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# Mississippi *Vaccinium Journal*

Volume 5, Issue 2

April-June 2016

## Blueberries are a Worldwide Phenomenon

Blueberries are nothing new to us in North America. They are native in many areas and most of us grew up eating them. However, that is not the case in other regions of the world. I found this out firsthand by attending the International Vaccinium Symposium in Orlando earlier this month. What I can tell you is this — enthusiasm for blueberries is very high! Countries are expanding production by leaps and bounds. You can see more information on the meeting and some highlights from it on pages 10-12. Of course growing blueberries is hard work and not without challenges. Dr. Brannen (UGA) gives an overview of Blueberry Rust, while SWD, marketing, and FSMA opportunities are also covered in this issue. The low chilling in our state didn't cause too many problems but in Florida it is a virtual disaster because they had no chilling at all. The Mississippi chill report is on page 2 and I am working on something new that I hope to have in place by the next issue. But for now, I will keep it under my hat. Happy reading and as always feel free to contact me.

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## Blueberry Jubilee 2016

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

The 2016 Blueberry Jubilee in Poplarville will be held on Saturday, June 11. 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!

## Final Chill Hour Report 2015-2016

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

One consideration when choosing a blueberry cultivar is chilling requirement. A chill hour can vary depending on the model used, but the most common model in this region defines it as the number of hours below 45 °F. This is a requirement for the plant to satisfy its dormancy and thus to grow and fruit normally the following year. In regions where cold temperatures are more common, plants can remain in a quiescent (waiting for a warm up) phase even after their chill hour requirement has been met. However, in warmer climates this may not be the case, so early flowering is a problem in low-chill cultivars. Three locations in the state kept chill hour measurements for the 2015-2016 fall/winter season: Wayne Co., Copiah, Co., and Lee Co.

I think the numbers we obtained this year are fairly representative of the chill hours received. Some of the limitations are: reporting is not all done on the same day or even regularly (for some sites), and there are no designated begin and end dates.

<u>Location</u>	<u>End Number of Chill Hours Recorded</u>	<u>Last date recorded</u>
Copiah Co.	709	March 8
Lee Co.	1315	March 29
Wayne Co.	593	March 1

This year had significantly fewer chill hours when compared to last year. Fortunately, it looks as if the low chilling accumulation won't negatively impact most of us, although I have seen some erratic leafing and bloom in some of the higher chill cultivars in south Mississippi.

As I said last year, we need to figure out a way to get this information to you on a more regular basis. Mississippi does not have a climate center like other states do. Southeastern U.S. states (including Alabama) have an online system that delivers that information with a click of the mouse. I am working with an app developer on campus for to get a way for more consistent chill hour reporting. If you have any suggestions, please let me know.

# Preventive Controls Qualified Individual (PCQI) Course (1 of 2)



**FDA Food Safety Modernization Act (FSMA)**

**Achieve FSMA compliance with a Preventive Controls Qualified Individual (PCQI)**

**FSPCA Preventive Controls for Human Food COURSE**

**May 23-25 2016**  
**(8:00am-5:00pm on 5/23-24 & 8:00am-12:00pm on 5/25, 2016)**

**CREC**  
**1815 Poppas Ferry Road**  
**Biloxi, MS 39532**  
**228-388-4710**  
**Room A-103**



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**Randy Coker**  
**CREC Experimental Seafood Processing Laboratory**  
**3411 Frederic Street**  
**Pascagoula, MS 39567**

## PCQI Course (2 of 2)

**Purpose:**

The major provisions of the Food Safety Modernization Act (FSMA) regulations have already been finalized. The FDA Preventive Controls for Human Food regulation was published on September 17, 2015. It applies to facilities required to register with FDA under section 415 of the Food, Drug, & Cosmetic Act. These facilities must comply if they manufacture, process, pack or hold human food for consumption in the U.S. Compliance with this rule becomes mandatory for large, small, and very small firms in September 2016, September 2017, and September 2018, respectively. **Preparation needs to begin now to ensure that these firms will be ready by the compliance deadlines.**

Facilities will need to have a "Preventive Controls Qualified Individual (PCQI)": someone who has "successfully completed training in the development and application of risk-based preventive controls at least equivalent to that received under a standardized curriculum recognized as adequate by FDA or be otherwise qualified through job experience to develop and implement a food safety plan.

