Supporting Fruit Production

# OHIO FRUIT NEWS

Research and Recommendations from Experts at The Ohio State University

OCTOBER 2024

## Neopestalotiopsis Disease – What We Know and Don't Know

**By Melanie Lewis Ivey, Associate Professor, Extension Fruit Pathologist, Department of Plant Pathology**

Neopestalotiopsis disease, caused by the fungus *Neopestalotiopsis* spp., is an emerging disease of strawberry in Ohio (**Figure 1**). The emergence of *Neopestalotiopsis* on strawberry, especially the aggressive form of this pathogen, has resulted in significant crop loss in the state. As many strawberry producers are aware, obtaining disease free plants this year has been very challenging. Nurseries have been cancelling orders or have been telling growers that they can purchase plants at their own risk (i.e., no refund for diseased plants). In this article I have provided answers to some of the questions I have received over the past few weeks as Ohio growers grapple with this destructive disease. As you read the responses, you will notice that there is still a lot to learn about this disease and how to effectively prevent and manage it.

**Figure 1.** Leaf symptoms on strawberry caused by *Neopestalotiopsis* spp.

Continued on page 2

**Can the fungus infect other fruit and vegetable crops?**

For the most part, *Neopestalotiopsis* spp. is an opportunistic pathogen on crops other than strawberry. In Ohio, it has also been identified in blueberry (causes twig die back). There are also reports of grapevines being affected, although not in Ohio. It also causes disease on many ornamental crops, but generally doesn't cause

## Inside This Issue:

**Neopestalotiopsis continued from page 1**

economic losses. To the best of my knowledge, it has not been reported on vegetable crops in the state.

**Are there cultivars that are resistant to the disease?**
Preliminary studies conducted in my lab in 2023 indicate that there is variation in cultivar susceptibility to *Neopestalotiopsis*, but no cultivars are resistant. Jewel, Honeoye, and Earliglow were among the more susceptible cultivars that I tested. Allstar was the least susceptible. This year I received samples of Albion and Chandler that tested positive for *Neopestalotiopsis*. More studies are needed to determine the susceptibility of cultivars to this disease.

**Can the fungus overwinter in Ohio?**
We still don't know if the fungus can overwinter in Ohio. However, with warming winters it is likely that the fungus could survive on plant debris. Therefore, after harvest the field should be ploughed and harrowed to chop up the remaining crowns and runners. If *Neopestalotiopsis* was confirmed in the planting, a 3-year rotation with another crop is recommended. Fumigants such as Vapam and PicClor60 applied prior to planting may have some efficacy against *Neopestalotiopsis*, but more research is needed. Anaerobic soil disinfestation as a pre-plan treatment is currently being evaluated.

**Can I still plant diseased strawberry plants?**
The best answer is no. This fungal pathogen is very aggressive and can spread rapidly in the field when conditions are rainy and cool. Plants should be destroyed and should not be composted. If you are hesitant to destroy the plants, I recommend keeping them for several weeks and closely monitoring them for disease progression. If you decide to move forward with planting an intensive spray program should be implemented immediately after planting.

**What fungicides are effective a controlling Neopestalotiopsis disease?**
Thiram should be the backbone of a fungicide spray program for Neopestalotiopsis disease. An application of thiram immediately following planting is recommended before covering the plants for the winter. In the spring, applications

Continued on page 3

# Grower's Corner

Image courtesy of R. Moran, University of Maine

**What are the odd bumps on my pear leaves?** This image was submitted to the Great Lakes Fruit Working Group in early September. The "bumps" shown here are fungal structures produced by *Gymnosporangium sabinae*, the fungus that causes Pear Trellis Rust. The disease is relatively new to the northeastern United States but has not been officially reported in Ohio. However, it has been reported in New York, Michigan, Connecticut, and Ontario, Canada and is likely in Ohio. Like Cedar Apple Rust on apple, species of junipers are alternate hosts and required to complete the life cycle of the disease. The University of Connecticut has a factsheet on Pear Trellis Rust is you want to learn more about the disease and how to manage it,

should begin again using 7-10 day intervals. Do not spray thiram when temperatures are below 40 degrees F and relative humidity is greater than 70 percent. In Ohio, a maximum of 12 application per year is permitted. Thiram can be tank mixed or alternated with FRAC 3 or FRAC 9 fungicides such as Switch (FRAC 9+12), Rhyme (FRAC 3), Tilt (FRAC 3), or Inspire Super (3+9). These fungicides will also provide control against powdery mildew and Botrytis. It is likely that the EPA will cancel the registration for thiram soon (1-2 years). Therefore, it is important that producers check the label and stay informed about registration changes. For more information on the proposed registration changes to thiram see Docket No. EPA-HQ-OPP-2015-0433-0615.

**Should I produce my own transplants?**

It is extremely difficult to produce disease free transplants, hence the shortage of plants this year. Plants can be infected but not show symptoms and the conditions for producing a healthy transplant are the same conditions that favor the development of many diseases. At the very minimum, growers wanting to produce their own transplants should purchase mother plants from the National Clean Plant Network (NCPN) for berries. The NPDN produces clean planting stock, with a focus on viruses and phytoplasma. However, the process of producing virus-free transplants is extremely rigorous and these plants have a low probability of having a *Neopestalotiopsis* infection. The challenge will be to keep them free from disease once they get to the farm.

