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Mississippi

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A New Invasion

This year proved to be a good one for blueberry growers in Mississippi; however, it was not without new problems. In April we had reports of a serious fungal disease, Exobasidium leaf and fruit spot, which Dr. Barbara Smith covers in this issue. Later in the season, an even more ominous pest appeared creating havoc wherever it was found — the spotted wing drosophila (SWD). SWD is a serious pest of many fruit crops and is becoming widespread all over the U.S. Dr. Blair Sampson et al. detail the pest and how we need to be aware of its presence. Dr. Eric Stafne recaps the seminar on SWD held in June in Poplarville. Of course there are others that may be on the horizon as well (Brown Marmorated Stink Bug, anyone?), but for now we need to tackle those in front of us. On the positive side, Dr. John Braswell gives an update on the harvest year and the upcoming field day in October. We hope this newsletter gives you some insight into the upcoming challenges and how we can overcome them together.

Recap of the SWD Seminar

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

On June 12, 2012 at the Thad Cochran Southern Horticultural Laboratory in Poplarville, MS, Dr. Landolt presented on the topic of the new pest, Spotted Wing Drosophila (SWD). This insect has been in the United States for a few years, but is now spreading into Mississippi. Much of the research done on this pest has been done in Oregon and Michigan, where large acreages of multiple fruit crops were affected. SWD is a priority to consider because it is a threat to many soft fruits like blueberries, blackberries, strawberries, etc. The fly can oviposit into ripening fruit pre-harvest, instead of other fruit flies that just attack overripe fruit. There are numerous wild hosts for this fly and no known natural checks (predators) are in place at this time.

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Recap of the SWD Seminar, cont.

Eric T. Stafne—Mississippi State University, Fruit Specialist

Much of the work Dr. Landolt has done is in the area of attractants and baits. These are used for detection of the insect and for monitoring of its presence in the field. Currently, baits are not optimized to catch the fly with as much specificity as is needed. Baits, as currently configured, do not catch enough flies, catch too many non-target flies, are messy, are not long-lasting, and provide inconsistent results. At present, the best lure is a wet trap containing a vinegar (2%; key component is acetic acid), wine (7%; key component is ethanol), and water mixture (remainder). Both vinegar and wine are attractants, but when used together are much more effective.

Unfortunately, right now not much is known about the SWD in our environment. Questions exist on how long they live, when they will attack fruit, where they come from, and how to control them. It is believed that the SWD can live year-round, feeding on wild host fruit and flower nectar even during the winter. They will not breed over the winter though, but will seek shelter in protected areas during cold spells.

The key to control is beginning a spray regimen. Three chemical pesticides are suggested for use: Imidan, Malathion, and Mustang Max. Imidan should be used only once and as the first spray since it has a long pre-harvest interval (PHI). Malathion and Mustang Max should be used in rotation and have a much shorter PHI (1 day). Scouting for the pest using traps will be a key component of when to begin sprays. The SWD prefers to attack fruit when color change in the berry occurs, so scouting should be set up prior to that time.

Drs. Landolt, Sampson, and Adamczyk (all USDA-ARS) have put out traps in blueberry fields here in Mississippi to learn more about the presence of SWD and its timing. We will bring you updates on this pest as we learn more about it. (see Page 3)

You can watch the seminar entitled “Fly Taxonomy to Fly Trapping: A Tortuous Path to a Chemical Lure for the Spotted Wing Drosophila” in its entirety (about 90 minutes) by going to this link: <http://prmm.ext.msstate.edu/UI/Content/Secure/Login.aspx?IsSingleSignOn=true&user=anonymous&nodeld=499>. You may need to download a plug-in to view it (you will be prompted to do so if you need it).

