MISSISSIPPI STATE UNIVERSITY EXTENSION

Mississippi *Vaccinium* Journal

Volume 10, Issue 3 July-September 2021

Editor:

Eric T. Stafne

Contributors:

- Elina Coneva
- Kassie Conner
- Charles Ray
- Eric Stafne

Inside this issue:

Deja Vu

Here we are, yet again, in another COVID wave. It seemed for awhile as if things were going to get back to some semblance of normal, then WHAM the Delta variant hits with a fury. Last time I mentioned vaccinations as an option. Now I am pleading with anyone who can get the vaccine to get it. There is a lot of purposely misleading information out there on the news and social media. I received the Pfizer shots in March and April. I had a sore arm and felt lethargic for a day afterward. Since then? Nothing. No side effects, no blood clots, no myocarditis, no magnetism, no nothing. While this is my experience I cannot say whether others will differ but most people have few initial effects from it. This is our way out. Other items of interest in this issue are information on the Latania scale from Alabama, a new publication on blueberry propagation from Florida, and an article by me on climate change and blueberries in Mississippi.

Harvest Tally for 2021

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:

1.8 million pounds

Most of the harvest this year went to the fresh market (estimated 85%) and the final 15% going to the process market. Frost damage to early southern highbush varieties was a slight problem for some, but the biggest issue was rain at the wrong time — and a lot of it. Persistent rains during harvest caused major losses. I think we need to get used to the idea that high intensity rainfall events are going to become more prevalent as time goes on. The thing is what to do about it? These are the challenges going forward for our blueberry industry here in Mississippi.

Latania Scale in Blueberry Orchards

Elina Coneva, Kassie Conner, and Charles Ray — Auburn University

Latania scale (*Hemiberlesia lataniae)* occurs in all tropical regions of the world. It is a general feeder, commonly found on a variety of woody twigs. Latania scale (figure 1) infests over 600 hosts worldwide. Recently, it was found heavily damaging plants in an Alabama blueberry orchard.

Damage

The first sign of latania scale is the presence of armor (a covering of wax, other chemical compounds and the shed skins of earlier stages) on upper and lower leaf surfaces, fruits, and stems of plants. Armored scales feed on the contents of individual plant cells and cause a loss of vigor, deformation of infested plant parts, yellowish spots on leaves, defoliation, and even death of the plant. According to Dr. Charles Ray, we are probably going to start seeing more scale problems in fruits treated for spotted wing drosophila (SWD) because the insecticides are killing some or many of the natural enemies. On heavily infested blueberry canes (figure 2), feeding damage causes the appearance that the scales are pushing the bark off.

Biology

The number of days for each developmental stage and the number of generations per year depend on temperature, humidity, and rainfall. Based on a generalized life cycle of other tropical species, 30 days is the approximate time to complete the life cycle from egg to reproducing adult. Eggs are laid under the armor of the female where they develop and hatch into the crawler stage. Crawlers may stay under the maternal armor for several hours until outside conditions, especially temperature and humidity, are favorable. After they leave the cover, they wander for a few hours. At the end of the wandering period, they flatten against the leaf or stem and begin to secrete their armor. Newly settled nymphs insert their piercing-sucking mouthparts into plant tissue and start feeding on plant juices. Female latania scales are legless and appear larvae-like. They remain under armor in one place throughout their lives to feed and reproduce. Males are very different in appearance and behavior from females. They do not feed, and they live for only a few hours to mate.

Behavior

Since female armored scales are not capable of relocating once settled, long range dispersal of adults happens by passive transport of infested plant material. Short range dispersal is by crawlers as they search for places to settle and feed. Within an orchard, the crawlers are primarily dispersed by wind currents. It is the crawler stage that can be carried directly from place to place by people, animals, birds, ants, and wind currents.

-continued next page-

Lantania Scale, cont.

Management

Cultural Control

Since armored scales are spread chiefly through movement of nursery stock, only propagative material that is free of scales should be planted. Adequate plant spacing is important, because armored scales seldom spread from plant to plant unless the crowns of the plants are in contact with each other. As plants grow, pruning maintains spacing and allows maximum coverage when using insecticides.

Residential Recommendations

The tiny aphelinid wasp, Aphytis diaspidis, is a relatively common parasite of armored scale insects. The ladybird beetle, Chilocorus stigma, also feeds on latania scale as well as other scale insects. If these or other natural enemies fail to adequately control latania scales, it is fortunate these scales are not particularly resistant to insecticides. Horticultural oils can provide adequate control. Apply a horticultural oil on the next day with favorable conditions as described by the label and then again two weeks later to kill any scales that may have been in the egg stage during the first application. Use a 2% rate of oil during the growing season in order to avoid damaging the plants. During the winter, most plants are tolerant of the dormant oil rate (usually four percent).

See article online at: https://www.aces.edu/blog/topics/crop-production/latania-scale-in-blueberry-orchards/

Figure 1. A single latania scale insect. Charles Olsen, USDA APHIS PPQ, Bugwood.org

Figure 2. Latania scale damage on a blueberry cane.

New Publication on Blueberry Propagation

Recently published by University of Georgia is a bulletin entitled:

"Propagating Disease-Free Blueberry Plants from Softwood Cuttings"

by Jeremy Haralson, Phillip M. Brannen, and Jonathan Oliver.

It is a very nice looking work that goes into detail on the disease-free aspect of blueberry propagation. The first part entails how to set up a propagation system, including system type, media, propagation beds, and container selection and bench use. Following that is how to propagate plants which includes mother blocks, cutting selection and propagation, irrigation, and record keeping. The final section on Diseases of blueberry cuttings and their management is a key portion of this publication. In it the authors detail different pathogens. The subsections within this are: Rhizoctonia root rot, Cylindrocladium root rot, Oomycetes, Managing soilborne diseases, Leaf spots and blights, Viruses, and Bacterial diseases.

