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New Jersey Agricultural Experiment Station

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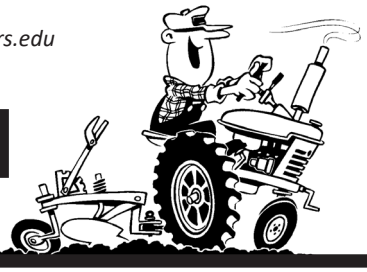

Cultivating Cumberland

September - 2024 Vol. 29, Issue 9

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Sal Mangiafico and Tim Waller Receive National Awards

Sal Mangiafico, agricultural agent, RCE of Salem and Cumberland counties, received a 2024 Distinguished Service Award (for individuals with more than 10 years of Extension service) and Timothy Waller, agricultural agent, RCE of Cumberland County, received a 2024 Achievement Award ((for individuals with less than 10 years of Extension service) from the National Association of County Agricultural Agents at the association's annual meeting on July 17. These are the top honors bestowed by National Association for service to the agricultural community.

Agri-Technology and Vegetable Research Twilight Meeting at RAREC

Thursday September 19th, 2024
4 pm until dark

Location: Rutgers Agricultural Research and Extension Center (RAREC)
121 Northville Road, Bridgeton, New Jersey 08302

This year's twilight meeting at RAREC will continue to showcase new agricultural technologies for stakeholders in the state. We will showcase the newly operating agrivoltaics system with specialty crops (fresh-market tomatoes, bell pepper, and eggplant) and soybeans growing beneath them and discuss new technologies for autonomous weeding. Specialists will also discuss their research and provide updates on fiber hemp, Christmas trees, native plants, invasive fruit pests, and vegetable disease.

Tim Waller, Cumberland County RCE Nursery Agent. "Nursery and Ornamental Research: Christmas Tree Pathology Studies and Native Plant Demonstrations"

Dan Ward, Director, RAREC. "Agrivoltaics for NJ: Progress and Promise"

Raul Cabrera, Extension Specialist in Nursery Production and Management. "Fiber Hemp and Weeds"

Ann Nielsen, Extension Specialist in Entomology. "Incorporating Insect Behavior into Management of Invasive Fruit Pests"

Thierry Besancon, Extension Weed Specialist for Specialty Crops. "Update on new technologies for weed management in sweet corn"

Andy Wyenandt, Extension Specialist in Vegetable Pathology. "Updates on vegetable disease control"

Food Business Basics Session

Food Business Basics for Food Entrepreneurs Food Innovation Center at Rutgers is hosting a Food Business Basics session for early-stage entrepreneurs on Sept. 25, from 8:00 a.m. – 5:30 p.m. at Rutgers EcoComplex. Early bird registration through Sept. 12 is available at the link: *https://ce-catalog.rutgers.edu/coursedisplay.cfm?schID=93209.*

Northeast Sustainable Agriculture Research and Education (SARE) Farmer Grant Information

Farmers in the Northeast can apply for up to $30,000 in funding for sustainable agriculture projects starting in 2025. These projects can range from experiments to on-farm events and demonstrations or other educational activities. The projects can include funds for materials, labor and more.

Approximately $850,000 has been allocated to fund projects. Awards of up to $30,000 are available. Proposals are due no later than 5:00 p.m. EST on November 12, 2024.

Q&A Sessions are taking place alternating Tuesdays and Wednesdays in October. Register once to attend any of the sessions. Sessions will take place on: Oct 8, 16, 22, 30. from 12 to 1 EST

To register see *https://us02web.zoom.us/meeting/register/tZAlcO-qrjguGtSNrOemAOP7pZWbUCcl5GqN#/registration*

To see the call for proposals *https://www.sare.org/wp-content/uploads/Northeast-SARE-Farmer-Grant-Call-for-Proposals.pdf*

For More Information go to *northeast.sare.org/FarmerGrant* or your State Coordinator: Stephen Komar at komar@njaes.rutgers.edu

EPA Issues Emergency Order to Stop Use of Pesticide Dacthal to Address Serious Health Risk

Note: This is abbreviated version of the announcement that Hastings posted. For full details go to *https://pestmanagement.rutgers.edu/news/*

[US EPA. WASHINGTON]– Today, Aug. 6, the U.S. Environmental Protection Agency is announcing the emergency suspension of all registrations (i.e.,editorial note*: IMMEDIATE CANCELLATION OF ALL DISTRIBUTION, SALE, and USE pending EPA full analysis of risks and benefits in a cancellation hearing) of the pesticide dimethyl tetrachloroterephthalate (DCPA or Dacthal) under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). This is the first time in almost 40 years EPA has taken this type of emergency action.

EPA has taken this action because unborn babies whose pregnant mothers are exposed to DCPA, sometimes without even knowing the exposure has occurred, could experience changes to fetal thyroid hormone levels, and these changes are generally linked to low birth weight, impaired brain development, decreased IQ, and impaired motor skills later in life, some of which may be irreversible.

Editorial Notes*:

1. *Suspension is an interim remedy which enables the Agency to abate potential unreasonable adverse effects in advance of the full analysis of risks and benefits in a cancellation hearing. Pursuant to FIFRA section 6(c)(3), effective immediately, no person in any state may distribute, sell, offer for sale, hold for sale, ship, deliver for shipment, or receive and (having so received) deliver or offer to deliver to any person any pesticide product containing DCPA.*
2. *This Emergency Order expressly prohibits any person from using any pesticide product containing DCPA for any purpose.*
3. *Additionally, in accordance with FIFRA section 6(a)(1), EPA has elected not to permit the continued use of existing stocks, consistent with its policies applicable to cancellations where the Agency has identified significant risk concerns. See 56 FR 29362, 29367, June 26, 1991 (FRL-3845-4).*
4. *However, EPA will allow continued distribution of existing stocks of DCPA for the express purpose of returning any DCPA product to the registrant of such products.*
5. *EPA intends to issue a notice of intent to cancel DCPA products within the next 90 days, pursuant to FIFRA section 6(c)(3)*

Private Applicators: NJDEP August Mailing of 2025 Invoices & Recertification Credit Status

August 21, 2024 by Pat Hastings

The New Jersey Department of Environmental Protection has mailed out pesticide license credit status to applicator, operator, and dealer mailing addresses of record. If you have not received your notice please review and follow the directions in the announcement "NJDEP Pesticide Licensing & Registrations – 2025 Pesticide License Renewal Information". (*https://www.nj.gov/dep/enforcement/pcp/bpo/renewal-info-for-2025.pdf*)

If you are a Private Pesticide Applicator with a license expiration of October 31, 2024 AND have accrued 8 CORE and 16 PP2 recertification credits, your mailing will include an invoice with a zero balance. There is no fee for Private applicators/Gov't exempt license renewals. To process your "zero invoice" (see graphic below), use the "paying online" directions that are provided in the General Information section of the NJDEP announcement. Make sure to process your invoice online to ensure your license remains active. The NJDEP provides that delays in applicator processing of licensing could lead to loss of certification status. If this occurs, the Applicator will need to pass the exams again to become certified again.

An image of the paper invoice appears to the right. Notice that the title of the document is "Pesticide Licensing Invoice" and that red arrows and type highlight the three pieces of information needed from the invoice for online processing: 1) Invoice #; 2) Amount due: $0.00; and 3) the license number.