Oregon State University (<http://horticulture.oregonstate.edu/group/spotted-wing-drosophila>), Michigan State University (<http://www.ipm.msu.edu/SWD.htm>), UC-Davis (<http://www.ipm.ucdavis.edu/EXOTIC/drosophila.html>), USDA-APHIS (http://www.aphis.usda.gov/publications/plant_health/content/printable_version/Drosophila_Suzukii.pdf), Washington State University (<http://www.tfrec.wsu.edu/pages/swd>), University of Florida (http://entnemdept.ufl.edu/creatures/fruit/flies/drosophila_suzukii.htm), NC State (<http://ncsmallfruitsipm.blogspot.com/p/spotted-wing-drosophila.html>), and University of Arkansas (http://www.uaex.edu/Other_Areas/publications/PDF/FSA-7079.pdf) are sources of more information. I encourage you to access these websites and read the available research literature.

As updates become available, I will send them out to growers via email (mainly through the Gulf South Blueberry Growers Association), my blog (msfruitextension.wordpress.com), and in the Mississippi Vaccinium Journal (<http://msucare.com/newsletters/vaccinium/index.html>). If you wish to get the information directly from me via email please send your email address to me at estafne@ext.msstate.edu.

Spotted Wing *Drosophila*: A New Invasive Pest of Mississippi Berries

Blair Sampson¹, Eric Stafne², John Adamczyk¹, Stephen Stringer¹, and Donna Marshall¹

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The Spotted Wing *Drosophila* (SWD), *Drosophila suzukii*, belongs to a group of tiny flies commonly called pomace flies, vinegar flies, or small fruit flies. They are not related to the larger “true” fruit flies (Tephrididae) such as the blueberry maggot fly. They are instead related to other *Drosophila* species such as *D. melanogaster*, which because of their remarkable reproductive rate, are often cultured for genetic research. *Drosophila* species have antennae and mouthparts that are keenly attuned to the odors of over-ripening or damaged fruit. As such, these flies are commonly found amassing in pantries and packing sheds. Odors emitted by fermenting fruit (alcohol and acetic acid) are the most powerful attractants for SWD and other *Drosophila*. The main behavioral difference between SWD and native drosophilids is that SWD females use their double-bladed and serrated egg-laying tube to insert eggs below the skin of a healthy intact berry. Within 3 days, these eggs hatch into white larvae (maggots) that burrow deeper into fruit. Sweeter (higher °brix) fruit tend to harbor more SWD eggs and larvae. As egg laying continues for SWD, berries begin to leak, then deflate (collapse) and, in the case of blueberries, drop to the ground. Berries covering the ground just below the bush are usually the first sign of a heavy SWD infestation and it is here where larvae will complete their development. Egg-laying and larval feeding by SWD may hasten berry deterioration by introducing yeasts and molds that attract various insect scavengers. Broods of SWD may go undetected well after infested fruit have entered the human food chain.

SWD is known to infest about two dozen cultivated plant species worldwide and has the greatest potential to severely damage thin-skinned berry crops, particularly cherries, strawberries, blackberries, and blueberries. SWD is not a native to Mississippi. US populations of SWD originated somewhere in its home range of Asia: Korea, Japan, China, Southeast Asia, Sri Lanka or India. Here, SWD feed on a broad range of hosts including wild and cultivated berry crops as well as on grapes, peaches, plums, cherries, Asian pears and apples. Adult SWD seem to prefer fruits that turn red before or after ripening. In 2008, red berries in California and other western states (strawberries, cherries, and raspberries) were first to be heavily attacked by SWD. By this time, SWD populations were already firmly entrenched across much of the US and their eradication impossible. No quarantines currently exist within North America. However, anticipated reductions in fruit exports can be expected if SWD populations go unchecked. In five commercial berry crops alone in just three US States (CA, OR, and WA), early economic losses to SWD ranged between 20% and 100% with a total loss in annual revenue of \$500 million. US berry losses to this tiny fly could well exceed two billion pounds each year, not to mention fruit loss on smaller organic farms, in “Pick-Your-Own” (PYO) operations, and in home gardens.

