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Viticulture Notes..... March 2021

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I. Brood X periodical cicadas coming to a vineyard near you:
(adapted from information at Dr. Doug Pfeiffer's fruit extension site: https://www.virginiafruit.ento.vt.edu/)

Residents of the northern Shenandoah Valley and parts of the northern piedmont can expect the emergence of the 17-year, periodical cicada 'Brood X' in mid-May this spring. This emergence was mentioned in the January 2020 Viticulture Notes. It's worth noting which broods, and which emergence years occur in your locale, as the cicadas have the potential to cause shoot/cane damage to vineyards and other woody vegetation (Figure 1: note, broods may actually overlap and have a broader distribution than shown). There are at least 5 distinct broods that emerge in Virginia over a multi-year period (https://www.cicadas.info/?page_id=96), offering 'listening pleasure' to residents in all areas of the piedmont, valley and mountain areas of the state on a recurring, 17-year basis.

Briefly, adult cicadas emerge at night from soil as nymphs when soil temperature reaches about 64F, which typically corresponds to mid-May in northern Virginia (Brood X). The nymphs climb onto vertical supports such as tree trunks and molt into white, winged adults, after shedding their nymphal exoskeleton (**Figure 2**), clinging to the tree or other structure.

Over the course of several hours the adults acquire their distinctive color and a hardened exoskeleton (Figure 3), at which point they get on with the business of reproduction. Males "chorus" or call by vibrating a specialized body part (tymbal) which attracts females. Fertilized females oviposit in woody stems of trees, brush and, in our case, grapevines, laying up to 500 eggs in groups of about fifteen. Grapevines are readily attacked, but only young vines are considered to be at risk, because lateral buds and shoots can easily compensate for the shoot damage that can occur with older vines. A series of slits 3 to 4 inches (7 to 10 centimeters) long is made in a shoot a little thicker than a pencil. The shoot may break in the current or following year. Damage can be significant during outbreaks and will impact young vines more so than older, established vines. After about 10 weeks the eggs will hatch and nymphs will drop to the ground. The cicada nymphs bury themselves up to 18 inches deep in the soil and feed on the tree's roots for 17 years. The seasonal development of a given emergence cycle is summarized in Figure 4, courtesy of Dr. Chris Bergh.

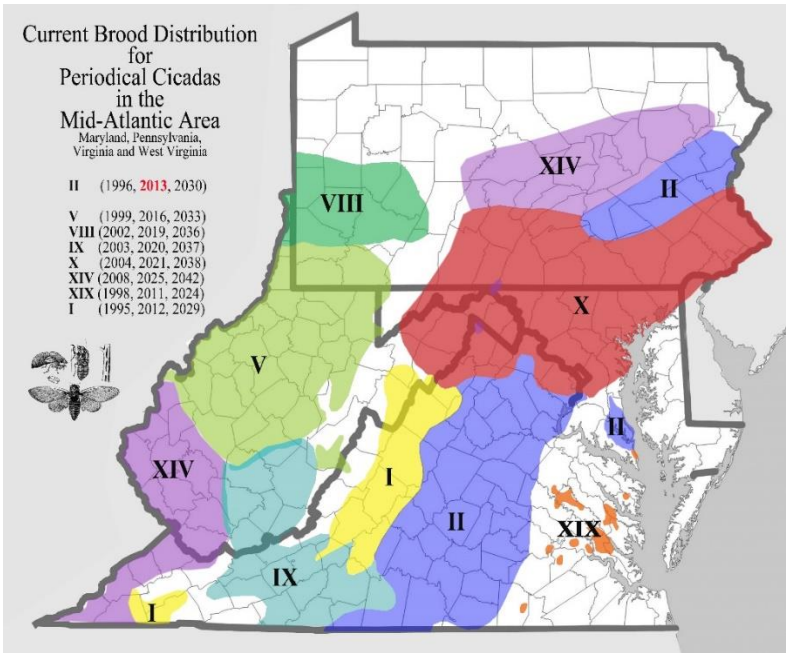

Figure 1. Periodical cicada emergence distribution in the Mid-Atlantic by brood number. From: https://www.cicadas.info/

Figure 2. Cast nymphal exoskeletons.

Figure 3. Adult cicadas.

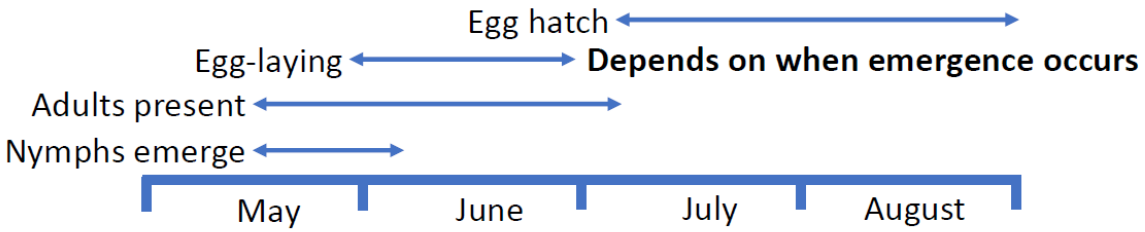

Figure 4. Calendar basis of periodical cicada emergence, egg-laying and egg hatch in northern Virginia (Chris Bergh, Virginia Tech).