When you receive your invoice, process your license renewal online.
1. Go to *www.pcpnj.org*

2. Under the heading Online Payments and Reports, click on the link labeled "Pay For Your License Online" *(https://www9.state.nj.us/DEP_RSP/Orchestrate.do?initiate=true&orchestrationId=NJDEP-EL-PayInvoice&service_category_id=30&service_class_id=109)*

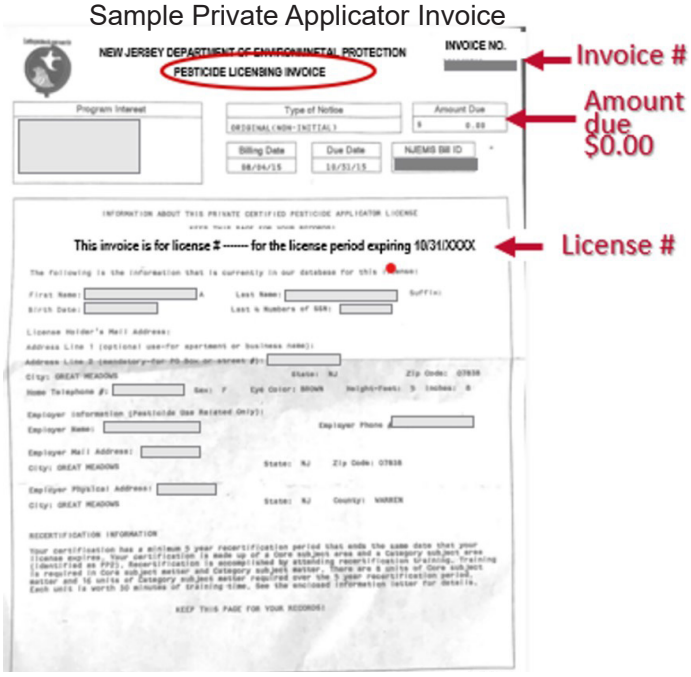
3. Enter Invoice number (found on paper invoice; if you do not have the invoice number, you may look it up online at Invoice Numbers for Unpaid License Invoices – Individuals) *(https://njems.nj.gov/DataMiner/Report/ReportCriteria?APIKEY=NDEP&showheader=y&isExternal=y&getCriteria=y&BOReportName=Invoice+Numbers+for+Unpaid+License+Invoices+-+Individuals)*

4. Enter License number (make sure to capitalize any letters at the end of your license number; use birth date format MM/DD/YYYY including slashes if prompted)

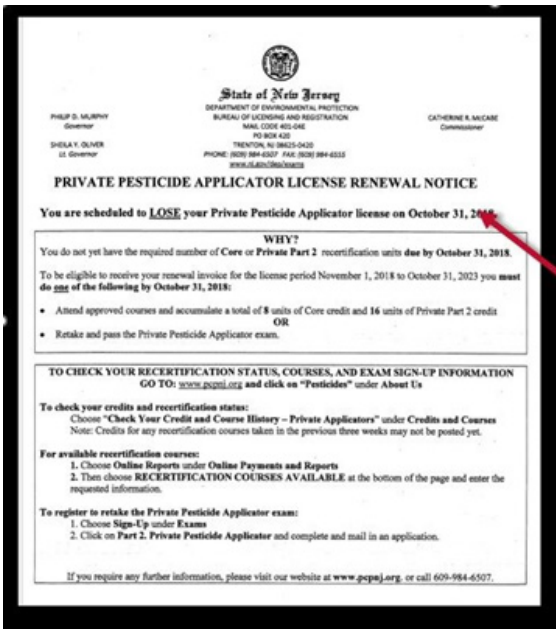
5. Click "Continue" and follow prompts from there

One of the most important steps is verifying that your mailing address is current to ensure delivery of your paper license to the correct address, rather than be returned to the NJDEP as "undeliverable". You will be mailed your paper Private Pesticide Applicator License with a new expiration date of October 31, 2029.

Sample Private Applicator Invoice



Private Pesticide Applicator License Renewal Notice



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Private Applicators...Continued from page 3

If, however, you are a Private Applicator at the end of the fifth year following certification AND HAVE NOT attended the recertification training to achieve the minimum number of recertification credits required [8 CORE and 16 PP2], you will NOT receive an invoice for licensing in August. You will lose your license on October 31st unless you take the courses needed, or retake the Private Pesticide Applicator Exam.

IMPORTANT: It is illegal for certified Private applicators to use or supervise use of pesticides without a license. Private applicators receive an update of recertification status once a year. The “Recertification Update Form” will tell you when your 5 year period is up, how many units you have accumulated and how many more you need.

Verification of your recertification credits can be done online throughout the year by going to the NJDEP Online Report portal and selecting the “Private Pesticide Applicator – Specific Information” report. Recertification credit status can also be checked at the NJDEP Bureau of Pesticide Control website, as follows:

1. Click on this link *https://www.nj.gov/dep/enforcement/pcp/bpo.htm*
2. Scroll down to “Recertification Courses”
3. Click on link labeled “Check Your Credit & Course History-Private Applicator” or “Check Your Credit and Course History – Commercial Applicators
4. Enter Requested information (license number with letter capitalized, and if prompted your birth date including slashes, and last four digits of Social Security number)
5. Click OK

Private Applicators are encouraged to accumulate the requisite 8 CORE subject matter and 16 Private Part 2 (PP2) credits subject matter over the 5 years. NJDEP’s recertification credit cap for online training is of 25% total required credits [i.e., for Private applicators, 2 of the total 8 CORE and 4 of the total 16 PP2].

The license will be valid for a minimum of 5 years, at which point another $0 invoice will generate if you have accrued the minimum recertification credits.

If there are any questions on the certification and licensing program for Private Pesticide Applicators, please call the Pesticide Control Program at (609) 984-6568.

Dramatic Neopestalotiopsis Disease in Strawberry Tips and Plug Plant Production Nurseries

Plant and Pest Advisory - Andy Wyenandt - August 23, 2024

Neopestalotiopsis, a new disease on strawberry is back in the news. Please see the excellent article by Dr. Phil Brannen from the University of Georgia August 21, 2024.

Neopestalotiopsis fruit rot and leaf spot, caused by Neopestalotiopsis species, was first reported to cause damage in strawberry fields in Florida in 2019 and 2020. This disease has since been observed in most southeastern states, and it is already making headlines for this coming 2024-2025 season. As many strawberry producers are aware, some nurseries are already “ringing the alarm bells” for Neopestalotiopsis. There is a major pass through to strawberry nurseries and producers through use of tips from Prince Edward Island. One of the major nurseries that provides tips sent out a letter on August 19, 2024 associated with the problem, and other nurseries are following suit. They are basically canceling orders (and in many cases refunding the deposit) or telling plug plant producers and farmers to take plants at their own risk – no reimbursements for bad or infected plants delivered this year. The disease levels currently observed in nurseries, as well as these limitations on accepted liability, will likely impact the supply of tips and therefore plug plants for many strawberry producers. As far as we are aware, this is the first year that there has appeared to be a direct and immediate link to Prince Edward Island, and that is a major concern for the industry as we move forward. With that said, we have to do the best we can with the hand we have been dealt.

In the nursery phase, some plug plant producers will still attempt to produce plants from infested tips. Indeed, some may produce plants that appear healthy or relatively healthy. If a producer opts to receive plug plants from suspect nurseries, those with known Neopestalotiopsis-infected plants,

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Dramatic Neopestalotipsis...Continued from page 4

they will need to cull any plants that appear unhealthy when they arrive. Though this may seem wasteful, the inoculum levels of Neopestalotiopsis are directly related to the levels of disease that will be observed as the season progresses. Therefore, culling unhealthy plants prior to planting will be instrumental to producing a crop. Also, unless a producer receives plants from a region that does not have Neopestalotiopsis issues yet (e.g. California), all producers should assume that the plants are coming in with the pathogen – even if the plants look clean and healthy. Therefore, an aggressive spray program that incorporates management for Neopestalotiopsis, as well as all other strawberry diseases, will be necessary from the time of transplanting.

