MISSISSIPPI STATE UNIVERSITY
EXTENSION

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- Blake Layton
- D. Scott NeSmith
- Erick Smith
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Mississippi *Vaccinium* Journal

Volume 8, Issue 2 **April-June 2019**

Frozen (Again)

Farming is a gamble — a gamble worth taking to be sure, but a gamble all the same. Sometimes you just need to take a deep breath and let it go. This year early blueberry varieties were on the losing end of an early March freeze that cost them their crop. Later blooming rabbiteye varieties seem to have fared better. But maybe there are better varieties on the way to help with these all-too-familiar situations in the future? On May 9 there will be a field day in Poplarville to look at some of those bushes with potential. Also in the issue Dr. NeSmith talks up Miss Lilly, Dr. Smith has some recommendations on cold hardiness and freeze protection, while Dr. Layton's newsletter is waiting for you to sign up. The 2017 Census of Agriculture was also released recently. I posted a few numbers related to the Mississippi blueberry industry but if you want to take a deeper dive into it the link is there as well.

Blueberry Jubilee 2019

Eric T. Stafne, Fruit Extension Specialist, MSU-ES

The 2019 Blueberry Jubilee in Poplarville will be held on Saturday, June 8 As always it will be a fun-filled day with lots of activities and blueberry products for sale. If you are interested in attending the Jubilee, much more information is available on the official website:

http://www.blueberryjubilee.org/

I will be there Saturday morning assisting with the blueberry products area, making sure things are set up and running smoothly. Come by and say hello, visit the vendors, and buy some locally grown blueberries!

Blueberry Field Day — May 9, 2019

All:

USDA-ARS, Mississippi State University, and the Gulf South Blueberry Growers Association will act as hosts on May 9, 9am– 12pm for the Blueberry Field Day.

Location: USDA-ARS Thad Cochran Southern Horticultural Laboratory, 810 Hwy 26 West, Poplarville, MS.

Lunch will be included in your $15.00 registration fee. **Please RSVP ASAP to make sure a lunch is available for you. Go here to sign up:** http://evite.me/EDwUJgJYv6

Below is a tentative agenda:

Time	Topic	Speaker
9:00 - 9:15 AM	Registration—$15	
9:15 - 9:20 AM	Welcome	Eric Stafne/James Henderson - MSU
9:20 - 9:30 AM	Welcome	John Adamczyk - USDA ARS
9:30 - 9:40 AM	Gulf Coast Blueberry Growers Association	Don Van De Werken
9:40 - 9:55 AM	Post-freeze Disease Management	Rebecca Melanson
9:55 - 10:10 AM	Improving Pollination in blueberry	Blair Sampson
10:10 - 11:10 AM	USDA ARS Blueberry breeding selections	Steve Stringer/Ebrahiem Babiker
11:10 - 11:30 AM	General discussion/Recap	Eric Stafne/ Don Van De Werken/Others
11:30 - 12:00	Lunch	

Yes it will be during blueberry season, but if we want to see the performance of the new blueberries cultivars and selections we need to see them during the season. Fortunately, even with the freeze of early March there will be plenty of fruit to look at on the bushes.

If you have any question please contact Don at the information below.

Don van de Werken
President
Gulf South Blueberry Association
504-782-0779
email: donvdw1@gmail.com

Bug's Eye View Newsletter

Dr. Blake Layton — MSU Extension Entomologist

Dr. Blake Layton, MSU Extension entomologist, publishes a newsletter that some of you might find of interest. Below is a description he wrote and where to subscribe:

"If you work in Extension, you probably know someone, such as a farmer, teacher, 4-Her, horticulturalist, pest control operator or naturalist, who would be interested in receiving the Bug's Eye View Newsletter.

Bug's Eye View is a free, weekly electronic newsletter about Mississippi insects, spiders and related critters.

Each issue consist of a single photo and a brief bit of information about the "bug of the week."

Brief information on management and control is included for insects that are pests.

This is an easy way to learn about some of the pest insects and "miniature wildlife" we have in our state.

Here's a link to the Bug's Eye View web site.

https://extension.msstate.edu/newsletters/bugs-eye-view

To subscribe, just go to the web site and click on the "Sign Up Here" button.

This site also contains archives of issues from the past four years.

An easy way to tell someone how to find this site is to simply "search" for: Bug's Eye View at MSU

Thanks for your help in spreading the word about Bug's Eye View!"

So go ahead and sign up — it's free and what's better than that?

