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- Stephen Stringer
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# Mississippi

## *Vaccinium* Journal

Volume 3, Issue 1

January-March 2014

### Cold Start to the Year

As I write this it is frigid here in Poplarville. A strong mass of cold air has sunk as far south as central Florida and we are sure feeling it here in south Mississippi. The question is — will this cold damage the blueberries? After consulting with Dr. Donna Marshall, my gut feeling is not really. There may be some mild bud damage, but nothing major (yet). The weather has been cold so far during this season and we have accumulated quite a few chill hours already (see below). We need to be wary of warming trends followed by cold air. Early budbreak followed by freezing temperatures is disastrous and we don't need another year of that in 2014. Also in this issue is the agenda for the upcoming blueberry workshop with several great talks. Foremost among them is one on mechanized harvest for fresh market by Dr. Fumiomi Takeda, an expert in the area. Monitoring pests is a way to save money and gain knowledge, especially with SWD being a challenging pest. Dr. Stringer also gives us a preview of some upcoming cultivar releases. All in all lots to share in this issue.

### Chill Hour Report

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

The number of chill hours reported have been running ahead of the total last year. The numbers are as follow:

Verona = 1016 hr as of Jan 14

Crystal Springs = 776 as of Jan 14

Wayne Co. = 828 as of Jan 14

George Co. = unreported as of Jan 14 (last report 426 on Jan 3)

Jones Co. = 684 as of Jan 14

## Agenda for the 2014 Blueberry Education Workshop

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

1:00-1:30 PM

**Dr. John Adamczyk**

Update on the Blueberry Research Program at the Thad Cochran Southern Horticultural Laboratory

Dr. Adamczyk is the Research Leader at the USDA-ARS Thad Cochran Southern Horticultural Laboratory in Poplarville, MS.

1:30-2:00 PM

**Dr. Eric Stafne**

Potential Micronutrient Deficiencies in Blueberry

Dr. Stafne is an Associate Extension Professor – Fruit Crops associated with the MSU Coastal Research and Extension Center in Poplarville, MS.

2:00-2:30 PM

**Dr. Blair Sampson**

Update on Identification, trapping, and monitoring of the Spotted Wing Drosophila in Mississippi

Dr. Sampson is a Research Entomologist at the USDA-ARS Thad Cochran Southern Horticultural Laboratory in Poplarville, MS.

2:30-2:45 PM **Break**

2:45-3:15 PM

**Dr. Juan Silva, Dr. Frank Matta\*, and Amanda Pegg**

Post-Harvest Handling and Characteristics of Blueberries

\*Presenter: Dr. Matta is a Professor in Plant and Soil Sciences at Mississippi State University in Starkville, MS.

3:15-3:45

**Dr. Barakat Mahmoud**

The Food Safety Modernization Act (FSMA); The Proposed Rule on Standards for Produce Safety

Dr. Mahmoud is an Assistant Professor and Food Safety Extension Specialist associated with the MSU Coastal Research and Extension Center in Pascagoula, MS

3:45-4:45 PM

**Dr. Fumiomi (Fumi) Takeda**

Horticultural and engineering research to improve machine harvest efficiency and to better understand fruit bruising during harvesting

Dr. Takeda is a Research Horticulturist at the USDA-ARS Appalachian Fruit Research Laboratory in Kearneysville, WV.

4:45-5:00 PM **Question, Answer, and Discussion Section**

## Registration Form for 2014 Blueberry Workshop

### Blueberry Growers Educational Workshop

1:00PM to 5PM, February 13, 2014

Mississippi State Univ. Forrest County Ext. Office  
952 Sullivan Drive, Hattiesburg, MS 39401-2714

### Pre-Registration Form

Mississippi State University-Extension Service, USDA-ARS, and the Gulf South Blueberry Growers will present a workshop on Mechanical Harvesting, SWD updates, Food Safety, Plant Nutrition, and other Blueberry Research. It will be a highly informative event. The special guest speaker this year will be Dr. Fumiomi Takeda from USDA-ARS in Kearneysville, WV. Dr. Takeda is an expert in mechanized harvesting of blueberries and other fruit crops.

