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# Mississippi

## *Vaccinium* Journal

Volume 2, Issue 3

July-September 2013

### A Strange Season

Freezing temperatures, hail, and incessant rain all contributed to a challenging blueberry season. Although many growers were hit hard and lost all or most of their crop, Dr. John Braswell details the surprisingly good harvest estimates on Page 11. Luckily, SWD was not a big problem this year, but we did find another new pest, the Cherry fruitworm. It was not widespread but a few growers did have a problem with it. Other pests observed were Exobasidium (covered in previous issues of this newsletter) and leaf-footed bugs (see Page 5). Cranberry fruitworm was also bad this year. The upcoming GSBGA field day and trade show is fast approaching, so within this issue is information on the event as well as the registration form. So, as bad as things seemed it looks like the industry as a whole weathered the poor conditions and will end up with a decent harvest. Come on out to the field day and see what other growers are up to and learn how we can all work together to make next year even better.

### MISSISSIPPI 24C SPECIAL LOCAL NEED LABEL FOR MALATHION 8 FLOWABLE

Mississippi now has a 24c Special Local Need Label to allow use of Gowan Malathion 8 Flowable at rates up to 2.5 pints/acre on commercial blueberries for control of spotted wing drosophila. Malathion 8 Flowable is already labeled for use on blueberries at rates up to 1.25 pints/acre, with a maximum of 3 applications per year. This 24c label specifically lists spotted wing drosophila as a target pest and allows use at rates up to 2.5 pints/acre, with a maximum of 2 applications per year, and a 1 day pre-harvest interval. This request was made because experience and data from other states indicates that the 2.5 pint per acre rate provides better control of spotted wing drosophila than the lower rate. However, growers should be aware that increasing rates also increases potential for problems with residual odor and pesticide residues on harvested produce. You can access a copy of this label by going to: [www.cdms.net/LabelsMsds/LMDefault.aspx?t=](http://www.cdms.net/LabelsMsds/LMDefault.aspx?t=)

Then type "malathion" in the box for "Brand Name" and click "Search" Then click on the label for Malathion 8 Flowable, Gowan Company Then click on the "24c Registration, MS

## Cherry Fruitworm: A New Invasive Pest, cont.

Blair Sampson<sup>1</sup>, Chris Werle<sup>1</sup>, Eric Stafne<sup>2</sup>, and John Adamczyk<sup>1</sup>

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### Technical Abstract:

The cherry fruitworm (CFW) is a univoltine moth, native to the U.S., and whose larvae preferentially infest rosaceous and ericaceous fruits. CFW larvae have been confirmed infesting rabbiteye blueberries in Mississippi, and this typically northern pest's appearance may represent a new State record. Without careful pest scouting after petal-fall, CFW-induced damage and fruit drop will often go undetected until berry losses become too severe for effective insecticide management. Scouting therefore is critical for managing CFW populations. Although the small and nocturnal adults of CFW can be elusive, there are excellent pheromone traps available for monitoring the activity of adult males, and by association, the destructive egg-laying females. Females oviposit on the calyx of blueberry fruit, much like cranberry fruitworms do. Upon eclosion, the larvae of CFW bore into fruit. It is at this stage of larval development that environmentally safe Bt insecticides are the most effective against CFW caterpillars. As larvae mature and become larger and more heavily sclerotized, they become harder to kill with Bt. However they are at greater risk of attack by predators and parasites because, unlike cranberry fruitworms, they do not erect silken webs around their feeding sites. Mature CFW larvae that are preparing to pupate avoid ground-based dangers by taking refuge in dead unproductive wood of blueberry bushes and other nearby vegetation. Removing old unproductive canes may reduce overwintering populations of CFWs and hence temper the severity of subsequent spring outbreaks.

-continued on Page 3-

## Cherry Fruitworm: A New Pest of Mississippi Berries

Blair Sampson<sup>1</sup>, Chris Werle<sup>1</sup>, Eric Stafne<sup>2</sup>, and John Adamczyk<sup>1</sup>

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The cherry fruitworm (*Grapholita packardii* Zeller) is an emerging moth pest of Mississippi blueberries, and while common in northern states it has also been previously reported in Louisiana and North Carolina. Unlike some other prominent blueberry pests, it is native to North America, but the cherry fruitworm can still cause significant damage. By the time it is noticed it is often too late to control. Here we discuss some general biology as well as management strategies for cherry fruitworm in Mississippi blueberry fields.

