

SUPPORTING FRUIT PRODUCTION **OHIO FRUIT NEWS**

October 2017

Edition: 3

Welcome to the third edition of OFN!

This newsletter is put together by a team of OSU experts in fruit production and protection to give you timely and important plant pest and seasonal information. Our goal is to reach as many of our diverse fruit growers in Ohio as possible! The season is wrapping up as the last apples are harvested, brambles are pruned, strawberries are planted, and farm equipment is cleaned. This edition of fruit news includes articles on present pests, emerging pathogens in Ohio, preparation for winterizing your berry patches and hop yards, strawberry season recap from an OSU specialist, off-season grower events, and finally, exciting news about the NEWA system in Ohio!

As we close out the season, we need your help! This newsletter was funded by the Ohio Vegetable and Small Fruit Research and Development Program as a pilot to provide direct communication to growers of timely information and research produced by the extension and educational specialists here at the Ohio State University. We have really enjoyed creating this publication and having your support! **In order to gauge the actual impact of this newsletter, we have made a short survey that can be found at the following link:** <https://www.surveymonkey.com/r/OFN2017>. Our survey asks for your anonymous opinion of the design, distribution, and content of our newsletter. Your feedback will guide the content and viability of future editions of OFN. So please take a moment and have your opinions heard! The survey will stay open until December 1st and we will summarize the results in the fourth edition of OFN, which will be published in January 2018.

All previous newsletters including the 'mini' newsletters posted in August can be found at this link: <https://u.osu.edu/fruitpathology/fruit-news-2/>. Please contact Rachel Medina (medina.72@osu.edu; 229 Selby Hall, 1680 Madison Ave, Wooster, Ohio, 44691) to subscribe to this newsletter or with any questions about content.

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**Thank you for reading OFN
and participating in our
survey!**

Lingering Stink Bug Activity in Late-Season Fruit Crops

By: Celeste Welty



Adult
Stink
Bug

We are still finding stink bugs active in late-maturing apples and berries as well as in soybeans, sweet corn, peppers, and tomatoes, and around buildings. Most are the brown marmorated stink bug, but we are also finding some of our native green stink bug, brown stink bug, and the dusky stink bug. Most are adults, as shown in the picture above, but some nymphs are being found. It is the new adults that are quite mobile that are starting to seek protected places to overwinter, such as in buildings or tree stumps or firewood piles.

Now that the weather is becoming cooler, we are seeing less activity from stink bugs compared to their activity during the recent heat wave. During the two week period in mid-September that had daily high temperatures around 90 degrees and nighttime low temperatures only in the mid-60s, we found large numbers of stink bugs in pheromone traps. It was somewhat surprising to see such high numbers because for most of the summer, stink bugs were not as abundant as they were during the previous two years in known hot spots like Columbus. Our trapping network has shown that stink bug activity is highly variable around Ohio; there are a few hot spots such as Columbus and Marietta and Cincinnati, but some locations have had no detection of stink bugs, and many locations with only light detection. Reports on catch of brown marmorated stink bug in our trap network can be found at [this link](#).

Growers hopefully got control of stink bugs when they first entered fruit plantings in mid-summer. Growers with susceptible late-season crops should scout to determine whether stink bugs are still present and causing damage. If an insecticide is needed to control stink bugs on apples, choices with good efficacy are Belay (7-day PHI), Baythroid (7-day PHI), Lannate (14-day PHI), and Danitol (14-day PHI). On raspberries, choices with good efficacy are Actara (3-day PHI), Brigade 2EC (3-day PHI), and Danitol (3-day PHI).

Blackberry Downy Mildew – An Emerging Disease in Ohio?

By: Melanie Lewis Ivey

A new disease of blackberry has reared its ugly head in Ohio. Blackberry downy mildew is caused by the fungal-like pathogen *Peronospora sparsa*. While this disease is a chronic problem on thorny blackberry varieties in tropical regions, it is rarely reported on varieties commonly grown in Ohio. The pathogen infects almost all of the proprietary blackberry varieties, Ollalieberry, and Boysenberry. "Native American named varieties" such as Chester, Arapahoe, Apache, Navaho are reportedly resistant, with very little disease appearing even under the most favorable conditions. *Peronospora sparsa* is a systemic pathogen and the primary source of the pathogen from infected nursery stock. Wild blackberries and roses are also a source of the pathogen. The extent to which the pathogen overwinters in the soil, roots or on plant debris in the Northeastern and Midwestern United States is unknown.

