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A (Mostly) Good Year

The weather was great (no late freezes that did substantial damage) and harvest was 2 to 3 weeks earlier than normal leading to good prices and good yields. All in all the blueberry year in South Mississippi was pretty darn good. However, as we all know, if you are in agriculture everything is not all wine and roses. The Spotted Wing Drosophila pest became a major scourge this year and unfortunately it is here to stay. Other issues with labor continue to cause problems. Two things the GSBGA association are doing to address these issues are to have a field day that had a big focus on mechanization (done on October 11, 2012 — see a recap of the event in this issue) and partnering with MSU-ES and USDA-ARS to present the upcoming "Emerging Pest Workshop" to be held in January in Hattiesburg (see more info on page 3). We all take this issue very seriously and need to find a way to combat it. Make no mistake — we cannot fix it in one year, but we can make strides to get it under control. Overall though it was a good year to be a blueberry grower and we expect that to continue for the future as well.

A Change to Note

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

Last time, in the article by Sampson et al. regarding Spotted Wing Drosophila, in Table 1 the recommendation for control using Malathion 57EC was to use 10 oz per acre. This is correct, but only if you are using an ultra low volume (ULV) sprayer, which essentially creates a fog. For more common sprayer types the proper amount is **1.8-3.0 liters per acre**, or as the label states. In any event, when in doubt the label is the absolute authority — and the law. If you missed this important article the first time around, it can be found at this link (http://msucares.com/newsletters/vaccinium/index.html), along will all other past issues, or go to page 2.

Spotted Wing Drosophila: A New Invasive Pest

Blair Sampson, Eric Stafne, John Adamczyk, Stephen Stringer, and Donna Marshall

Table 1. Insecticides that may help manage populations of Spotted-Wing Drosophila (SWD) and other *Drosophila* species on Mississippi berries. Insecticide registrations are constantly being revised, so please be sure to apply only those recommended products legal for your State and crop by checking the label.

Insecticide Product[1] (trade name)	Chemical Name (active ingredient)	IRAC class	Product applied per acre	Re-entry Interval[2]	Pre-harvest Interval[3]	Labeled for use on?				
						Blueberry	Blackberry	Strawberry	Raspberry	Comments
Brigade WSB	Bifenthrin	3A	16 oz	12 hrs	0 d	yes	yes	yes	yes	
Mustang Max	Z-Cypermethrin	3A	4 oz	12 hrs	1 d	yes	yes	**no**	yes	No more 6 applications per season
Mustang 1.5EC	Z-Cypermethrin	3A	4.3 oz	12 hrs	1 d	yes	yes	**no**	yes	
Danitol 2.4EC	Fenpropathrin	3A	16 oz	24 hrs	3 d	yes	yes	yes	yes	
Pyganic 1.4EC	Pyrethrins (organic)	3A	16 – 64 oz	12 hrs	0 d	yes	yes	yes	yes	
Malathion 57EC	Malathion	1B	1.8—3 L	12 hrs	1 - 3 d	yes	yes	yes	yes	1d PHI for blueberries
Imidan 70W	Phosmet	1B	1.3 lbs	24 hrs	3 - 7 d	yes	yes	**no**	yes	An excellent first application
Delegate WG	Spinetoram	5	6 oz	4 hrs	1 – 7 d	yes	yes	**no**	yes	3d PHI for blueberries
SpinTor 2SC	Spinosad	5	6 oz	4 hrs	1 – 7 d	yes	yes	yes	yes	3d PHI for blueberries
Entrust SC	Spinosad (organic)	5	2 oz	4 hrs	1 – 7 d	yes	yes	yes	yes	3d PHI for blueberries

[1]Mention of a trademark, warranty, proprietary product or vendor does not constitute a guarantee by the USDA or MSU and does not imply approval or recommendation of the product to the exclusion of others that may be suitable.
[2]Re-entry interval (REI) is the time after a pesticide is sprayed when personnel can safely re-enter the field.
[3]Pre-harvest interval (PHI) is the time that must elapse after spraying before harvesting can resume. PHI may vary for a product depending on the crop that it is sprayed on.

Upcoming Workshop on SWD, Exobasidium and More

Eric T. Stafne—Mississippi State University, Fruit Specialist

Mississippi State University-Extension Service, USDA-ARS, and the Gulf South Blueberry Growers will present a workshop with focus on Spotted Wing Drosophila, Exobasidium, Bacterial Scorch and other important topics. We encourage you to attend this important workshop that will give you the latest information in combating these pests.