Cherry fruitworm adults are small moths that can have variable color patterns, with alternating light and dark striae on the fore-wings. Mature larvae are pale-reddish in color, with dark brown to black head and thoracic and anal shields. Larvae can be separated from other fruitworms by the presence of an anal comb, a median longitudinal division of the thoracic shield, and a unioordinal, uniserial, circular arrangement of the crochets.

Cherry fruitworm has a wide host range, including apple, plum, cherry, rose, blueberry, hawthorn and peach (Chapman and Lienk 1971, Howitt 1993). There is only one generation per year, and they overwinter as pupae. The nocturnal adult moths emerge in spring, and lay single eggs in the protective calyx of unripe fruits (Mallampalli and Isaacs 2002). When larvae hatch they bore into the fruit, and then into adjacent fruits. One larvae can feed on two or more berries until reaching a mature larval stage, and then shelter in dead blueberry canes or nearby weed stems for aestivation and pupation.



Cherry fruitworm adult (Mark Dreiling, [www.bugguide.com](http://www.bugguide.com)), larva (Bill Cline, NCSU) and blueberry fruit damage (Chris Werle, USDA-ARS).

-Continued on Page 4-

## Cherry Fruitworm: A New Invasive Pest, cont.

Blair Sampson, Chris Werle, Eric Stafne, and John Adamczyk

Tolerance for cherry fruitworm damage is very low, and effective management centers on monitoring and timely insecticide application. Fortunately, there are highly effective pheromone traps available for this and other caterpillar fruit pests, which should be deployed before fruit set in early spring. When adult males are first detected in traps, two applications of an appropriately-labeled residual pesticide can give adequate simultaneous control of cherry fruitworm, cranberry fruitworm and plum curculio. There also exists the alternative Bt insecticide, which specifically targets caterpillars and will not impact beneficial insects including bees, parasitic wasps or predatory insects. In either case, insecticides will only be effective against the adult stage, so monitoring and targeting of this stage of the lifecycle is critical.

Cultural practices like weed control and sanitation can also be important. Removing and destroying dead berry canes and adjacent weeds will reduce the overwintering population, and may significantly reduce the infestation for the following spring. Like other pests, the cherry fruitworm may migrate onto a blueberry farm from adjacent wooded areas, so weed control at field edges may also be important (Mallampalli and Isaacs 2002). In addition, there are a number of parasitic insects that will attack cherry fruitworm in the egg and larval stages, particularly at organic or Bt-sprayed fields.

Refer to your local county extension office for guidelines on usage, application, precautions and restrictions for chemicals.

### References:

Chapman, P. J., and S. E. Lienk. 1971. Tortricid fauna of New York. Cornell University Press, New York.

[http://www.lsuagcenter.com/en/crops\\_livestock/crops/blueberries/pests/Berries/Cherry-Fruitworm.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/blueberries/pests/Berries/Cherry-Fruitworm.htm)

[http://ipm.ncsu.edu/small\\_fruit/cherworm.html](http://ipm.ncsu.edu/small_fruit/cherworm.html)

Howitt, A.J. 1993. Common Tree Fruit Pests Michigan State University Extension.

Mallampalli, N. and R. Isaacs. 2002. Distribution of egg and larval populations of cranberry fruitworm (Lepidoptera: Pyralidae) and cherry fruitworm (Lepidoptera: Tortricidae) in highbush blueberries. *Environ. Entomol.* 31 (5): 852-858.

## Leaf-footed Bugs in Blueberries

Dr. Wayne Porter, MSU-ES Area Horticulturist

I have found and had a call about leaf-footed bugs in blueberries. The call came from Lauderdale Co. and the ones I saw are in Clarke and Perry counties.

Leaf-footed bug cause damage when feed on leaves and fruit by piercing the blueberries with their proboscis and sucking the juices. The saliva of leaf-footed bugs contains a toxic secretion, which further injures plant tissue. They may cause wilting and death of leaves and deformation and loss of fruit. Leaf-footed bugs can damage larger green and ripe fruits. Feeding on fruit with piercing-sucking mouthparts causes pitting, distortion and discoloration. Puncturing of fruit also allows secondary pathogens to enter and cause rotting. Injured berries need to be removed on the grading line.

Leaf-footed bugs also raise their young within the fruiting cluster which is annoying when harvesting.