Symptoms of downy mildew appear on the leaves when temperatures hover between 65-75 F and it is rainy. Large angular brown lesions with a reddish-purple margin form on the lower leaves first. On the underside of the leaves blackish gray spores can be seen (similar to downy mildew on hops or cucurbits!). Leaves with multiple lesions turn yellow and drop off the canes prematurely. Stunting may or may not be a common symptom on thornless blackberry cultivars, however stunting on thorny blackberry varieties has not been reported. On fruit the disease is called dryberry disease. Downy mildew can be quickly confirmed by observing spores (sporangia) with a microscope. Samples can be sent to the Vegetable and Fruit Diseases Diagnostic Lab for downy mildew confirmation.

So, is downy mildew of blackberry an emerging disease in Ohio? The honest answer is we don't know. To date, we have only observed it on Ouachita plants in two adjacent production fields in Wayne County. Every plant in the field had downy mildew symptoms and disease severity was 15-20%, with most of the symptoms occurring on the lower leaves. In the United States, blackberry downy mildew has only been reported in Arkansas, California and the Pacific Northwest. The extent to which the disease is present in Ohio is unknown as is the range of varieties to which the pathogen can infect. Another complicating factor is that the pathogen can also be present in plants without showing symptoms (asymptomatic). With so many unknowns it is difficult to make management recommendations specific to Ohio production practices. However, we do know a lot about downy mildew diseases of other crops and there has been a lot of excellent research done on blackberry downy mildew management in Mexico. Based on this information it is clear that a management program that integrates routine scouting for symptoms, early diagnosis, resistance, cultural and sanitation practices, proper nutrition and the application of chemical or biological products is necessary for controlling this disease. In addition, when purchasing new plants always ask the seller about their disease screening and testing procedures.



Spores of
the
downy
mildew
pathogen



Foliar symptoms of downy mildew on blackberry



Stunted plant with downy mildew

Control Strategies:

- **Cultural and sanitation practices:** Space plants and prune out old canes to promote good air circulation, keep area surrounding the base of the plants free of weeds, and remove and destroy plant debris immediately after pruning.
- **Proper nutrition:** Follow a balanced plant nutrition program ([an example found here](#)); excessive amounts of nitrogen promotes disease development. Balanced nutrition is especially important when using potassium phosphite fungicides as these fungicides can cause nutritional deficiencies if applied regularly (see below).
- **Fungicide spray program:** In the spring, after bud break or when the plants start to bloom begin a potassium phosphite (i.e. Agrifos) based program with at least three applications a 10 to 14 days interval, followed by two applications of azoxystrobin (i.e. ABOUND).
- **Biological spray program:** Products containing *Bacillus subtilis* (i.e. Serenade) may slow the spread of *Peronospora sparsa* early in the season, however published results on its effectiveness are inconsistent.

Have questions about your plants?

Contact your county extension agents!

Visit: <https://extension.osu.edu/lao> or

send your samples to the fruit diagnostics laboratory at: 1680 Madison Ave, 229 Selby Hall, Wooster, Ohio

Fall Clean Up and Wrap Up for Berry Crops

By: Gary Gao

There are several key tasks that should be included on the berry growers fall clean up and wrap up “to do” list. These include removing plant debris from the berry patch to reduce disease pressure during the next season, putting away bird netting, draining water from the irrigation lines, cleaning and putting away tools and spray equipment, applying pre-emergent herbicides for controlling winter annuals, and testing your soils. This should keep you busy for a while!