The workshop will be held on **Thursday, January 17, 2013** for blueberry growers and other fruit growers concerned about these emerging issues.

The workshop will be held from **1-5pm** at the Mississippi State University Forrest County Extension Office. The address of the office is **952 Sullivan Drive, Hattiesburg, MS 39401-2714** .

Guest speaker for the event will be Dr. Oscar Lieburd from the University of Florida (photo below) and Sam Erwin, an Indiana blueberry grower. Other speakers will include Dr. Blake Layton (MSU), Dr. Blair Sampson (USDA-ARS), Dr. Barbara Smith (USDA-ARS), Dr. David Ingram (MSU).

More information will be available closer to the event time, but please plan to attend now. You cannot afford to miss the information that will be presented!

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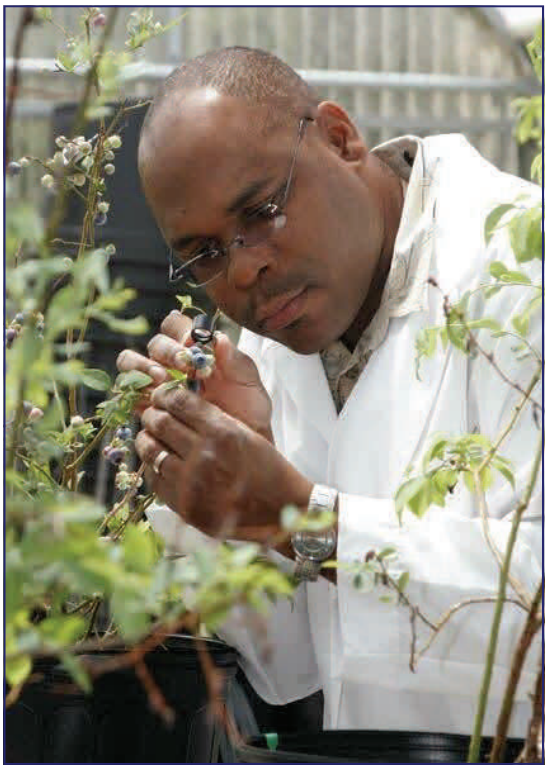

For more information contact Dr. Eric Stafne at 601-403-8939 or estafne@ext.msstate.edu

Gulf South Blueberry Growers Association Field Day and Trade Show Recap

John Braswell, Ph.D., Secretary and Treasurer, GSBGA

The Gulf South Blueberry Growers Association held a successful Field Day and Trade Show at the Giles Blueberry Farm, outside of Waynesboro, Mississippi, October 11, 2012. The event was well attended by Blueberry Growers from across the Gulf South Region with 193 registered growers from Texas to Florida. The Trade show consisted of 33 exhibitors which included 62 people. In addition, a number of local supervisors, Community and Economic Development Personnel and Bankers who work closely with the Blueberry Industry were in attendance. The total attendance was about 300 people. The weather was perfect for the outside event. A lot of activities were underway during the day with Farm Tours, Wind Machine Demonstrations, Irrigation Workshops, Equipment and Harvester Exhibits and a wide variety of blueberry supplies and equipment were demonstrated and displayed for the growers to examine. An excellent lunch was served and a good time was had by all.

The Field Day was an excellent opportunity to see blueberry management and production techniques and learn about innovative ways to grow and produce blueberries. The Giles Farm, located at 985 Denham-Buckatunna Creek Road, Waynesboro, MS, owned by Tom and John Giles, is a well-managed, 75 acre, blueberry farm that has incorporated good management techniques and innovative ways to establish and produce blueberries. It is an excellent example of how close attention to detail has resulted in vigorous plant growth and high yields. They have developed a procedure to efficiently and economically harvest and pack large volumes of high quality fruit. The farm displays a progression of innovations that have been developed and added each year to improve the efficiency of the operation. Growers were able to tour this highly productive farm and the efficient processing facility and discuss the techniques used to manage this exceptional blueberry farm. We appreciate Tom and John Giles opening their operation to the group and allowing the growers to see the techniques they use to make their farm a success.

