MISSISSIPPI STATE UNIVERSITY EXTENSION

Mississippi *Vaccinium* Journal

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- Joseph Fiola
- Kelly Hamby
- Douglas Pfeiffer

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Insect Special

Even though the blueberry harvest is over for 2022, thinking about how to grow more and better berries is a year-round occupation. In this issue I bring to your attention 2 different pests. One is not yet in Mississippi, but it is causing havoc in other areas of the country. To my knowledge it has reached as far south as North Carolina. Little is known about the impact on blueberries at this point. In fact, it appears to prefer other hosts, but it pays to be vigilant all the same.

The second pest is one we do have in Mississippi. How much damage does it cause? It's hard to say. My guess is a small amount. However, it is a pest that can cause damage if the conditions are right (or wrong depending on your perspective).

Finally, I mention the need for suggestions on speakers for the next online blueberry education workshop. Who do you want to hear from and what do you want to learn about? Enjoy reading.

Harvest Tally for 2022

The final harvest estimate similar to last year, but even less. With all the information I was able to gather from growers who were willing to share their harvest numbers I came up with this total:

1.3 million pounds

Most of the harvest this year went to the fresh market (estimated 97%) and the final 3% going to the process market. Frost and freeze damage to southern highbush and early rabbiteye varieties was a significant problem for some. Ill-timed heavy rains also caused issues later in the season. Some reports of other problems like Exobasidium may have also contributed to losses. This number is just an estimate — there is likely more blueberries produced in Mississippi but getting those numbers is not easy. If you would like to help next year by submitting harvest numbers please let me know.

Spotted Lanternfly

Joseph Fiola and Kelly Hamby, University of Maryland

Background and Hosts

The Spotted Lanternfly, *Lycorma delicatula*, is an invasive planthopper that was introduced from Asia.

It was first discovered in Berks County, PA, in 2014, and despite major quarantine efforts, it has spread rapidly to the surrounding counties, as well as New Jersey, Delaware, and Virginia.

This pest is native to China, India, Japan, and Vietnam. It was introduced into Korea where it has been recorded to be a pest on 65 different plant species (25 of these are known in Pennsylvania).

SLF has a very wide host range and attacks many fruit crops including grapes, apples, and stone fruits; it has the potential for great impact on these crops, as well as ornamentals and hedgerow plants.

The Tree of Heaven (TOH—an invasive tree), *Ailanthus altissima*, is preferred by adults.

Eggs have been found on vehicles and other objects, so it is very easy for this pest to be moved to another area (a "hitchhiker").

Identification

Newly laid egg masses are about 1" long with a grey "mud-like" covering over the eggs which, cracks over time.

Older egg masses appear as 4-7 columns of 30-50 brownish seed-like deposits on the trunk, in a mass that is roughly 1" long.

Eggs are commonly laid on the Tree of Heaven but can be laid on inanimate objects such as rocks, vehicles, etc.

Young immature stages (1-3 instars) are smaller than a dime and black with white spots

The last immature stage (4th instar) develops bright red patches and is over 1/2" long.

The adult SLF is approximately 1.5" long and 1/2" wide and has four wings which fold across their back while resting.

The forewings are grey with black spots; the wingtips are outlined in grey.

The hind wings have contrasting patches of red and black separated by a white band.

The legs and head are black; the abdomen is yellow with broad black bands.

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Spotted Lanternfly, cont.

Life cycle

Adult females lay eggs in the fall; they cover their newly laid egg masses with a grey pitch-like substance (that protects them.

Eggs are commonly laid on the Tree of Heaven but can be laid on grapevines, other hosts, and objects such as rock, furniture, vehicles, etc.

SLF overwinters as eggs; adults are not known to overwinter.

After hatching in late April or early May, the nymphs will move off the Tree of Heaven and search for other hosts in the spring.

Life stages include eggs, 5 instar nymphal stages (do not fly), and adults.

