 2023 (P.L. 117-328) Congress allocated $3.2 billion in funding to cover an estimated $10 billion in uncovered crop losses.

ERP 2022 covers losses to crops, trees, bushes and vines due to qualifying calendar year 2022 natural disaster events including wildfires, hurricanes, floods, derechos, excessive heat, tornadoes, winter storms, freeze (including a polar vortex), smoke exposure, excessive moisture, qualifying drought and related conditions.

ERP 2022 Application Process – Track 1
ERP 2022 Track 1 leverages existing federal crop insurance or Non insured Crop Disaster Assistance Program (NAP) data as the basis for calculating payments for eligible crop producers who received indemnities through these risk management programs.

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USDA Announces August 14 Application...Continued from page 4

In fall 2023, FSA began issuing pre-filled ERP 2022 Track 1 application forms to producers who had crop insurance and NAP data already on file with USDA. Receipt of a pre-filled application is not confirmation that a producer is eligible to receive an ERP 2022 Track 1 payment.

ERP 2022 Application Process – Track 2
Track 2 is a revenue-based certification program designed to assist producers who suffered an eligible decrease in revenue resulting from 2022 calendar year disaster events when compared with revenue in a benchmark year using revenue information that is readily available from most tax records.

In cases where revenue does not reasonably reflect a normal year's revenue, Track 2 provides an alternative method for establishing revenue. Likewise, Track 2 affords producers of crops that are used within an operation and do not generate revenue from the sale of the crop a method for establishing revenue for the purpose of applying for ERP 2022 benefits. Producers are not required to submit tax records to FSA unless requested by the County Committee if required for an FSA compliance spot check.

Although not required when applying for ERP 2022 Track 2, applicants might find the following documents useful to the process:

Schedule F (Form 1040)

Profit or Loss from Farming or similar tax documents for tax years 2018, 2019, 2022 and 2023.

Track 2 targets gaps in emergency relief assistance for eligible producers who see eligible losses were not covered by crop insurance or NAP, including revenue losses too small (shallow loss) to be covered by crop insurance.

It's important to note that disaster-impacted producers may be eligible for ERP2022 assistance under one or both tracks (ERP 2022 Track 1 and Track 2). To avoid duplicative benefits, if a producer applies for both tracks, the Track 2 payment calculation will take into account any payments received through Track 1.

Additional Required Forms
For both ERP 2022 tracks, all producers must have certain required forms on file with FSA within 60 days of the Aug. 14 application deadline. If not already on file, producers can update, complete and submit required forms to FSA by Tuesday, Oct.15, 2024.

Required forms:
Form AD-2047, Customer Data Worksheet.
Form CCC-902, Farm Operating Plan for an individual or legal entity.
Form CCC-901, Member Information for Legal Entities (if applicable).
Form FSA-510, Request for an Exception to the $125,000 Payment Limitation for Certain Programs (if applicable).

Form CCC-860, Socially Disadvantaged, Limited Resource, Beginning and Veteran Farmer or Rancher Certification, if applicable, for the 2022 program year. Note: Currently, there is a Federal court injunction that prohibits USDA from "making or increasing payments, or providing any additional relief, based on its 'socially disadvantaged farmer or rancher' designation" under ERP 2022. This may impact certain payments.

A highly erodible land conservation (sometimes referred to as HELC) and wetland conservation certification (Form AD-1026 Highly Erodible Land Conservation (HELC) and Wetland Conservation (WC) Certification) for the ERP producer and applicable affiliates.

Most producers, especially those who have previously participated in FSA programs, will likely have these required forms on file. However, those who are uncertain or want to confirm the status of their forms can contact their local FSA county office.

Future Insurance Coverage Requirements
All producers who receive ERP 2022 payments must purchase crop insurance or NAP coverage where crop insurance is not available, in the next two available crop years as determined by the Secretary. Purchased coverage must be at the 60/100 coverage level or higher for insured crops or at the catastrophic coverage level or higher for NAP crops.

Farm Service Agency Is Accepting Emergency Conservation Program and Emergency Forest Restoration Applications from New Jersey Producers

Gabor.Grunstein@usda.gov

All counties eligible for disaster recovery assistance

Hamilton Square, New Jersey, July 26, 2024 – The U.S. Department of Agriculture (USDA) is accepting applications for the Emergency Conservation Program (ECP) and the Emergency Forest Restoration Program (EFRP) from New Jersey agricultural producers and owners of nonindustrial private forestland to address damage from recent severe storms that occurred Jan. 1 through June 30, 2024. The statewide signup period for both ECP and EFRP runs July 29 through Aug. 28, 2024.

“Recovering from the impacts of natural disasters is never easy, but there’s no need to go it alone,” said Robert Andrzejczak, State Executive Director for FSA in New Jersey. “If you have an immediate need to clean up and restore your farm and forestland and need assistance, we’re ready to help but it’s imperative that you call our office for to determine program eligibility and restoration practice approval before you take any action.”

Emergency Conservation Program (ECP) *https://tinyurl.com/436674fb*

Emergency Forest Restoration Program (EFRP) *https://tinyurl.com/4vn3znzj*

Emergency Conservation Program
ECP provides cost-share reimbursement to producers to restore farmland to pre-disaster conditions. Conservation concerns that were present on the land prior to the disaster are not eligible for ECP assistance.

Approved ECP practices include fence repair and debris removal.

Approved ECP applicants can receive up to 75% of the cost of the approved restoration activity. Producers who are considered limited resource, socially disadvantaged and beginning farmers and ranchers can receive up to 90% cost-share. FSA is authorized to provide advance payments, up to 25% of the approved cost share. The advance cost-share payment must be spent within 60 days from receipt of payment. Producers with damage from qualifying natural disaster events must apply for assistance before beginning reconstructive work. FSA’s National Environmental Policy Act and environmental compliance review process is required to be completed before any actions are taken. Submitting an application after reconstructive work has been completed may not qualify for ECP.

FSA county committees will evaluate applications based on an on-site inspection of the damaged land, taking into consideration the type and extent of the damage. An on-site inspection does not guarantee that cost-share funding will be provided.