In North America, the fly now occurs as far north as Michigan and British Columbia, Canada. The fly is also surviving well in the balmy southeastern US, and should continue to do so as long as host fruit and flowers are available. During the 2009 berry season, SWD suddenly appeared near Tampa, Florida; they continue to thrive along the peninsula, eventually spreading throughout the State and beyond into North Carolina and Georgia. Between 2010 and 2011, SWD was confirmed in most States in eastern North America. During this same period, SWD were first reported in Mississippi, but in 2012, the fly began to destroy sizeable portions of blackberry, strawberry, and blueberry crops. Blackberries and strawberries were the most heavily infested with rates as high as 95% in our small experimental plots.

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Spotted Wing Drosophila: A New Invasive Pest, cont.

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

Blueberry infestations were more modest, ranging from 5% to 50% in a few fields. However, our monitoring stations indicated that SWD populations steadily grew as the blueberry harvest season progressed from May - July.

The most obvious sign of SWD activity in a berry field is the presence of the male flies with their distinct black spot on each wing tip. Female SWD and both sexes of many native *Drosophila* lack these apical wing spots. The few species whose males bear spotted wings will have multiple spots located in different positions from the spots on SWD wings. Male SWD also have two distinct black spots on their front legs, which are actually comb-like hairs that aid in courtship. Both sexes of SWD, when compared with those of their native cousins, appear more robust; banding patterns on their abdomens also differ. A hand lens or jeweler's loupe can be handy for identifying male and female SWD on sticky traps or those floating in a vinegar-baited trap (described below).

Early detection of adult SWD on a berry farm is critical because larval infestations may be field-wide even as adult SWD populations remain small. Various traps can be built to determine the presence and absence of adult SWD. Important features include holes for flies to enter the trap as well as a bait—typically apple-cider vinegar. A sticky card is optional; however, the vinegar itself will lethally capture a number of adult SWD. We constructed our traps from 20 oz plastic soda bottles; a plastic bowl was used as an awning to prevent rainwater and bird droppings from diluting our baits. SWD prefer shadier habitats. Therefore, adults may be detected earliest when traps are placed along field edges and in fruiting bushes.

Once SWD are detected on a farm, begin preventative insecticide sprays as soon as each cultivar begins to break color. Insecticide options for berry protection from SWD are many ([see table on Page 5](#)). The three principal classes of insecticides registered for adult SWD control include the pyrethroids (natural and synthetic, IRAC class 3A), organophosphates (IRAC class 1B), and naturalytes (IRAC class 5). Sprays should be made weekly and reapplied after a heavy rain. However, it is highly recommended that insecticidal products from a different IRAC class be rotated with each new application for resistance management. Please, refer to the table for general guidelines and check with your local County Agent or refer to the product's label for legal usage, application directions, safety precautions, and restrictions. Please be aware that insecticides will kill only adult SWD. Larvae and pupae of SWD are safely inside berries and can only be killed by disposing of those infested fruit in the bush and on the ground. Such prudent crop sanitation will greatly reduce over-summering populations of SWD. Re-infestations of the crop by SWD may be further reduced by removing or pruning back such wild hosts as wild grape, dewberry, pokeweed, mulberry, and elderberry. It may be even necessary to separate blueberries from more susceptible crops like blackberries and ever-bearing strawberries. The threat SWD poses to thicker-skinned grapes such as muscadines is unknown. Undoubtedly, damaged and diseased muscadines will suffice as suitable breeding habitat for SWD.

In insecticide-free habitats surrounding a farm, natural enemies such as parasitic wasps can help maintain low SWD populations. Recently discovered in Mississippi are two native parasitoids of *Drosophila*: *Leptopilina bouardi* and *Trichopria* sp. (possibly *T. drosophilae*). Females of these tiny wasps kill their larval hosts by injecting venoms that prevent *Drosophila*'s strong immune system from smothering their eggs.

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Spotted Wing *Drosophila*: A New Invasive Pest, cont.

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)	IRA C class	Product applied per acre	Re-entry Interval ²	Pre-harvest Interval ³	Labeled for use on?				Comments
						Blueberry	Blackberry	Strawberry	Raspberry	
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 I.5EC	Z-Cypermethrin	3A	4.3 oz	12 hrs	1 d	yes	yes	no	yes	
Danitol 2.4EC	Fenprothrin	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	10 oz	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

¹Mention 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.