Please complete and return this form before **February 6**. Registration cost is: \$10.00 per person

Date \_\_\_\_\_

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

Address \_\_\_\_\_  
\_\_\_\_\_

Phone \_\_\_\_\_

email \_\_\_\_\_

Registration \$10.00  
\$ \_\_\_\_\_

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

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

If you have questions contact: Dr. Eric Stafne at 601-403-8939 or [estafne@ext.msstate.edu](mailto:estafne@ext.msstate.edu)

## Monitoring Pest Populations Saves Time and Money

C. Werle<sup>1</sup>, D. Cha<sup>2</sup>, P. Landolt<sup>2</sup>, B. Sampson<sup>1</sup>, D. Marshall<sup>1</sup> and J. Adamczyk<sup>1</sup>, <sup>1</sup>USDA-ARS Poplarville, MS, <sup>2</sup>USDA-ARS Wapato, WA

The spotted wing drosophila (SWD), *Drosophila suzukii*, has emerged as a pest of primary concern for Mississippi blueberry growers, along with producers of many other fruit crops across the country. Unlike other related species of fruit flies that attack damaged or overripe fruits, SWD can infest healthy berries. The economic losses caused by this invasive pest have been substantial, and may exceed 20% depending on crop and location<sup>1</sup>.

Pest monitoring is an effective way for a grower to determine if and when a pest population is emerging. With an invasive pest like the SWD, new locations are being colonized every year, and a grower who has never had a problem may experience considerable losses "overnight". And even for the grower who knows they have had SWD in their crop, emergence times can vary from location to location, depending the microclimates of habitats surrounding their fields.

By deploying and regularly checking SWD traps, a grower will know if and when a chemical control program is warranted. Rather than absorbing the costs in labor, fuel and insecticide for a control program that is set on a pre-determined schedule, actively monitoring your pest population will minimize expense and maximize efficacy. There are added concerns associated with overdependence on insecticides: pest insects can develop resistance to chemicals over time, beneficial non-target organisms can be severely impacted, and secondary pests like spider mites can emerge with serious consequences.

A wide variety of traps are being used to monitor SWD populations, ranging from commercially-produced fly traps fitted with lures, to homemade soda bottle traps baited with vinegar. While there are numerous effective monitoring tools available, personnel at the Thad Cochran Southern Horticultural Lab are helping to develop a lure that specifically targets SWD. This streamlined lure will be more powerful, drawing in flies from further away and in greater numbers, and it will also prevent by-catch of other fly species that can clog up a trap and prevent accurate assessment of the SWD population. In some cases, these other flies can look remarkably similar to the SWD, and may lead to false-positive identifications and expensive chemical control measures that may not be necessary.

For more information on the work being done on the development of a synthetic lure blend for the SWD, see the paper Cha *et al.* (2013)<sup>2</sup>, and keep your eyes open for more publications on this important invasive pest from our team of collaborating scientists.

### References:

1. **Bolda, M. P., R. E. Goodhue and F. G. Zalom. 2009.** Spotted Wing Drosophila: Potential Economic Impact of a Newly Established Pest. Giannini Found. Agric. Econ., Univ. Calif. [http://giannini.ucop.edu/media/are-update/files/articles/v13n3\\_2.pdf](http://giannini.ucop.edu/media/are-update/files/articles/v13n3_2.pdf)
2. **Cha, D. H., T. Adams, C. T. Werle, B. J. Sampson, J. J. Adamczyk, H. Rogg and P. J. Landolt. 2013.** A four-component synthetic attractant for *Drosophila suzukii* (Diptera: Drosophilidae) isolated from fermented bait headspace. Pest Manag. Sci. <http://dx.doi.org/10.1002/ps.3568>

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## Monitoring, cont.

Chris Werle, USDA-ARS



On the left, a male SWD with the prominent spot at the outer leading edge of the wing. On the right, a closely-related Drosophilid (*Leucophenga* sp.) commonly collected in homemade vinegar traps. Several spots occur on the *Leucophenga* wing, which may lead to false positives for the SWD

## New Upcoming Cultivar Releases

Stephen Stringer, USDA-ARS Thad Cochran Southern Horticultural Laboratory

Development of two mid-late season rabbiteye blueberry selections is near completion and permission to release to nurserymen for propagation as new public domain cultivars will be requested in 1st quarter 2014. The some important attributes of one of these selections (tested as MS 282) is firm berries having small scars, very light blue color, and ripening period comparable to that of Powderblue. However berries of this selection are consistently larger than Powderblue. MS 454 is another mid-late season rabbiteye selection that has consistently been highly productive and has also has very good berry quality characteristics.