There has been a strong association with this disease and long periods of rainfall, so a dry season may limit the disease levels observed. However, rainfall is generally prevalent at some point during strawberry production, and this will trigger a field epidemic if the Neopestalotiopsis pathogen is present. The following are the current best management options: (1) bring in disease-free transplants; (2) avoid planting varieties that are highly susceptible (no true resistant varieties available yet); (3) do not plant unhealthy plants and destroy the ones not planted; (4) limit field operations, such as harvesting and spraying, when plants are wet; (5) sanitize hands, shoes, and clothing when moving out of infected fields; (6) clean and disinfect equipment when moving out of infected fields; (7) remove and destroy symptomatic plants (including crowns and roots) during production to reduce inoculum and disease spread; and (8) incorporate “efficacious” fungicides into an ‘aggressive’ spray program. After harvest is complete, make sure that fields are thoroughly harrowed to break up the remaining strawberry crowns. Following harvest, rotation for two years with other crops would be ideal, allowing survival structures to break down and die. Pre-plant fumigation is recommended and helpful in order to reduce inoculum levels, but it will not control the disease fully from year to year. Use of both Vapam and PicClor 60 may broaden the efficacy of fumigation against fungal pathogens.

Of the options above, we are now limited due to timing. Producers should bring in the best plants that are available. Since finding clean plants may be difficult at this late date, producers will simply need to think about their level of risk tolerance, with some opting to skip production this year altogether. For those who move forward, Thiram will provide the backbone of a spray program this year. It is a contact fungicide, but it has pretty good efficacy against Neopestalotiopsis, as well as Botrytis. However, EPA will likely remove Thiram from the market soon, so make sure to keep abreast of potential regulation changes. For now, some Thiram labels allow up to 12 applications if a farm is east of the Mississippi River, but the same labels limit applications to five if west of the Mississippi River. Keep that in mind. Without regard, consider spraying the maximum number of applications of Thiram allowed by label (every 10-14 days and optimally ahead of rain events) – starting soon after transplanting but ceasing with extreme cold during the winter and continuing in the spring. In addition, tank mix and/or alternate the following fungicides with Thiram for the maximum number of applications allowable – Switch (five applications at 11 oz/acre) and four applications of Rhyme or Tilt or Inspire (all of these are DMI fungicides); note that Tilt and other generics containing propiconazole should be limited to three or fewer applications, as stunting and yield reduction has been reported in Florida with this fungicide. If east of the Mississippi, that will give you a total of 12 applications of Thiram, and nine of these applications can include a mixture of a contact material (Thiram) and a systemic material (Switch or DMI fungicides), and the combinations should provide the best control of Neopestalotiopsis available, while also providing control of Botrytis and powdery mildew.

Despite these challenges, we hope that we can still have a successful strawberry production year. For additional information on strawberry diseases and their management, please go to the IPM Guide located at *www.smallfruits.org* or download the MyIPM app. Your local county agent is also your first point of contact for any questions or issues you might have, so please contact them directly if you have additional questions relative this disease or any other strawberry production issues.

Call for Comments for Potential Mancozeb Registration Changes

Plant and Pest Advisory - Janine Spies - August 14, 2024

The United States Environmental Protection Agency (EPA) released their proposed interim registration review decision for mancozeb in July 2024. The proposed changes include a cancellation of all uses in grape (table, wine, juice, and raisin) along with other label changes to address spray drift and soil erosion/ surface water runoff risks. Mancozeb is a multisite mode of action fungicide used for the prevention and control of fungal pathogens in fruit and vegetable crops, ornamental plants, and turf grass. In 2018, mancozeb used by the agricultural industry in New Jersey totaled more than 41,000 lbs. active ingredient. A summary of the EPA's proposed mancozeb risk mitigation measures is provided below. There is an open comment period for the public to provide responses to the proposed mitigation revisions and how they could impact production. The comment period ends on **September 16, 2024**. To view the amended proposed interim registration review in its entirety, see Docket No. EPA-HQ-OPP-2015-0291 at *www.regulations.gov*. For instruction on how to submit comments, visit *https://www.federalregister.gov/documents/2024/07/17/2024-15650/pesticide-registration-review-proposed-decisions-for-several-pesticides-notice-of-availability-and.*

Proposed risk mitigation measures for mancozeb:

1. Use terminations for

- residential turf and ornamental uses;
- golf course uses except for tees, greens, and fairways;
- on-farm seed treatment of peanut and potato;
- all commercial seed treatment uses; seed treatment uses for barley, oat, rye, triticale, and wheat;
- mechanically pressurized handgun applications of wettable powder, liquid, and dry flow able formulations to typical-acreage field and orchard crops;
- aerial applications of all formulations to sod and wettable powder formulations to high-acreage field crops; and
- **all grape (table, wine, juice, and raisin) uses**.

2. Spray drift reduction measures for non-occupational bystanders when using aerial equipment to apply mancozeb products to orchard and typical-acreage field crops adjacent to residential areas a 25-foot buffer from the edge of the treated field is required.

3. Personal protective equipment requirements and engineering controls including

- double layering clothing and gloves for all mixing, loading, and application scenarios;
- APF10 respirators for several scenarios;
- Closed-loading systems for several formulations, applications, and crops; and
- Enclosed cab requirement for certain handlers including air blast applications to orchard/vineyards and nurseries.

4. Changes to Restricted-Entry Intervals (REIs) including

- Pome fruits to 4 days for all activities and the prohibition of hand-thinning fruit
- Broccoli, Cabbage to 6 days
- Cranberry to 4 days
- Pepper, Tomato, & Cucurbit Vegetables to 3 days
- Sod to 7 days
- Christmas Trees to 29 days

NOTE: Current mancozeb labels require a 12 to 48-hour REI depending on the crop or use site.

5. Spray drift management measures

- No applications during temperature inversions and >10 mph wind speeds;
- Swath displacement or reduced boom length if wind speed is 10 mph;
- More directed air blast applications to treated row and canopy foliage; and
- Restrictions on droplet size.

What's Up with Corn Smut!

Plant and Pest Advisory - Andy Wyenandt - August 26, 2024

There have been numerous reports of corn smut throughout the state of New Jersey the past few weeks.

Corn smut (also called common smut), caused by *Ustilago maydis*, is found infecting corn throughout most of the world. In most years, corn smut is reported in New Jersey , but reports are limited to just a few plantings and just a few ears of corn. Corn smut gets its name from the sooty, black masses of teliospores that found on infected plants. Symptoms are tumor-like galls that vary in size from less than 1 cm to more than 30 cm in diameter. All meristematic tissues are susceptible to infection; and galls can develop on ears, tassels,stalks, shoots, and mid-ribs of infected plants (Pataky and Snetselaar, 2006). From the time of infection, it takes about 10 days for early symptoms to show up; followed up with a maturation of black spore masses within swollen galls about three weeks after infection.

The fungus can overwinter as teliospores in crop debris or the soil and remain viable for many years. It is thought that the teliospores (i.e. the black spores – it is estimated that up to 200 billion spores are produced in a medium-size gall!) are unimportant in the summer they are produced, but more importantly act to overwinter and cause infections the next growing season (Pataky and Snetselaar, 2006).

There is no general agreement on weather conditions that are most favorable for common smut, although most reports indicate that common smut is prevalent following rainy, humid weather (Pataky and Snetselaar, 2006). Galls on leaves and stalks of seedlings often are observed following strong thunderstorms with heavy winds, especially when plants are injured by blowing soil (Pataky and Snetselaar, 2006). Factors that reduce the production of pollen or inhibit pollination also increase the occurrence of ear galls of common smut. Thus, hot, dry, drought-like conditions often cause asynchronous pollen production and silk emergence which results in poor pollination and common smut may be prevalent if *U. maydis* is readily disseminated to stigmas of unfertilized ovaries during or immediately following these hot, dry conditions (Pataky and Snetselaar, 2006). Thus, some associate the occurrence of ear galls with droughts although the droughts probably affect the prevalence of ear galls primarily by increasing the number of unpollinated ovaries with rapidly growing silks (Pataky and Snetselaar, 2006).