²Re-entry interval (REI) is the time after a pesticide is sprayed when personnel can safely re-enter the field.

³Pre-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.

Sources and additional information:

Beers et al. 2011. Biology and management of spotted wing *Drosophila* on small and stone fruits. Year 1 reporting cycle. SCRI / SWD Stakeholder Advisory Committee Meeting. Oregon State University. Website: <http://horticulture.oregonstate.edu/content/biology-and-management-spotted-wing-drosophila-small-and-stone-fruits-year-1>.

Bolda, M. P., R. E. Goodhue and F. G. Zalom. 2009. Spotted Wing *Drosophila*: potential economic impact of a newly established pest. University of California, Giannini Foundation of Agricultural Economics. 13(3): 5 - 8. Website: http://pmp.wsu.edu/downloads/SWD-v13n3_2.pdf.

Burrack, H. et al. 2012. 2012 Southeast Regional Blueberry Integrated Management Guide. University of Georgia College of Agricultural and Environmental Sci. Bulletin #48. Website: <http://www.smallfruits.org/SmallFruitsRegGuide/Guides/2012/BlueberrySprayGuide2012.pdf>.

Biosecurity Australia. 2010. Draft pest risk analysis report for *Drosophila suzukii*. Biosecurity Australia, Canberra. 104 pp.

Hallem, E. A. and J. R. Carlson. 2004. The odor coding system of *Drosophila*. Trends in Genetics. 20(9): 453 – 459.

Horton, D. 2012. Spotted Wing *Drosophila* alert for commercial fruit shippers. University of Georgia Extension, Dept. of Entomology.

Lee, J. C., D. J. Bruck, H. Curry, D. Edwards, D. R. Haviland, R. A. V. Steenwyk and B. M. Yorgey. 2011. The susceptibility of small fruits and cherries to the spotted-wing drosophila, *Drosophila suzukii*. Pest Management Science. 67(11):1358-67.

Markow, T. A. and P. M. O'Grady. 2006. *Drosophila*: a guide to species identification and use. Elsevier Academic Press. New York, N.Y. 259 pp.

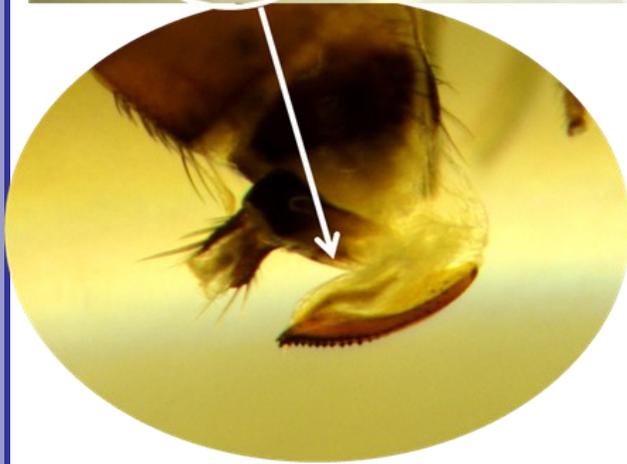
Prévost, G. D. Rollinson, and S. I. Hay. 2009. Advances in Parasitology: parasitoids of *Drosophila*. Elsevier Academic Press. New York, N.Y. 381 pp.

Price, J.F., O. E. Liburd, C. R. Roubos, and C. A. Nagle. 2009. Spotted Wing *Drosophila* in Florida Berry Culture. University of Florida, Florida Cooperative Extension Service. Publication ENY-861. Website: <http://edis.ifas.ufl.edu/in839>.

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Spotted Wing Drosophila: A New Invasive Pest, cont.

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Serrated "saw-like" egg-laying tube of a Female SWD



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Spotted Wing Drosophila: A New Invasive Pest, cont.

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Spotted Wing Drosophila: A New Invasive Pest, cont.

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Potential Natural Enemies of Spotted Wing Drosophila



Diapriid wasp parasitoid
Trichopria sp. (male)



Figitid wasp parasitoid
Leptopilina sp. (female)

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Spotted Wing Drosophila: A New Invasive Pest, cont.