Putting away and repairing bird netting should be done before the season ends

Removing old, dead and diseased canes and fruit from the berry patch should be a part of every basic patch sanitation process. Diseased canes are often the primary source of inoculum for many common fungal diseases (i.e. anthracnose, spur blight and cane blight) affecting berry crops. Plant debris should be destroyed either by burning or placing it in the trash. Composting diseased plant material is not recommended. Although plant debris removal can be time consuming it is a critical component of a disease management program. If anthracnose is a chronic problem in the patch growers should apply a dormant application of Sulfur to the canes.

Applying pre-emergence herbicide to control winter annual weeds such as chickweed, henbit, mustard and purple deadnettle is recommended. While pre-emergent herbicides are most effective when applied at the end of August or beginning of September applications now will still provide some control, which is better than no control! Consult the Midwest Fruit Pest Management Guide for pre-emergence herbicide recommendations.

Bird netting should be taken down, repaired if there are holes in it, and put into storage for the winter. Strong winds, sunlight, and extreme temperatures can cause the netting to degrade. Degraded netting will not be effective at keeping the birds out in the next season!

Tools and equipment should be cleaned (soap and water) thoroughly to remove any plant debris and pesticide residue, respectively. Pruning tools should also be sanitized after they are cleaned. Soaking the tools in a ten percent solution of bleach followed by rinsing with water and drying is a quick and inexpensive way to kill any disease causing pathogens that may be present on the tools.

Late fall is a good time to test your soil and apply phosphorous and potassium as needed. One advantage to having your soil tested in the fall is the quick response time from laboratories. A second advantage is that you can use the results to assist you with determining the rates of nutrients that may need to be added as well as determining if the soil pH needs to be adjusted. Recommendations can be found in the [Mid-Atlantic Berry Guide](#).

Ohio Strawberry Season Recap – 2017

By: Brad Bergefurd



Some of the best strawberry yields on record were reported by southern Ohio farms and some of the worst yields ever were reported by northern Ohio farms.

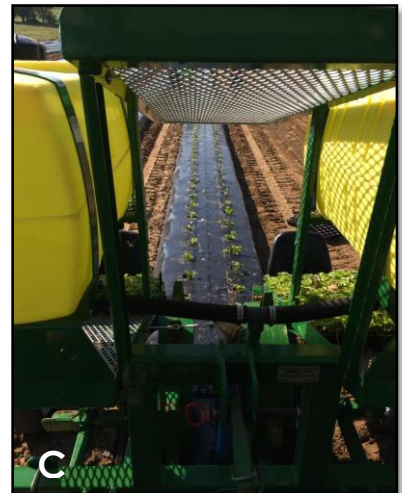


Even though strawberry harvest of day-neutral production systems continues throughout Ohio as of October 1, this is a recap of the 2017 season.

Overall the Ohio strawberry crop was average, however this takes into account that some Northern and, in particular, Northeast Ohio growers have reported some of the worst crops they can recall, and even total crop failures, due to very wet and flooding conditions during bloom and harvest. Whereas, Southern Ohio growers south of I-70 and down to the Ohio river are reporting some of the best harvests they can recall achieving, with yields of almost 2 quart per plant on some farms. (photos above)

- Strawberry market demand continues to grow and be strong in Ohio. Consumer demand at local farmers markets and farm markets continues to out-pace production. Consumer interest in "Pick-Your-Own" also continues to grow with most of this market demand peaking on weekends, for this is a form of "Agritainment" that families are wanting to experience. This weekend-only interest does make it necessary to have alternative weekday options to market strawberries. Demand is also high for Ohio-grown strawberries at Ohio produce auctions and direct marketing to Ohio wholesaler buyers with many wholesale markets establishing "Buy Local" marketing campaigns to fulfill demand for local produce. Retail prices for the 2017 season ranged from \$4 to \$6 a quart pre-picked and \$2.20 to \$2.50 a pound for pick-your-own berries. The reported wholesale prices ranged from \$2.25 to \$3.85 a quart. Retail and wholesale prices are up from 2016, but growers report no consumer complaints.
- Season extension production techniques continue to be explored and adopted to fulfill individual farm market demands. Though matted row production continues to be the main method, plasticulture production has been widely adopted to compliment the matted row system by providing an earlier 3- to 4-week harvest, which then leads into the later matted row harvest allowing farms to capture the consumer demand and a longer season with up to 12 weeks of cash flow. Ohio research continues and some farms are adopting greenhouse, high tunnel and/or summer day-neutral production to capture even more of the strong market demand. Growers that are harvesting and marketing day-neutral varieties through the summer and fall months are reporting great market demand and retail prices of \$5 to \$6 a pint. This summer production has complimented diversified farms that also produce and market summer-time fruit and vegetables. Growers who have adopted greenhouse and tunnel production for later harvest report the biggest issue being management of the Spotted Wing Drosophila and achieving economically feasible yields to cover the increased costs and management of these protected production systems. University and on-farm research is being performed to continue to refine these potential production systems for Ohio.