Cold Hardiness and Options for the Freeze Protection of Southern Highbush Blueberry

Dr. Erick Smith — University of Georgia

I found this review article to be very timely, unfortunately it is included here a little late. It does a good job of discussion frost control options, especially with overhead irrigation. Below is the abstract. You can read the entire paper here: https://www.mdpi.com/2077-0472/9/1/9

"Southern highbush blueberries (SHB; *Vaccinium corymbosum* interspecific hybrid) are a low chill species of blueberry that are commercially grown in sub-tropical climates. Due to the nature of SHB, the flowering and fruit set occur in mid-winter to early spring and are susceptible to freeze damage. The most effective use of freeze protection is based on climatic conditions. Identification of advective or radiative freeze, intensity of the freeze event, and the equipment deployed are the key elements for deciding if the crop can be protected and justifying the expense to operate the system. Of the various methods used in frost protection, applying overhead irrigation water is the most promising. During a freeze event, an application of 6.3 mm ha^{-1} (0.10 in A^{-1}) of water per hour is required to protect blueberries from −2.8 °C (27 °F) temperature with winds from 0 to 16 km h^{-1} (0 to 10 mph). This is 25.4 kL h^{-1} ha^{-1} (2715 gal h^{-1} A^{-1}) of water. Overhead irrigation freeze protection is dependent on large volumes of water. This paper will review methods of freeze/frost protection, importance of weather patterns, and critical temperatures based on phenology of flowering to fruit set. "

As you can see, overhead irrigation requires a tremendous amount of water per hour per acre. Also discussed in the paper are other methods such as wind machines or external heating sources. While it is too late to do anything about it this year, this review may come in handy when making decisions in the future.

Early March Frost Damage Causes Loss

Eric Stafne — MSU Extension

The images below show some of the damage caused by the early March cold temperatures. These photos are from southern highbush blueberries at the USDA-ARS Poplarville station taken on March 6, 2019. Unfertilized flowers are browning, whereas developing berries are shriveling. The loss from this event was significant for SHB and early rabbiteye varieties. Later ripening varieties like Brightwell still have a good crop.

'Miss Lilly™': A New Southern Highbush Blueberry Variety for Southeastern US Growers Battling Frost Susceptibility

D. Scott NeSmith — University of Georgia

Many of the current southern highbush blueberry varieties being produced in the Southeast flower very early, resulting in a high risk of significant crop loss caused by freeze damage during flowering. Most growers resort to overhead irrigation to frost protect these early flowering varieties since flowering time is one of the most sensitive stages to freeze damage. Irrigation for frost protection is very expensive, and it uses enormous amounts of water. One night of blueberry freeze protection using overhead irrigation can use up to 100,000 gallons of water per acre or 10 million gallons on a 100 acre blueberry farm. Development of blueberry varieties that flower later (thus avoiding freezes) could save up to 6 irrigation events for farmers per year, totaling over 60 million gallons in water saved per 100 acres in some years.

Since 1997 the UGA Blueberry Breeding Program has been aggressively developing varieties to be better suited for southeastern US growing conditions. One of the many targets has been to develop a later flowering variety that could avoid spring freeze risks. However, the later flowering variety also needs to ripen fruit in the early part of the season to reap stronger pricing for the grower. After screening literally thousands of new blueberry selections, UGA has developed a late flowering, early ripening blueberry variety suitable for growing in most of the Southeast without frost protection. The new variety is named 'Miss Lilly™' (patented as 'TH-948', USPP 27,323).

'Miss Lilly™' is a strongly upright, narrow based plant, with large, high quality berries (Fig. 1 and Fig. 2). It has an estimated chill requirement of 500 to 550 hours < 45 F. The new blueberry variety is expected to offer growers fruit that ripens in the main southern highbush season, but without the requirement (and expense) of frost protection. In our south Georgia trials at Alapaha, the new variety flowered very late, 10 to 14 days later than 'Star', yet ripened rather early (Table 1). In Griffin, Ga trials (Table 2), again 'Miss Lilly™' flowered much later than 'Star', yet, ripened earlier than the older variety. 'Miss Lilly™' fruit are large with good firmness (Table 3). 'Miss Lilly™' per plant yield is slightly lower on average; however, yields are steady from year to year due to the later flowering habit that aids in the variety typically escaping cold damage. The lower per plant yield for 'Miss Lilly™' can be compensated for by higher density planting since the plant is very narrow and upright. Higher density planting would achieve comparable per acre yields. Regardless, there are a number of southeastern US growers looking for an easier to manage, early ripening southern highbush. 'Miss Lilly™' can typically be grown without overhead irrigation frost protection. One note is that under extreme freeze conditions such as occurred in 2017 in Georgia, even 'Miss Lilly™' suffered some crop loss. However, it produced more than any other variety on our trial farm that year, having around 40 to 60% of a crop without frost protection, while all other southern highbush had 95% or greater crop losses.

-continued Page 7-

Miss Lilly, cont.

Table 1. Plant and fruit ratings for the new UGA blueberry variety 'Miss Lilly™' and standards 'Star' and 'Camellia' at the Alapaha, Ga Blueberry Research Farm. Data are 5 Year averages (2009-2013).