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



SWD from a single vinegar-baited SB trap

Vinegar-baited soda bottle (SB) trap in a blueberry bush

Exobasidium Leaf and Fruit Spot

Dr. Barbara Smith, Research Plant Pathologist USDA-ARS Poplarville, MS

During the past five or so years blueberry growers in south Mississippi have discovered the disease Exobasidium leaf and fruit spot on some of their blueberry plants. In the past this disease was considered to be of minor importance, occurring infrequently on isolated farms. But in recent years it has been reported more often and has been responsible for significant fruit loss on some farms and resulted in at least one farm being abandoned. The fruit spot stage of this disease was identified in North Carolina in 1997, and the disease has now been reported on rabbiteye, highbush, and southern highbush blueberry cultivars throughout the blueberry growing areas of the southeastern United States.

The presence of Exobasidium leaf spot on a plant is first apparent in early spring. Leaf spots are round, about ¼ inches in diameter and light green on the upper side of the leaf (Figure 1a). On the underside of the leaf, spots are pure white due to the velvety growth of the fungus. Spots may darken as they age and are slightly thicker than the rest of the leaf, but they do not develop galls (Figure 1b).

Exobasidium fruit spot causes significant economic loss because infected berries are unmarketable and must be hand removed from the packing line before berries are packed for shipping. A green spot develops on an infected berry and the berry does not ripen normally causing it to be misshapen (Figure 1c). Fruit spots are about ¼ inches in diameter, sunken, and tinged with a red color. The spots do not become necrotic as the berries ripen and infected berries remain firm. Tissue in the affected area of the berry has a tough, chewy texture that is undesirable.

Exobasidium leaf and fruit spot is caused by the fungus, *Exobasidium vaccinii*, which is closely related to the causal pathogen of red leaf disease of cranberry and lowbush blueberry that occurs in the northeastern United States and Canada. On cranberry and lowbush blueberry the fungus is systemic within the plants which means that it cannot be controlled with fungicides and infected plants must be removed from the field. Based on symptom expression the fungus does not appear to be systemic on blueberries grown in the southeastern U.S., and we do not recommend the removal of infected plants. We assume that the fungus is overwintering on or in infected bud scales and new leaves and fruit are infected each spring; however, the disease cycle has not been documented. It is possible that the initial infection in production fields is from native *Vaccinium* plants growing near the fields.

Some of the farms on which Exobasidium leaf and fruit spot has occurred have poor air circulation in and around the planting. To improve air circulation, trees growing around the fields should be removed. More severe disease symptoms have been associated with plants growing near ponds and low areas with periodic standing water which contributes to extended periods of high humidity. Within a planting, air circulation can be improved by pruning out excessive growth to open up the canopy. This also will allow fungicides to penetrate the interior of the plant better.

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Exobasidium Leaf and Fruit Spot, cont.

Dr. Barbara Smith, Research Plant Pathologist USDA-ARS Poplarville, MS

Dr. David Ingram, Mississippi State University Extension Plant Pathologist, compared the efficacy of nine fungicide treatments for control of Exobasidium in 2009. The fungicides Pristine and Elevate were most effective in reducing the percentage leaf infection compared to the untreated control. Pristine, Elevate, Switch, and Indar were most effective in reducing the percentage of infected fruit. Pristine and Indar are both recommended for control of mummy berry, Elevate is used to control Botrytis Blight and Fruit Rot, and Switch is a broad spectrum fungicide for control of various fruit and foliar diseases. Observational data show that blueberry fields receiving fungicides to control mummy berry usually have not had a problem with Exobasidium. Fungicide application to control Exobasidium should begin pre-bloom as leaf buds are beginning to emerge and continue at a 7 to 10 day interval through bloom until preharvest (Table 1). It is important to alternate between fungicides with different modes of action as indicated by their FRAC group number. Note that both Indar and Orbit are in the same FRAC group and have preharvest intervals (PHI) of 30 days.

