

## OSU Extension - Auglaize County Weekly Horticulture Newsletter – 2-14-20

### Planning Ahead for Powdery Mildew of Cucurbit (Vine) Crops



Now that the day length is getting longer and spring is only five weeks away it is time to start preparing for the 2020 growing season. Lets investigate a serious disease of cucurbits (cucumbers, squash, pumpkin, muskmelon, and watermelon) called powdery mildew.

Powdery mildew can affect all cucurbit species, although watermelon is least affected. There are two fungal species, *Podosphaera xanthii* and *Sphaerotheca fuliginea*, causing powdery mildew. *P. xanthii* is most prevalent. Multiple strains or races of the fungi are possible. Spores of powdery mildew are not known to over winter in our area. Spores are highly mobile in wind currents and must be transported each year to our area from the southern United States.

Favorable conditions for the disease include dense plant growth, low light intensity and high relative humidity. Infections occur between 50 and 90° F with 68 to 80° F being ideal. The disease will not spread when temperatures are greater than 100° F. High relative humidity is beneficial, but not necessary for spore germination. Infection can occur below a relative humidity of 50%. High relative humidity allows the fungus to grow more rapidly. Excessive moisture on the leaf is detrimental to growth. Powdery mildew spreads quickly because it takes only three to seven days from infection to production of spores and numerous spores are produced.

Look for symptoms on the oldest leaves deep within the canopy. Symptoms begin as pale yellow spots. Soon after, the fungus begins to sporulate yielding the characteristic powdery-white appearance. This powdery appearance can grow over the entire leaf which eventually turns yellow then brown and dries to the point that it crumbles when touched. Symptoms can appear on the upper or lower side of the leaf and can spread to petioles, stems, and fruits.

An integrated pest management approach is necessary to reduce losses from powdery mildew. The most cost effective strategy to managing powdery mildew is to plant resistant varieties! Be aware there are different levels of resistance between varieties. Most cucumber and many muskmelon varieties have resistance to powdery mildew today. Few, although an increasing number, of squash and pumpkin varieties have some level of disease resistance. Despite the effectiveness of disease resistance it is possible to have a strain or race of the pathogen that can reproduce on a resistant variety.

Scout for the onset of disease, regardless of planting resistant varieties, just as fruits begin to develop. The earlier the disease is found, the more effective the chemical control strategies need to be. Scout on a weekly basis. Look for symptoms on upper and lower sides of the oldest leaves.

Begin applying fungicides once the onset of the disease is found because most products only provide protective control, not curative (control after infection). Most fungicides need to be applied every seven days, but follow label directions. Since most products only provide protective control, complete coverage of the plant, including the underside of the leaves, is necessary to maximize control. Daconil (chlorothalonil) is the most commonly available fungicide for homeowners with average to good control of powdery mildew. Other fungicides providing effective control include Quintec, Procure, Rally, Monsoon, Aprovia Top, Inspire Super, Fontelis, Merivon, Pristine, Microthiol Disperss, and Torino. These fungicides are likely only available from agricultural retail businesses or the internet. Know the mode of action of the fungicides as rotation of modes of action is necessary to stop the development of resistant strains of the fungus.

There are fungicides labeled for organic production of cucurbits. The most effective products include 'Stylet' oil and sulfur. Complete coverage of the foliage is necessary to maximize control. Other organic products providing some level of control include copper, Actinovate SP, Eco E-rase, MildewCure, Kaligreen, MilStop, Organocide, Regalia, SeaCide, Serenade, Sonata, Sporotec and Sporan, and Trilogy. Milk can also reduce powdery mildew, but must be applied as a protectant, not as a curative. Mix 1 part milk (2% or whole) to 2 parts water. Spray every 7 to 14 days.

## Local Observations

Good morning! I pray you are well.

We received precipitation 6 days this past week. Rainfall on Wednesday the 5<sup>th</sup> ranged from 0" near Valley and Idle Roads and near Lock 2 and Tri-Township roads to 0.3" near Brown and Pusheta roads. Total liquid precipitation on Friday ranged from 0" and four locations to 0.1" near County Road 66A and St. Rt. 66. Liquid precipitation on Saturday ranged from 0" near Lowes to 0.08" near Valley and Idle Roads. Total liquid precipitation on Sunday ranged from 0.32" near Valley and Idle Roads to 1.1" near County Road 66A and St. Rt. 66. Total liquid precipitation on Monday ranged from a trace on the western side of the county to 0.2" near Uniopolis. Total liquid precipitation on Wednesday ranged from 0.15" near Townline-Lima and Wapakoneta-Fisher Roads. Total liquid precipitation for the week ranged from 1.08" near Bloody Bridge to 1.6" near Dowty and County Road 66A roads. The average rainfall for the week was 1.43", 1.01" above last week.