The Trade Show was one of the best displays of blueberry equipment and supplies to have been held in the Gulf South Area. Equipment dealers from all over the United States were on hand to demonstrate and discuss their equipment. Some of the exhibitors included:

Blueberry Harvesting Equipment – Five manufacturers of blueberry harvesting equipment were on hand including: Oxbo International (formally Korvan) from Lynden, OR; Littau Harvesters from Stayton, WA; BEI International from South Haven, MI; McKibbon Mfg from Grand Junction, MI and Butch Rhoton with Brewt Power Systems of Merced, CA. These manufacturers represent all of the blueberry harvester manufacturers in America and exhibited equipment suitable for the largest farms as well as economical equipment options that will efficiently harvest small commercial operations. There were mechanical harvesters on display for every size blueberry operation.

GSBGA Field Day and Trade Show Recap, cont.

John Braswell

Blueberry Grading Equipment - An important aspect to mechanically harvesting fresh quality blueberries is having access to good quality grading equipment. Five companies brought their equipment for the blueberry growers to examine: A&B Packing Equipment from Hartford, MI; Lakewood Processing Equip. from Holland, MI; WECO Sorting and Automation from Woodland, CA; BBC Technologies from South Haven, MI and McKibbon Mfg. from Grand Junction, MI. These companies manufacture the finest grading equipment on the market today. Representatives were on hand to discuss and demonstrate the blueberry grading and packing equipment. It was an excellent opportunity to see all of the grading equipment manufacturers in one location with their newest equipment on display.

Freeze Protection Equipment - Cascade Wind Machines of Yakima, WA, the Orchard-Rite Wind Machine Representative was on hand to discuss how wind machines can protect the blueberry crop from late spring freezes and demonstrate how they work on the Giles' Farm.

Pruning Equipment – a representative from Brewt Power Systems of Merced, CA was on hand to demonstrate pneumatic pruners. This pruning equipment is used very efficiently on the Giles farm to maintain and invigorate their bushes.

Tractors and Blueberry Equipment – Chapman Tractor, Company of Waynesboro, MS; Bennett's Tractor Service of Waycross, GA; Southern Tractor Company of Hattiesburg, MS; Equipment, Inc. / Bobcat of Jackson and Hattiesburg, MS; Chemical Containers, Inc. of Lake Wales, FL and Laurel Yamaha of Laurel, MS were on hand with tractors, equipment, sprayers and implements to help growers with establishment of new plantings and maintaining current acreage. Also on display were forklifts for the packing shed and side by sides and ATVs for versatility in farm management needs. Professionals with these companies were on hand to demonstrate the equipment and answer questions.

Irrigation Equipment – Representatives from Irrigation Mart Inc. of Ruston, La; Poly Drip LLC of Baton Rouge, LA and Jain Irrigation of Tangerine, FL were on hand to help growers with their irrigation needs and assist with designing an efficient system to apply water and fertilizer to blueberry fields.

Blueberry Farm Supplies -Representatives from Agri-AFC LLC of Hattiesburg, MS; Island Grove Ag Products of Hawthorn, FL; TWC Distributors of Sarasota, FL; Delta Ag Formulations of Greenville, MS; Tall Harvest, LLC of Hattiesburg, MS and TotalGro Soluble Fertilizer of Winnsboro, LA were on hand to discuss horticultural supplies, fertilizer formulations, distribution techniques and crop protection products as well as other horticultural products to help maximize blueberry yields, increase efficiency and decrease cost.

GSBGA Field Day and Trade Show Recap, cont.

John Braswell

Blueberry Packaging Materials – Representatives from Monte Packaging Company of South Haven, MI; Southland Container, Inc. of Flora, MS; PCA-Packaging Corporation of America of Thomasville, GA and FormTex Plastics Corp. of Huston, TX were on hand to discuss packaging options and products that can help fine-tune marketing and sell blueberries to more lucrative markets.

Blueberry Nurseries – Representatives from Ambers Blueberry Nursery of Waynesboro, MS; Cornelius Nursery of Manor, GA and Island Grove Agricultural Products of Hawthorn, GA were on hand to discuss blueberry varieties and help growers with their plant needs.

Morning-Glory Mulch of Petal, MS was on hand to discuss mulch products and mechanically apply mulch beneath blueberry plants.

