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Verticillium Wilt of Cucumbers

Judson Reid, Cornell Cooperative Extension, Cornell Vegetable Program

With the amount of Downy Mildew, Powdery Mildew, and Bacterial Wilt affecting cucumbers at the moment, it would be easy to overlook less common diseases. That is until that disease is Verticillium Wilt!

Why is Verticillium Wilt of such concern?

This soilborne pathogen survives for years in the soil and affects a very wide host range. For cucurbits there are a number of wilts, including those caused by Fusarium species. However, in cucumbers, Verticillium is our primary soilborne wilt pathogen. Once infection occurs, the fungus grows inside the xylem of the plant, interfering with water uptake. When the crop is under high water demand caused by fruit set or temperature, plants begin to wilt at the growing point. This wilting will progress down the plant to the older leaves, leaving a characteristic yellow/brown necrosis. Since this is a soilborne disease associated with high moisture, infections tend to run in a line of plants, often moving with irrigation lines. This helps distinguish Verticillium Wilt from Bacterial Wilt; the latter vectored by Cucumber Beetles with a sporadic distribution.



to the older leaves (above). The wilting eventually creates a characteristic yellow/ brown necrosis (right). *Photos by Judson Reid, CCE Cornell Vegetable Program*

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About VegEdge

VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension partnership between Cornell University and CCE Associations in 14 counties.



The newsletter is a service to our enrollees and is intended for educational purposes, strengthening the relationship between our enrollees, the Cornell Vegetable Program team, and Cornell University.

We're interested in your comments. Contact us at: CCE Cornell Vegetable Program 480 North Main Street, Canandaigua, NY 14224 Email: cce-cvp@cornell.edu Web address: cvp.cce.cornell.edu

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VegEdge is published 25 times per year, parallel to the production schedule of Western New York growers. Enrollees in the Cornell Vegetable Program receive a complimentary electronic subscription to the newsletter. Print copies are available for an additional fee. You must be enrolled in the Cornell Vegetable Program to subscribe to the newsletter. For information about enrolling in our program, visit cvp. cce.cornell.edu. Cornell Cooperative Extension staff, Cornell faculty, and other states' Extension personnel may request to receive a complimentary electronic subscription to VegEdge by emailing Angela Ochterski at aep63@cornell.edu. Total readership varies but averages 700 readers.

Information provided is general and educational in nature. Employees and staff of the Cornell Vegetable Program, Cornell Cooperative Extension, and Cornell University do not endorse or recommend any specific product or service.

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Help us serve you better by telling us what you think. Email us at *cce-cvp@cornell.edu* or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.



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The next issue of VegEdge newsletter will be produced on November 1, 2022.

Treatment

Unlike many fungal diseases, Verticillium cannot be treated chemically. Crop rotation is our greatest management tool. Corn, or a non-vegetable crop such as a sod, are excellent choices. When Verticillium occurs in high tunnels, we are particularly challenged due to the year-to-year vegetable cropping with susceptible host species. This leads growers to grafting or production in containers instead of the soil.

We would also like to highlight the opportunity to grow a cover crop to break the host/disease cycle. Although a single season of cover cropping isn't long enough to outlive the Verticillium spores, we hypothesize the incorporation of non-host species can decrease the disease prevalence.

Now is a great time to plant cover crops in tunnels!

Our current research is examining the potential of grains and legumes in fruiting vegetable rotations for high tunnels. Our research species are triticale and Austrian Winter Peas. The combination of a grain with the legume is often considered beneficial for the germination and establishment of the legume. Triticale itself may produce more biomass than other winter grains such as wheat or barley and is less likely to produce volunteer plants. We are interested in legumes such as peas, to fix additional nitrogen. Given current fertilizer prices, these cover crops are of value, not just to combat disease but to reduce our input costs too!