The average high temperature now is 37 degrees F! Temperatures were above normal for 3 days and below normal for 4 days! The average high temperature for the week was 34.7 degrees F, 2.3 degrees below normal!

With the cold weather I did not check my bees this past week.

## VegNet

Not news this week.

BYGL

# Tree of Heaven vs. Staghorn Sumac. How can you tell the difference in Winter?

**Authors**

Thomas deHaas

**Published on**

February 11, 2020



Tree of Heaven, *Ailanthus altissima* and Staghorn Sumac, *Rhus typhina*, can be difficult to differentiate in the winter months.





However, on close inspections of stems, buds, fruit pods and trunk, you can tell the difference. Tree of Heaven is a favored host of Spotted Lantern Fly, *Lycorma delicatula*. By identifying this tree and eradicating it from the landscape, you can help to reduce the attraction of Spotted Lantern Fly to your site.

Staghorn Sumac does tend to retain its fruit through the winter.(pictured below)



Tree of Heaven tends to lose its seed pods but can retain them in the winter.(Pictured below)





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Staghorn Sumac tends to have less pubescence.(in the middle)



Tree of Heaven on the other hand is very hairy.(Below)



The base of the trunk on Sumac tends to be smooth.(Below)





Tree of Heaven tends to develop fissures at the base. (Pictured below)



When growing together, which can be common, you can begin to see the difference. (Sumac in the foreground, Tree of Heaven behind)





As the trees leaf out, identification can be easier (See BYGL post attached):

<https://bygl.osu.edu/index.php/node/1346>



# 2020 Ohio Vegetable Trials

## Authors

Carri Jagger

## Published on

February 11, 2020

The Ohio State University is conducting vegetable trials with home gardeners. We want your opinion as to what grows well in Ohio and what Ohioans prefer (including the taste). There will be two sets of trials this year; spring trials and summer trials. Each will have five vegetables to choose from. You may choose how many of these that you would like to try in your garden. For each vegetable there will be two varieties to test side-by-side. Each vegetable trial will cost \$3 and will include enough seed to grow a 10 foot row of each variety, growing instructions with garden layout options, and row markers. You are asked to report your results either on the provided paper form or by using our online system. Additionally, we are asking you to submit photos for us to share with others in the project as we go through the season.

Ed Brown Agriculture and Natural Resources Extension Educator from Athens County is the lead on this project.

## More Information

[https://forms.office.com/Pages/ResponsePage.aspx?id=NIYJ61QIUivKx\\_53x0RIUEbiyY...](https://forms.office.com/Pages/ResponsePage.aspx?id=NIYJ61QIUivKx_53x0RIUEbiyY...)





## Other Articles

### Sun King Aralia is 2020 Perennial Plant of the Year

February 11, 2020 | [Meghan Shinn](#)

Source: <https://www.hortmag.com/plants/plants-we-love/sun-king-aralia-is-2020-perennial-plant-of-the-year>



**Virtues:** ‘Sun King’ aralia or spikenard (*Aralia cordata* ‘Sun King’) is a shade-loving perennial provides a bright, taller backdrop for hostas, heucheras and other low-growing, rounded shade garden plants. ‘Sun King’ offers upright, shrubby growth and interest through both its bright foliage and its summer flowers. It was named [Perennial Plant of the Year](#) for 2020 and received a [Theodore Klein Plant Award](#) the same year, as well as an Outstanding Plant Award from the International Hardy Plant Union in 2012.

**Common name:** ‘Sun King’ aralia, ‘Sun King’ Japanese spikenard

**Botanical name:** *Aralia cordata* ‘Sun King’

**Exposure:** Part shade

**Flowers:** Clusters of small white flowers appear in mid- or late summer, attracting bees and other pollinators. Bloom can continue into the early fall. Black berries ripen after the bloom. These are inedible to humans but loved by birds.

**Foliage:** The leaves are highly textural thanks to their compound structure (many leaflets joined to a single leaf stem). They have a golden-green color that they retain throughout the summer.

**Habit:** This is an herbaceous perennial. It dies back in fall and emerges in spring to grow three feet tall and wide or more.