The 2018 Farm Bill increased the payment limitation for ECP to $500,000 per natural disaster event.

Emergency Forest Restoration Program
EFRP is a cost-share program that provides financial and technical assistance to owners of nonindustrial private forestland (NIPF) to restore NIPF land damaged by a qualifying natural disaster event.

After applications are received, local FSA county committees determine land eligibility using on-site inspections to assess the type and extent of damage.

Financial assistance is not provided upfront but is reimbursed, at no more than 75% of the lesser of the actual costs incurred or allowable cost, after a restoration activity is complete. If an EFRP application is approved, the participant is expected to perform restoration and conservation practices based on the FSA-848A Cost-Share Agreement and restoration plan provided.

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Farm Service Agency...Continued on page 6

The following requirements for participation in EFRP include:

- Restoration must be completed to meet the Natural Resources Conservation Service and/ or state forestry agency technical standards.
- Participants must document and keep records of all costs incurred, including costs associated with personal labor, to complete the restoration activities.
- The minimum qualifying cost of restoration is $1,000.
- The program's payment limitation is $500,000.

In order to meet eligibility requirements, NIPF land must have existing tree cover or had tree cover immediately before the natural disaster occurred and be sustainable for growing trees.

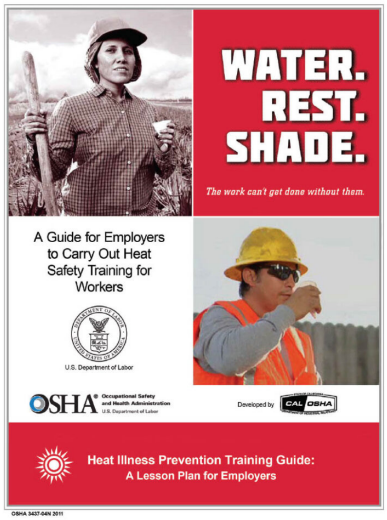
The land must also be owned or leased by any nonindustrial private individual, group, association, corporation, or other private legal entity that has definitive decision-making authority over the land.
The natural disaster event must have resulted in damage that, if untreated, would impair or endanger the natural resources on the land and/or materially affect future use of the land.

For more information on ECP or EFRP, please contact your local USDA service center or visit *farmers.gov/recover*.

Beat the Heat: Checklist to Identify Heat Hazards

Plant and Pest Advisory - Kate Brown - 7/21//24

The Occupational Safety and Health Administration (OSHA) has created an EmployerChecklist for Outdoor and Indoor Heat-Related Injury and Illness Prevention which may be utilized to identify sources of heat hazards in the workplace and respond effectively. Section1 of the checklist is designed to help employers recognize job-related heat risks while Section 2 explores preparedness for heat-related injuries and illnesses. Additional OSHA resources on heat-illness prevention are included on the last page of the checklist. See checklist in attachments.



Beat the Heat: Training Resource

Plant and Pest Advisory - Article By: The Rutgers Farm Health and Safety Working Group: Kate Brown,
Michelle Infante-Casella, Stephen Komar and William Bamka - 7/7//24

Employee training on working in the heat may reduce risk of heat illness by raising awareness of heat safety. OSHA has developed "A Guide for Employers to Carry Out Heat Safety Training for Workers" which provides step-by-step instructions on how to engage employees in participatory heat safety training on three topics: 1) health effects of heat, 2)how to respond to symptoms, and 3) preventing heat illness. The training can be delivered in one, 45-minute session or three, 15-minute sessions.

plant-pest-advisory.rutgers.edu/beat-the-heat-training-resource

Beat the Heat: NWS Forecast Tools – Expanded

Article By: The Rutgers Farm Health and Safety Working Group: Kate Brown, Michelle Infante-Casella, Stephen Komar and William Bamka

The National Weather Service compiled a list of resources on "Weather Information for Agriculture". Direct links to long range outlooks (6-10 day and 8-14 day periods) for temperature are one inclusion which may be relevant for on-farm planning related to heat stress prevention.

Farmers may utilize other tools referenced in this resource to:

- Evaluate recent precipitation and conduct monthly or seasonal reviews of precipitation
- Monitor current drought conditions
- View 1-7 day forecasts for severe weather, excessive rain, air quality, and other weather-related hazards
- Explore long-range outlooks (up to 3 months out) for temperature, precipitation, and drought

Check out this link for more Weather Information for Agriculture https://tinyurl.com/2vjmhrw4

Fact Sheets

Bison Husbandry - Michael Westendorf, Extension Specialist in Animal Sciences Tess Stahl, Extension Specialist in Animal Sciences
https://njaes.rutgers.edu/FS945/

Calendar of Events

- Indicates a newly added event * Indicates Pesticide Credits Offered

August 13-15
Ag Progress Days at Russell E. Larson Agricultural Research Center *https://agsci.psu.edu/apd*
Pennsylvania's largest outdoor agricultural exposition.
2710 W. Pine Grove Road Pennsylvania Furnace, PA 16865

- **September 9-11**
  Biennial International Pepper Conference *https://checkout.eventcreate.com/ipc2024/select-buy*
  Michael Mazourek mm284@cornell.edu
- **September 17-19**
  Farm Science Review *https://fsr.osu.edu/visitor-information-fsr*
  Whether you are looking to innovate with the latest ag-technology, learn from industry experts, or share your farming legacy with your family, the Farm Science Review has it all.
- **September 23-25**
  American Hort Plug and Cutting Conference. Orlando. FL. Register at *tinyurl.com/4ezcuxr9*
- **October 1-2**
  The CEA Summer East Institute for Advanced Learning and Research Conference Center, 150 Slayton Avenue, Danville, VA. *tinyurl.com/kh3ypkzk*. 1-404-991-5186 or email hello@indoor.ag. dawn@indoor.ag
- **November 4-7**
  Irrigation Show & Education Conference *https://www.irrigation.org/2024Show/*
  With best-in-class exhibitors and expert instructors, the best of the best will be at the 2024 Irrigation Show.
  Long Beach Convention & Entertainment Center- 300 E Ocean Blvd, Long Beach, CA 90802

USDA Farm Service Agency
U.S. DEPARTMENT OF AGRICULTURE

FOOD SAFETY CERTIFICATION FOR SPECIALTY CROPS

Program Years 2024 and 2025

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 2024 and 2025.