The most important natural enemies of periodical cicadas in the nymphal stage are moles. Adults are fed upon by a range of birds, including blackbirds, starlings, robins, blue jays, among others. Various mammals will feed on adults - dogs and cats, opossums, raccoons, etc. Eggs are attacked by parasitic wasps and flies and predatory mites. Cicada killer wasps also attack later adults, but these wasps are timed mainly for the later emerging annual cicadas.

In addition to the 17-year cicadas, there are three broods of 13-year cicadas; Brood XIX (the great southern brood) will emerge in 2024.

Most injury in mature vineyards can be tolerated because most oviposition occurs distal to the clusters, and injured shoots will be pruned off later. However, *young vines are subject to severe injury*, with females using even the trunks as oviposition sites. Oviposition may occur at multiple sites on one shoot or young trunk; affected areas become weak and will break easily (Eggs in the shoots may be seen on dissection of the injured material). Young vineyards should be protected.

Managing cicada injury: Much of the injury in mature vineyards can be tolerated because most oviposition occurs distal to the clusters, and lateral shoots will redevelop leaf area on the primary shoot if shoot breakage occurs. Damaged shoots should not be retained as fruiting canes the following year; however, they can be retained as spurs with cordon-trained, spur-pruned vines, as the injury will be beyond the nodes retained as spurs. The more significant threat to vineyards is with young vines where injury to shoots and one-year-old canes intended as trunks can be significant. Such young vineyards should be protected.

Cultural and physical control: It is wise to avoid planting vineyard blocks within 1-2 years before an expected emergence of periodical cicada. Synthetic netting with a mesh no larger than ¼-inch will effectively prevent egg-laying and subsequent injury, but is not inexpensive. An illustration of a landscape, ornamental tree fully netted is shown in Figure 5. Five-foot wide by 100-foot long rolls of garden insect netting on Walmart (on-line) runs about $40. Other suppliers include:
https://www.birdbgone.com/cicada-netting/
https://www.agfabric.com
www.Amazon.com

Figure 5. Fully enclosed (netted) fruit tree.

Chemical control: Insecticides with rapid action, such as pyrethroids, are most effective at suppressing egg deposition on valuable trees and grapevines. Comparative insecticide evaluations done by Dr. Chris Bergh at the AHS Jr. AREC in the 2004 emergence of Brood X showed that Danitol insecticide, applied on a 6- to 8-day basis between May 24 and June 7, significantly reduced egg-laying and shoot breakage in apple. Baythroid, another pyrethroid, is effective and included in the Pest Management Guide. Danitol and Baythroid are restricted-use pesticides due to potential impacts on aquatic organisms. Both are also toxic to beneficial arthropods in the vineyard, and attention should be paid to potential increases in secondary pest development. Kaolin clay, an organic option, will provide some reduction in injury.

II. Vineyard nutrition survey in support of USDA/NIFA Specialty Crop Research Initiative:

HiRes Vineyard NUTRITION

A multi-institutional research team involved in the High-Resolution Vineyard Nutrient Management Project seeks to understand current vineyard practices and the technologies that may be used for improving nutrient management practices. They invite all commercial grape growers, consultants, and vineyard management companies from the wine, table, raisin, and juice grape industries across the US to complete a survey. The survey will gather input on what, how, and why nutrient practices are used in vineyards. Make sure your state and grape sector are represented--participate today!

To complete the survey, go to https://beav.es/JRk.

If you have any questions about the survey or the research, please contact Patty Skinkis, Oregon State University, or Markus Keller, Washington State University.

III. Upcoming meetings:

a) Grape disease management workshop with Dr. Mizuho Nita

As noted in the previous post, there will be a series of workshops coming up this and next month.

- March 31st (12 - 1:30 PM): Grape disease management workshop (in English)
  - This workshop aims to help you plan your disease management plan. We will go over seasonal disease management together.
- April 1st (12 - 1:30 PM): Grape disease management workshop (with Spanish translation)
  - This workshop aims to help you plan your disease management plan. We will go over seasonal disease management together.
- April 9th (12 - 1:30 PM): GrapeIPM.org training
  - This is a training session for a new online pesticide management and decision support system for grape growers. We will help you set up accounts and first vineyard(s), demonstrate key functions, etc.

For the grape disease management workshops on 3/31 and 4/1 and grapeIPM.org training on 4/9, I will provide a series of online lectures that **you can watch before the meeting**. Therefore, please register using this form (CLICK this line) so that I can send you an invitation to the lecture materials. At the time of each meeting, I will go over the key items, and we will spend most of the time with Q and A and discussions.