**Origin:** The species *Aralia cordata* hails from forests and shady slopes across Korea, Japan and eastern China. ‘Sun King’ stands apart from the straight species because of its golden leaves. According to the Missouri Botanical Garden, plantsman Barry Yinger discovered it on a nursery bench while plant shopping in Japan and introduced it to the US market.

**How to grow it:** Site ‘Sun King’ aralia in part shade and rich to average soil. Its best leaf color is prompted by a couple hours of sun each day (preferably in the morning). It requires even moisture and will not tolerate drought. It may self sow to form a colony. USDA Zones 3–9.

## Discovering ways to build hardier, healthier plants

Source: <https://www.hortidaily.com/article/9189040/discovering-ways-to-build-hardier-healthier-plants/>

Plants have always battled various pressures, from diseases and insects to adverse environmental conditions. But increasing occurrences of more extreme weather events and a growing world population are resulting in the need to develop even hardier crops for the global food system.

*by Cameron Rudolph*

Researchers in the Michigan State University [Plant Resilience Institute \(PRI\)](#) are studying how these intensifying environmental impacts hinder plants’ ability to adapt, and how those impacts might be mediated or averted.

Gregg Howe, a University Distinguished Professor in the Department of Biochemistry and Molecular Biology, was part of the research team that started the process to form the PRI in 2015.

“We wrote a proposal and started to lay the groundwork as a nice fit to our plant science and agriculture roots,” he said. “The idea was to use this as seed funding to get projects off the ground and to make ourselves more competitive for external funding opportunities in the area of plant resilience. We saw this as a way to make MSU’s strength in plant research even stronger.”

Howe was joined in the effort by founding director Mike Thomashow, along with Sheng Yang He and Brad Day, professors in the [Department of Plant, Soil and Microbial Sciences \(PSM\)](#). Initial funding came from the Global Impact Initiative, MSU AgBioResearch and the colleges of Agriculture and Natural Resources, and Natural Science.



*Gregg Howe, a University Distinguished Professor in the MSU Department of Biochemistry and Molecular Biology, is a founding member of the Plant Resilience Institute.*

Three areas of emphasis were outlined: the performance of plants in the presence of rising temperatures; the role of microbial communities in plant resilience; and the improvement of legumes, important international crops facing increasing stresses.

Soon after its launch, the PRI added the following faculty members:

- Robin Buell, a University Distinguished Professor in the Department of Plant Biology
- Thomas Sharkey, a University Distinguished Professor in the Department of Biochemistry and Molecular Biology
- David Lowry, an assistant professor in the Department of Plant Biology
- Ashley Shade, an assistant professor in the Department of Microbiology and Molecular Genetics

In early 2018, Buell became PRI director and eventually brought on three additional members:

- Peter Lundquist, an assistant professor in the Department of Biochemistry and Molecular Biology

- [Robert VanBuren](#), an assistant professor in the Department of Horticulture
- [Addie Thompson](#), an assistant professor in PSM

Buell said multidisciplinary teamwork is the key strength of the PRI.

“The PRI allows us to develop connections we otherwise wouldn’t have,” Buell said. “Faculty members from different departments who share research interests can interact through a number of forums and seminars the PRI hosts, setting the foundation for collaborative research.”

### **Creating the largest impact**

A founding goal of PRI was to concentrate on research topics with the broadest reach, such as rising temperatures and their impact on plant growth and health.

Howe recently started examining temperature and its relationship to how plants defend themselves from insects. He has tested the immune system function of tomatoes under two temperature scenarios, both with insect predation occurring: just over 82 degrees Fahrenheit and an elevated temperature of over 100 degrees Fahrenheit (the latter is similar to in-season growing conditions in Florida and California).

Howe found that the tomato plant growing in 100-degree heat is more susceptible to attack. Insect metabolism speeds up, making them hungrier. At the same time, the pores on the leaves that usually open to release water and cool the plant stay closed.

“We don’t know why the stomata [pores] are staying closed or if it has to do with the feeding insect, so that’s something we have to explore further,” Howe said. “What we do know is the plant is losing valuable tissue to the insect and isn’t cooling itself. This is obviously bad for overall plant health.”

Howe’s lab also studies jasmonate, a defense hormone that signals the plant to repair tissue damage. Under elevated temperatures, the plants produce more of the hormone, but the increase is inconsequential in the fight against insects, Howe said.

He also pointed out the importance of varying research within PRI.

“The PRI started with basic research, but we’re moving into some applied research as well,” Howe said. “Most of what we’re working on are long-term problems, but we want to be flexible if there are opportunities to tackle short-term needs.”