A program was held at 8:30 AM to briefly describe the Giles Farm and the techniques and products used that make the Giles Farm Successful. The rest of the day was spent visiting with exhibitors and other growers and touring the Farm. Scientist from MSU and USDA-ARS had an information Booth to discuss Insect and Disease control as well as other cultural practices for blueberry production. The event was over at 5:00 PM and growers left with knowledge of new technology and new techniques to make their farms more efficient and more profitable. Comments from growers and exhibitors were positive and all said they are looking forward to next year's event.

Photos from the GSBGA Field Day and Trade Show

Eric Stafne, MSU-ES

Photo 1: Oxbo Harvester

Photo 2: Littau Harvester

Photo 3: BEI International Harvester

Photos from GSBGA Field Day and Trade Show, cont.

Eric Stafne

Photo 4: Processing line equipment

Photo 5: Cascade Wind Machine

Photos of the GSBGA Field Day and Trade Show, cont.

Eric Stafne

Photo 6: Dr. Blair Sampson, USDA-ARS, being quizzed on the potential effects of Spotted Wing Drosophila on blueberries. Dr. Sampson had a microscope set up along with a rotating photo slide show so that those interested could learn to properly identify this pest. Dr. Barbara Smith (not shown), USDA-ARS, was also on hand to provide guidance on disease issues. Mississippi State University also provided blueberry management literature for attendees.

African Fig Fly: Nuisance or Pest?

Chris Werle, Dr. Blair Sampson, and Dr. John Adamczyk, USDA-ARS Poplarville, MS

Several new challenges have been brought to our attention during the blueberry season of 2012, including the exotic-invasive Spotted Wing Drosophila (SWD), *Drosophila suzukii* (Matsumura). SWD is attracted to the odors given off by fermented fruit (alcohol or vinegar), so personnel from the Thad Cochran Southern Horticultural Lab (TCSHL) in Poplarville have implemented a wide-ranging SWD monitoring program using alcohol/vinegar traps this spring. This monitoring research has yielded much interesting data on the insect community in and around blueberry orchards, including the discovery of a new MS record for both Genus and Species of Drosophilid, *Zaprionus indianus* (Gupta). Commonly known as the African fig fly (AFF), it has become established as an important pest of commercial fruit production in tropical areas of the Americas (Vilela 1999). Valuable crops including figs and longans have been impacted from Brazil to Panama, and AFF has been collected from a variety of hosts in Florida as early as 2005 (van der Linde et al. 2006). Its impact on the Mississippi fruit industry is not yet known, but we report here a description of this potentially-destructive fly, along with recommendations for limiting damage.

A native of tropical regions in Africa, AFF measures approximately 3.5 mm, with a very striking pair of white stripes that extend dorsally from the antennae to the tip of the thorax. Two more shorter stripes extend laterally across the post-pronotum to the wing base. On the head, these white stripes are bordered medially by black stripes and laterally by the distinctive red eyes, while the thoracic stripes are bordered on either side by the black. These stripes contrast strongly with the otherwise yellow-orange body, making for a rather attractive little fly.

Biological research conducted on AFF has shown they can survive an average of 82 (male) to 93 (female) days, with number of offspring averaging 58 per female (Setta and Carrereto 2005). In the same study, development time was approximately 19 days from egg to adult. While it is possible that this data may differ markedly from what happens in the field in Mississippi, it is likely that these flies are capable of producing numerous generations in a season.

Research conducted in Florida has shown that AFF can be reared from over a dozen species of fruiting plants, but in most cases the infested fruits were collected from the ground or were otherwise damaged (Steck 2005). The only exceptions were *Malpighia emarginata* (Barbados cherry) and *Dimocarpus longan* (longan), neither of which are grown in Mississippi (van der Linde et al. 2006). Of concern to Mississippians is the fact that AFF can infest healthy, undamaged fig fruits, with fig production being reduced by 40-50% in some areas of Brazil (Vilela 1999). The prevalence of figs grown in the MS home landscape will provide ample habitat for this new pest, and similar to SWD, a wide host range indicates that it may be able to survive on numerous wild hosts. AFF has even been collected in a National Forest far from any commercial orchards (van der Linde et al. 2006), leading us to believe that eradication of this fly is unlikely, and effective control may also prove difficult.

African Fig Fly, cont.