- Weather was either the Ohio strawberry grower's friend or foe in 2017. The very mild winter resulted in very little to no reported winter damage to plasticulture strawberry plants, that never go 100% dormant and are more prone to freeze damage than matted row. Weather was the southern Ohio grower's friend when the spring warmed up earlier than normal, resulting in earlier bloom and harvest beginning the last two weeks in April, some of the earliest reported harvest dates ever. Spring frosts and freezing temperatures had to be managed some with row covers and sprinkler irrigation, but there were not many sleepless nights. Throughout harvest, rainfall was heavy in some areas resulting in some flooding making it difficult to get timely and frequent fungicide applications made. Some southern farms reported Botrytis outbreaks toward the tail end of harvest, due to rains during late bloom, or they would have picked even longer. There were also isolated reports of Leather Rot especially in northern areas where rainfall amounts were much heavier during initial bloom and lasted throughout the bloom period, resulting in field flooding and ponding and major crop damage and loss for some farms, especially in Northeast Ohio.
- Mechanical harvest aids (photo A) are being adopted by more and more Ohio farms to increase harvest labor efficiency and increase the speed of harvest. Those that have adopted these harvest aids are reporting major savings in labor costs, as they are able to perform timely harvests with less labor. There also is continued research in mechanical harvesting techniques by Ohio engineering companies who showcased prototypes of mechanical harvesting robots at this year's Strawberry Field Night held at the OSU Piketon Research & Extension Center in May and at several strawberry farms throughout Ohio. To keep up with market demand, mechanical harvesting options will need to be explored as seasonal labor becomes harder to find.



A: Strawberry harvest aids like this model being used in Washington Courthouse, Ohio are being adopted and companies continue to research new mechanical harvesting methods.

B: Strawberry plug plant propagation was great in 2017 except for harvest delays in Canada due to cool temperatures at runner tip harvest. Ohio and Kentucky nurseries increased plant numbers again in 2017.

C: The 2018 plasticulture crop was planted in September with no weather or other related delays and the crop is phenomenal so far!

We are looking forward to a great Ohio strawberry crop in 2018!

- The 2018 season is looking good so far with high quality strawberry tips arriving from Canada and Nova Scotia the end of July showing no reported signs of disease or quality issues at this point. There were some 7- to 10-day delays in shipments from these northern Canada and Nova Scotia nurseries due to cool temperatures that delayed harvest of runner tips. The weather throughout August was great for on-farm and plug plant propagation by nurseries (photo 4) that have started growing plug plants for this growing market. There was not an overabundance of plug plants, because most nurseries plant on a pre-order basis, which made it difficult for growers that had not pre-ordered plants to find the plants they needed, resulting in then having to decrease acreage. Plant propagation nurseries reported an increase in plant orders. September weather allowed for timely planting of plasticulture strawberries (photo 5) with great plant stands and growth being reported. Let's hope for a "Carolina" type of fall so that we get good flower bud initiation and branch crown development before Christmas.
- A tri-state strawberry growers cooperative, including Ohio, Kentucky, and West Virginia farms continues to be researched with a core group of growers forming a steering committee in 2016 to explore the feasibility of forming a cooperative and/or association. This committee meets several times a year in conjunction with strawberry field days or conferences. If you are interested in what this cooperative may be able to do for your operation, contact founding member Danny VanMeter at VanMeter Family Farm 164 Old Peonia Loop Rd., Clarkson, KY 42726, Phone: 270-963-2320 or Brad Bergefurd at (740)289-3727 Ext. 136 or Dr. John Strang at University of Kentucky Dept. of Horticulture, N-318 Ag. Sci. Bldg. North, Lexington, KY 40546-0091 Phone: (859)257-5685 or Email: jstrang@uky.edu.