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:
  - 2024 food safety certification that was issued between June 26, 2024 and December 31, 2024
  - 2025 food safety certification issued during calendar year 2025
  - Have paid eligible expenses;
- Meet the definition of a small business or medium-sized 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 PERIOD
2024	June 26, 2024 - December 31, 2024	July 1, 2024 - January 31, 2025
2025	January 1, 2025 - December 31, 2025	January 1, 2025 - January 31, 2026

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
Development of a food safety plan for first-time certification	75 percent (no maximum)
Maintaining or updating a food safety plan	75 percent, up to a maximum of $675
Food safety certification	75 percent, up to a maximum of $2,000
Certification upload fees	75 percent, up to a maximum of $375
Microbiological testing – products	75 percent, up to 5 tests
Microbiological testing – soil amendments	75 percent, up to 5 tests
Microbiological testing – water	75 percent, up to 5 tests
Training	100 percent, up to a maximum of $500

How to Apply

Eligible specialty crop operations may apply for FSCSC by completing the FSA-888-1, 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**:

- FSA-888-1, 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
- SF-3881, ACH Vendor/Miscellaneous Payment Enrollment Form
- 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**.

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** or contact your local FSA office. To find your local FSA office, visit **farmers.gov/service-locator**.

SAFE + SOUND | Heat Illness Prevention

Employer Checklist for Outdoor and Indoor Heat-Related Injury and Illness Prevention

OSHA has developed this checklist to help employers identify potential sources of heat hazards in their workplaces and develop a plan to address and respond to these hazards. An effective safety and health program must include Management Leadership, which is demonstrated when business owners, managers, and supervisors commit to controlling hazards, protecting workers, and continuously improving workplace safety and health. The Occupational Safety and Health Act requires employers to provide workplaces free of known safety hazards. This includes protecting workers from extreme heat, which is a recognized hazard that millions of workers are exposed to each year. In order to fulfill this responsibility, employers should conduct routine workplace self-inspections to identify heat-related hazards, control identified heat-related hazards, and monitor and evaluate hazard controls to verify that they continue to be effective. This checklist helps employers identify their job-related risk factors for heat exposure, assess their preparedness, determine where challenges exist, and develop effective ways to control their heat-related risk and make their workplaces safer.

Directions:
Review and answer the questions on the checklist to identify if your workplace has job-related risk factors for heat exposure.

Section 1 helps you identify job-related risk factors for heat exposure in your workplace:

1. For each question, mark the answer (Yes, No, N/A) that is most applicable to your workplace.
2. If you answer "Yes" to any of the questions, continue to section 2 of the checklist to assess your preparedness.

Section 2 helps you assess your preparedness to prevent heat-related injuries and illnesses in your workplace:

3. For each question, mark the answer (Yes, No, N/A) that is most applicable to your workplace.
4. If you answer "No," to any of the questions, identify the specific actions you will take to show your commitment to reducing the risk of heat-related injuries and illnesses in your workplace.

At the end of the checklist, you will find links to additional resources on heat-related injury and illness and exposure that could help you find strategies that work for your business and augment the workplace-specific strategies identified during your initial survey.

Heat-Related Injury and Illness Prevention	Yes	No	N/A	Comment
Section 1: Are any of these job-related risk factors for heat exposure present in your workplace?				
Outdoor work in warm/hot weather or direct sun	☐	☐	☐	
Indoor work in warm/hot environments with heat sources such as ovens, fires, hot tar, and/or other radiant heat sources	☐	☐	☐	
Moderate to strenuous physical activity performed in warm/hot indoor or outdoor environments	☐	☐	☐	
Heavy or non-breathable work clothes and/or personal protective equipment worn in warm/hot indoor or outdoor environments	☐	☐	☐	
High relative humidity combined with a warm/hot indoor or outdoor environment	☐	☐	☐	
Other factors not listed above, such as lack of air movement or lack of air-conditioning, combined with a warm/hot indoor or outdoor environment	☐	☐	☐	
Section 2: If you checked "Yes" for any of the above, use the following checklist to assess your preparedness:				
A written plan is in place to prevent heat-related injury and illness	☐	☐	☐	
The plan contains procedures that should be used during heat events, such as when the National Weather Service issues a heat advisory or heat warning	☐	☐	☐	
The plan requires the assessment of environmental heat at the worksite (e.g., continually monitoring temperature, heat index, or Wet Bulb Globe Temperature [WBGT]) and considers how physical activity and clothing/PPE affect heat stress of workers	☐	☐	☐	
Procedures are in place to determine throughout the workday if heat is hazardous to workers	☐	☐	☐	
A designated, trained individual at the worksite is responsible for assessing and monitoring conditions (e.g., temperature and humidity) and workers for symptoms of heat-related injury and illness (see OSHA: Signs and Symptoms of Heat Illness), implementing the heat plan when necessary, and notifying workers when the heat plan is in effect	☐	☐	☐	
An acclimatization plan is in place to modify work duties for and to closely supervise (1) new workers, (2) temporary or contract workers, and (3) workers returning from extended leave to ensure they gradually build tolerance to heat. The plan should also require supervisors to monitor these workers for symptoms of heat-related injury and illness	☐	☐	☐	

Heat-Related Injury and Illness Prevention	Yes	No	N/A	Comment
Engineering controls (e.g., shade structures with cool air temperatures, reflective barriers, ventilation) are used to reduce heat stress	☐	☐	☐	
Fluids (e.g., cool, potable water, sports drinks) are readily available and are provided to workers, and supervisors ensure they are hydrating	☐	☐	☐	
Rest breaks are provided and their length and frequency are adjusted, as needed. Supervisors ensure breaks are taken	☐	☐	☐	
Shade or a cooled area for rest and hydration breaks is provided	☐	☐	☐	
A buddy system is in place so workers observe each other for signs of heat-related injury and illness	☐	☐	☐	
Supervisors and workers have a way to contact emergency services. Instructions for what to do in case of a heat-related medical emergency are posted at the worksite	☐	☐	☐	
Supervisors and workers are provided with proper training in a language they understand on the following topics:				
• Identifying and controlling heat hazards and understanding environmental risk factors	☐	☐	☐	
• Recognizing the signs and symptoms of heat-related injuries and illnesses	☐	☐	☐	
• Understanding that there are individual factors that may impact workers' risk for developing heat illness	☐	☐	☐	
• Administering first aid and CPR for heat-related illness	☐	☐	☐	
• Activating emergency medical services quickly when needed	☐	☐	☐	
Workers know how to and are expected to report to the employer any symptoms of heat-related injuries or illnesses that develop while working	☐	☐	☐	