This course has been developed by the Food Safety Preventative Controls Alliance (FSPCA) in collaboration with the FDA. It must be taught by a Lead Instructor for the FSPCA Preventative Controls for Human Food Course. Participants who successfully complete all course requirements will be recognized as Preventive Controls Qualified Individuals (PCQI) who are the only ones qualified to develop and implement a food safety system.

**Participants will receive official FSPCA Preventive Controls Qualified Individual (PCQI) certificate of completion issued by AFDO.**

**Who Should Attend:**

Food Safety Professionals, Maintenance Managers, Production Personnel, Wholesalers, Sanitation Supervisors, Plant Managers, Quality Assurance Managers, Training Supervisors, Lead Technicians, Packaging Supervisors, Regulatory Personnel, Extension Agents, Food Science Students, etc.

**Number of Participants:**

Attendance is limited to 15 students and space is available on a first paid/first registered basis. Cost of the course is \$120 per student (\$50 for a certificate of completion, \$35 for book, and \$35 for shipping/handling and refreshments).

**Course Agenda:**

**Day-1:**

**Welcome and Registration**

- Chapter 1: Introduction to Course and Preventive Controls
- Chapter 2: Food Safety Plan Overview
- Chapter 3: Good Manufacturing Practices and Other Prerequisite Programs
- Chapter 4: Biological Food Safety Hazards
- Chapter 5: Chemical, Physical, and Economically Motivated Food Safety Hazards
- Chapter 6: Preliminary Steps in Developing a Food Safety Plan
- Chapter 7: Resources for Food Safety Plans

**Day-2**

- Chapter 8: Hazard Analysis and Preventive Controls Determination
- Chapter 9: Process Preventive Controls
- Chapter 10: Food Allergen Preventive Controls
- Chapter 11: Sanitation Preventive Controls
- Chapter 12: Supply Chain Preventive Controls

**Day-3**

- Chapter 13: Verification and Validation Procedures
- Chapter 14: Record-keeping Procedures
- Chapter 15: Recall Plan
- Chapter 16: Regulation Overview

**Wrap Up**

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PLEASE DETACH THIS SECTION AND RETURN TO:

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**Course Instructor:**

**Dr. Barakat Mahmoud, Ph.D.**  
**FSPCA Lead Instructor**  
**HACCP Lead Instructor**  
**SCPs Lead Instructor**  
**A. Professor & Food Safety Extension Specialist, Mississippi State University**  
**Phone: (228) 762-7783 Ext. 301**  
**Email address: bm547@msstate.edu**

## Marketing Tools for Mississippi Agritourism and Local Foods Workshop

Growing Your Brand

### Workshop 1

Marketing Tools for Mississippi Agritourism and Local Foods

May 23 and 24

Pearl River Community College

Poplarville, Mississippi

### May 23

Registration Opens at 9:30am – White Hall, Main Campus, Pearl River Community College, Poplarville, MS

10:00 Welcome – Pearl River Community College

Project Overview – The Importance of Agritourism in the Big Picture of Agriculture – Sharing the Message in Your Community – Rachael Carter- Mississippi State Extension, Center for Government and Community Development

10:30 Building Blocks of Strategic Marketing – Judith Phillips- Stennis Institute, Mississippi State University

11:00 Break

11:15 Decision Making to Grow Your Market – Judith Phillip- Stennis Institute, Mississippi State University

Lunch – Resources for You – Mississippi Department of Agriculture and Commerce, Mississippi Development Authority, Mississippi Sustainable Agriculture Network

1:00pm – Chairman, Herb Frierson, Mississippi Legislature

1:30pm Making Targeted Technology Marketing Work for Your Business – Lauren Colby Lindley- Mississippi State University Extension

2:00pm Let's Get Real – Using Tourism Technology Tools to Cultivate Your Online Presence – Jamie Varner- Mississippi State University Extension

-continued Page 6-

## Marketing Workshop

2:30pm Break

3:00pm Creating a Virtual Tour – Zac Ashmore- Mississippi State University Extension Service

3:30 pm- Branding for Mississippi Agritourism – Ben Muldrow- Arnett, Muldrow, and Associates

***Information about your Marketing Plan Development and Requirements to work with advertising experts in Workshop 2.***

### May 24

Local Foods Agritourism Tour – Come and here tales of the region and experience and interactive tour of local foods producers. Boots and comfortable clothes required. *It is recommended that participants bring water, sunscreen, and bug repellent for this adventure.*

**9:00 am** – Board buses for Local Foods Agritourism Tour – Tour to be led by Mississippi author, Martin Hegewood, MSU Extension Center for Government and Community Development

Stop 1 – Country Girl Creamery, Meet the dairy herd, see the milking process, and learn about value added production such as cheese, ice cream, grass fed beef, and soaps.