Although there has been a great amount of research in controlling corn smut with fungicides (conventional and biological), adjusting fertility, crop rotation, sanitation, and seed treatments, the best management practice for limiting losses due to corn smut are planting smut resistant corn varieties (Pataky and Snetselaar, 2006). Although, none are completely resistant to the pathogen.

Unfortunately, for much of New Jersey this summer the weather conditions (the extended drought-like conditions in July) followed by the heavy isolated rains leading most likely to poor pollination periods and timing of corn smut infections led to the situation we are seeing now. Growers with significant smut issues might consider removing and destroying smutted ears to reduce inoculum loads, plan on choosing sweet corn varieties with resistance next year, and changing irrigation practices to help reduce crop stress during pollination periods.

References:

Pataky, J. and Snetselaar, K. 2006. Common smut of corn (Syn. boil smut, blister smut).Plant Disease Profiles, The Plant Health Instructor. Volume 6. <doi.org/10.1094/PHI-I-2006-0927-01>
For more detailed information on corn smut, it's biology, and history please see the link to the following article referenced above by Jerald Pataky and Karen Snetselaar at The Plant Health Instructor Website hosted by APS.
https://www.apsnet.org/edcenter/disandpath/fungalbasidio/pdlessons/Pages/CornSmut.aspx

Calendar of Events

• Indicates a newly added event * Indicates Pesticide Credits Offered

- **September 17, 2024**
  Rutgers Specialty Crop Research and Extension Center Field Tour - Credits: PP2(2), 1A(1), 10(2)
  6:00 pm to 7:30 pm - 283 Route 539 Cream Ridge, NJ 08514
- **September 20**
  Twilight Meeting at Pleasant Run Nursery 5:30pm - 7:00pm - Credits: Pending
  93 Ellisdale Road, Allentown, NJ 08501 To register, contact Cathy Van Benschoten at 732-431-7260 or Catherine.vanBenschoten@co.monmouth.nj.us
- **September 23-25**
  American Hort Plug and Cutting Conference. Orlando. FL. Register at *tinyurl.com/4ezcuxr9*
- **September 25, 2024**
  Food Business Basics session 8am - 5:30pm, FIC@NJAES.rutgers.edu
  Register Here: *https://ce-catalog.rutgers.edu/coursedisplay.cfm?schID=93209*
- **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
- **October 2**
  Hands-on Produce Safety Workshop, 10am-2 pm
  This hands-on produce safety class at the Rutgers Specialty Crop Research and Extension Center 283 Route 539 Cream Ridge, NJ. For more details or to register for the classes go to *https://onfarmfoodsafety.rutgers.edu/trainings/* or email Jenn Matthews at jmatthews@njaes.rutgers.edu.
- **October 16**
  Online Food Safety Plan Writing Workshop, 6pm-8pm
  For more details or to register for the classes go to *https://onfarmfoodsafety.rutgers.edu/trainings/* or email Jenn Matthews at jmatthews@njaes.rutgers.edu.

E259: Deer and Elk Farming

Westendorf, M. and Stahl, T.
https://njaes.rutgers.edu/e259/

FS1359: Soil Health: Purpose and Management

Murphy, S. and Giménez, D.
https://njaes.rutgers.edu/fs1359/

FS1917: Llamas and Alpacas

Westendorf, M. and Stahl, T.
https://njaes.rutgers.edu/fs917/

Produce Safety Classes this Fall

Hands-on Produce Safety Workshop: Wednesday, October 2nd from 10 am-2 pm EST. This hands-on produce safety class at the Rutgers Specialty Crop Research and Extension Center 283 Route 539 Cream Ridge, NJ is for farm owners, farm employees, farm managers, and those thinking about starting a farm. The class is focused on the various actions that can be part of a strong produce safety plan whether you have one or are just getting started. These activities include building a DIY hand-washing station, assessing wildlife risks in the field and developing an action plan, interactive cleaning and sanitizing demonstrations, and more.

Online Food Safety Plan Writing Workshop: Wednesday, October 16 from 6-8pm EDT. Work through the components of a food safety plan with our help from your home office! By the end of this class you will have a draft plan and a more robust food safety program for your farm. This is an interactive class so please be prepared to have your cameras on and microphones for discussions.

Who is this program for?

- New and Beginning Growers
- Growers who want to improve produce safety practices on their farms
- Growers who want to work to develop a food safety culture on their farm
- Growers who want to develop more robust food safety practices and worker training programs
- Next-generation growers taking over a family farm
- Anyone thinking about starting a farm
- Anyone who may be getting an audit and does not have a food safety plan

For more details or to register for the classes go to https://onfarmfoodsafety.rutgers.edu/trainings/ or email Jenn Matthews at jmatthews@njaes.rutgers.edu.

RUTGERS UNIVERSITY
New Jersey Agricultural Experiment Station

Pleasant Run Nursery

Twilight Meeting at Pleasant Run Nursery

September 20, 2024
5:30 pm to 7:00 pm

93 Ellisdale Road
Allentown, NJ 08501

Join Carl Hesselein, President of Pleasant Run Nursery, and Rutgers Cooperative Extension for this FREE twilight meeting. We will tour the nursery and discuss best management practices for container production of native and low-input plant species.

This twilight meeting will be geared towards growers, landscape professionals, and agricultural service providers.

NJ Pesticide License Recertification Credits have been applied for and are pending.

To register, contact Cathy Van Benschoten at 732-431-7260 or Catherine.vanBenschoten@co.monmouth.nj.us

COUNTY OF MONMOUTH 1683 NEW JERSEY

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

RUTGERS UNIVERSITY
New Jersey Agricultural Experiment Station

Rutgers Specialty Crop Research and Extension Center Field Tour

September 17, 2024
6:00 pm to 7:30 pm

283 Route 539 Cream Ridge, NJ 08514




Low Input Native and Ornamental Plant Trials
William Errickson
Agriculture Agent, RCE Monmouth Co.

High Protein Soybeans and Hemp Field Trials
William Bamka
Agriculture Agent, RCE Burlington Co.

Join Rutgers Cooperative Extension for this FREE twilight meeting showcasing current field trials and a new row mulcher at the Cream Ridge Extension Center. The tour will be from 6 to 7pm, with refreshments and time for additional discussion from 7 to 7:30pm.

NJ Pesticide License Recertification Credits: PP2(2), 1A(1), 3A(1), 10(2)

To register, contact Cathy Van Benschoten at 732-431-7260 or Catherine.vanBenschoten@co.monmouth.nj.us

NJDEP PESTICIDE LICENSING & REGISTRATIONS

2025 PESTICIDE LICENSE RENEWAL INFORMATION

August 2024

PESTICIDE LICENSE RENEWALS

-Annual renewal invoices ran on Tuesday August 13, 2024

-Invoice numbers are available online NOW!

-Paper invoices will be mailed in late August

-The most efficient way to process your renewal invoice is to pay online

-Private Applicators must process their invoice online

Effective August 7, 2024, DCPA (DACTHAL) may not be sold,distributed, or used in any manner.

The EPA has issued an emergency order to stop use of the pesticide DPCA to address serious health risks. The New Jersey Dept. of Environmental Protection and the Bureau of Pesticide Control will be enforcing this ban immediately. DCPA is a pesticide formerly registered to control weeds in both agricultural and non-agricultural settings. Additional information is available in the DCPA registration review docket EPA-HQ-OPP-2011-0374.

PESTICIDE CERTIFICATION EXAMS

NJDEP no longer prepares or proctors any pesticide exams for Dealer, Commercial or Private Pesticide Applicators. The online Pesticide Applicator Certification Exam Registration (PACER) system is available for your use. Anyone interested in taking a Pesticide exam must register through the PACER system at pacer.rutgers.edu.

