MISSISSIPPI STATE UNIVERSITY EXTENSION

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Editor:

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Inside this issue:

Hot, Hot, Hot (and Dry, Dry, Dry)

This summer has been hot and dry. Right now we are under burn bans, red flag warnings, and triple digits temperatures. The effects on us as human beings is tangible, but what does it do to blueberry plants? Some studies have shown that the optimal temperature for blueberry growth is around 30 C (86 F) and lethal conditions are above 46 C (115 F). Of course there are variety and species differences, but health of the plant also comes into play. How healthy were the plants prior to the stressful events of heat and drought? Also, temperatures of the fruit on the bush can be more than 10 C (18 F) higher than the ambient temperature. Drought symptoms include: wilted shoots, marginal leaf burn, browning leaves, shriveled fruit, and dead canes. Without irrigation in our current conditions, all of these are possibilities. In fact, stresses this year can affect next years crop too. If the blueberry bushes loses leaves and shoots due to the heat and drought, they also lose buds to produce next years fruit. Somehow I don't think Buster Poindexter had this in mind.

Harvest Tally for 2023

The final harvest estimate for this year is disastrous. 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:

300,000 pounds

Frost and freeze damage to southern highbush and early rabbiteye varieties was a significant problem. 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.

Survey for Blueberry Growers

This survey is intended for blueberry growers (farm owners, managers, or other farm employees responsible for decisions related to new plantings/replanting and new blueberry cultivar selection for the farm).

You are invited to participate in a research study about the adoption of new blueberry cultivars in the United States. Please read the following information and indicate your consent to begin the survey. The survey should take approximately 20 minutes. You must be 18 years of age or older to participate.

Risks and Benefits: Your participation will help breeders better understand the most critical factors that blueberry farm operators consider when adopting a new blueberry cultivar. You have no risks when participating in this study.

Voluntary Participation: Your participation in the research is entirely voluntary. Confidentiality: Your survey responses will be recorded anonymously. No identifying personal information will be collected. Only basic demographic data (age, gender, education, etc.) will be asked.

Right to Withdraw: You can refuse to participate in this study and may stop filling out the survey at anytime.

Questions about the study? Please contact Karina Gallardo, karina_gallardo@wsu.edu. We confirm that Washington State University (WSU) Human Research Protection Program (HRPP) has approved this study with an Exempt Certification. If you have questions or concerns about your rights as a research participant, you can contact the WSU-HRPP at irb@wsu.edu.

Link to the survey:

https://wsu.co1.qualtrics.com/jfe/form/SV_0Aiq45Y1B0CqYBg

Peru's 'fast and furious' blueberry boom

Original full article to be found here: https://www.bbc.com/news/business-65190673

Highlights from the article:

"This blueberry farm is one of many that have cropped up along the South American country's flat, hot coastal region. It has been an agricultural boom that has taken Peru from having virtually zero blueberry plantations to becoming the world's largest exporter in only a decade."

"Ten years ago we saw blueberries as something impossible to grow here," says Alvaro Espinoza, an agricultural engineer and the owner of Sunberries Field."

"A decade later, Peru is the world's third largest producer, behind only China and the US, and the top exporter with more than $1.36bn (£1.09bn) worth of blueberries sold overseas last year."

"Those experts were led by Carlos Gereda, founder and chief executive of Inka's Berries. After hearing from his father that blueberries had become a very profitable crop in Chile, Mr Gereda began searching for a variety that could grow on Peru's coast. It took him two years of trials with 14 different kinds of blueberries to find the right one - Biloxi. Mr Gereda has since partnered with the University of Georgia in the US to start a breeding programme that has developed new Peruvian varieties"

"In only a few years, blueberries have become Camposol's main product, overtaking former best-selling crops mandarins, grapes, mangos and avocados."

"Mr Gomez explains why betting on developing Peruvian blueberries looked so lucrative - he and others noticed a gap in the global market."

"Peru now exports around 270,000 tonnes of blueberries a year. With so many additional berries entering the market, Peruvian producers are now only getting around $5 per kilo, but they have reacted by extending their harvesting season."