Thompson, one of the PRI's newest members, uses genomics, spectral imaging (high-quality remote images from drones) and modeling to study maize genetics and how different varieties perform in various environments.

In summer 2019, she embarked on a project with [Martin Chilvers](#), an associate professor in PSM, and [Maninder Singh](#), an assistant professor in PSM. The trio is examining corn tar spot, a fungal disease that has emerged across the Midwest in recent years.

Known in elevated regions of Mexico and Central America for more than a century, tar spot favors cool and wet conditions. Little is known about the fungi that cause tar spot, and commonly sprayed fungicides have shown minimal effectiveness. Many Midwestern operations have been devastated in the absence of adequate treatment options or disease-resistant varieties.

Thompson is tracking disease incidence and severity in hundreds of maize varieties, using both traditional ratings, such as in-person scouting, and drone imagery to monitor the plants. She is looking for cultivars that display disease resistance traits. Using genomics techniques, Thompson can then identify which genes are responsible for resistance and work to incorporate them into modern high-yielding varieties to make them less susceptible to tar spot.

Chilvers specializes in plant pathogens and is attempting to uncover more about the fungi that cause the disease and testing fungicide efficacy. A field crops agronomist, Singh is exploring whether planting density or other management practices contribute to disease transmission.

"It's great to be a part of a project in which scientists from different backgrounds are coming together to solve a single problem," Thompson said. "The PRI provides support to do this type of work, both resources and opportunity."

The project, which is also funded by Project GREEN and the Corn Marketing Program of Michigan, is one of the first to focus on corn. Thompson was brought to the team to add her knowledge of maize genetics and expand the scope of PRI plant research.

Studying an even wider range of plants was part of the constructive feedback from a May 2019 evaluation of the PRI's progress by a scientific advisory committee. Buell said the committee came away impressed, and its feedback included continuing outreach to establish a more recognizable identity.

“It was nice to have a third party assess our work and confirm that we’re on the right track,” Buell said. “We know that we can’t possibly analyze all facets of plant resilience, but there are plans to continue the growth of our team, and that’s exciting for the future.”

*This article was published in Futures, a magazine produced twice per year by Michigan State University AgBioResearch. To view past issues of Futures, visit [www.futuresmagazine.msu.edu](http://www.futuresmagazine.msu.edu). For more information, email Holly Whetstone, editor, at [whetst11@msu.edu](mailto:whetst11@msu.edu) or call [517-355-0123](tel:517-355-0123).*

## New varieties presented at Florida Strawberry Festival

Source: <https://www.hortidaily.com/article/9189478/new-varieties-presented-at-florida-strawberry-festival/>

thousands of people come to Plant City for the annual Florida Strawberry Festival this month, many will eat various types of the fruit. They may be surprised to learn that University of Florida scientists toil in nearby labs and fields to develop the best berries.

Those scientists work at the Gulf Coast Research and Education Center (GCREC) in Balm, about 30 miles south of Plant City. In their research, UF/IFAS researchers seek genetic traits that make strawberries succulent and able to dodge diseases. In fact, six years ago, Vance Whitaker worked with other UF/IFAS researchers to pinpoint the compounds that give strawberries the unique flavor that’s so appealing to consumers.

“These varieties are constantly getting better,” said Whitaker, an associate professor of horticultural sciences and strawberry breeder at the GCREC, part of UF/IFAS. “They’re tasting better. So, they fill those needs. They’re lasting longer in the refrigerator, and they’re more consistently available throughout the season.”

That season runs from Thanksgiving to Easter.

Since he arrived at GCREC in 2009, Whitaker has led the development of several new UF/IFAS strawberry cultivars, continuing a long tradition at the research and education center of meeting the needs of farmers and consumers.

The latest of those varieties are ‘Florida Brilliance’ and Sensation and they help strawberry farmers grow their crop more in a more sustainable fashion, Whitaker said.

“They’re friendlier to the environment because they require fewer chemicals to treat pests,” he said. “They’re also increasingly disease resistant.”

Like tomatoes, strawberries are about a \$400 million-a-year crop in Florida. The two crops help drive the agricultural sector of Florida’s economy. In fact, farmers are growing ‘Florida Brilliance’ on about 5,000 acres of the 10,000 acres of Florida strawberry industry, according to the Florida Strawberry Growers Association (FSGA).

Kenneth Parker, executive director of the FSGA, said, as they do every year, his group will have a working strawberry farm at the festival. The FSGA shows only UF/IFAS strawberry varieties because they’re bred in just the right conditions.