Additional Resources

- OSHA: Signs and Symptoms of Heat Illness
- OSHA: Heat Illness Prevention Campaign
- OSHA: Safety and Health Topics: Heat
- OSHA: Technical Manual - Heat Stress
- OSHA-NIOSH Heat Safety Tool
- NIOSH: Heat Stress
- NOAA: Heat Safety Tips and Resources

National Weather Service
National Oceanic and Atmospheric Association

Weather Information for Agriculture

Current Conditions, Observed Rainfall, and Drought Monitoring

Information on observed precipitation and monthly and seasonal reviews	Drought Monitoring
• Rutgers NJ Weather Network (Monthly reviews, current conditions, NJ and weather specific news): njweather.org • Northeast Regional Climate Center (State and regional analyses): nrcc.cornell.edu • NWS Precipitation Analysis (precipitation analyses for multiple time periods): water.weather.gov/precip/	• Drought and Agriculture main page: drought.gov/sectors/agriculture • Current Drought Monitor: droughtmonitor.unl.edu • Two week comparison • Comparison Slider • Change Map

Forecasts and Outlooks

Forecasts for Days 1 - 7	Long Range Outlooks

• For Southern, Central, and NW New Jersey:
  • weather.gov/phi/
  • Outlook
• For Northeastern New Jersey
  • weather.gov/okx
  • Outlook
• River and hydrologic forecasts: weather.gov/marfc
• Tropical Outlook and information on current tropical cyclones: nhc.noaa.gov
• Severe Weather Outlook: spc.noaa.gov/products/outlook/
• Excessive Rain Outlook: wpc.ncep.noaa.gov/#page=ero
• Tidal Forecast and potential extent: www.weather.gov/erh/coastalflood?wfo=phi
• Air Quality Forecasts and monitoring: airnow.gov
	The below resources are available on the Climate Prediction Center's Website at cpc.ncep.noaa.gov
	• 6 -10 Day Temperature/Precipitation Outlook: Static/Interactive
	• 8-14 Day Outlooks
	  • Temp/Precip: Static/Interactive
	  • Hazards Outlook
	• Week 3 – 4 Outlook
	• One Month Outlook
	• Three Month Outlooks
	• Monthly Drought Outlook
	• Seasonal Drought Outlook

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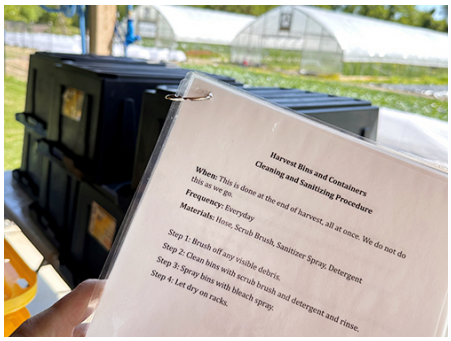

Fact Sheet FS1358

Developing your On-Farm Food Safety Worker Training Program

Meredith Melendez, Agriculture and Natural Resources Agent, Mercer County
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Wesley Kline, Agriculture and Natural Resources Agent, Cumberland County

This worksheet focuses on the entire process of growing produce from production through distribution, including direct-to-consumer markets. Specific Food Safety Modernization Act Produce Safety Rule and United States Department of Agriculture third-party audit requirements can be found on our Rutgers On-Farm Food Safety Website (https://onfarmfoodsafety.rutgers.edu).

A well-planned worker training program is key to reducing human pathogen risks in the farm environment. This worksheet will prompt you to identify where workers are coming in direct contact with produce, the type of training your workers should have, and relevant training resources. Worker training should take place upon hire, and programs should be evaluated annually to ensure they continue to meet the farm's needs as your staffing, equipment, and infrastructure change.

1. **Draw a rough map of your farm operation. Include all areas where produce is grown, harvested, packed, stored, or sold on the farm. Identify the areas as "production," "harvest," "postharvest," or "distribution." You can consult Section 2 for guidance.**

2. **Review your map. What area of the farm do you have workers involved with the production, harvest, or distribution of produce? (Circle all that apply)**

Activity	Areas this may include
Production	Field, greenhouse, tunnel, indoor growing facility, restrooms/portable toilets, employee break areas, compost area, production equipment, water distribution system, water treatment system, water source, storage areas
Harvest	Field, greenhouse, tunnel, indoor growing facility, headhouse, storage areas, harvest equipment, restrooms/portable toilets, employee break area, water distribution system
Postharvest	Packing and grading areas, storage areas, restrooms, employee break areas, cold rooms, postharvest water systems
Distribution	Cold room, headhouse, vehicles, market areas, restrooms

3. **What training subject matter is required based on the areas of activity that you indicated? Some training topics may be relevant for multiple activities across the farm. Consider who works in these spaces and how the training may need to be tailored to include risks present in one area and not another.**
   (Circle all that apply)

Production	Harvest	Postharvest	Distribution
Worker health and hygiene	Worker health and hygiene	Worker health and hygiene	Worker health and hygiene
Maintaining break areas/restrooms and portable toilets / handwashing facilities	Maintaining break areas/restrooms and portable toilets/ handwashing facilities	Maintaining break areas/restrooms and portable toilets / handwashing facilities	Maintaining break areas/restrooms and portable toilets/ handwashing facilities
Wildlife intrusion	Water system inspection	Pest control	Produce transportation to markets
Soil amendment use	Irrigation water use	Food contact surface cleaning and sanitation	Direct sales of produce to customers
Fecal matter identification and response	Wildlife intrusion	Water treatments	Farm visitors
Water system inspection	Damaged and/or contaminated produce	General cleaning	
	Pest control	Waste management	
	Harvest tool sanitation	Sorting produce	
	Harvest container use and sanitation	Packing produce	
		Grey water management	