ATTENTION PRIVATE APPLICATORS

Zero-dollar invoices are no longer accepted through the mail; they must be processed online (see directions below).

PESTICIDE RENEWAL - GENERAL INFORMATION

There may be delays with the processing of paper checks and purchase orders. However, all pesticide license renewal invoice numbers are available online and the most efficient processing of licenses is through online payment (see details below). Also note that after paying online, please discard the paper invoice being mailed between the end of August and mid- September.

Q: How to find your invoice number:

1. Click on this link https://www.nj.gov/dep/enforcement/pcp/bpo.htm
2. Next, under the Online Reports and Payments heading, click on the link labeled “Invoice Numbers for Unpaid License Invoices-Individuals” or “Invoice Numbers for Unpaid License Invoices - Businesses”
3. Enter License number (capitalize any letters at the end of your license number, use birthdate format MM/DD/YYYY including slashes if prompted)
4. Click OK

Q: How to make a payment online:

1. Click on this link https://www.nj.gov/dep/enforcement/pcp/bpo.htm
2. Next, click on the link labeled “Pay for Your License Online”
3. Enter Invoice number (from paper invoice or our website)
4. Enter License number (capitalize any letters at the end of your license number, use birthdate format MM/DD/YYYY including slashes if prompted)
5. Click continue and follow subsequent prompts

Q: I cannot locate my invoice for the license that expires 10/31/2024 online?

It is likely that your license is not currently eligible for renewal due to insufficient recertification credits or failure to pay for a renewal for two or more licensing years.

- If you have not paid for the previous two years licenses that expire on 10/31/2023 and 10/31/2024, you can still be eligible to renew by paying both old invoices on or before 10/31/2024. Otherwise, your license becomes inactive and you can only recertify via examination.

- To determine if you have not earned the required amount of recertification credits, review your Course History information by following the directions in the section below.

PESTICIDE RECERTIFICATION CREDITS

Continuing Education Units (CEU's) that appear on the paper renewal invoices were recorded as of July 1, 2024 so there may be a discrepancy between paper invoice and your online credit history. Course rosters are uploaded daily and the online credit values are live linked to our webpage. If your 5-year recertification cycle ends 10/31/2024, courses that count towards your current cycle were taken on or after 11/1/2019.

Q: How do I locate my credit history online?

1. Click on this link https://www.nj.gov/dep/enforcement/pcp/bpo.htm
2. Scroll down to "Recertification Courses"
3. Click on link labeled "Check Your Credit & Course History-Commercial Applicator" or "Check Your Credit and Course History-Private Applicator"
4. Enter Requested information (license number with letter capitalized, and if prompted your birthdate including slashes, and last four digits of Social Security number)
5. Click OK

Q: What if there are credits or courses missing from my credit history online?

If the course was completed within the past 30 days, the roster likely has not yet been uploaded. Online courses will have the date 01-JAN of their licensing year rather than the date they were completed. Course attendance rosters are uploaded within four weeks from the date the course was taken. If the course was completed more than four weeks prior, contact the course provider to ensure that the attendance roster was submitted in a timely manner. If the course was not completed in the current licensing year, please email pestcertcourses@dep.nj.gov and include your license number, the course number and course date for review.

ONLINE COURSES FOR PESTICIDE RECERTIFICATION CREDITS

Commercial and Private applicators can obtain a maximum of 25% of their CEUs for each category from online courses during their five-year recertification cycle. Online courses can be identified on an applicator's transcript by the date 01-JAN. Review your credit history before signing up for online classes to make sure you are eligible. Courses listed by any other date are not subject to the 25% restriction. Classes that are not dated January 1st and have their county listed as "various" are remote courses that require the student to be kept on camera for the duration of the class.

Q: How do I find the recertification courses I need?

1. Click this link https://www.nj.gov/dep/enforcement/pcp/bpo.htm
2. Under the heading "Online Payments and Reports" click "Online Reports"
3. Scroll to the bottom of the page and click the last link "Recertification Courses Available"
4. Enter a start and end date of 01/01/2024 to search for online courses. **OR** Use today's date as the start date and 10/31/2024 as the end date to search for remote and in-person classes.
5. Select the category you are interested in. Hold the Ctrl key to select multiple categories.
6. Click Submit

PRIVATE APPLICATORS and GOVERNMENT EXEMPT

There is **no fee** for Private applicator license renewals. However, **a license will not generate unless the "$0.00" renewal invoice is processed**. We are not accepting $0.00 invoices via post. To process these invoices, use the "paying online" directions that are provided above in the General Information section.

PESTICIDE OPERATORS

Pesticide Operator renewal invoices are mailed directly to the employer. Please note that once a Licensed Operator leaves a business, it is the employer's responsibility to notify the Department in writing of the employee's departure within 30 calendar days from the last date of employment. If a Responsible Certified Applicator (RCA) does not renew their license for 2025, the Operator licenses under them are no longer valid and will be deleted. Update an Operator's RCA using the operator RCA change form.

Q: How does an employer notify the Department when an Operator is no longer employed?
Requests to delete an Operator license from a business can be emailed to: pestoperator@dep.nj.gov

Q: How do I register new Operators during the renewal period?
New Operator applications are still accepted during the renewal. However, only Responsible Certified Applicators (RCAs) that are already eligible for renewal in the 2024 licensing year can apply to license a new Operator. If you are earning credits to become eligible you won't be able to apply until we have received your credits and a renewal invoice is generated. Applications should be sent to: pestoperator@dep.nj.gov

Q: Where can I find the operator RCA change formVPC-003?
To access the form, please visit www.pcpnj.org and click the Pesticide Licensing Forms link under General Information.

PESTICIDE BUSINESSES

Pesticide businesses are required to update their insurance information when a change occurs. Please do so by using the Insurance Verification Form. If the Responsible Certified Applicator (RCA) or Responsible Certified Dealer (RCD) does not renew their license for 2025, the business license under them is no longer valid. The RCA/RCD for a business can be updated using the business change form.

Q: Where can I find an insurance verification form?
To access the form, click this link
https://www.state.nj.us/dep/enforcement/pcp/bpo/certification/forms/insurance_coverage_verification_vpi-001-fillable.pdf

Q: Where can I find the business change formVPC-001?
To access the form, please visit www.pcpnj.org and click the Pesticide Licensing Forms link under General Information.

RECIPROCAL LICENSES

If a five-year reciprocal license recertification cycle expires on 10/31/2024, a license renewal invoice will not be generated until a copy of the valid pesticide license from your primary licensing state has been received or if the required recertification credits have been obtained: 16 credits per category and 8 credits for Core.

Q. Where should I send the copy of my primary state license?

Copies of licenses should be emailed to pestcertcourses@dep.nj.gov.

RUTGERS UNIVERSITY
New Jersey Agricultural Experiment Station

THE SOIL PROFILE

A newsletter for information on issues relating to soils and plant nutrition in New Jersey

Volume 29 2024

Mineral Nutrition and Plant Disease, A Reference for Crop Health

A valuable reference titled *Mineral Nutrition and Plant Disease* was published by the American Phytopathological Society (APS, St. Paul, Minnesota). The second edition of this 488-page book is an expanded update. The first edition published in 2007 was a best-seller for APS Press. The book (edited by Datnoff, Elmer and Rodrigues, 2023) includes chapters on every essential mineral nutrient and their role in plant nutrition and physiology. It also includes chapters on beneficial elements silicon, aluminum, selenium, and rare earth elements. My involvement was to coauthor the chapter on manganese nutrition.

The information in this book, when properly translated into practice, can reduce demand for pesticides. The purpose of this issue of *The Soil Profile* newsletter is to introduce growers to this reference on mineral nutrition as a holistic approach for protecting plants from disease. This edition will focus on the major plant nutrients: N, P, K, Ca, Mg, and S. The next edition of this newsletter will focus on the micronutrients.