Early nymphal stages move to the vineyard in late spring; later stages have been noted in vineyards in mid-summer.

All stages have been noted in vineyards at the same time.

Adults typically appear in late August through September, are mobile (can fly), and can be active through early winter.

Currently only 1 generation per season has been documented in the region.

Original source: https://extension.umd.edu/resource/spotted-lanternfly-slf-i-background

https://www.canr.msu.edu/news/spotted-lanternfly-a-colorful-cause-for-concern

The spotted lanternfly has NOT been found in Mississippi or in surrounding states. However, it's range is expanding. While it is unknown how it will effect blueberries it is prudent to watch for it.

Plum curculio: Not just for tree fruits

Douglas G. Pfeiffer, Dept. Entomology, Virginia Tech

Usually thought of as apple, peach, cherry and plum pest but plum curculio also will attack blueberry, huckleberry, grape, and persimmon (Milholland & Meyer 1984). Plum curculio is one of the most potentially damaging pests on various hosts during the petal fall period. The biology of PC is similar for most deciduous fruits, although the timing may be slightly different. The adults overwinter in the top few inches of leaf litter in nearby hedgerows, trashy fields and woods (especially on the south edge of a fruit planting). The adults initially appear in orchards during bloom. Most beetle activity occurs during the first warm period after petal fall, when the maximum temperature is 70°F or higher. Periods of cool, rainy weather with maximum temperatures below 70°F are not suitable for adult activity. Adults can be found in orchards for 5 to 7 weeks.

Egg laying activity starts once the fruit begins to form, with egg hatch occurring after 7 days. In successfully attacked hosts, the hatching larva burrows into the fruit's center, where it makes large irregular cavities. Fruit that are successfully attacked by larvae are prone to drop prematurely. After 14-16 days within the fruit the larvae exit and enter the soil where they form a pupation chamber for an additional 10-12 days before transforming into adults. New adults can appear in the orchards in mid- to late- July with emergence continuing until early September. In September and October adults begin seeking overwintering quarters. There is only one generation per year in the mid-Atlantic region. There is a second generation in eastern Virginia and southward.

Adults become active when average daily temperatures near 10-15°C (50-60°F) for 2 or more consecutive days and high temperatures are 24°C (75°F) for 2 or more consecutive days (Milholland & Meyer 1984). Plum curculio is often active when early blueberry varieties are beginning to bloom (Marucci 1966). Females oviposit in fruit, leaving crescent-shaped scars. Larvae develop in fruit, over about a 2-week period. Infested berries turn blue prematurely, often dropping to ground before uninfested berries turn blue. A few late-maturing larvae may reach market (Marucci 1966). Most of the adults produced enter diapause, but a few mate and produce a second generation in the south (Mampe & Neunzig 1967). Reissig et al. (1998) reported that injury progressed faster and ended earlier in smaller apple trees than larger trees, probably because of differences in tree architecture; this may relate also to a relatively small host plant as blueberry.

1a. Plum curculio larvae in host fruit – note the head capsule and lack of legs.

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1b. Adult plum curculio – note the mottled brown color with bumps on the back.

Plum Curculio, cont.