Figure 2. *Neopestalotiopsis* spp. spore.

**Where can I get my plants tested for *Neopestalotiopsis*?**

*Neopestalotiopsis* is an easy pathogen to identify in the lab because of its unique spore structure (**Figure 2**). If a grower suspects that their plants are diseased, they can send them to the C. Wayne Ellet Plant and Pest Diagnostic Clinic (PPDC) for testing. The entire plant (roots, crown, and leaves) should be submitted for analysis. Determining the number of plants that should be tested is difficult. Ideally 10% of all the plants should be tested. However, this is not always feasible, so we recommend calling Dr. Lewis Ivey or the PPDC for a farm specific recommendation. Samples can be dropped off at the clinic or mailed. For Ohio commercial fruit and vegetable growers there is no charge for this testing due to support from the Ohio Produce Growers and Marketers Association (OPGMA).

**C. Wayne Ellet Plant and Pest Diagnostic Clinic (PPDC)**
1680 Madison Avenue
Wooster, OH 44691
ppdc.osu.edu/
330- 330-263-3721

# Preparing for Spring in the Orchard - Fall and Winter Disease Management

**By Melanie Lewis Ivey, Associate Professor, Extension Fruit Pathologist, Department of Plant Pathology**

Unlike annual crops, disease management for fruit trees is a year-round endeavor. Many fungi can survive the winter in crevices in the bark, on mummies (shriveled hard fruit), and on rotting fruit and plant debris on the orchard floor. Fungi can survive as spores, mycelium (fungal strands), or specialized overwintering structures. Over time the fungi can build up in the orchard to levels that cause severe disease outbreaks. Therefore, implementing disease management practices during the fall and winter months is critical to starting the season with low levels of fungal pathogens and healthy plants. Most of the recommended disease management practices focus on sanitation and can be done any time after leaf drop but before bud swell. While many experienced tree fruit growers are familiar with these practices (but reminders are always good!), new tree fruit growers may not be. The recommended practices should help all growers to reduce fungal disease pressure in the orchard and get you ready for the new growing season.

**Pruning**

Pruning should be done in the late winter or early spring. Flagging diseased branches and shoots during the growing season is recommended so that no diseased tissue is missed during winter pruning. Tools should be sharp and clean. Trimmings should be removed from the orchard before the buds begin to swell. While you may be tempted to prune on one of our unexpected warm winter days, pruning should be done on a cold, dry day to reduce the spread of fungal pathogens through the orchard.

- Prune out dead or diseased wood.
- Remove neglected, dying or dead trees before the ground freezes.
- Remove wild trees around the orchard as these can serve as reservoirs.
- Thin out crowded branches to improve airflow and light penetration.
- Shape the tree to maintain a manageable height and structure.

Figure 1. Rotting fruit is a source of inoculum.

**Orchard Floor Clean-up**

Orchard floor clean-up should occur after the leaves have dropped from the trees. The fungi that cause apple scab and Marssonina leaf blotch can overwinter on dropped leaves on the orchard floor. Rotting fruit can also be a source of fruit rot (black rot, brown rot, white rot and bitter rot) inoculum (**Figure 1**).

- Chop leaves with a mulching lawn mower or flail mower.
- Apply urea (5%) to chopped leaves under apple trees. Urea applications increase leaf and mummy decomposition.
- Mulching can help with the decomposition of leaf litter and mummies but should not be placed too close to the tree trunks.

Continued on page 5

**Fall and winter disease management continued from page 6**

### Mummy Removal

Fruit mummies (**Figure 2**) are inevitable in the tree and removal can be very labor intensive. However, fruit mummies in the tree can release spores, which then can infect the wood. If disease pressure, especially bitter rot (apple) and brown rot (apple and stone fruit) was high during the previous season mummy removal is very important. Pruning and orchard floor clean-up should take care of most mummies in the orchard.

### Fungicide Applications

Fungicides applied during the dormant season are essential for some fungal diseases (e.g., peach leaf curl, Phytophthora crown and collar rot). Fungicides should be applied when temperatures are above 45 degrees F. Always read the product label before spraying a fungicide.

- For peach leaf curl control apply ziram, thiram or ferbam in late fall or early spring prior to bud break. Copper-based products can also be used but are not as effective as ziram, thiram or ferbam.
- For Phytophthora crown and collar rot management an application of mefenoxam (Ridomil) in the fall, before the ground freezes, and an application in the spring before ¼ inch green is recommended. Trees in low areas in the orchard with poor water drainage should be prioritized.

Figure 2. Apple mummies on a Honeycrisp tree (top) and a peach mummy with brown rot (bottom). *Peach mummy image courtesy of E. Vinje, Plant Natural.*

CFAES

# Evaluate the Distribution and Incidence of Post-harvest Rots on Chestnut Kernels.

We hope you will consider participating to this important project sponsored by Northern Nut Growers Association to Evaluate the Distribution and Incidence of Post-harvest Rots on Chestnut Kernels.