4. **Identify training resources in Section 5 that may meet the training needs identified in Section 3. Visit our website (https://onfarmfoodsafety.rutgers.edu) to access additional resources.**

Training needed	Resource
Production –worker health and hygiene	*Cornell WHH field training video, YouTube*

5. **Use these QR codes to access worker training video resources that can be used as part of your worker training program. All your training needs may not be met by videos available online. Make sure you consider the primary language of your workers and the training you are providing. Additional print resources are available on our website that can assist you in tailoring information for your farm's training needs.**

Topic	Title and Institution	Online access
Worker Health and Hygiene	Food Safety Video for Field Workers, Cornell University Available in: English, Spanish, Creole, Hmong	go.rutgers.edu/lasm2bvw (https://go.rutgers.edu/lasm2bvw)
Wildlife assessment	Interactive Wildlife Scouting Simulator, Michigan State University Available in: *English*	go.rutgers.edu/tnv76nmo (https://go.rutgers.edu/tnv76nmo)
Compost	Safe Use of Animal Based Soil Amendments, Michigan State University Available in: *English*	go.rutgers.edu/l4awa7gz (https://go.rutgers.edu/l4awa7gz)

Topic	Title and Institution	Online access
Cleaning and sanitizing	Cleaning VS Sanitizing, University of Massachusetts Available in: *English*	go.rutgers.edu/yoqcmuza (https://go.rutgers.edu/yoqcmuza)
Cleaning and sanitizing	Cleaning and Sanitizing Farm Tools and Equipment, New Mexico State University Available in: *English, Spanish*	go.rutgers.edu/tz0g1grc (https://go.rutgers.edu/tz0g1grc)
Single-pass wash line deep cleaning	Single-Pass Wash Line Deep Cleaning How-To, Rutgers Available in: *English*	go.rutgers.edu/8hl4u4ya (https://go.rutgers.edu/8hl4u4ya)
Water system inspection	Water System Inspection, Michigan State University Available in: *English* *This video states that a water system inspection is not required for the FSMA PSR. The FDA released the final ag water rule in May of 2024. More information on the requirements, which can include a water system inspection can be found on the FDA website (https://www.fda.gov/media/178221/download?attachment).	go.rutgers.edu/zl74l38i (https://go.rutgers.edu/zl74l38i)
Pest management	Best Practices for Pest Management, Iowa State University Available in: *English*	go.rutgers.edu/ov5pquje (https://go.rutgers.edu/ov5pquje)
NECAFS Produce Safety Clearinghouse	Online searchable database of free produce safety resources Available in: Varies	go.rutgers.edu/uc616u8j (https://go.rutgers.edu/uc616u8j)

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USDA United States Department of Agriculture National Institute of Food and Agriculture

RUTGERS UNIVERSITY New Jersey Agricultural Experiment Station

Photo credit: Photo row across top, left: Meredith Melendez; middle: Michael Monzon; right: Jennifer Matthews

Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and Boards of County Commissioners. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

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RUTGERS New Jersey Agricultural Experiment Station
COOPERATIVE EXTENSION

Bulletin E291

Feeding Nitrate-Containing Forages

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Any time there is a summer drought that limits production of corn silage/forage and other forages, plant tissue accumulation of nitrates is a risk. Corn silage produced from forage grown under drought conditions is often poorly eared and low in energy. Adequate forages are essential for feeding ruminants and other herbivores. Forages provide an excellent source of nutrients, fiber for proper rumen functioning and milk fat test, and make use of renewable forage resources. Feeding drought-stressed forage that is high in nitrates is challenging, but with good management and some proper precautions, can be successful.

Nitrate in the Plant

During a drought, nitrates will accumulate in a plant. This is most often seen in corn silage and other corn forages but can occur in other plants too.

Nitrates are most likely to accumulate when plants are stressed. This may coincide with excessive amounts of nitrate in the soil. This could come from the release of nitrates in the soil from organic matter or manure, or it could be a result of heavy applications of fertilizer. Some research has shown that heavy fertilization can result in increased accumulation of nitrates in plants that do not normally accumulate (tall fescue, orchard grass). During periods of drought, the plant will continue to take up nitrate, but moisture stress will reduce the conversion of nitrate into protein in the plant. Anything that reduces the rate of plant photosynthesis or protein biosynthesis will also result in greater nitrate accumulation; frost, low temperatures, cloudy weather, and herbicide applications can all result in greater plant accumulation of nitrates.

Plants known to accumulate nitrates

- Corn
- Johnson Grass
- Ryegrass
- Small Grains
- Sorghum
- Sudangrass
- Some weeds (Pigweed)

Plants believed not to accumulate nitrates

- Alfalfa
- Fescue
- Orchard grass
- Timothy
- Bermuda Grass
- Native Grasses

Since moisture is required for nitrate uptake, the greatest nitrate accumulation during a drought will occur immediately following rainfall. Whenever this happens, forage should not be harvested, nor should animals be allowed to graze. Concentrations of nitrates are generally highest in stalk tissues and lower in leaves and vegetative tissues. One strategy for

management is to set forage harvesters to cut higher on the stalk so that higher nitrate material is not harvested.

Nitrate in the Animal

The ruminant animal can convert nitrate to nitrite and ammonia in the rumen and detoxify the nitrate. Problems occur when the level of nitrates builds up in the rumen due to higher levels in the diet and rumen microbes cannot convert all the nitrate present to ammonia. Conversion of nitrate to nitrite occurs more quickly than the conversion of nitrite to ammonia. If levels of nitrate are great enough, nitrite will accumulate in the rumen and will be absorbed through the wall of the rumen into the blood supply. When this happens, nitrite combines with hemoglobin in the blood and converts it to methemoglobin, which will carry very little oxygen to the tissues. When methemoglobin reaches toxic levels, death can occur due to suffocation (oxygen deprivation). The presence of methemoglobin in the blood is easy to recognize because of the chocolate brown color of the blood. Blindness and abortion can also occur.