Insecticides should target the nymph and adult stages. Carbaryl (Sevin) and malathion should provide adequate control but be aware of preharvest intervals. Homeowners can usually catch and kill the bugs by hand since they are relatively slow moving. They might want to wear gloves since these bugs are in the stinkbug family.



Above Adult leaf-footed bug on blueberry leaf. Right, Nymphs on blueberry leaves and fruit.

Photos by Wayne Porter.

## Flower Damage Caused by Carpenter Bees

Eric Stafne - MSU-ES

It seems that almost every blueberry flower I looked at this spring had a slit on the side of it. The cause of this damage is Carpenter bees (*Xylocopa sp.*). A good, brief discussion on Carpenter bees (and other blueberry pollinators) can be found at this link: <http://www.ent.uga.edu/bees/pollination/other-pollinating-bees.html#carpenter>

Carpenter bees steal nectar from the flower with only slight pollination of the flower. Since they must create a hole to reach the flower (they are too large to go through the natural opening), they make a new shortcut for other insects as well, thus short-cutting the pollination process. Even though there is now a hole in the flower, other bees will likely continue to visit the flower — some may use the short cut or the natural opening.

When we had the freezing conditions this spring, I wondered if having the slit in the side predisposed the flowers to more damage. Hard to know. My guess is probably not, as the flowers that were damaged already were open and the cold air contacted the sensitive flower parts anyway. Below is a photo showing the slits on the side of blueberry flowers:



## **‘Prince’ Southern Highbush Blueberry**

Eric T. Stafne and Stephen Stringer, MSU-ES and USDA-ARS, respectively

‘Pearl’ is a new southern highbush blueberry (*Vaccinium* spp. hybrid) developed and released by the United States Department of Agriculture Agricultural Research Service.

The new cultivar has several advantages for growers in the Southeastern U.S. over rabbiteye blueberry cultivars, the most widely grown type of blueberry in the region. Among these are an earlier ripening period, high yield potential, and fruit quality. These attributes enable producers to participate in the lucrative early U.S. fresh market where opportunities for marketing rabbiteye blueberries have diminished due to expanding acreage in the region and other states. (source: <http://www.tandfonline.com/doi/abs/10.1080/15538362.2011.619437>).

More information can be found in this press release from 2012 (<http://www.ars.usda.gov/is/AR/archive/aug12/blueberry0812.htm>).



Pearl southern highbush blueberry. Photo by Stephen Stringer, USDA-ARS Poplarville, MS.

## **Gulf South Blueberry Growers Field Day and Trade Show**

### **Blue River Blueberry Farm in Covington County**

**8:00 AM, October 10, 2013**

**You are invited to attend the 2013 Gulf South Blueberry Growers Field Day and Trade Show.** This Field Day will be an excellent opportunity to see management and production techniques and learn innovative ways to grow blueberries. The Trade Show will be an opportunity to see products and equipment that can make your blueberry operation more productive and efficient. Exhibitors from all over the United States will be on hand with the latest equipment, harvesters and products that can be used to improve your efficiency and production.

**Blue River Blueberry Farm** at 1876 Highway 532, Mount Olive, MS, is a 60 acre, highly successful blueberry farm. It is an excellent example of how good management, close attention to detail and innovative ideas can result in vigorous plants, high yields and the production potential expected from a well-run blueberry farm. All phases of blueberry production is involved including propagation, planting, establishment, maintenance, harvesting, grading, packing and shipping. Tours will be conducted and we'll discuss the techniques used to manage this productive blueberry farm.

**Management is the theme of this Field Day.** The blueberry market is becoming increasingly competitive and efficiency is the key to survival in this industry. The goal of this event is to present the newest products and information about blueberry production, as well as tried and true techniques for an efficient blueberry operation. This includes new technology for growing, harvesting, grading, marketing as well as new information on pest control, blueberry varieties and other techniques to improve management and profitability.

**The Program** will be designed around the practices and techniques that make this farm successful. We will introduce the Exhibitors and highlight the products that are used on the farm and in the Gulf South Blueberry Industry. After a short program, the growers can visit with the exhibitors to discuss their needs and see what is available to them to increase the efficiency of their farm. Lunch will be served at noon and the Trade Show will continue until all questions are answered and everyone is satisfied. Products and equipment will be demonstrated throughout the day.