Cover crops including grains are a sustainable management strategy. Photo by Judson Reid, CCE Cornell Vegetable Program

Frost, Freezes, and Vegetables

Gordon Johnson, Extension Fruit & Vegetable Specialist, University of Delaware

As we move into October, frost becomes a factor in harvest and recovery of vegetables. Light to moderate frosts will not affect cool season vegetables such as cole crops, lettuce, and spinach. Some cool season crops, such as beets, Brussels sprouts, broccoli, kale, and collards will handle freezing conditions. In contrast, cauliflower, once frozen, can deteriorate quickly. Warm season vegetables vary considerably in their ability to tolerate a light frost. For example, pepper is more cold tolerant in the fall than tomato which is severely damaged by frost. Pumpkins and winter squash will have leaf and vine kill with light frost, but fruits will remain marketable. Heavier frosts and freezes will damage the fruit. Sweet potatoes must be dug quickly after a frost kills vines and will suffer root damage if soil temperature drops below 40°F. We often have significant acreage of beans still out in the fall. Snap beans and lima beans will have leaf damage but still can be harvested with a light frost. It is when temperatures drop below 28°F and pods freeze that harvest recovery is affected. When lima beans are frosted, you may have several weeks to get into the field and harvest. However, if there is pod freezing, the harvest window drops to a few days, depending on the day temperatures, before seeds start to "sour".



Some beets can withstand temperatures as low as 12°F.



Peppers will tolerate frosts in the fall, tomatoes will not. *Photo: J. Reid, Cornell Vegetable Program*



Brussels sprouts are frost and freeze tolerant to 20°F. *Photo: CCE Cornell Vegetable Program*



Lima bean harvest is minimally affected after a light frost. However, after a freeze, lima beans must be harvested within 48 hours.

For unprotected frost sensitive vegetables, it is important to follow weather forecasts closely for risk of frost or freeze. Clear sky conditions after a cold front moves through will be the highest risk for frost or freeze. When risk is high, growers should harvest all marketable produce ahead of the frost or freeze in warm season crops. For example, harvest all tomatoes (ripe, breakers, and mature greens) prior to a frost.

Floating row covers offer the best protection of sensitive vegetables against frost and freeze injury, depending on the thickness of the row cover, expect 2-6°F degrees of protection. Moist soil also can store some heat, lessening frost, and sprinklers can be used for fall frost protection.

Young Farmers Surveyed about Their Future in Farming

Robert Hadad, Cornell Cooperative Extension, Cornell Vegetable Program

A recent article in the American Vegetable Grower concerns a large survey of young farmers and highlights the big challenges in front of people trying to move ahead in or begin farming. The survey was conducted by the National Young Farmers Coalition which collected over 10,000 responses nationwide between 2020-2021, compiled and released in early summer of 2022.

The survey looked to the participants who identified as 40 years old or younger (4,344 out of 10,000). Presently farming: 76.4%. Are looking to farm: 14.4%. Gave up farming: 9.2%.

Some Survey Findings

- Nearly 60% of all young famers named finding affordable land to buy as very or extremely challenging with 65% of Black, Indigenous, and People of Color found access to affordable land to buy as very or extremely challenging. 54% of all respondents and 75% of Black farmers said they currently need greater access to buy or lease land.
- 86% of young farmers identified their production practices as "regenerative". Regenerative agriculture is an approach to
 farming that relies on healthy soils through building up structure, biomass, and ecosystems along with taking steps to support climate-resilient practices and addresses inequity in the agricultural field.
- Finding capital to help with running or expanding their farming operations: greater than 50% Black, Indigenous, and People of Color reported access to capital very or extremely challenging as compared to the 37% of white farmers.
- 49% of the respondents have not used any USDA programming while 71% were unfamiliar with any programs that might help them.
- Health care affordability where available being very or extremely challenging was noted by 40% of the farmers.
- 35% of young farmers stated that cost of production exceeded their sales income.
- 28% of young farmers raised vegetables; nearly 18% raised flowers; 5.3% grew fruit, 4% had livestock for eggs, meat, or fiber; nearly 4% had dairy livestock; 2.7% grew grains. Greater than 75% had up to 2 enterprises running. More than 50% had 3 or more; and more than 25% had 4 or more enterprises.
- When examining gross income: Averaging all ages of farmers who responded (after removing outliers), the average gross income was \$54,998, with a median of \$30,000.
- Direct to consumer sales: 60% sold products on a farm website; 58% sold at farmers markets; 53% sold through a CSA; 47% sold at a farm stand. For wholesaling: 51% sold to restaurants; 40% through grocery stores; and over 20% through food hubs or institutions.
- Labor is a challenge for growers with 48% hiring mostly seasonal workers (4 or less), 36% had year-round full-time workers, and 32% had year-round part-time.