"Mr Gomez adds that "the incredible thing" is that global demand for blueberries has almost doubled in just over a decade."

Reports of Algal Stem Blotch on Blueberry in Georgia

Jonathan Oliver — Plant Pathologist, University of Georgia

In recent days, we've received multiple reports of algal stem blotch on blueberry in Georgia. In contrast to the fungal, bacterial, or viral diseases that typically afflict our crop plants, algal stem blotch, as the name indicates, is actually caused by a species of parasitic alga. This, in and of itself, makes it an oddity in the disease world, and it is not something that has been frequently reported in Georgia blueberry fields previously. As such, blueberry growers in Georgia are likely to be unfamiliar with this disease, and some general information about algal stem blotch is provided below:

Causal Organism and Disease Cycle

Algal stem blotch is caused by the parasitic algal species *Cephaleuros virescens*. This species is known to cause disease in tropical and subtropical climates worldwide on numerous plant species, including tea, coffee, and coconuts. In the southeastern U.S., this algal species causes a leaf spot on magnolia and camellia leaves (algal leaf spot) and is also the cause of orange cane blotch (orange felt disease) on blackberries. While orange cane blotch has been a major issue that Georgia blackberry growers have been routinely dealing with for years, the occurrence of algal stem blotch on blueberry has generally been sporadic in Georgia. However, algal stem blotch is an issue that Florida blueberry growers have been dealing with for a while now.

In Florida, algal stem blotch is primarily a significant issue on southern highbush blueberries during wet, humid conditions. As an algal species, water is critical to the life cycle of *C. virescens*, and the spore-producing structures (sporangia) of this species (Figure 1) produce zoospores that are motile in water (i.e. are capable of "swimming"). As a result, rainsplash and wind-driven rain are believed to be critical for the spread of this pathogen to susceptible host tissue. In addition, stress caused by insects, mites, and diseases, as well as environmental stress has been suggested to predispose plants to infection with this alga.

Symptoms

As the name indicates, algal stem blotch causes red blotches that appear on the juvenile stems of blueberry plants. These blotches are the result of the alga growing beneath the stem cuticle (the outermost waxy layer of the stem). As infected stems age and become woody, these lesions may be less obvious until the alga sporulates through the bark, forming felt-like mats of bright orange sporangiophores (algal spore producing structures) (Figure 1). In addition to these bright orange mats, the other striking symptom of algal stem blotch on infected stems is chlorosis (yellowing) or bleaching (whitening) of leaves (Figure 2). While this chlorosis/bleaching can resemble nutrient deficiencies or other disease issues, it can have a more irregular (less uniform) and "blotchier" (sometimes speckled) appearance on affected leaves. Furthermore, it is not uncommon for chlorosis/bleaching to occur on only a few infected stems, rather than uniformly affecting the entire plant. The chlorosis/bleaching is believed to result from a toxin produced by the alga that is released into the infected stem, however this remains unproven.

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Algal Stem Blotch, cont.

Plants severely affected by algal stem blotch can lack vigor and fail to regrow after summer pruning, and defoliation of affected stems can occur. Work that we've done on blackberries in Georgia has shown that the algal blotches caused by *C. virescens* on affected canes can crack open, providing wounds for other disease-causing organisms to gain entry to the plant. Likewise, observations of affected blueberries in Florida have suggested that stems cracked and damaged by algal stem blotch are more susceptible to Botryosphaeria stem blight and plant death.

Management

Very little information exists regarding the control of algal stem blotch on blueberry. Since this disease is caused by an alga rather than a fungus, it is unlikely that most fungicides will be effective for management. Recommendations from the University of Florida (https://edis.ifas.ufl.edu/pdf/PP/PP34400.pdf) suggest that sprays with copper-containing fungicides (Table 1) can help to reduce algal sporulation and thereby protect healthy canes from infection. However, these products are NOT useful for eradication of the disease or elimination of existing symptoms.