Development of several other elite blueberry selections is also nearing completion with plants now being propagated via tissue culture. MS 1377, MS 1425, MS 794, MS 1230, and MS 1190 are among these strains that that will be submitted for approval for release in the next 2-3 years. 1377 is an early ripening southern highbush selection that is vigorous, and productive with large very light blue berries with good fruit qualities for the early fresh U.S. market. MS 1425 is another southern highbush blueberry with the most important characteristic being extremely large berries (~5g) that are suitable for a specialty market niche. The other three are rabbiteye selections. MS 794 ripens very early for a rabbiteye and produces large berries (~3g); it has a semi-dwarf plant type which should aid in reduced pruning expenditures. MS 1230 is another relative early early ripening rabbiteye with an upright growth habit that also produces large berries which are borne on large clusters that somewhat resemble that of large grape clusters. MS 1190 is a highly vigorous rabbiteye that produces a plethora relatively small berries (<1.5g) suitable for the baking segment of the processing industry; additionally, it produces light fruit on very long tags (~ 2/3 m) making it desirable as an ornamental for homeowners .



-Continued on Pages 7 and 8-

**New Upcoming Releases, cont.**



**New Upcoming Releases, cont.**



## Blueberry Research Reviews #1

Eric T. Stafne, MSU-ES

### **Title of the Study:**

Mycoflora and Potential Mycotoxin Production of Freshly Harvested Blueberry in Concordia, Entre Rios Province, Argentina

### **Source of the Paper:**

International Journal of Fruit Science.13(3):312-325. 2013.

### **Who did the Study?:**

Munitz, Garrido, Gonzalez, Resnik, Salas, and Montti

### **Where was the Study Done?:**

Concordia Department, Entre Rios province, Argentina

### **When was the Study Done?:**

2009 and 2010

### **How was the Study Done?:**

'Emerald', 'Jewel' and 'Misty' were harvested from ten different fields. Fungi were isolated and identified by using 100 berries that were cut in half and placed on petri dishes with rose-bengal-chloramphenicol agar. They were incubated in the dark for 7 days at 28 C (~82 F). Resulting fungal colonies were subcultured on potato dextrose agar. All fungi were recorded using isolation frequency and relative density. Statistical analysis for relative density was done using asymptotic tests for equality of proportions, and isolation frequency was analyzed by applying a Fischer exact test.

### **Why was the Study Done?:**

The study was conducted to identify mycoflora on three different cultivars and determine whether cultivar had an influence on the amount of fungal contamination, especially those able to potentially produce mycotoxins that could pose a health risk for consumers.

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### **Blueberry Research Review #1, cont.**

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

#### **What Did They Discover?:**

The researchers found several identifiable fungi on the berries. They found 15 on 'Misty' that could potentially produce mycotoxins. The most common were *Alternaria tenuissima* and *Colletotrichum gloeosporioides*, followed by *Rhodotorula* spp. and *Aspergillus niger*. On 'Jewel' they found that *Cladosporium cladosporioides* was most common and *Alternaria tenuissima* was most prevalent on 'Emerald'. Differences were found among the cultivars and between harvest seasons. Reasons for this could include weather conditions during the different years as well as the genetic resistance against these fungi. 'Emerald' and 'Misty' had lower contamination levels than 'Jewel' indicating greater resistance to the fungi.

#### **Interpretation of the Study:**

After reading this interested study I was struck by the fact there was no indication of what the human tolerance thresholds were for these mycotoxins. The authors stated that their presence should be a matter of concern and that further monitoring and testing need to be done. Yet, without data to support that the levels they found could be potentially harmful, this should be of little concern to U.S. blueberry growers right now. I am unaware of any studies that show mycotoxins on blueberries causing health problems. Other crops do have more concerns with mycotoxins (especially grains and corn), but in my opinion this study, although interesting, doesn't necessarily give enough information on why consumers should be concerned about blueberries with mycotoxin-producing fungi. One might say that any mycotoxin level is too much, but more information is needed.