To read the full 93-page report, go to: <u>https://www.youngfarmers.org/wp-content/up-loads/2022/08/NationalSurveyReport2022.pdf</u>



2023 Northeast SARE Farm Grants

Northeast Sustainable Agriculture Research and Education (SARE) Calling for 2023 Farmer Grant Proposals

The Call for 2023 Northeast SARE Farmer Grants is now available. Awards typically range from \$5,000 to \$30,000, depending upon a project's complexity and duration. Northeast SARE Farmer Grants provide the resources farmers need to explore new concepts in sustainable agriculture conducted through experiments, surveys, prototypes, on-farm demonstrations or other research and education techniques. Northeast SARE funds projects in a wide variety of topics, including marketing and business, crop production, raising livestock, aquaculture, social sustainability, climate-smart agriculture practices, urban and Indigenous agriculture and more. The Northeast region includes Connecticut, Delaware, Maine, Massachusetts, Maryland, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, West Virginia, Vermont, and Washington, D.C.

The online system for submitting proposals opened on October 1, 2022. Proposals are due no later than 5:00 p.m. EST on November 15, 2022. View the full call for proposals – <u>www.northeast.sare.org/farmergrantcall</u>

Ag Energy NY

Robbie Colville, Ag Energy NY Program Manager, Cornell Cooperative Extension - Tompkins Co.

Would you like to save on your farm energy bills? Farms are often full of opportunities to reduce energy use through efficiency measures that save money, labor, and maintenance costs. Energy efficiency also helps buffer farms from volatile, high costs in energy market fluctuations. In addition to these benefits, farm energy efficiency is an important part of New York's Climate Leadership and Community Protection Act, reducing emissions and making it easier to transition to electric power and renewable energy. Energy inputs are required at every stage of farm production – from soil preparation and harvesting crops, to heating and lighting livestock housing. Farms can get substantial energy savings and enhance productivity through equipment maintenance, fine-tuning equipment and fertilizer rates, improving building efficiency, and installing high-efficiency motors or lighting when old equipment needs to be replaced.

What is Ag Energy NY?

Ag Energy NY is a program by Cornell Cooperative Extension, developing a resource hub to support farm energy efficiency in New York. AgEnergyNY.org includes mobile-friendly webpages and print-friendly factsheets to help farmers learn about potential energy use and savings specific to their farm sector. Ag Energy NY focuses on the following farm sectors: crops and vegetables, beef, swine, poultry, grain drying, maple, orchards, berries, and vineyards. Ag Energy NY is part of a broader NY-SERDA program, Energy Best Practices in Agriculture, which also provides support for dairy and greenhouse operations. Technology content for Ag Energy NY was developed by Daylight Savings Company based on their experience conducting agricultural energy audits in New York since 1991, along with review of technical references, peer-reviewed research, and industry standards. Other program content, such as web development and outreach materials, are developed and reviewed by extension educators, NYSERDA staff, and engineers with a focus on farm energy efficiency.

After reviewing energy efficiency measures online, you can reach out to our team with questions and to connect with a NYSERDA FlexTech Consultant for farm-specific advising. NYSERDA offers no-cost, no-commitment energy assessments to help farmers prioritize areas for improvements and identify incentives to help with implementation. To get started, visit www.agenergyny.org.