Stop 2 – Red Gate Bison Ranch – Take a trailer ride to feed the bison, and learn about how this small business is developing new markets and producing their specialty products.

Lunch – Enjoy a Picnic Lunch in beautiful Poplarville

Stop 3 – Shroomdom – Wear your boots and come prepared to learn how to gather and identify gourmet mushrooms. You will enjoy learning about how this family has become one of the most unique and well acclaimed stops for adventurers in Mississippi. Topic of discussion will include value added products, marketing, and ingenuity.

**3:30 pm** – Arrive back at Pearl River Community College

**\*Schedule is subject to change additional stops may be added.**

Registration for the workshop is open and available at:

<http://gcd.msucare.com/calendar/growing-your-brand-marketing-tools-ms-agritourism-and-local-foods>

If you have any questions feel free to call Rachael Carter (662-325-8329) or William Poindexter (662-325-2523)

## Measuring Spotted Wing Drosophila Impacts – Your Help Needed!

The recently funded USDA NIFA Specialty Crop Research Initiative (SCRI) project, Sustainable Spotted Wing Drosophila (SWD) Management for United States Fruit Crops, is surveying fruit growers with two goals:

1. To measure the impact of SWD throughout the United States
2. To guide our project activities over the next four years.

This five-year project, coordinated through the Burrack Laboratory at NC State University, is developing national research and extension projects to minimize the impacts of SWD. They include new management tactics and programs, improved insecticide efficacy for SWD, and information and training on SWD for growers, extension agents, and others. In order to achieve this and ensure that the research and extension efforts match the needs of growers, the project is collecting information on the impacts of SWD on small fruit growers, current management practices and preferences, and your requirements for better management of SWD. Participation is voluntary, and the survey does not collect personally identifying information, and the data will only be analyzed and reported in aggregate form.

We would like to get feedback from as many growers as possible! Please complete the survey:

<https://survey.ncsu.edu/swd/>



## Early Blueberry Rust

Phil Brannen—University of Georgia

We have received numerous field reports of early (March and April) blueberry rust in 2016, likely as a result of a milder than average winter and the recent heavy rainfall observed in many blueberry production areas. It is a good time to start scouting for rust if you have not already done so. Russel Ingram, a graduate student in Plant Path at the University of Georgia, has also observed active sporulation of rust on old leaves from 2015 that have not abscised. The blueberry IPM guide at [www.smallfruits.org](http://www.smallfruits.org) provides information on specific fungicides for rust management. If a variety is susceptible to rust, early defoliation can result, and this will reduce yields next year as a result. Scouting is required to determine whether rust is developing in specific varieties. Many fungicides applied for other leaf spots will also have rust activity; this is particularly true of the strobilurin (Abound, Pristine, etc.) and DMI fungicides (Proline, Quash, Tilt, Orbit, Indar, Bumper, etc.). In Mississippi, commercial blueberry producers should be concerned about post-season leaf spot management, and should consider fungicide application as needed to prevent premature defoliation due to rust, Septoria, and anthracnose leaf spots. This disease is seen on Southern Highbush cutlivers mainly. Let me ([eric.stafne@msstate.edu](mailto:eric.stafne@msstate.edu)) if you are experiencing this problem.



Figure 1. Early blueberry rust symptoms on 'Rebel'. Photo courtesy of Bob Boland (retired county agent, Georgia).

## Ericoid Mycorrhizal Fungi and Soil Nutrient Uptake of Two Rabbiteye Blueberry Cultivars

Eric Stafne, Frank Matta, Casey Barickman — Mississippi State University

Ericoid mycorrhizal fungi (EMF) increase plant access to nutrients via a symbiotic relationship with the root system. EMF have been used previously in nursery production of blueberry plants and were shown to be beneficial. Field studies, using highbush blueberry (*Vaccinium corymbosum*), were less conclusive. In the present study, three-year old rabbiteye (*Vaccinium virgatum*) cultivars Tifblue and Climax were inoculated with EMF species (*Oidiodendron maius* (OM) and *Pezizella ericae* (PE)) in Mississippi to determine soil nutrient uptake. Nutrient uptake response was cultivar dependent. However, in some cases, EMF enhanced mineral uptake by the blueberry plants, especially OM. Iron (Fe) uptake was found to be enhanced over the control in 'Tifblue' but not in 'Climax'. Combining OM and PE appeared to suppress Fe uptake when compared to independent treatments as well as the control. A few negative effects were observed from the EMF treatments and several potentially positive benefits. More work should be done to expand the scope of using EMF in blueberry production and fully identify any economic benefits to using these mycorrhizal fungi species over conventional production practices.