**Please pre-register.** Grower registration is \$20.00 per member. Please fill out and return the enclosed registration form by October 1. If you are not a member of the Gulf South Blueberry Growers Association, you can pay your dues when you register. The money you save on your registration can be applied to your membership. Join the Growers Association as a farm or family and your family members or employees can all register as members. If you join now, your membership will be paid through December 2014. This will be a very productive day. Lunch, drinks and refreshments will be provided.

If you have questions about the Blueberry Growers Field Day and Trade Show contact John Braswell at 601-795-5558 or [gulfsouthblueberry@gmail.com](mailto:gulfsouthblueberry@gmail.com).

Sincerely,

John Braswell, Ph.D., Executive Secretary

# Gulf South Blueberry Growers Field Day and Trade Show

8:00 AM, October 10, 2013

Blue River Blueberry Farm, Covington County, MS

## Grower Registration Form

Blue River Blueberry Farm at 1876 Highway 532, Mount Olive, MS, is a highly successful 60 acre blueberry farm. It is an excellent example of how good management, close attention to detail and innovative ideas can result in vigorous plants, high yields and the production potential expected from a well-run blueberry farm. All phases of blueberry production is involved including propagation, planting, establishment, harvesting, grading, packing and shipping. Farm tours will be conducted and we'll discuss techniques used to manage this productive blueberry farm. Exhibitors will be on hand to discuss and demonstrate equipment and materials used in blueberry production.

Please complete and return this form before October 1. Registration cost is:

Pre-registered members - \$20.00 per person

Pre-registered non-members - \$30.00 per person

Registration at the door - members \$30.00 per person

Registration at the door - non-members \$40.00 per person

Date \_\_\_\_\_

Name(s) \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_ email \_\_\_\_\_

Registration \$20.00 per member or \$30.00 per non-member \$ \_\_\_\_\_

Membership Dues – Gulf South Blueberry Growers Assn. \$30.00 \$ \_\_\_\_\_

Payment now will pay your membership through Dec. 2014

Total \$ \_\_\_\_\_

Make Checks payable to Gulf South Blueberry Growers Association and mail to:

Gulf South Blueberry Growers Assoc.  
P.O. Box 308  
Poplarville, MS 39470

If you have questions contact: Dr. John Braswell at 601-795-5558 or [gulfsouthblueberry@gmail.com](mailto:gulfsouthblueberry@gmail.com)

### Gulf South Blueberry Growers Membership Form

GULF SOUTH BLUEBERRY GROWERS ASSOCIATION

MEMBERSHIP APPLICATION / RENEWAL

John Braswell, Secretary / Treasurer  
P. O. Box 308  
Poplarville, MS 39470

gulfsouthblueberry@gmail.com

Annual Membership Dues - \$30.00

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Number of Acres planted: \_\_\_\_\_

Age of Plants: 1-2 yrs. \_\_\_\_\_, 3-4 yrs. \_\_\_\_\_, 5-6 yrs. \_\_\_\_\_, over 6 yrs. \_\_\_\_\_

Projected Planting: \_\_\_\_\_ acres within the next \_\_\_\_\_ years

Signature: \_\_\_\_\_

/\_\_\_\_/YES I give my permission to list my name on the Membership List to be distributed to the Gulf South Blueberry Growers Association Membership.

/\_\_\_\_/NO



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## 2013 Harvest Recap

Dr. John Braswell—Gulf South Blueberry Growers Association

The Gulf South Blueberry harvest is winding down. Most growers have completed harvest. A couple of growers are still picking and packing some ‘Powderblue’ and ‘Ochlockonee’ for the fresh market. A small amount of fruit is still being packed for the frozen market. However, most growers are through picking and are pruning their bushes and cleaning their fields.

This has been a very challenging season. The freezing temperatures we experienced March 26 & 27 damaged a lot of blooms and considerably reduced the crop on ‘Climax’ and ‘Premier’. Amazingly, ‘Alapaha’ and ‘Prince’ endured the freeze and had a pretty good crop. After the freeze, Southwestern Mississippi suffered considerable damage from a hailstorm which essentially eliminated the crop in that region. Throughout the harvest season, we have had consistent rains that made it hard to harvest and pack fresh blueberries.

I don’t have official numbers for the season because some fruit is still being packed and harvest numbers are being tabulated. However, preliminary numbers, based on weekly reports, show that around **4,200,000** lbs. of berries were packed and sold. Of that total, **2,750,000** lbs. were packed fresh and **1,450,000** lbs. were packed for the frozen market. This is very good considering the loss of fruit we suffered. Growers did a good job harvesting every marketable berry that was left after our calamities.