“The varieties are bred in the same conditions that we grow them commercially,” Parker said. “UF/IFAS breeds short-day varieties because that’s what grows best in Florida. The UF/IFAS varieties check all the boxes.”

The Florida Strawberry Festival runs from Feb. 27 (National Strawberry Day) through March 8 at 2209 W. Oak Ave., Plant City.

Source: [University of Florida \(Brad Buck\)](#)

## **Bayer, Meigenix collaborate to accelerate agricultural innovation**

Source: <https://www.hortidaily.com/article/9188123/bayer-meigenix-collaborate-to-accelerate-agricultural-innovation/>

Bayer and Meigenix, a biotech company focused on next-generation breeding technologies, announced a collaboration to advance agricultural research and development by accelerating the development of Meigenix’s proprietary technologies related to plant breeding and genome editing applications. This new research collaboration has the potential to deliver plant health and nutrition improvements to food crops so farmers can more efficiently and sustainably grow improved plant varieties that deliver the types of foods consumers want.

“Farmers need innovative solutions as they face limited natural resources and a changing climate,” said Jeremy Williams, Head of Plant Biotechnology, Crop Science Research & Development (R&D) at Bayer.

“Access to MeioGenix’s proprietary technologies could improve the precision and speed with which our breeders enhance crops, which could ultimately accelerate those solutions for the diverse needs of people and our planet.”

MeioGenix’s proprietary technologies are used to induce the exchange of genomic regions between chromosomes of plant cells during meiosis, the natural process that generates genetic diversity during plant breeding. Technologies based on meiotic recombination provide commercial crops with access to a broader genetic diversity, including complex traits for improved food quality, plants’ resistance to diseases and pests, and higher yield potential. The resulting hybrids and varieties have the potential to deliver value throughout the food chain, from farmers to consumers.

“Over the past decade, we have assembled unique know-how, intellectual property portfolio and network of experts to help generate biodiversity and accelerate breeding through modulating meiotic recombination. We are proud to collaborate with Bayer to develop the next generations of crops,” said Giacomo Bastianelli, Co-founder & CEO of MeioGenix.

“Agriculture is facing the challenge of adjusting plant physiology to rapid climate, pest and disease changes, as well as preparing the next generation of healthier food. Collaborating on these new breeding technologies will be key to bringing innovative solutions to farmers and consumers,” said Luc Mathis, strategic advisor of MeioGenix.

As part of the project, MeioGenix will collaborate with top academic institutes to advance these [technologies](#) in crops.

Bayer offers a wide range of educational materials regarding plant breeding and gene editing technologies [on its website](#).

For more information:  
[www.bayer.com](http://www.bayer.com)  
[www.meioGenix.com](http://www.meioGenix.com)

*OOM™ tomato wins Fruit Logistica Innovation Award 2020*

**Red, yellow and brown - watch out: here's purple**



Source: <https://www.hortidaily.com/article/9188258/red-yellow-and-brown-watch-out-here-s-purple/>

Colours are hot in the fresh produce industry and now that red, brown and yellow tomatoes are widely available in supermarkets, it's time for something new. That's what they found at Syngenta and their novelty turned out to be a success. On Friday, the new purple tomato YOOM™ won the Innovation Award of the Fruit Logistica.

Yet, the colour is not the only thing, the jury says. "Yoom stands out as an innovation with its very attractive purple colour and its powerful sweet and sour balance for an umami flavour. This new tomato variety offers consumers another option for healthy eating," says the jury report.



"These tomatoes are exactly what consumers are looking for in the supermarket: they are tasty, healthy and convenient," says Erik Fyrwald, Chief Executive Officer of Syngenta, who was naturally delighted with his price. "It's a fantastic achievement: it's a victory for consumers, Syngenta and the environment. Congratulations to the entire Syngenta Vegetable Team."

His colleague Jeremie Chabanis calls it an acknowledgement of Syngenta's dedication to meeting growers' demand to grow tasty and healthy vegetables that are also in demand in the marketplace.



Moreover, Yoom also meets the new trend of sustainable packaging, which had a lot to do in Berlin. The tomato is packaged in cardboard, produced from sustainably managed forests.



Yoom tomatoes are currently available in Australia, Belgium, Denmark, France, Greece and Spain; distribution will begin soon in markets such as Austria, Canada, Germany, Switzerland, United Kingdom and the United States.

Production continues to grow and reach new markets around the world.

Voor meer informatie:

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[www.syngenta.nl](http://www.syngenta.nl)

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