The convergence of three factors can lead to plant disease: susceptible host, presence of pathogenic organism, and a conducive environment. The objective of the grower should be to create a healthy soil environment with the right balance of minerals such that the environment is favorable to the crop but unfavorable for the pathogen. Soil health should also consider pH, soil physical condition, organic matter content, and the collective assembly of microorganisms known as the soil microbiome, all of which may influence mineral nutrition.

A recent soil fertility test is a starting point that can provide some guidance towards soil health. First growers should look at the soil pH level to see if is on target for the crop of interest or if it needs adjustment. The soil test can also access fertility levels for P and K and the balance of Ca to Mg. The Rutgers Soil Test Lab report also indicates if micronutrients B, Cu, Fe, Mn, and Zn levels are Low, Adequate, or High. Micronutrient fertility levels should also factor soil pH into the interpretation.

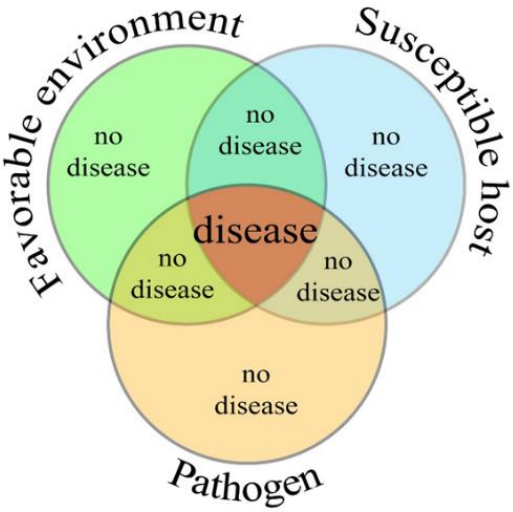

Fig. 1. Protection of plant health should begin with an appreciation for the foundational concept of the disease triangle.

Traditional soil fertility tests generally do not provide information about soil N availability and does not provide the complete list of micronutrients or beneficial elements. Also, soil test interpretations and recommendations are based on calibration research that tends to focus

more on crop yield and less attention is given plant disease prevention.

Plant tissue analysis is another diagnostic tool that is complementary to soil testing. It is an especially important tool for accessing the nutritional status of perennial crops which carryover an internal pool of mineral nutrients from seasons to season.

Building on this background, several examples will be given on how information in this book *Mineral Nutrition and Plant Disease*, may be used to protect against plant disease.

Nitrogen Nutrition

Nitrogen impacts crop health status more than any other mineral nutrient. The supply of N, too little or too much, influences susceptibility to diseases. Also, the growth stage of the plant at the time the N is applied can be a factor. But it is not just the amount and timing of N supply, it is also the chemical form.

The two major chemical forms of N are ammonium or nitrate. When soil organic matter decomposes, the soluble N first appears as ammonium. This ammonium, with the action of nitrifying bacteria, converts over to the nitrate form. The nitrification reaction releases acidity into the soil.

Both forms of N are easily assimilated by most plant species. When the N is taken up by roots as ammonium, the soil close to the root surface (rhizosphere) is acidified and the soil pH is lowered. In contrast, when the N is instead taken up in the nitrate form, the rhizosphere pH is increased (Fig 2).

The form of N assimilated by the plant and the associated changes in soil pH can in many ways influence the susceptibility of plants to diseases. For example, changing soil pH can influence the solubility of micronutrients which then may have an impact of certain diseases.

Some diseases are suppressed by the ammonium form of N and others are suppressed by nitrate nutrition.

As an example, field research conducted at Rutgers NJAES found that fertilizing Kentucky bluegrass with an ammonium-based fertilizer, such as ammonium sulfate, is very effective at suppressing summer patch disease. But if the turf is instead supplied with N fertilizer in the form nitrate, it increased disease severity (Fig 3).

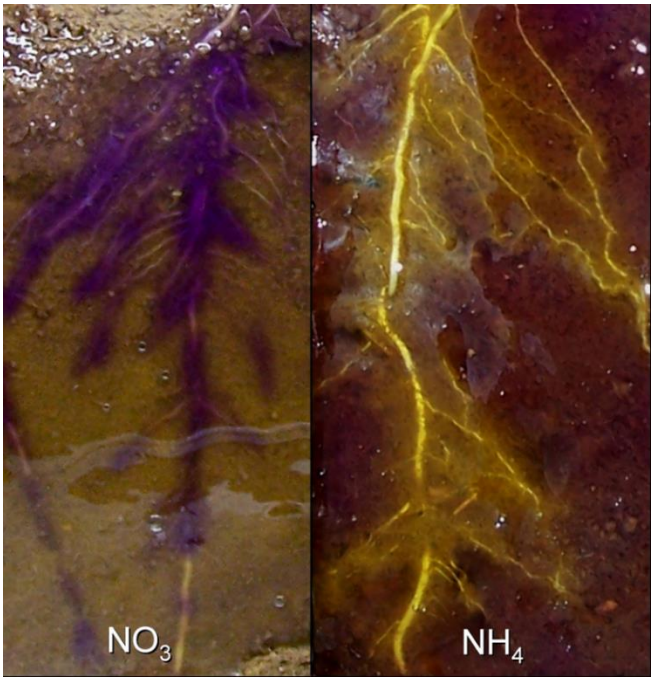

Fig. 2. Bromocresol purple, a pH indicator, added to soil turns purple at high pH in association with uptake of nitrate. Or it turns yellow at low pH with the uptake of N as ammonium.

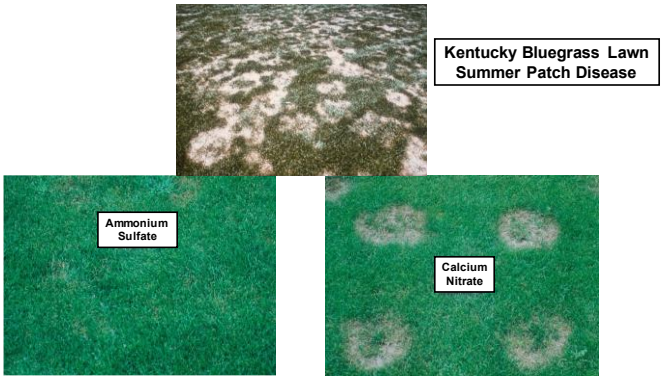

Fig. 3. Ammonium nutrition suppresses summer patch disease on Kentucky bluegrass.

Typically established grasses take up ammonium-N very rapidly and before much of it can be converted over to nitrate. Thus, when turf fertilizer is supplied as ammonium sulfate, most of the N uptake is in the form of ammonium.

This N source effect on summer patch disease development as illustrated above is just one example of how information in this book can lead to better management of mineral nutrition for disease suppression. An extensive table in the book *Mineral Nutrition and Plant Disease* outlines how N supply and ammonium versus nitrate can influence diseases on numerous crops. This information can be used to select the best N source for a specific crop.

Phosphorus Nutrition

Phosphorus is one the three major plant nutrients often included in fertilizer blends. Over half of New Jersey soils analyzed at the Rutgers Soil Test Laboratory have soil test P levels above optimum. Some crops exhibit growth responses to P fertilizer even on soils that have high soil test P levels.

The chapter on P nutrition reports from the literature on numerous crops. There are 44 cases of where P fertilizer deceased disease and 30 cases of where excess P was associated with increased disease.

Mycorrhizal fungi which infect the roots of most species of plants plays an important role in uptake of P from soil. This symbiotic association with plant roots is generally regarded as beneficial to plant health.

Nutrition is a functional approach to plant health and a balance nutrient supply is an important consideration. Because excessive P applications can degrade water quality, growers are urged to be cautious about oversupply of this nutrient.