Nitrate		Nitrite		
Reductase		Reductase		
Nitrate (NO_3^-)	➡	Nitrite (NO_2^-)	➡	Ammonia (NH_3^+)

Acute poisoning can result in increased respiration and pulse rate, muscular incoordination and staggering, diarrhea, frothing at the mouth, and cyanosis (a darkening of mucous membranes resulting from oxygen deprivation). Sublethal poisoning may result in a loss of appetite, lowered milk production, slow growth, abortions, and poor fertility.

Contact Your Veterinarian for Treatment

The most common treatment is the administration of 1–2% methylene blue in an IV injection to provide 4–15 mg of methylene blue/kg. of body weight. According to the Merk Veterinary Manual, ruminants can tolerate higher levels of methylene blue than other species. Injection of cold water and antibiotics into the rumen may halt the microbial production of nitrite.

Ruminants can be adapted to higher levels of nitrate. This can be done by slowly increasing the level of nitrate-containing forage in the diet. Due to the large population of microbes in the rumen, cows, sheep, and other ruminants can convert nitrate to ammonia. However, there is a threshold of how much they can convert. They can be fed forage containing <1.5% nitrate provided they are slowly adapted and provided the forage is only a portion of the diet. (See guidelines in Table 1 below).

Testing Forage for Nitrate

The only reliable method to determine if nitrates may be a problem is through testing. The diphenylamine test can be used as a field screen to determine if testing is necessary. The test solution consists of .5 g of diphenylamine dissolved in 20 ml of water. Add sulfuric acid to a total volume of 100 ml. Cool the solution, store in a brown bottle, and keep refrigerated. Split the stem or stalk to expose the inside and add 1–2 drops of the test solution to the cut surface of the plant. An immediate color change to intense blue or black is a positive reaction indicating more than 2% nitrate. Samples that react in this manner should be submitted for quantitative analysis at a laboratory. Proper sampling to ensure that a representative sample is tested is very important. Contact your local County Extension Agent or the State Division of Animal Health for more information.

Pointers for Forages and Feeding Management

1. Applying high amounts of nitrogen fertilizer or manure late in the season can result in increased nitrate uptake and accumulation by plants. Split fertilizer applications in the spring. Consider using the pre-sidedress soil nitrate test (PSNT) to better manage soil nitrate levels.

2. Harvest when plants have outgrown nitrate accumulation. As plants mature, nitrate accumulation will decrease.

3. When harvesting, raise the cutter bar to avoid the high nitrate levels in the lower stalk (about 8–10 inches). The highest levels of nitrate accumulation are in the stalk. Raising the cutter bar will prevent including the lower stalk with corn to be ensiled.

4. Do not allow animals to graze and do not harvest forages following heavy rains. The period following heavy rain is often the period of greatest nitrate uptake by the plant.

5. As always, pay attention to proper silage production, moisture content, packing, and length. Corn silage should be 60–70% moisture at harvest. Consider adding water to the silo if less than 60%. Drought- damaged corn can be chopped at 1/4 to 3/8 inch in length. This will help in packing to exclude as much oxygen as possible. Make sure all equipment, including sharp knives, is in good condition prior to starting the harvest season. The silo should be filled quickly and packed as tightly as possible to exclude oxygen.

6. Order of feeding priority: Silage > Hay > Grazing > Greenchop. Ensiling will destroy 40–60% of nitrates. Therefore, silage crops will have the lowest levels of nitrate due to bacterial destruction. Producing forage for dry hay does not destroy nitrates. Greenchop will be the riskiest to feed. If nitrate levels are high enough, ensiling may be the only way to salvage the forage.

7. Never feed a forage containing greater than 1.5% nitrate. See the table below with guidelines for including nitrate-containing forages.

8. Mix with other feeds when feeding. Managing the total nitrate intake is the goal when formulating diets with nitrate-containing forages. Diluting with concentrates and nitrate-free forages can help to accomplish this. Whenever grazing nitrate-containing forage, feed (especially grain) the animals prior to turning out to graze to ensure the dilution of nitrate.

9. Supplement with Vitamin A. Previous research has shown that forage containing high levels of nitrate can also be low in Vitamin A or with reduced Vitamin A availability. Vitamin A is inexpensive and should be added to all ruminant diets.

10. Test water supplies for nitrates.

11. Test forages whenever nitrate accumulation is likely due to drought.

Nitrate and Lethal Silo Gases

Whenever silage is made from high nitrate forage, toxic gases (oxides of nitrogen) are produced in the first few days following fermentation. These gases are pungent, may smell like bleach, are yellowish or reddish-brown in color, and may leave a yellow stain on wood or other surfaces. These gases can be lethal at levels too low for you to see them. Forages containing high levels of nitrates are especially prone to this problem.

Gases may occur at any time during silo filling. Although gases may occur up to 10 days after the last silage is put in the silo, the danger is greatest between 12–72 hours after first filling. The gases are heavier than air and will accumulate above the silage in the silo, in the chute, and in the silo room, and will flow out the silo juice drain. They may also pose a risk in adjacent feed rooms and could disperse through the barn, loading areas or milk houses. Throat irritation may be the first indication you have been exposed to low levels.

The risk is greatest for someone entering the silo alone. The silo blower should be run for 15–20 minutes before entering a partly filled silo and the blower should continue to run when anyone is inside. Never enter the silo unless there is at least one person available to help remove you in case of a problem. Stay out of the silo for at least a week, or preferably two, after the silo is filled. Keep the silo room and adjacent feed and barn rooms well-ventilated by keeping doors and windows open for at least two weeks after filling. Remember that the presence of high nitrate forage will result in a greater risk of silo gas formation.