Table 1. Copper fungicides[1] recommended for management of algal stem blotch of blueberry in the 2022 Florida Blueberry Integrated Pest Management Guide.

Product	Amount of Formulation per Acre	Efficacy	Re-entry Interval (REI)	Pre-harvest Interval (PHI)	Comments
Kocide 3000 (Copper Hydroxide)	1.75–3.5 lb.	Fair	48 hours	0 days	Make applications after harvest on a monthly interval following bacterial canker use instructions. Ensure good cane coverage and canopy penetration. **Do not mix with Aliette, any phosphite fungicide, or any acidifying agents.**[2] Do not exceed 28 lb. per acre per year. Copper products only provide preventive management of algal stem blotch.

[1]Many formulations and products that contain copper are labeled for use on blueberry at various rates and application intervals. Carefully follow all label instructions for any product to avoid phytotoxicity. Algal stem blotch is not likely to specifically appear on the labels, but when applied for control of other disease issues, suppression of algal stem blotch has been observed.
[2]See the Kocide 3000 label for additional precautions and instructions. Severe phytotoxicity may result if this product is applied in a manner that is inconsistent with the label instructions.

Given the fact that algal stem blotch has not been previously widespread in Georgia, no trial work has been done to examine the efficacy of chemicals for management of algal stem blotch of blueberry. In recent years, work on blackberries with orange cane blotch (which is caused by the same algal species as algal stem blotch of blueberry) has shown that foliar applications of ProPhyt (potassium phosphite) can reduce both the size and number of stem blotches on developing canes by up to 90%; however, it would be premature to speculate on the use of this product for algal stem blotch control on blueberries at this time. There is simply no data available.

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Algal Stem Blotch, cont.

Nonetheless, given that ProPhyt (and other phosphonate fungicides such as K-Phite, etc.) are routinely used in blueberry production in Georgia during the summer and fall for the effective management of leaf spots and Phytophthora, future trial work may determine if foliar applications of these products can also reduce issues with algal stem blotch.

Conclusions

Favorable conditions for disease development, including the wet, warm summer that we are experiencing, has likely contributed to the increased numbers of reports of this disease that we've received this year. While we have not traditionally seen widespread issues with algal stem blotch on Georgia blueberries in most years, just two years ago (during 2021 – a very wet year) this disease was reported in multiple locations. Knowing that algal stem blotch has become a more significant issue for Florida blueberry producers in recent years, and given how widespread and consistent the issues have become in recent years with another disease (orange cane blotch of blackberry) caused by this same algal species, it is apparent that this alga can thrive in the Southeast's warm climate. The reports of this disease in 2021 and now in 2023 here in Georgia suggest that Georgia blueberry growers should familiarize themselves with the symptoms of algal stem blotch, and growers are encouraged contact their local agricultural extension agent if they need information regarding the diagnosis and management of this emerging disease issue.

To see images of the disease mentioned as Figure 1 and Figure 2, go to the original article at this link:

https://site.caes.uga.edu/blueberry/2023/08/reports-of-algal-stem-blotch-on-blueberry-2023/

GUMBO Blueberry Plants Now Available

Gumbo, a new southern highbush blueberry developed by the USDA-ARS in Poplarville, Mississippi is now available. More detailed information on this cultivar can be found here: https://journals.ashs.org/hortsci/downloadpdf/journals/hortsci/53/9/article-p1379.xml

Wholesalers/commercial growers can go through Windmill Landscape Supply. Trent Ellis and Phillip Lowery can be reached at 985-796-9655. The nursery is located at 12398 Hwy 25 Franklinton, LA 70438.

Retail customers can get them at Banting's on the Southshore (3425 River Rd., Bridge City, LA 70094 (504-436-4343) and Banting's on the Northshore (26300 Hwy 190 Lacombe, LA 70445 (985-882-5550)

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

Upcoming Events

Eric Stafne

Early next year (January) I will again plan to do the Mississippi Blueberry Education workshop. Also, there will be an online webinar like we have done the last 3 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. We had a small one this spring and maybe we can make it bigger next year. Keep your fingers crossed.

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

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