Spotted Wing Drosophila – End of Season Round Up

By: Jim Jasinski and Celeste Welty

Autumn is slowly closing the curtain on most fruit and vegetable production and their associated insect pests, which brings a collective sigh of relief from growers across the state. However, the spotted wing Drosophila (SWD) is one of those pests that is really poised for population explosion, especially in abandoned small fruit plantings that are no longer being treated with an insecticide, high tunnel strawberry crops, and even vineyards that have not been picked yet. For growers needing to treat in high tunnels, remember that Assail, Diazinon, Exirel, Radiant, and Delegate cannot be used in these structures.

Although there are only a handful of county sites still monitoring for SWD around the state (Franklin, Greene, Clark, Clinton, Warren, and Geauga), anywhere there is a baited trap hanging in a field, adult SWD flies are being caught. For example, in abandoned blackberry, red raspberry, and vineyard plantings that still have some fruit, **individual** trap catches this week ranged from 2 to 590 flies! So, despite it being the end of the season for most pests, if growers are still trying to harvest fruit to take to market, it is recommended that you keep up your spray schedule until harvest is complete. Even after a hard frost, with temperatures rebounding into the 40's, 50's, and 60's F during the day, some of these flies can escape being frozen to death and remain actively seek fruit to oviposit and damage.

Looking toward next year, research has shown that proper pruning to open up the canopy will allow better control of SWD when applying insecticides. Aggressive pruning will also allow for increased SWD control but at the expense of yield due to reduced canopy.

Winterizing Hop Yards as Part of an IPM Program

By: Melanie Lewis Ivey and Brad Bergefurd

Now that hops harvest is coming to an end in Ohio, the focus for growers shifts to winterizing the yard and preventing disease in the spring. Two diseases in particular, downy mildew and powdery mildew, should be considered. While these diseases have similar names, they are caused by two very different pathogens. Downy mildew, which is present in most hop yards in Ohio, is caused by the fungal-like (oomycete) pathogen *Pseudoperonospora humuli*. Powdery mildew is caused by the fungus *Podosphaera macularis* and is less common in Ohio, although it was reported this year in several hop yards in Michigan. One thing both of these pathogens have in common is that they can overwinter on crown buds and on cone and leaf litter. Therefore, postharvest strategies to prevent overwintering and reduce disease in the spring is a critical component of an IPM program.

Fall Management of Powdery Mildew

Powdery mildew can over winter in a couple of different ways. The most common way is by persisting as fungal strands (mycelia) in crown buds, which results in infected shoots (flag shoots) in the spring. The shoots will also be stunted and the leaves will be twisted and deformed. Another way that the fungus overwinters is by producing survival structures (called chasmothecium) on cones, leaf litter and within crown buds. In the spring, these survival structures release thousands of spores that can infect newly emerging shoots and leaves. The following winterizing practices are recommended to reduce the amount of diseased crown buds and survival structures.

- Remove and burn or bag all unharvested plants (i.e. first year hops) promptly after harvest.
- If powdery mildew was confirmed in your yard a post-harvest application of horticultural oil or sulfur may reduce the risk of powdery mildew development on crown buds and reduce the amount of overwintering fungal structures. Both of these products can be used by organic producers.



Powdery Mildew on Flag Shoots
(Photo by: D. Gent, Bugwood.org)

The Field Guide for Integrated Pest Management in Hops (Third Edition) is an excellent resource and can be [downloaded](#) for free. For more information on hop diseases and management contact Dr. Melanie Lewis Ivey. For more information on hop production practices contact Brad Bergefurd.