If you are a person with a disability and desire any assistive devices, services or other accommodations to participate in this activity, please contact Tremain Hatch, AHS Jr. AREC at (540) 232-6032 during business hours of 9 a.m. and 5 p.m. to discuss accommodations 5 days prior to the event.

b) Spring frost mitigation strategies with chemical products and delayed pruning.

Wednesday, March 24, 2021, 3:00 pm
Webinar series from Penn State and Cornell for Eastern Growers and Winemakers.

Imed Dami, professor of viticulture, Ohio State University, and **Michela Centinari**, associate professor of viticulture, Pennsylvania State University

Topics to be covered: Spring frost injury is a recurring threat in vineyards; this is especially true in recent years when moderate late winter and early spring temperatures have hastened bud break and increased frost damage risk. Cultural management options to delay bud break may decrease the incidence and magnitude of frost damage. The Spring Frost Mitigation Strategies with Chemical Products and Delayed Pruning webinar will review two tools used to mitigate spring frost

damage in vineyards - the application of chemical spray products to delay bud break and increase freeze tolerance; and delayed pruning to delay basal bud break.

When: Wednesday, March 24, 3:00 Eastern Standard Time
To register: https://extension.psu.edu/spring-frost-mitigation-strategies-with-chemical-products-and-delayed-pruning
Webinars are offered at no charge, but registration is required.

c) Spotted Lanternfly update: Webinar offered by Penn State pest management team

March 30, 2021 (10:00 AM - 12:00 PM ET)

Program details

Time	Presenter	Topic
10:00-10:05am	Heather Leach & Cain Hickey, Penn State Extension	Introduction & credit information
10:05-10:10am	Flor Acevedo, Assistant Professor of Entomology	Meet & greet
10:10-10:45am	Michela Centinari, Associate Professor of Viticulture	SLF damage to grapevines
10:45-11:20	Heather Leach, Extension Associate	SLF management in vineyards
11:20-11:45	Grower Panel: Zach Waltz, Waltz Estate Tom Mariani, Setter Ridge Vineyards Dean Scott, Bergeist Vineyards Ben Cody, 1723 Vineyards Brian Dickerson, Dickerson Vineyards	(1) Introduction (2) Years dealing with SLF & how they have (or have not) affected your vineyard? (3) Discuss a tactic you used that either worked well to control SLF or did not work
11:45-noon	Q & A with all presenters	

To register: https://extension.psu.edu/2021-vineyard-pest-management-series-spotted-lanternfly-update

Credit Information: 4 category pesticide credits (PC, 02, 18) will be offered to PA licensed applicators upon completion of this webinar.

d) North Carolina State University Small Fruits Extension Program is organizing an Air-Blast Sprayer Training in a HYBRID format

April 13-14, 2021.

The instructor will be Wayne Riddle from Turbo Mist. Over the last 7 years Wayne has trained under many industry leaders in the AG Industry and has gained a passion for passing on knowledge he has gained. Today he is activity involved in "Train the Trainer" as well as a calibration school for regulatory bodies, educational institutions and growers in Canada and the US for air-blast sprayers. He is actively involved in day to day calibrations with many growers from small growers to corporate growers with a vast range of orchard crops. Working with Washington State University, Oregon State University and BC Government in developing courses for drift control, coverage and equipment maintenance by teaching how to get your spray to the target and keeping it there efficiently.

Agenda:

- **April 13, 2021: 8am to 11am EST:** Online training on Air-Blast sprayer calibration (zoom). *This training is open for everyone who is interested.* But we only will apply for NC pesticide credits.
- **April 13, 2021, afternoon - April 14, 2021 afternoon:** Wayne can make on-farm visits with a limited amount of interested growers in **NORTH CAROLINA ONLY.** We mostly focus on vineyard and orchard growers.

2) Survey (IMPORTANT):

In preparation of this training, we need to ask questions on the model of air-blast sprayer, in which area you are located and if you are interested in a visit after the online training. **Please click on the link below to fill out a short 2-3 min survey!**

https://ncsu.qualtrics.com/jfe/form/SV_9KR6q8gFGF5CrDE

This survey will take 2-3 minutes of your time, and it is absolutely anonymous and voluntary. All information will be handled confidential and only our team will have access to the data. The information we receive will help us to understand your needs and will improve the planned training. The survey will be open from 3/20/2021 - 4/4/2021.

American Wine Society Student Scholarships:

The American Wine Society Educational Foundation's scholarship application period is open through March 31. Students in master's and doctoral programs in enology, viticulture, or other fields related to the wine industry are encouraged to apply for a scholarship. In 2020, the Foundation awarded seven student scholarships of $3,500 each.

Interested students should go to our website, www.awsef.org, and click on the **Application** tab to get the process started. Again, deadline is 31 March 2021.