Berry and plant attributes	Star	Camellia	Miss Lilly™
Berry size	7.6	8.9	8.4
Berry scar	7.0	7.2	7.4
Berry color	7.1	8.7	7.8
Berry firmness	7.2	7.2	7.8
Berry flavor	7.0	7.8	7.8
Cropping	4.7	5.4	5.2
Plant vigor	6.3	9.8	7.6
Date of 50% flowering	Mar 3	Mar 11	Mar 17
Date of 50% ripening	May 8	May 15	May 11
Fruit development period (days)	66	65	55

Miss Lilly, cont.

Table 2. Plant and fruit ratings for the new UGA blueberry variety 'Miss Lilly™' and standards 'Star' and 'Camellia' at the Griffin, Ga Blueberry Research Farm. Data are 5 Year averages (2009-2013).

Berry and plant attributes	Star	Camellia	Miss Lilly™
Berry size	7.4	8.6	8.7
Berry scar	6.9	7.0	7.2
Berry color	7.1	7.9	7.3
Berry firmness	7.2	7.2	7.7
Berry flavor	7.1	7.4	7.4
Cropping	6.8	7.9	6.2
Plant vigor	8.5	9.8	9.1
Date of 50% flowering	Mar 13	Mar 25	Mar 28
Date of 50% ripening	May 25	May 31	May 21
Fruit development period (days)	73	67	54

Miss Lilly, cont.

Table 3. Yield, berry wt., firmness and Brix for 'Miss Lilly™' and standards 'Star' and 'Camellia' 2010 thru 2013. Data are from the UGA Blueberry Farm in Griffin, Ga.

Year	Star	Camellia	Miss Lilly™
	Yield (lbs/plant)		
2011	12.7	9.7	8.5
2012	11.7	10.5	7.2
2013	3.9	15.9	7.3
Avg	**9.4**	**12.0**	**7.7**
	Individual berry wt. (g)		
2010	1.53	2.94	3.15
2011	1.20	1.97	2.08
2012	1.80	1.60	2.17
2013	1.79	2.56	2.12
Avg	**1.58**	**2.28**	**2.38**
	Fruit firmness (g/mm)		
2010	196	150	165
2011	206	166	188
2012	190	164	186
2013	191	150	188
Avg	**196**	**157**	**182**
	Brix (%)		
2012	13.9	14.5	12.0
2013	13.5	13.3	12.3
Avg	**13.7**	**13.9**	**12.2**

Miss Lilly, cont.

Figure 1. 'Miss Lilly™' southern highbush blueberry plants during ripening.

Miss Lilly, cont.

Figure 2. 'Miss Lilly™' southern highbush blueberry fruit.

Miss Lilly cont.

D. Scott NeSmith — UGA

In summary, severe spring freezes frequently occur throughout much of the southeastern US blueberry growing area during southern highbush flowering time. Therefore, growers face potentially heavy crop losses if they do not use overhead irrigation for frost protection for these early flowering blueberry varieties. Irrigation for frost protection is very expensive, however, and uses enormous amounts of water. The UGA Blueberry Breeding Program has been working for more than 20 years to develop more adapted blueberry varieties for Georgia and the southeastern US, and one of the most recently developed varieties, 'Miss Lilly™', is now available to help growers fend off perils of spring freezes. 'Miss Lilly™' flowers 10 to 14 days later than most early ripening southern highbush grown in the Southeast, yet ripens in the main harvest season. This gives growers an opportunity to grow high quality, timely ripening southern highbush blueberries without the added expense of frost protection.

Availability: Blueberry 'TH-948' (USPP 27,323) Miss Lilly™ is owned by the University of Georgia Research Foundation. Propagation rights are controlled by University of Georgia Research Foundation, Innovation Gateway, GSRC Boyd Bldg, Athens, Ga. 30602-7411 (http://research.uga.edu/gateway/).

Current licensed propagators for 'Miss Lilly™' are as follows (in alphabetical order):

- Cornelius Farms, Manor, GA
- Fall Creek Farm & Nursery, Lowell, OR
- Farmer John LLC, Alma, GA
- Lochloosa Lake Farm & Nursery, Hawthorne, FL
- Oregon Blueberry Farm & Nursery, Silverton, OR

The article was originally published in the Small Fruit News Vol. 19 no. 2. Click on this link for the original article.

https://site.extension.uga.edu/viticulture/files/2019/04/Vol19-Issue2.pdf

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The Mississippi *Vaccinium* Journal is a quarterly, digital publication of Mississippi State University Extension Service. Subscriptions may be obtained by sending an email address to eric.stafne@msstate.edu.

2017 Census of Agriculture

Eric T. Stafne, Fruit Extension Specialist MSU-ES

The 2017 USDA Census of Agriculture was released on April 11, 2019. You may access all the data here: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/

Below are some data for blueberries in Mississippi as reported to USDA:

Data Type	2017	2012	2007
# of operations	469		
# of acres	1924		
Operations with bearing acres	408		
Bearing acres	1584		
Operations with non-bearing acres	115		
Non-bearing acres	339		
Operations growing 'tame' varieties	449	435	329
Acres of 'tame' varieties	1913	2530	2230

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