Chris Werle, Blair Sampson, John Adamczyk, USDA-ARS Poplarville, MS

While direct damage from AFF to MS fruit crops may not become commonplace, the advent of the SWD along with other primary insect pests will provide the opportunity for AFF to thrive in orchards, and possibly into packing houses. As with most insect pests, monitoring will be vital to the successful control program, and AFF is readily collected with the same vinegar/etoh traps that have proven so effective with SWD. Once detection occurs, preventative insecticidal sprays can be applied in the same manner recommended in our previous pest alert for SWD (Sampson et al. 2012). As always, please check with your local County Agent and refer to product labels for correct usage. Additional cultural controls can be utilized, including the removal of wild native hosts like wild grape, dewberry, pokeweed, mulberry and elderberry. If sanitation is practical, removal of berries from the ground may further prevent AFF from establishing large populations in your orchard.

Research is being planned and conducted by TCSHL personnel and our cooperators to develop new and more effective control measures for use in fruit crop IPM, including better cultural practices, the encouragement of natural enemies, and to answer the questions below:

What % of traps had AFF? What was their population numbers compared with SWD? What time of year did they start to show up?

See image on the next page to see what the fly looks like in comparison to a SWD fly.

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African Fig Fly vs. Spotted Wing Drosophila

African Fig Fly (left) and SWD (right). Note larger size and defined stripes on the AFF.

Blueberries in China

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

Recently, Dr. Stephen Stringer, USDA-ARS, had the opportunity to visit China. The following are some of his observations (along with those he relayed from Dr. David Creech, SFA University) that I have adapted on their emerging blueberry industry.

The forests of Northern China near Yichun are home to wild blueberries, primarily *Vaccinium uliginosum* - also known as the bog bilberry, that is receiving increased attention as a crop. However, it's the highbush, lowbush, southern highbush and rabbiteye blueberries of North America that are being planted heavily. China is on a fast track to more acreage and production. Vigorous marketing and promotion of blueberries has been highly successful in increasing domestic consumption and demand for fresh blueberries. The processing industry in China has vigorously expanded the into juice, wine and other products, and the premium pack fresh market is also on the upswing with growing popularity in Shanghai, Beijing, and other large cities, home to a rising class of wealthy citizens.

Blueberry products are everywhere in China. Dried, flaked, juices, in pastries, etc. are all common and widely accepted. The public is also educated on the health benefits of blueberries, plus Chinese like the flavor.

China will be increasing acreage and blueberry growers are becoming more and more skillful as they gain experience with this new crop. There is every reason to believe that China's blueberry industry will be growing at a fast pace for many years. Although most blueberries and products will be for domestic consumption, China will likely compete in the Asian markets.

Even though the Chinese are making great strides in blueberry production, significant problems facing China's blueberry growers include high pH soils, lack of or expensive organic matter for use in field establishment, water issues, etc. Cultivars possessing adaptation to China's mineral soils will likely be the greatest limiting factor. However, China's government is pouring dollars into blueberry production, genetics, and market development research for blueberry products. Regardless, it is projected that with both investor spending and government farm subsidies that China could have plantings of as much as 100,000 acres of blueberries in the next 10 – 12 years.

China will undoubtedly become a major player in world blueberry production, but competition from emerging industries in other countries such (Mexico for example) will likely affect U.S. growers in the shorter term.

See photos of Chinese blueberry production on the next two pages.

Chinese Blueberry Production Photos

Photo 1: Harvesting Southern Highbush Blueberries near Namjing

Photo 2: New Southern Highbush Blueberry planting near Namjing.

Photo 3: Blueberry Harvest in Yuchen Province, North China.

Chinese Blueberry Production Photos, cont.

Photo 4: Half-high blueberry planting in Yuchen Province, North China.

Photo 5: Nursery in North China with over 2 million blueberry plants.

Photo 6: Same Nursery as in photo 5.

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Opportunity to Provide Feedback

Eric T. Stafne, MSU-ES

This issue represents the final issue for 2012. I have had a lot of fun putting these newsletters together and I hope they are useful and educational for you. As with many of our Cooperative Extension activities, feedback from those receiving information is very important. Therefore I would like to extend this opportunity to all who read this newsletter (and any of the past newsletters) to tell me what you liked about it or what needs to be improved.

Any feedback can be sent to me at **estafne@ext.msstate.edu**. I will compile any response that I get and go through it carefully so that the next volume in 2013 is even better.

Thanks for reading the Mississippi Vaccinium Journal.

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