Douglas Pfeiffer — VT

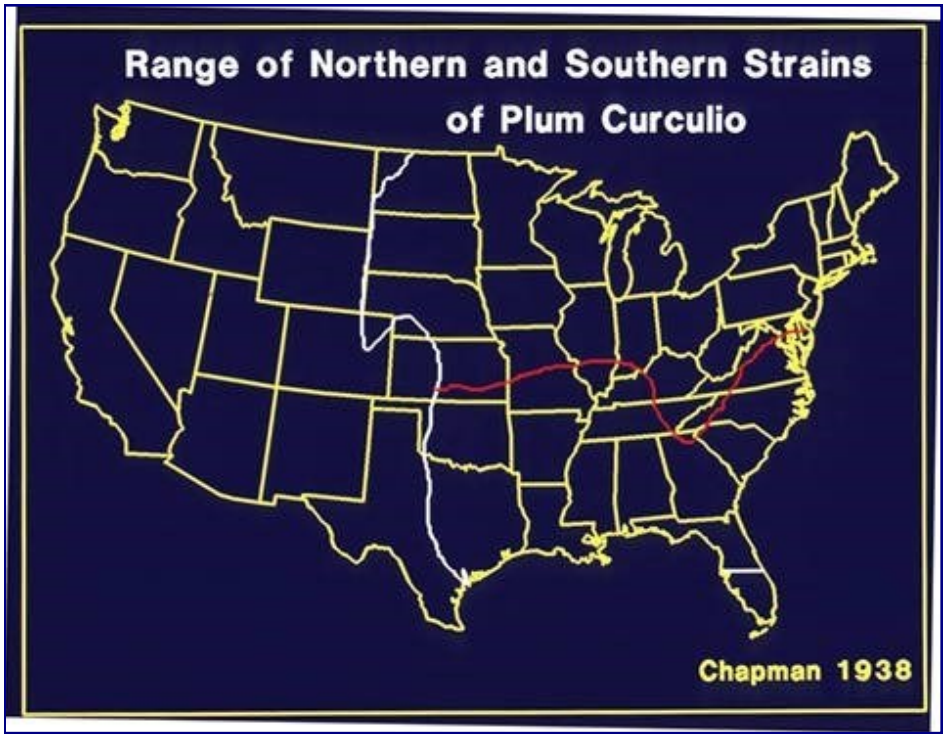

Fig. 3. Distribution of geographic strains of plum curculio.

A note on plum curculio strains. There are two strains of plum curculio. The northern strain has an obligatory chilling requirement. Therefore, there is a single generation per season. The southern strain lacks this chilling requirement and can develop two generations seasonally. A rough map showing the distribution of the northern (single-brooded) and southern (double-brooded) strains was developed by Chapman (1938). There are genetic differences among geographic strains of PC (Zhang et al. 2008). Furthermore, there are Wolbachia symbionts in PC, also with geographical differences in their genetics (Zhang et al. 2010). These differences in Wobachia infections likely result in observed differences to mate within and among PC strains (Zhang and Pfeiffer 2008).

Plum curculio may be monitored by shaking branches over a sheet. Examine fruit for fresh injury, especially on borders adjacent to woodlands. Two applications of a contact insecticide are usually necessary (Milholland & Meyer 1984); first when adults begin to return to field; second timed to end of migration period, when max. temps. reach 32°C (90°F) (Milholland & Meyer 1984). Imidan is very effective; check the Southern Region blueberry bulletin or state recommendations for additional alternatives.

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Plum Curculio, cont.

Additional Reading:

Amiss, A. A. and J. W. Snow. 1985. Conotrachelus nenuphar. p. 227-235. In: P. Singh and R. F. Morse (eds). Handbook of Insect Rearing. Vol. 1. Elsevier NY. 488 p.

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Zhang, X., and D. G. Pfeiffer. 2008. Evaluation of reproductive compatibility of interstrain matings among plum curculio populations in the eastern United States. Environ. Entomol. 37: 1208-1213.v

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https://smallfruits.org/2022/07/plum-curculio-not-just-for-tree-fruits/

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Upcoming Events

Eric Stafne

Early next year (January) I will again plan to do the Mississippi Blueberry Education workshop. Hopefully this year we can meet in person. Also, there will be an online webinar like we have done the last 2 years. If you have any suggestions for speakers and/or specific topics I would love to hear them. The great thing about online webinars is that a speaker can come from anywhere in the world! So, keep it in mind.

As far as the field day goes, this has been something the USDA-ARS hosted in Poplarville. At this point it is unclear what their procedures will be going forward in relation to COVID. I hope we will be able to have an in-person field day next year. Keep your fingers crossed.

Again, if you have any suggestions please contact me anytime.

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