To better understand the importance of this disease in Mississippi and surrounding states, I ask that blueberry growers in the area let me know if Exobasidium leaf and fruit spot has occurred on their farm. If so, when was it first observed, on which cultivars, were fungicides applied to control it or to control mummy berry? Blueberry growers may email this information directly to me at Barbara.Smith@ars.usda.gov.

References

- Brannen, P., Scherm, H., Cline, W.O., and Ingram, D. 2011. *Exobasidium* Fruit and Leaf Spot: An Emerging Concern on Blueberries in the Southeast. *Small Fruit News* 11: 1-2.
- Cline, W.O. 1998. An Exobasidium disease of fruit and leaves of highbush blueberry. *Plant Disease* 82:1064.
- Caruso, F.L., and Ramsdell, D.C. eds. 1995. *Compendium of Blueberry and Cranberry Diseases*. American Phytopathological Society, St. Paul, MN.



Figure 1. Exobasidium Leaf Spot viewed from upper and lower surfaces (a, left). Older leaf spots darken as they age (b, center). Green blueberry fruit infected with Exobasidium Fruit Spot (c, right). Pictures by Dr. Eric Stafne, Mississippi State University, Fruit Specialist.

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Dr. Barbara Smith, Research Plant Pathologist USDA-ARS Poplarville, MS

Table 1. Fungicides recommended for control of Exobasidium Leaf and Fruit Spot. Applications should begin pre-bloom and continue through green tip (leaf buds) and pink bud (flower buds) until preharvest.

Fungicide (<i>Mode of Action</i>)	Formulation/Acre	PHI	Comments
Pyraclostrobin + boscalid (FRAC 11 + 7) (Pristine WG)	18.5 to 23 oz	0 days	No more than 2 sequential applications of Pristine should be made before alternating with fungicides that have a different mode of action. Do not apply more than 4 applications of Pristine per acre/crop year.
Cyprodinil + fludioxonil <i>FRAC 9 + 12</i> (Switch 62.5WG)	11 to 14 oz	0 days	Do not apply more than 56 oz. of product/acre/year. Make no more than 2 sequential applications before using a fungicide with a different mode of action.
Fenhexamid <i>FRAC 17</i> (Elevate 50WDG)	1.5 lb	0 days	Do not make more than 2 consecutive applications without switching to a fungicide with a different mode of action. Do not apply more than 6.0 lb product per acre/year.
Fenbuconazole <i>FRAC 3</i> (Indar 75WSP, Indar 2F)	2.0 to 6.0 fl oz	30 days	Do not make more than 4 applications or apply more than 8 oz of Indar 75WSP /acre/year.
Propiconazole <i>FRAC 3</i> (Orbit 3.6E, Tilt 3.6E, Bumper 41.8 EC, PropiMax EC)	6.0 fl oz	30 days	May be applied by either ground or aerial application. Do not apply more than 30 fl oz /acre/season. More effective when allowed to dry ahead of a rain.

Table adapted from 2012 Southeast Regional Blueberry Integrated Management Guide, H. Burrack, P. Brannen, B. Cline, F. Hale, D. Horton, M. Czarnota, K. Jennings, D. Lockwood, Paul Smith, and Powell Smith (editors). <http://www.smallfruits.org/SmallFruitsRegGuide/Guides/2012/BlueberrySprayGuide2012.pdf>

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2012 Harvest Season Update

Dr. John Braswell, Secretary, Gulf South Blueberry Growers Association

Dear Blueberry Grower:

The 2012 Blueberry Harvest Season has wound down and most growers have completed harvest or are cleaning up their fields with their final harvest. This was a good year for blueberries in the Gulf South. Harvest started the first week of May, 3 weeks earlier than normal and the weather was perfect for harvest. Temperatures were cool and the dew point was low. Growers were able to get a lot of fruit out of the field, in excellent condition and pack them for the fresh market. We are still tabulating the final numbers but it appears this year's harvest is around 8 million pounds.

As with every year, A few problems came up that we had to handle and we need to think about before next year and make preparations to deal with because we are sure it will be back again.