If you are interested in seeing the entire publication then go to this link:

https://secure.caes.uga.edu/extension/publications/files/pdf/B%201540_1.PDF

Blueberries and Climate Change

Eric T. Stafne — Fruit Specialist, MSU

Acreage of blueberries in Mississippi has decreased in past decade. There are many reasons for this reduction and the impacts of climate change is one of those (whether, or not, we recognize it as such). Mississippi is not alone in feeling the impacts of climate change. In 2021 Maine, New Jersey, and Georgia all sounded the alarm on climate change affecting blueberries. The mammoth heat wave of 2021 in PNW had significant negative impacts on both blueberry bushes and fruit. In 2017 research out of Romania showed drought and hail were becoming increasing detrimental factors to blueberry production in that country. In 2012 Michigan and Chilean growers expressed concern about climate change. So obviously, the concerns about climate change are felt widely throughout blueberry growing regions.

What is climate change? The Oxford dictionary states it is "a change in global or regional climate patterns, in particular a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels."

There are several elements that comprise climate change, including Global Temperature Rise, Warming Ocean Water, Shrinking Ice Sheets, Glacial Retreat, Decreased Snow Cover, Sea Level Rise, Declining Arctic Sea Ice, Extreme Events, and Ocean Acidification. Many of these are related to water. Melting ice leads to more free water in the environment. More water in oceans and more land mass becomes exposed where glaciers used to exist. Warmer ocean water creates different weather patterns that spur extreme events.

What are the specific climate concerns for Mississippi? Global Temperature Rise is obviously one. It is already hot and humid during the summer, but winters are becoming shorter and less cold. Also, Extreme Events such as hurricanes and tornados are becoming more frequent. These two things have obvious impacts on blueberries, but what of the others on the list above? It is important to remember that everything is connected – one change can lead to another. Thus, all of these climate situations are interconnected. They obviously affect humans. For example, rising oceans cause loss of property and extreme weather causes damage to homes, bridges, roads, etc. What about blueberries specifically?

Higher temperatures can lead to reduction in pollination from pollen damage, poor fruit quality, and more overall plant stress. More rainfall leads to more free water that fungi need to proliferate. Higher humidity in the air makes a better situation for development of fungal diseases. Extreme events like hurricanes, floods, drought, freezes, hail, etc. are detrimental to blueberry production.

-Continued next page-

Blueberries and Climate Change, cont.

Can anything be done to mitigate the climate change effects on blueberry? Excessive water through rainfall is a problem for blueberries, but things to do are to plant on a raised berm to facilitate better drainage, proactively spray fungicides to reduce damage to bushes, and do not harvest fruit when wet, it will rot quicker. What about excessive temperatures? Excessive heat can cause plant stress via reduced photosynthesis and increased transpiration. Also, fruit dehydrates leading to softness. Things to do to reduce the effects are to choose varieties that are well-adapted to the area (this may change over time!), irrigate when conditions are dry and hot, do not harvest fruit in middle of the day, and mulching around bushes can help roots cooler. Along with higher temperatures comes less frequent, but potential more damaging cold events. Unpredictable cold events in a warming environment lead to serious injury to plants and fruits. Freeze events may become more damaging, but how is that possible if the earth is warming? The events may be more rare but more damaging because of the growth stage the blueberries are in at the time of the cold. The last two years we have had freezes in the fall without a prior frost. Long, warm summers and fall means that plants do not harden off fast enough in the fall. Also, plants may not reach full dormancy in winter leading to mid-winter cold damage. Plants will break bud earlier in the spring resulting in frost and freeze damage to blooms.

As the climate warms, new pests will be introduced. The weather will be more accommodating, allowing for insects to live in areas they previously could not. More plant diseases will emerge with new, more pathogenic strains of diseases. Warmer winters allow pathogens to overwinter and populations increase. Vectoring insects will become more prevalent allowing diseases, such as *Xylella fastidiosa*, to expand their range.

That all sounds terrible. Is there any good news? Fewer chilling hours will be accumulated in winter and therefore less cold hardy cultivars can be grown. This is a double-edged sword but could help expand southern highbush production in Mississippi. Spring frost injury could become less common, especially on late-blooming cultivars. We will be able to grow cultivars that previously we could not, especially lower chill southern highbush from Florida. Not only will it change how we grow blueberries, but the ability to grow new crops that could not be grown before and the expansion of the growing season will slowly emerge in Mississippi markets.

Climate change is happening right now, but it is likely to be a slow progression to fully realize all potential impacts. Change will take years, maybe even decades to be realized, but there are many unknowns, (e.g. intervention measures).

MISSISSIPPI STATE UNIVERSITY EXTENSION

Coastal Research and Extension Center
South Mississippi Research and Extension Center
810 Hwy 26 West
Poplarville, MS 39470

Phone: 601-403-8939
E-mail: eric.stafne@msstate.edu

Archived Newsletters at http://extension.msstate.edu/newsletters/mississippi-vaccinium-journal

Blueberry Operation For Sale

Selling 40 acre blueberry operation.

- 25 acres of blueberry bushes,
- Littau harvester,
- 50' x 125' packing facility with 35'x35' cooler,
- complete Lakewood packing line with BBC color sorter and BBC soft sorter.
- Two Kubota tractors and sprayers, pruner, etc.
- Moffet forklift and all field lugs for picking.

Turnkey. $650,000.

If interested contact John Aust (johnaust@rocketmail.com), 1-228-617-4274

MISSISSIPPI STATE UNIVERSITY EXTENSION