Jimsonweed – Don't Ignore This Late Season Weed

Andrew Senesac, Weed Science Specialist, Cornell Cooperative Extension of Suffolk County, Long Island Horticultural Research and Extension Center (from the Long Island Fruit and Vegetable Update, August 25, 2022)

Jimsonweed, *Datura stramonium L.*, is a late appearing annual weed that produces large black seeds enclosed in spiny seed pods. Each pod or capsule contains more than 500 seeds. If the seeds are allowed to ripen and drop, the problem will be worse in that area next year. Although jimsonweed will start to germinate in mid-spring, it can continue to germinate throughout the season if the soil moisture if adequate. Jimsonweed is toxic and hallucinogenic to humans and most livestock. Grazing animals normally won't eat the plant, but it may be present in hay or forage. The individual plants can grow to more than 5 feet tall. At this time of year, the best way to deal with it is to carefully cut it at the soil line and remove it so that it won't be composted, because the seeds are largely tolerant of compost conditions.

Carefully map this weed so, next year, the parts of the fields that are heavily infested can be planted to crops with herbicides that will manage it:

- Broccoli, cabbage, cauliflower GOALTENDER can be used pre-transplant or post-emergence to control jimsonweed.
- Strawberry, asparagus and tree fruit SINBAR can be used pre and early post-emergence to control this weed.
- Sweet corn Atrazine can be used pre-emergence to control jimsonweed.



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FARM SECTORS GETTING STARTED

Agriculture in New York

Staffing and Organizing Your Team

Weekly Zoom discussions each Tuesday from November 15 through December 20, 2022 | 3:00 pm - 4:00 pm

Cornell Agricultural Workforce Development has opened registration for Managing Performance, a six-week course in the Supervisory Leadership Certificate program. Staffing and Organizing Your Team materials release November 9, 2022 and live weekly Zoom discussions will be held from 3 to 4 PM each Tuesday from November 15 through December 20, 2022. Participation in the live sessions is highly encouraged and provides a valued opportunity for peer-to-peer learning and networking. Registration is \$275 and closes November 9. Continuing education credits are now available for this course and the Supervisory Leadership Certificate program. Course topics include:

- Develop job descriptions.
- Learn how to find potential employees. Interview and select the right people.
- Implement new hire documentation, employment authorization, and onboarding: bringing new employees into the business successfully and productively.

Registration link for Staffing and Organizing Your Team Agricultural Supervisory Leadership courses

Information link for the Agricultural Supervisory Leadership certificate program

Organic Management Tactics for Cucurbit Crops

October 12, 2022 (Tuesday) | 1:30 pm - 2:30 pm EDT Free webinar

For three years, researchers, extension specialists, and growers in Iowa, New York, and Kentucky, funded by NIFA's OREI program, have been exploring new options for the organic management of cucurbit crops using mesotunnels. Mesotunnels are larger than low tunnels but smaller than high tunnels. They are 3 ½ feet tall and are covered with a nylon-mesh fabric that keeps out pest insects and the pathogens they carry. Field experiments and on-farm trials with muskmelon and winter squash have had varied results: some encouraging, some not. But valuable lessons have emerged about how to use these protective structures effectively.

The October 12th webinar will cover two main topics related to organic cucurbit production under mesotunnels: weed management and pollination. For weed management, several options have been used, including landscape fabric, as well as mowed and non-mowed living mulches. Pollination is essential for cucurbit crops. Three options have been tested with mesotunnels: on-off-on (removing the covers during bloom), open ends (only the ends were opened during bloom), and full-season mesotunnels supplied with bumblebee hives.

Register for this free webinar to benefit from what has been learned. <u>Register now</u> to receive the webinar link to **Organic Management Tactics for Cucurbit Crops**.