Table 1. Feeding Rates for Forages Containing Nitrate [1]

Concentration (%) of nitrate ion (DM basis)	Nitrate-nitrogen (NO_3-N) on a DM basis		Comments
	mg/kg or ppm	%	
0.0–0.44	<1000	.10	Safe to feed. Be cautious with pregnant and young animals at upper level of range.
0.44–0.66	1000–1500	.10–.15	Safe to feed to non-pregnant animals. Be cautious with pregnant and young animals at upper level of range.
0.66–0.88	1500–2000	.15–.20	Safely fed if limited to 50% of the total DM ration.
0.88–1.54	2000–3500	.20–.35	Feeds should be limited to 35–40% of the total DM ration. Feeds over 2000 ppm nitrate-N (0.2%) should not be fed to pregnant animals. Fortify well with energy, minerals, and Vitamin A.
1.54–1.76	3500–4000	.35–.40	Feeds should be limited to 25% of total DM in the ration. Do not feed to pregnant animals.
Over 1.76	>4000	>.40	DO NOT FEED. Feeds containing these levels are potentially toxic.

[1] Source: Sniffen, C.J. and L.E. Chase. 1981. Nitrates in Dairy Rations, Department of Animal Science, Cornell University.

Nitrates in Water

Consumption of well water is unlikely to cause nitrate toxicity, which is more likely when livestock have access to contaminated water sources such as ponds, ditches, or other surface contamination. Although nitrates in feed and water can have additive effects toxicity is unlikely when water containing less than 100 ppm NO_3-N is consumed.

Table 2. Conversion Factors for Comparing Different Expressions of Nitrate[1]

Description	Chemical designation	To convert to nitrate, multiply by
Nitrate	NO_3	1.0
Nitrate-nitrogen	NO_3-N	4.4
Potassium nitrate	KNO_3	0.6
Sodium nitrate	$NaNO_3$	0.7
Nitrate levels in feed and water are often reported in parts per million (ppm). To convert to percent (%), move the decimal point four places to the left or vice versa. Example: 4400 ppm = 0.44%		

[1] Source: Sniffen, C.J. and L.E. Chase. 1981. Nitrates in Dairy Rations, Department of Animal Science, Cornell University.

Please see the accompanying worksheet below for determining nitrate levels in the diet.

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Nitrate Worksheet

Example Farm

Feed	Pounds of Dry Matter	*	NO_3-N (ppm)	= Total (ppm)	*.454	= Mg	÷ 1000	= Grams
Corn silage	15	*	2980	= 44700	*.454	= 20294	÷ 1000	= 20.29
Haylage	9	*	945	8505	*.454	3861	÷ 1000	3.86
Hi-Moisture Corn	14	*	198	2772	*.454	1258	÷ 1000	1.26
		*			*.454		÷ 1000	
		*			*.454		÷ 1000	
	38 pounds of dry matter							25.41 grams
Feed Total	25.41 grams or about 0.14% NO_3-N of Dry Matter intake Safe to feed							

Your Farm

Feed	Pounds of Dry Matter	*	NO_3-N (ppm)	= Total (ppm)	*.454	= Mg	÷ 1000	= Grams
		*			*.454		÷ 1000	
		*			*.454		÷ 1000	
		*			*.454		÷ 1000	
		*			*.454		÷ 1000	
		*			*.454		÷ 1000	
Feed Total								

July 2024

For more information: njaes.rutgers.edu.

Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and Boards of County Commissioners. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

South Jersey Nursery IPM Updates: Degree-days

Projected GDD50 accumulation as of 7/29/2024 (August)						
CODE	**Location**	**1-Aug**	**8-Aug**	**15-Aug**	**22-Aug**	**29-Aug**
NJ50	Upper Deerfield (South)	2313	2513	2702	2883	3059
NJ73	Vineland (South)	2275	2474	2660	2839	3013
KMIV	Millville Airport (South)	2270	2468	2653	2831	3003
NJ05	Greenwich (South)	2312	2515	2706	2890	3068
NJ10	Howell (Central)	2094	2284	2459	2627	2789
N59	High Point (North)	1787	1953	2103	2246	2381
*USPEST.ORG - Model: **simple average/growing degree-day**, Min: 50F - Max: 95F, NMME forecast*						
*Forecast: 7-month NMME based seasonal climate forecast (USPEST.ORG) - **Subject to change regularly = Check Often***						

Group	Common Name	Scientific Name	GDD Min (50F)	GDD Max (95F)	Ref.	Developmental / Target Stage / Notes
Caterpillar	**Zimmerman pine moth**	*Dioryctria zimmermani*	1917	2154	5	Treatment window (adult flight-1700 GDD)
caterpillar	**Orangestriped oakworm**	*Anisota senatoria*	1917	-	6	Egg hatch - early instars
Aphids / Thrips	**White pine aphid**	*Cinara strobi*	1991	2271	RU	Adults
Scale	**Gloomy scale**	*Melanaspis tenebricosa*	2000	3000	6*	Crawlers emerge. (1 generation) * Approximate range, more data needed.
Whitefly	**Azalea whitefly**	*Pealius azaleae*	2032	2150	5	Adults/nymphs (3rd generation)
Borer - Roundhead / Longhorn	**Sugar maple borer**	*Glycobius speciosus*	2032	2375	5	Typical treatment window
Scale	**Maskell scale**	*lepidosaphes pallia*	2035	-	6	Egg hatch / crawler (2nd generation)
Scale	**Tulip tree scale**	*Toumeyella liriodendri*	2037	2629	RU	Crawlers (1st generation)
Scale	**Magnolia scale**	*Neolecanium cornuparvum*	2155	2800	RU	Crawlers (1st generation)
Borer - Roundhead / Longhorn	**Locust borer**	*Magacyllene robiniae*	2271	2805	5	Typical treatment window
Weevil	**Poplar and willow borer**	*Crytorhynchus lapathi*	2271	2806	5	Typical treatment window
Mites	**Spruce spider mite**	*Oligonychus ununguis*	2375	2806	5	Typical treatment window
Mites	**Southern red mite**	*Oligonychus ilicis*	2500	2700	5	Typical treatment window
Scale	**Japanese maple scale**	*Lopholeucaspis japonica*	2508	-	6	Egg hatch / crawler (2nd generation)
Scale	**Elongate hemlock scale**	*Fiorinia externa*	2515	2625	RU	Typical treatment window - fall activity
Scale	**Fletcher Scale (Yew)**	*Parthenolecanium fletcheri*	2515	2800	RU	Fall control of overwintering stage
Caterpillar	**Fall webworm**	*Hyphantria cunea*	2793	-	6	Egg hatch / crawler (2nd generation)
Adelgid	**Cooley spruce gall adelgid**	*Adelges cooleyi*	2800	3000	3	Fall control of overwintering stage
Adelgid	**Eastern spruce gall adelgid**	*Adelges abietis*	2800	3000	3	Fall control of overwintering stage