### The Take Away

The primary goal of this work was to determine if EMF could be part of a more efficient blueberry production system. EMF did not have much effect on the rabbiteye cultivars used, so more work is needed to expand the scope of using EMF in blueberry production in Mississippi. It will be necessary to determine appropriate EMF species that can inoculate and colonize rabbiteye blueberries while persisting in a field production system. More work is also needed to fully identify any economic benefits to using EMF species over conventional production practices.

The above was presented at the International *Vaccinium* Symposium held in Orlando, Florida from April 10-14, 2016. See the next page for more information on the Symposium.

## International *Vaccinium* Symposium

Eric Stafne — Mississippi State University

In April I was fortunate enough to attend the International *Vaccinium* Symposium that was held in Orlando, Florida. In all there were 275 attendees from 30 different countries. The Symposium consisted of both academic presentations and field visits. The website for more in-depth information is here: <http://conference.ifas.ufl.edu/vaccinium/>. From there you can find the [Program book](#) and the [Abstracts of all presentations](#). Below I share some photos of the Symposium:



We visited a packing house where blueberries were just starting to get run down the line. This facility also packed peaches.



Of course what outing is complete without a little adversity and suspense? Stuck in the sand, but we forged on anyway with the help of another bus.

## Symposium, Continued

Eric Stafne — Mississippi State University



Production practices differ in Florida from those in Mississippi. Overhead irrigation on the left and plants in 25 gallon pots below.



What Symposium would be complete without the presentations? Lot of good ones to hear and learn from.

## Symposium, Cont.

Eric Stafne — Mississippi State University

A four-day conference is sure to have many exciting items of interest. Here I try to relay a few of them:

- Turkey has a small but burgeoning blueberry industry that expects to grow to 2,000 hectares in the next 10 years
- China has over 30,000 hectares of blueberries in production and expects to expand greatly in the next decade
- Unmanned Aerial Vehicles (UAV) are being used in Canadian lowbush blueberry areas to assess the field for weed pressure and future predictive modeling of crop yields
- A Study from Univ. of Georgia showed the Rabbiteye blueberries were 65% firmer, higher in total sugars (especially sucrose), and higher in fiber than SHB.
- In Florida, wild hosts of Spotted wing drosophila include: nightshades, wild blackberry, wild grape, sparkleberry, holly, and Frasier photinia. Also there is a loss of efficacy of Entrust against SWD.
- 75% of blueberry gall midges pupate within 48 cm of blueberry plants.
- In plants with Blueberry Scorch (*Xylella fastidiosa*) reducing plant stress will reduce severity of the symptoms.
- In Georgia, Pristine and Elevate were shown to not be effective against *Exobasidium*. The best control is Lime Sulfur or Sulforix as a dormant spray followed by Captan.
- Blueberry twig blight (*Phomopsis vaccinii*) was first thought to be a northern North American disease but it has been found in a wider area now. It has symptoms similar to *Botryosphaeria*.
- Viruses of concern in the blueberry world: Blueberry latent virus, blueberry scorch virus, blueberry shock virus.
- Mexico now produces more than 12,000 tons of blueberries. Biloxi is one of the cultivars.
- Georgia acreage expanded by 63% from 2009 to 2014.
- Farmgate value of blueberries in Alabama increased by 13% in the last decade.
- Do not overfertilize Vernon and Titan, they do better with lesser amounts of Nitrogen.

You can view a recap of the entire conference from my perspective here: <https://storify.com/EStafne/international-vaccinium-symposium-2016>



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## Another Award for this Publication

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

I was just informed in the last few days that the *Mississippi Vaccinium Journal* has been awarded an American Society for Horticultural Science Extension Division Education Materials Award. This is a national award and it is sweet justification for all the effort of doing this newsletter for the past 5 years. It will be given at the American Society for Horticultural Science Annual Conference in Atlanta in August.

A couple years ago it received the Southern Region American Society for Horticultural Science Blue Ribbon Extension Award as well. I hope that you find the information contained in these newsletter useful, but I know it can be improved. So, if you have any suggestions for future content or wish to be a contributor, please let me know.

A big thanks goes to all of the constant readers out there, thanks for being a big part of making this award possible.