Mental Health First Aid Trainings for Ag Communities of New York State Free full day trainings offered at various locations across NYS

Farmers, agribusiness workers, and anyone who interacts with the agricultural community in New York is encouraged to a free, full day, in person Mental Health First Aid (MHFA) course. Trainings run from 8am to 5pm, and lunch will be provided from a local eatery with a one hour break. Mental Health First Aid teaches you how to identify, understand, and respond to signs of mental health and substance use challenges among adults. You'll build skills and confidence you need to reach out and provide initial support to those who are struggling. You'll also learn how to help connect them to appropriate support.

The instructors for these courses are part of a recently trained cohort that work within the NY agricultural community. They include representatives from NY FarmNet, Cornell Cooperative Extension, Farm Bureau, Young Farmers Coalition, NY Center for Ag Medicine and Health (NYCAMH), and Black Farmers United NYS.

Scheduled full day MHFA trainings for this fall include:

- Tuesday, October 18 in Hudson/Columbia County
- Wednesday, October 19 in Cortland/Cortland County
- Friday, October 21 in Ithaca/Cornell University/Tompkins County
- Tuesday, October 25 in Middletown/Orange County
- Wednesday, November 2 in Binghamton/Broome County
- Monday, November 7 in Lockport/Niagara County
- Tuesday, November 8 in Fonda/Montgomery County



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Upcoming Events

To register, go to <u>www.nyfarmnet.org/trainings</u>. If we don't yet have a training scheduled in your area, check back soon, or contact NY FarmNet at 1-800-547-3276 or <u>nyfarmnet@cornell.edu</u>.

These free trainings are made possible by funding from the United States Department of Agriculture's National Institute of Food & Agriculture. They have invested nearly \$25 million in addressing farmer behavioral health on a state by state basis as part of the Farm and Stress Assistance Network (FRSAN) through state Departments of Agriculture.

This work is supported by 7 U.S.C. 5936, Section 7522 of FCEA of 2008, Farm and Ranch Stress Assistance Network (FRSAN), Grant No. 2021-70035-35550, from the U.S. Department of Agriculture, National Institute of Food and Agriculture.

New York Labor Roadshow VI

November 9, 2022 (Wednesday), Genesee Community College-Batavia Campus, One College Rd, Batavia, NY 14020, Room T119 Lecture Hall, Conable Technology Building

November 10, 2022 (Thursday), Cayuga-Onondaga BOCES, 1879 West Genesee Street Rd, Auburn, NY 13021, Conference Room 1, 2, 3

• Online Option on November 10, 2022 only, the event will be broadcast via Zoom for remote audiences and recorded for paid registrants to view later.

New York's Ag Workforce Development Council (AWDC) is organizing Labor Roadshow VI. Labor continues to be the primary challenge for many farm businesses and this event tackles those challenges head on with these topics:

- Attracting and retaining your farm workforce
- Management strategies in a union eligible work environment
- TN Visas: Introduction to the program and best practices for using
- The H-2A Program: Accessing guest workers for all types of farms
- Producer's real world experiences with H-2A
- Farm Safety: Real world tips for building a strong safety culture
- Farm-provided employee housing management and development

More info will be available soon at <u>https://agworkforce.cals.</u> <u>cornell.edu/2022/09/16/new-york-labor-roadshow-vi-hold-november-9-10-and-22/</u>

Farm Food Safety Meeting

December 5, 2022 (Monday) | 9:00 am - 4:00 pm CCE Wayne County, 1581 Rt 88N, Newark, NY

GAPs Training – Understanding Food Safety on the Farm

December 9, 2022 (Friday) | 9:00 am - 4:00 pm CCE Yates County, Yates Co. Office Bldg, 417 Liberty St, Penn Yan, NY 14527

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VegEdge is the highly regarded newsletter produced by the Cornell Vegetable Program. It provides readers with information on upcoming meetings, pesticide updates, pest management strategies, cultural practices, marketing ideas and research results from Cornell University and Cornell Cooperative Extension. VegEdge is produced every few weeks, with frequency increasing leading up to and during the growing season.

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Cornell Cooperative Extension Cornell Vegetable Program

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