We are conducting a survey on post-harvest chestnut rots to better understand the spoilage pathogens affecting chestnut production. This project will investigate the incidence of fungal rots, evaluate the impact of sanitation treatments, and examine how different chestnut cultivars are affected by these molds. The results will provide crucial information for developing strategies to reduce economic losses due to post-harvest spoilage.

### How You Can Help?

We are requesting chestnut samples from producers across the eastern U.S.

### Sample Requirements:

- Minimum of 100 chestnuts per submission
- We are accepting treated and non-treated nuts
- Separate nuts by cultivar
- Please include information on location, cultivar, and any post-harvest treatments used with the samples

### Where to Send Samples:

C. Wayne Ellett Plant and Pest Diagnostic Clinic
Department of Plant Pathology - Selby Hall 234
1680 Madison Avenue
Wooster, OH, 44691

### Rot Assessment Details:

- Samples will be processed at our USDA-APHIS certified Diagnostic Clinic in Wooster, OH.
- Nuts will be visually inspected for post-harvest damage, including cracks, weevil infestation, and molds.
- Molds will be cultured, characterized, and identified using DNA sequencing.

### Your Contribution Matters:

This research aims to reduce chestnut spoilage and improve the shelf life of chestnuts across the industry. Results will be shared with producers at the 2025 NNGA Annual Meeting and published in a peer-reviewed journal.

### Contact Information:


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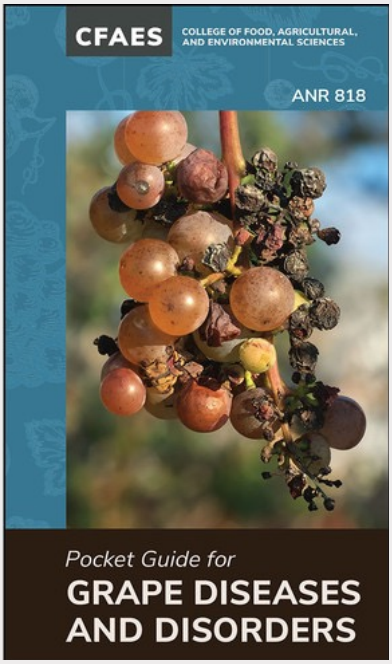
https://ppdc.osu.edu
https://u.osu.edu/fruitpathology/




The **Pocket Guide for Grape Diseases and Disorders (ANR818)** is a new resource for grape growers and crop consultants. This guide is designed to be a resource for growers to facilitate crop monitoring and diagnoses. The guide is small enough to fit in a pocket, but the images are large enough that the signs and symptoms can be easily seen. Although this guide reflects the situation of Ohio growers, the information is relevant to growers in the Midwest-Northeast United States.

The guide can be purchased from OSU Extension Publishing for $16 plus shipping. A PDF of the guide can also be downloaded for $10.

The guide was supported in part by funding from the Ohio Grape Industries Committee (OGIC).

It is with great sadness that we report that Dr. Imed Dami, Professor and Viticulture Specialist in the Department of Horticulture and Crop Sciences passed away on Saturday, October 12, 2024. Dr. Dami served the grape and wine industry in Ohio for 21 years. Dr. Dami conducted research, teaching, and extension and was committed to improving grapevine health and grape quality. His research focused on solving real-world grape production problems including cold stress and its mitigation. Our thoughts and prayers are with Imed's wife Cory, and his two sons Sofien and Moncef.

## Grower Resources:

- OSU Fruit Pathology website (u.osu.edu/fruitpathology)
- OSU Plant and Pest Diagnostic Clinic website (ppdc.osu.edu or 330-263-3650)
- OSU Extension Fruit, Vegetable & Specialty Crop News (https://u.osu.edu/vegnetnews/)
- OSU Fruit and Vegetable Safety website (https://producesafety.osu.edu)
- OSU Fruit and Vegetable Pest Management website (entomology.osu.edu)
- CFAES Pocket Guide for Grape Diseases and Disorders (ANR 818) (extensionpubs.osu.edu)
- OSU Bramble: Production Management and Marketing Guide (Bulletin 782) (extensionpubs.osu.edu)
- Midwest Fruit Pest Management Guide (Bulletin 506) (ag.purdue.edu/department/hla/extension/sfg-sprayguide.html)

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## CFAES Upcoming Events

Great Lakes Fruit, Vegetable & Farm market EXPO – December 10-12, 2024 link here
Ohio Produce Network – January 20-21, 2025 link here
Mid-Atlantic Fruit & Vegetable Convention – January 28-30, 2025 link here
Ohio Grape and Wine Conference – February 10-11, 2025
2025 Commercial Pesticide Recertification Trainings – January 16, January 29, February 13, February 19 link here
2025 OEFFA Conference – February 13 link here

*Contact your county Extension office to register for OSU events by phone or obtain registration forms.