Fall Management of Downy Mildew: Fall management of downy mildew is a bit more challenging than fall management of powdery mildew. The downy mildew pathogen can survive the winter by infecting buds and the crowns. The pathogen also produces a special type of spore, an oospore, that can rest in the soil and crown until the spring. However, it is still unclear how oospores contribute to new infections in the spring. Because the pathogen can survive in the crowns, post-harvest applications of fungicides are not recommended, even if they have systemic activity. This is because there is reduced leaf area on the bines at this time of the year and the bines are shutting down from shorter day length and thus will not effectively move the fungicide into the plant and to the crown. The most effective fall practice to reduce downy mildew in the spring is to remove and destroy all bines and leaves from the hop yard after the first hard frost. Burning is an effective way to destroy plant debris, however state and local ordinances must be followed. To learn more about open burning regulation in Ohio click [here](#).

Fall Management to Protect Crowns from Winter Injury: Weakened or damaged plants are more susceptible to diseases, therefore preparing the plants for a long cold winter is an important strategy for preventing disease in the spring. With Ohio harvest occurring in August and September the plant will continue to put out new flushes of growth well into November. After a couple hard frosts and freezes, usually Thanksgiving to Christmas, proper fall hop yard management is required. This management will require lots of stoop labor to perform in a timely manner and includes hand cutting and removal of all plant growth, foliage and weed growth down to the soil line. This is also a good time to remove unproductive or damaged/diseased crowns from the yard. This plant material should be removed from the field and fully composted away from the hop yard, buried or burned. With this practice occurring so late in the year, just flail chopping or mowing the plant material between the rows does not allow the material to decompose properly due to a lack of heat and the short time till new growth emerges in March, therefore removal is highly suggested to reduce harboring disease and insect pathogens. This practice holds true even for first year plantings that may not had been harvested, plant material should be removed from these yards as well. Some growers especially south of I-70, where snowfall and snow pack is light, utilize an application of 2 to 4 inches of compost applied directly to the plant rows (photo 1). Properly made compost can be good source of fertility for next years crop but also acts as insulation protecting the crown from sub-zero freezing temperatures. Make sure that your compost has been made properly to reduce infesting your yard with weed, disease or insect pathogens. Also it is recommended to demand a nutrient analysis of the compost prior to application so you can adjust your overall crop nutrient and feeding program next season. Another common practice for disease management is to sub-soil between hop rows with a V-ripper or modified chisel plow (photos 2 and 3) to facilitate water drainage between the rows, we do not want any standing water in the hop yard. Even on light sandy soils after a season of mowing, harvesting, spraying these areas can become compacted.



Burning of Hops plants
post season harvest to
reduce pathogen
presence in the
hopyard
(Photo by: A Bushel of Hops)

**Applying a 2 to 4-inch layer
of properly made compost
can provide winter protection
to crowns and add fertility
and organic matter back to
the soil**

(Photo by: Old Dutch Hops)



**Deep ripping between hops rows with
modified v-ripper or chisel plow will help with
increasing drainage and reducing standing
water in the hop yard**

(Photo by: Fuhrmann Orchards)



Grower Events

- **Ohio Hops Growers Guild Post Harvest Meetup:** Oct. 15; Barn Talks Hops, Wadsworth, OH and Old Dutch Hops, Hillsboro, OH; [Link here](#)
- **New Pesticide Applicator Training:** Oct. 30; South Euclid, OH; [Link Here](#)
- **Grower Pesticide Applicator Trainings/ License Recertification:** Multiple days and locations; [Link Here](#)
- **Great Lakes Expo for Fruit and Vegetable Growers:** Dec. 5 – 7 2017; Grand Rapids, MI; [Link here](#)
- **Ohio Produce Network (formerly OPGMA Congress):** Jan. 15 – 17, 2018; Sandusky, OH; [Link Here](#)
- **New and Small Farm College:** Jan. – Mar. Multiple locations and multiple dates, OH; [Link Here](#)
- **Southern Ohio Specialty Crop Conference:** Feb. 6; Loveland, OH; Call 513-695-1311 to register
- **2018 Ohio Grape and Wine Conference:** Feb. 19-20 2018; Dublin, OH; [Link Here](#)
- **Small Farm Conference:** Mar. 9 – 10 and Apr. 7; Location TBD in Mar.; Massillon, OH in Apr.; [Link here](#)
- **4th Annual Ohio Hop Growers Conference, Trade Show, and Field Day:** Mar. 23 – 24; Piketon, OH; Call 740-289-2071 ext.132 to register