Potassium Nutrition

Potassium is another major nutrient that can have much influence on susceptibility of plants to disease. Both K and N can have a large influence on plant health and are accumulated by crops in similar amounts. A balanced supply of N and K to plants is another important consideration. The chapter on K nutrition has a table covering six pages of bacterial and fungal diseases influenced by nutritional status. Reported effects in the literature shows 125 diseases where K decreased and 28 where K had the effect of increasing disease.

It is apparent that K nutrition often can influence susceptibility to disease. The chapter on K concludes: “Balanced nutrition is an important factor for plant resistance against disease. Application of K to deficient soils usually increases host resistance to disease, but in some cases no effect or the opposite effect has been reported.”

Regarding balance, as previously mentioned, this is where soil testing and plant tissue analysis can be a helpful guide.

Another consideration with potassium fertilization is the chemical source. Potassium chloride is the most common potassium fertilizer. Potassium sulfate and other chemical types of potassium fertilizers are also sometimes applied. Chloride and sulfate are also important nutrients that may influence plant susceptibility to disease.

Calcium (Ca) Nutrition

Calcium mineral nutrition has a protective effect against the development of many plant diseases. The chapter on Ca suggests that it is among the most important nutrients in the management of plant health. There are extensive references to literature reporting “that the application of Ca to soils, foliage, and fruit reduced the incidence and severity of several disease of economically important crop species”. They conclude that “applications of Ca for the control of plant disease would be well suited for certain crops permitting a potential reduction in the use of fungicides and improving crop quality and yields.”

Within plants much of the Ca is deposited in cell wall and the middle lamella where it functions to increase structural integrity and increase resistance to invasive pathogens. Calcium bridges in cell tissue blocks accessibility of enzymes produced by pathogens that cause tissue softening and decay.

It is not possible to give one simple recommendation on how to use Ca nutrition to protect crops. Each crop disease or physiological disorder has special requirements for Ca nutrition and recommended methods of treatment. Applications of Ca to soil is effective for some crops whereas on other crops foliar sprays or treatment of the fruit per or post-harvest is the

more effective approach. The timing or growth stage of Ca sprays is also an important factor.

Another consideration is that Ca is relatively immobile within plants. Soil moisture, irrigation, temperature, humidity, and sunlight intensity can influence transpiration and Ca transport within the plant and affect tissue accumulation. In general, Ca tends to move into leaves more easily than into fruit tissue.

The plant nutrition objective with Ca is to manage crop production practices to enhance greater uptake of Ca into fruit tissue. Because developing fruits tend to transpire less moisture than leaves, the challenge is to enhance Ca uptake into the fruit.

Soil testing can be a starting point to inform growers about the Ca status of the soil/crop system. For many crops that perform well in the range of pH 6.5 to 6.8, soil Ca should occupy about 65 to 70% of the cation exchange sites on soil colloids. In terms of nutritional balance, it is important to note that excessive application of K or Mg fertilizers to soil can suppress Ca uptake. Another reason Ca should be the dominate cation is that Ca more than any other nutrient improves soil physical conditions which contributes to soil and crop health.

Fig. 4. Blossom end rot is a physiological disorder that affects the fruit of peppers, tomato, and watermelon.

The blossom end rot disorder is associated with a deficiency of Ca in the affected tissue which becomes sunken and dark. It may be prevented by using production practices that are effective at getting more Ca into the developing fruit. Ensuring that there is an adequate Ca supply in the soil is a starting point with consideration that soil moisture and environmental factors also influence Ca uptake into the fruit.

Apples are often treated with Ca post-harvest to slow decay. The reduction in decay maybe explained by the role of Ca on stabilizing or strengthening cells walls of the fruit tissue.

Clubroot, a disease on cabbage and broccoli, can be effectively controlled by applying calcium carbonate limestone and raising the soil pH to 6.8 to 7.0. When applying limestone at higher rates growers should be aware that the high soil pH levels could induce deficiencies of boron, iron, manganese, or zinc.

Magnesium (Mg) Nutrition

Magnesium is involved in numerous plant physiological functions. It is a central component of the chlorophyll molecule which makes plants green. Many metabolic pathways and enzymes require Mg to function. It is also involved in stabilizing DNA and ribosome function.

While recognizing the many vital functions of Mg in plants, it may seem surprising that there are fewer reports of Mg minimizing plant disease development than other major nutrients. The reviewed literature in the book reports 23 diseases where Mg decreased and 18 where Mg had the effect of increasing plant disease.

Magnesium has a protective effect against bacterial soft rot of potato. But in the case of bacterial leaf spot of pepper and tomato, increasing tissue concentrations of Mg is associated with increasing disease. Soils rich with Ca and Mg together are suppressive of clubroot disease.

An interesting sidenote in the chapter on Mg is that this mineral is also very important to human health. This is a concern because in recent decades there has been a decline in Mg content of some foods. Low dietary Mg intake is associated with cardiovascular diseases, arrhythmia, and muscle dysfunction. Moreover, in grazing livestock, a deficiency of Mg in forage plants can lead to grass Tenay, a metabolic disease which can be fatal.

As previously mentioned, soil testing is a starting point to achieving a balance for Ca and Mg status

in the soil/crop system. For many crops that perform well in the range of pH 6.5 to 6.8, soil Ca should occupy about 65 to 70% of the cation ion exchange sites and Mg should occupy about 10 to 15%. A fertile soil should also have about 3 to 5% exchangeable K. With these cation occupation targets on exchange sites, crops will more likely be provided with a good balance of these three essential cations, all of which play a role in plant health. A Mg excess in the plant is not generally harmful except that it competes for uptake of Ca and K.

Magnesium is a divalent cation that like Ca is typically supplied to soil as limestone. Dolomite liming materials contain about 13% Mg and 21% Ca. Calcite liming materials contain about 40% Ca and very little Mg depending on product and purity. Thus, the type of limestone selected and applied for the purposes of adjusting soil pH can have a major influence on the supply of Ca and Mg in soil and the availability of these nutrients to plants. Thus, it is important to follow soil test guidelines for selection of an appropriate liming material.

Sulfur (S) Nutrition

The amount of S uptake is similar to P uptake by crops. Brassicas and leguminous crops typically have higher S requirements than other plants. Sulfur is used to make proteins, vitamins, and flavor compounds, and it provides disease protection.

Elemental S has been recognized for over a century as an effective fungicide to protect crops from diseases. The mode of action of elemental S is not well understood. It is probably more than a plant nutrition effect. Plants uptake and use S in the form of sulfate. When elemental S is applied to soil it takes time for microbial activity to convert it over to plant available sulfate.

Plants well supplied with sulfate are more resistant to disease and environmental stress by a process referred to as sulfur-induced-resistance, SIR. Over the last several decades there has been a decline in freely available S from the atmosphere with the implementation of clean air standards. This has made crops more vulnerable to S deficiency and increased the susceptibility of plants to pathogens. The chapter in *Mineral Nutrition and Plant Disease* lists numerous crops, from apples to wheat, where diseases are affected or protected based on S nutrition status.

Deficiency symptoms of sulfur are typically exhibited as yellow or pale green leaves and slow growth. Sulfur deficiency is sometimes mistaken for a shortage of N. Both nutrients have critical roles in synthesis of protein and chlorophyll and in photosynthesis. Although the deficiency symptoms are similar, S deficiency is expressed most clearly on younger leaves whereas N deficiency is most prominent on older leaves. Increased susceptibility to diseases and environmental stresses are also suggestive of S deficiency.

Soil testing and plant tissue analysis may be used to diagnose crop S status (Refer Rutgers NJAES Extension Fact Sheet available on web). However, testing has limitations as predictors of S deficiency. Other agronomic and soil factors should be considered to access the need for sulfur fertilization.

Soils with high levels of organic matter are better at suppling S to crops. Soils with a recent history of manure or compost application are less likely to need S fertilizer. The risk of S deficiency is greatest on sandy soils with low organic matter content. Because S tends to leach, deep rooted crops have better access to S in the lower soil profile. Soils with compacted layers limiting root growth make crops more vulnerable to S deficiency. Deep tillage can be used to break up soil compaction and improve root access to S stored in the subsoil.