SCAN HERE for Full –
Nursery Pest Scouting Guide

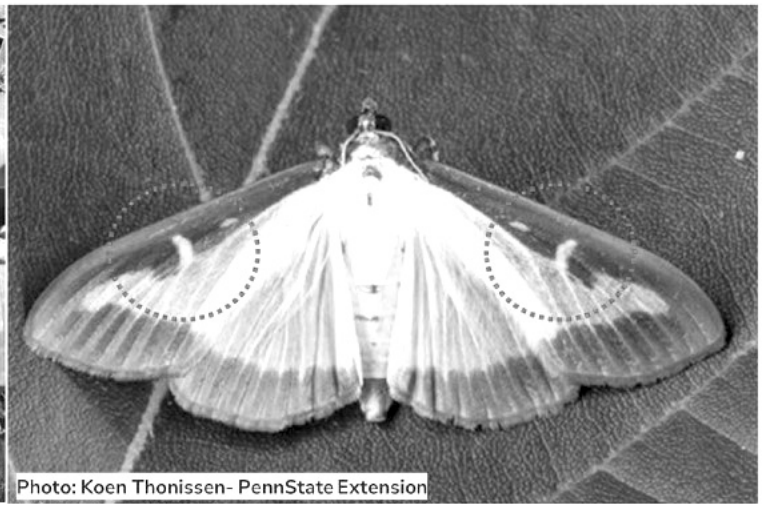
SCAN HERE for Full –
Conifer Pest Scouting Guide

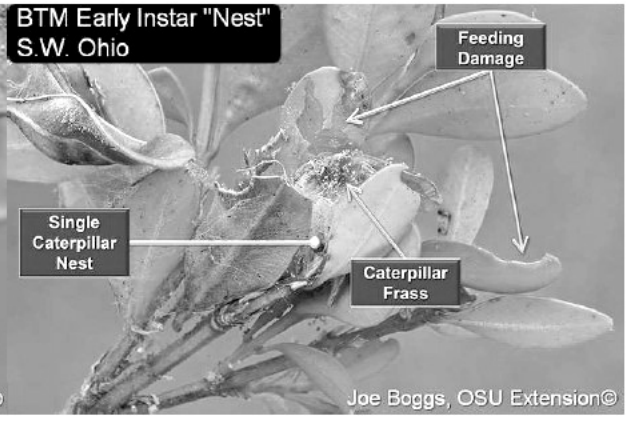
SCAN HERE TO REPORT
Observations & Pest pictures!

References	
Institution	Cited #
Rutgers Univ.	1
Cornell Univ. & Univ. of New Hampshire	2
Penn State Univ.	3
Michigan State Univ.	4
Univ. of New Hampshire	5
Univ. of Maryland	6
Michigan State Univ.	7
Univ. Delaware & North Carolina State Univ.	8
PA Department of Agriculture	9
Please contact for full reference list	

South Jersey Nursery IPM Updates: Box Tree Moth

Box tree moth has been confirmed at private residence in **Kent County, DE**.





The caterpillars are the most damaging and easily identified stage of the Box tree moth's lifecycle. **If you see webbing on boxwoods**, please report this to the contacts listed below.

The United States Department of Agriculture's Animal and Plant Health Inspection Service (USDA-APHIS) has confirmed a find of box tree moth (BTM; *Cydalima perspectalis*) at a private residence in **Kent County, Delaware**. The box tree moth is a federally regulated pest that primarily feeds on boxwood species (Buxus spp.). Box Tree Moth poses a serious threat to boxwood production, maintenance, and export. If you see or suspect this pest please contact:

Scan here for more resources

Rutgers RCE Agent (Nursery) – Tim Waller twaller@njaes.rutgers.edu (609) 406-6939
NJDA Nursery Inspection Program Manager- Sarah Katzenbach – sarah.katzenbach@ag.nj.gov

Regularly Scheduled Meetings

Locations for Pesticide Recycling Containers - 2024

Salem County
Helena Chemical
440 N. Main St.
Woodstown, New Jersey

Friday, August 23
Friday, September 20
Friday, October 18

Atlantic County
Helena Chemical
66 Route 206
Hammonton, New Jersey

Friday, August 16
Friday, September 13
Friday, October 11

Monmouth County
Rutgers Fruit and Ornamental
Research Extension Center
283 Route 539
Cream Ridge, NJ 08514-9634

Friday, August 30
Friday, September 27
Friday, October 25

Cumberland County Agriculture Development Board

Virtual Meetings Information
can be found on the
Public Meeting Calendar on
cumberlandcountynj.gov/

Meetings are held on the 3rd
Tuesday of each month.
Meetings start at 6 p.m. at
Rutgers Cooperative Extension
291 Morton Avenue
Millville, NJ 08332

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

Chair: Al Caggiano, Jr

Commissioner Liaisons:
Victoria Groetsch-Lods
Sandra Taylor

Cumberland County Board of Agriculture

Meetings are held on the
3rd Thursday,
September - May at
Rutgers Cooperative Extension
291 Morton Avenue
Millville, NJ 08332

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

President: Timothy Eachus

Commissioner Liaisons:
1. Victoria Groetsch-Lods
2. Joseph Sileo

Meeting Times Vary by Month:
September & October - 7 PM
November, December, January,
February, & March - 6 PM
April & May - 7 PM

Cumberland County
For more information call
Timothy Eachus.

Sincerely,

Wesley L. Kline, Ph.D.
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Environmental and Resource Mgt. Agent
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RUTGERS UNIVERSITY
Cooperative Extension
of Cumberland County
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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Cooperative Extension of Cumberland County

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