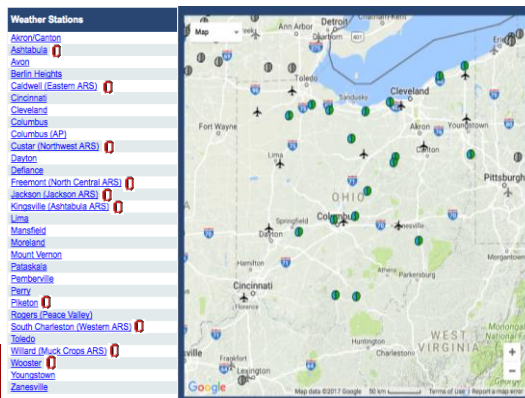
NEWA is in Ohio!

By: Melanie Lewis Ivey

If you remember from our [first newsletter](#) Ohio joined the Network for Environment and Weather Applications (NEWA) to provide fruit growers with tools to implement precision Integrated Pest Management (IPM) and crop production practices. Since we first introduced NEWA to Ohio in the spring we have had six growers install weather stations with more expected in the next couple of months! We are now excited to tell you that [the OARDC Outlying Agricultural Research](#) weather stations are now connected to NEWA, giving growers access to weather data at a total of 30 weather stations across the

These weather stations report hourly temperatures, daily maximum and minimum temperature, rainfall, relative humidity (RH) and hours > 90% RH, and wind speed to NEWA. These weather data then run through pest forecasting models that can predict key events like when an insect pest will become active or when a disease might develop. Based on these predictions growers can improve the timing of their pesticide applications and reduce the amount of pesticide used in a season without negatively impacting pest control or yield. You can access these weather data and the associated pest models at www.newa.cornell.edu.

Please contact Dr. Wallhead (matthew.wallhead@ars.usda.gov, 330-202-3555) for more information on connecting your farm to NEWA or Dr. Melanie Lewis Ivey (ivey.14@osu.edu, 330-263-3849) to learn more about how you can incorporate this resource into your IPM program.



Map of NEWA weather station locations in Ohio

Quick link to NEWA Survey:

https://cornell.qualtrics.com/jfe/form/SV_0GRlhOIDI5HwbR3

NEWA Survey

By: Dan Olmstead, Cornell

Whether you've used NEWA's online pest forecast models for years or have never used NEWA at all, we will benefit from your responses. Why? Because we are building a new website at newa.cornell.edu, one that'll be as easy to use on your smart phone as on your desktop, and we want to build it the way you want it to be.

NEWA is an online agricultural decision support system that uses real time weather data, streamed over the internet from 573 weather stations throughout the Northeast, Midwest and mid-Atlantic. NEWA provides insect and plant disease pest management tools, degree days, and weather information for growers, consultants, Extension educators, faculty, and others.

NEWA models and resources are available free of charge, and are used to make informed localized crop management decisions. The NEWA website will be upgraded soon and we want to know what users', new and old, want and need out of the new website.

All responses are anonymous and confidential and will not be shared with any outside group. For more information please contact Dan Olmstead at 315-787-2207 or dlo6@cornell.edu.

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Grower Resources:

[Midwest Fruit Pest Management Guide 2017](#)

[OSU Fruit Pathology Resources](#)

[OSU Fruit and Vegetable Pest Management](#)

[OSU Fruit and Vegetable Diagnostic Laboratory](#)

[OSU Bramble: Production Management and Marketing Guide \(Bulletin 782\)](#)

Thank you for taking the time to read this publication! Please don't forget about the survey! This feedback will allow us to make a better newsletter for you!



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COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

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