Soil fertility programs that utilize manures and compost generally supply ample amounts of S. The availability of organic forms of S to plants is enhanced with the help of microbial activity in warm moist soil.

Some commercial fertilizers used to supply one or more of the major plant nutrients also contain various amounts of S. Careful selection of a fertilizer to supply NPK or other nutrients may at the same time satisfy the need for S fertilization.

Since enhanced S nutrition often induces resistance to certain plant diseases, it is better to ensure an ample supply of this vital nutrient as it

may offset the need for pesticides. Based on the chapter in *Mineral Nutrition and Plant Disease* one may conclude that soil fertility recommendations for S "should go beyond the usual considerations of growth and yield. They should be designed to optimize functions of S for induced plant disease resistance and crop quality."

Translation of Nutrition into Practice

New Jersey, known as the Garden State, cultivates hundreds of different crop species across many soil types and climatic regions. Mineral nutrition is one of many aspects among a collection of good cultural practices to produce healthy crops. Besides mineral nutrition, the goal of plant protection should employ crop rotation, building soil health and organic matter content with cover crops, improving soil physical conditions with or without tillage, planting of pest resistant varieties, good sanitation, along with other integrated pest management practices with the objective of reducing the demand for pesticides.

When plants are under attack from a pathogen, there may be an increased demand for a given nutrient. In general, mineral nutrition is a more cost-effective approach to disease management in comparison to the spraying of pesticides.

One cannot expect growers to read *Mineral Nutrition and Plant Disease* from cover to cover to implement nutritional practices to protect crop against diseases. But this book should be in the reference library of County Agent Extension offices. When crop producers are troubled by a particular disease this book can be consulted by looking up in the index the crop or the name of the disease or crop disorder for ideas about how plant nutrition and soil fertility may be fine-tuned to protect crop health.

For example, tomato growers plagued by blossom end rot can look up in the index and find that turning to page 142 there is information about this disorder. Or turfgrass managers troubled by summer patch disease can find on page 51 and page 327 information on how selective fertilizer practice for lawns can effectively prevent this disease on Kentucky bluegrass. Or looking up stalk rot on corn plants in the index leads to information on how this disease may be impacted by supply of N, P, K, and certain micronutrients.

The major nutrients (N, P, K, Ca, Mg, and S) were discussed in this issue of The Soil Profile newsletter. An important message to remember about nutrients is that supplying more is not necessarily beneficial to plant health. It is most apparent from the chapters on N and Mg that excess applications of certain nutrients can encourage plant diseases. The chapter on K, Ca and S suggests a supply below optimum presents the greater risks for plant disease. Also, for any given nutrient, it is not just fertilizer applications to consider but the cultural practices that influence solubility or availability of the nutrients already in the soil.

Another consideration is that when fertilizers are applied to supply any given nutrient, they are nearly always accompanied by other nutrients or ions that may also influence plant health. Just to give one quick example, K fertilizer is often applied as potassium chloride. The anion that accompanies the K fertilizer is also an essential nutrient with physiological influence. Identification of nutritional approaches to disease management is arguably a more functional and sustainable in practice than simple reliance on the spraying pesticides. Repeated us of the same fungicide is known to enable pathogens to develop resistance to a specific chemistry. To slow development of resistance, plant pathologists often advise for the "rotation of chemistries". But where optimum plant nutrition can offset the demand to use pesticides, there is in general a significant cost savings to the grower. And the efficacy of the pesticide is extended to times when they are most needed.

Healthy soils and plant nutrition have long been a foundational approach of organic farming. *Mineral Nutrition and Plant Disease* is a book that has useful information for all farmers.

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The Soil Profile Newsletter

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NEW JERSEY DEPARTMENT OF AGRICULTURE

NEWS RELEASE

New Jersey Department of Agriculture




IMMEDIATE RELEASE
August 7, 2024
www.nj.gov/agriculture
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STATE DEPARTMENTS COLLABORATE ON COMPREHENSIVE WEB PAGE FOR H5N1 VIRUS

(TRENTON) – The New Jersey Departments of Agriculture, Environmental Protection, and Health announce the creation of a comprehensive resource website to share the most up to date information on prevention and response to the H5N1 virus, a form of Highly Pathogenic Avian Influenza, in New Jersey.

The page is a collection of resources from each department addressing specific questions related to H5N1 and includes key information for agricultural and veterinary workers, healthcare providers and local health departments, and hunters. The website can be found at www.nj.gov/H5N1.

The risk of H5N1 to humans remains low and as of today, there have been no reported cases of H5N1 in humans, domestic poultry, or cattle in New Jersey. In reported cases in other states where a human tested positive, the symptoms experienced were mild.

H5N1 (known as "Highly Pathogenic Avian Influenza" or "bird flu") is a disease caused by influenza A viruses. Wild birds, particularly waterfowl, can carry and spread these viruses but may show no signs of illness. However, H5N1 can cause severe disease in domestic poultry and dairy cattle, which may result in death. Cases of H5N1 have also been reported in wild birds, mammals, and other domestic companion animals. People with close or prolonged contact with infected animals or contaminated environments may be at a higher risk of avian influenza infection.

"This important resource page is a place where people can find a wide range of information about H5N1 and what to be aware of in various activities or situations," **NJDA Secretary Ed Wengryn** said. "We want this material to be easily accessible so if there are any questions about the virus farmers and the public can have a single resource page at their disposal as needed."

Plans are in place with Rutgers Extension offices in each county to distribute personal protection equipment (PPE) to dairy and poultry producers as needed. PPE equipment can be obtained by contacting the Rutgers Extension office in the county where it is needed.

"While the risk of bird flu to the general public remains low, it's important to empower our residents, workers who may be at higher risk, and health care providers with information and resources needed to keep them and those they serve healthy and safe," said **Health Commissioner Dr. Kaitlan Baston.** "Launching this site brings a wealth of statewide resources into one place and reflects a commitment at the state level to preparedness and response efforts."

"With the addition of this important resource, the public now has access to multiple sources of key information that can help prevent the spread of avian influenza among wildlife and inform safety practices for hunters, bird enthusiasts, or even a homeowner placing a bird feeder in their yard," said **Environmental Protection Commissioner Shawn M. LaTourette.** "It's important the public does not touch sick or dead birds they come across and report any instances to our Fish and Wildlife hotline at 1-877-WARNDEP."

In May, the Departments of Agriculture and Health cautioned against consumption of raw milk during the current H5N1 outbreak (read that press release at **(**https://bit.ly/4blYCQT). Pasteurization is proven to be the best way to get rid of harmful pathogens in milk, including influenza.

The New Jersey State Departments of Agriculture, Environmental Protection, and Health have been meeting regularly for the past several months to stay updated on the H5N1 status throughout the United States, and to stay prepared should the virus be detected in the state. Each of the departments are closely monitoring the evolving H5N1 bird flu situation and will continue to work with local, state, and federal partners to protect the health of people and animals in New Jersey.

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To learn more about the New Jersey Department of Agriculture, find us on Facebook at www.facebook.com/NJDeptofAgriculture and www.facebook.com/JerseyFreshOfficial or Twitter @NJDA and @JerseyFreshNJDA

Regularly Scheduled Meetings

Locations for Pesticide Recycling Containers - 2024

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

Friday, September 20
Friday, October 18

Atlantic County
Helena Chemical
66 Route 206
Hammonton, New Jersey

Friday, September 13
Friday, October 11

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

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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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

Since 1915

RUTGERS UNIVERSITY
Cooperative Extension
of Cumberland County
New Jersey Agricultural Experiment Station

Extension Education Center
291 Morton Avenue
Millville, NJ 08332-9791

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