The spotted wing drosophila (SWD) made its appearance in our area. This insect has been a pest in other US blueberry growing regions but it is the first time we had to deal with it here. Most growers first noticed the problem by seeing soft leaky fruit on the ground beneath the plants or some growers saw leaky fruit on the grading line and when inspected, saw the leakage was not coming from the stem scar but from holes in the side of the fruit. The damage was from the spotted wing drosophila that pokes a hole in the fruit with a barbed ovipositor and deposits an egg which hatches in about 3 days. The resulting larvae cause the fruit to soften, leak and fall from the bush. The incidence of the pest was spotty early in the season but seemed to be widespread by season's end. Before next season, we will be educating ourselves on the life cycle and the best way to control this insect. We will discuss this at the Field Day, October 11 at the Giles Farm in Wayne County. Other blueberry growing regions have dealt with this pest and it can be controlled but it is important we are prepared to take the necessary steps to control it or the crop will be lost.

Many growers dealt with labor issues this season. The Department of Labor made numerous visits to area growers and inspected records and labor practices. It took a lot of time and effort on the part of the growers. Several growers were successful in mechanical harvesting their blueberries and packing them for the fresh market this season. It is becoming apparent we need to reduce the amount of labor in our operations. Advancements in blueberry harvesters and grading equipment in recent years have made it possible to mechanically harvest and pack blueberries for the fresh market. We will discuss this at the October 11 Field Day. Two blueberry harvester companies will be on hand to show the latest advancements in mechanical blueberry harvesters and several manufacturers of packing line components will be on hand to show their equipment. Of course an important aspect of packing machine harvested fruit is proper handling of the fruit so it maintains its quality through the picking and packing process. The Giles have been successful at this and we will look at this process at the Blueberry Field Day.

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2012 Blueberry Growers Field Day Registration

Blueberry Growers Field Day 8:00 AM, October 11, 2012 Giles Farm, Wayne County, MS

Registration Form

The 2012 Blueberry Growers Field Day will be held at The Giles Farm, 985 Denham-Buckatuna Creek Road, Waynesboro, MS. Owned by Tom and John Giles, this highly successful blueberry farm is an excellent example of how good management and close attention to detail can result in vigorous plants and high yields. The Giles have incorporated a number of innovative techniques to increase their efficiency and profitability. We will tour this highly productive farm and discuss the techniques used to vitalize and manage this productive blueberry farm.

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

Name(s) _____

Address _____

Phone _____ email _____

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

Dr. John Braswell
P.O. Box 308
Poplarville, MS 39470

Questions? Contact Dr. John Braswell at 601-795-5558 or 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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2012 Harvest Recap, continued

Dr. John Braswell

The 2012 Blueberry Growers Field Day will be held October 11 at the Giles Farm in Wayne County. This meeting is shaping up to be a very informative day. A number of exhibitors have already signed up to be on hand to show and discuss blueberry harvesting equipment, grading equipment, wind machines for frost protection, tractors and farm equipment, labor contractors and people who know the ins and out of acquiring labor. Many other exhibitors have expressed interest in participating in the Field Day and are currently signing up. I will keep you posted of the participant and the program as it develops over the next few weeks.

The Giles Farm is an excellent example of a well-managed blueberry farm that has incorporated good management techniques and innovative ways to plant and produce blueberries. It is an excellent example of how close attention to detail can result in vigorous plants, high yields and the ability to pick and pack large volumes of high quality fruit. This farm is a progression of innovations developed and added each year to improve the efficiency of the operation. You will be able to tour the farm and processing facility and see the methods that have been incorporated to produce high quality blueberries. We appreciate Tom and John Giles opening their operation to our group and showing us their keys to success.

Attached is a registration form (see page 14). Please fill it out and return it to the address on the form. I will be keeping you updated as this Field Day develops. If you have not renewed your dues in the Gulf South Blueberry Growers Association, a membership form is attached (see page 15). By renewing your membership you will save on Field Day registration and receive valuable information throughout the year and be able to participate in Association sponsored activities.